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This dissertation is dedicated to the memory of my father
Longitudinal Changes in Chinese Adolescent Girls’
Physical Growth, Social Contexts, and Mental Health
during the Transition from Primary to Junior High School

Jia Guo
DECLARATION

This thesis has been composed by me, is my own work, and has not been submitted for any other degree or professional qualification.

Jia Guo
I dedicated this thesis to the memory of my father. I would also like to dedicate this thesis to all my students who embarked my thoughts on taking this journey of doing research with young people in China.

This study could not have been completed without the help from many important and special people who gave me support when I most needed it. First and foremost, I would like to express my sincere gratitude to Dr Joanne Williams for her wholehearted support of this study, including not only guidance, suggestion, and constructive criticism which have contributed immensely to the evolution of my ideas on this study, but also unfailing faith in my ability to complete this work. For this I am forever thankful. I am also very much thankful to Jo Inchley for her help with the questionnaire composition regarding items from Health Behaviour in School-Aged Children (HBSC) protocols. To Cristina Iannelli in Moray House School of Education, for her course and help on quantitative data analysis with SPSS. I also have particular cause to value the help from Colin Chandler and Emily Gribbin in School of Health and Social Science.

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ABSTRACT

This study explores the longitudinal changes among a sample of early adolescent girls in China throughout their transition from primary to junior high school. Early adolescence is a time of multiple transitions and is associated with a range of mental health outcomes in Western literature. This study will be the first to examine developmental changes in early adolescence among Chinese girls.

A sample of 425 Chinese girls completed a self-report questionnaire at three time points: the end of primary school, the start of the first year of junior high, and the end of the first year of junior high. The questionnaire comprised a range of measures relating to bodily changes, puberty, and gender issues, social changes in family, peers and school, and a series of standardised measures of mental health including: life satisfaction, self-esteem, psychosomatic symptoms, loneliness, anxiety, depression, and coping.

Results were analysed using ANOVA to examine longitudinal changes in measures. Following an overview of the interrelations between all the variables in this study using One-way ANOVA, longitudinal results were reported in three chapters: physical changes, social changes, and mental health. Findings relating to physical growth highlighted the co-occurrence of pubertal development and school transition. Significant increases in body dissatisfaction and social comparisons of physical appearance were identified, indicating girls’ growing self-consciousness about their physical changes. Specifically, apart from weight concerns, an interesting finding of this study was that girls in this study reported consistently higher and significantly growing concerns about their height stature. A significant decline in positive feelings of gender typing was also identified.

In terms of social development, there were no longitudinal changes in the overall quality of attachment with parents or peers, as well as peer norms, suggesting that although variance exists across individuals, these constructs remained longitudinally stable in this sample. On the other hand, a significant decline was found in parental involvement. In contrast to the negative outcomes reported widely in Western literature following the primary to middle school transition, this study revealed an overall positive school
transition experience. To be specific, overall school climate was reported to be more positive in junior high school, girls’ personal goals and school behaviours were improved longitudinally, and school transition problems were significantly smaller than expected prior to the transition.

Analysis of developmental changes in mental health revealed no changes in global life satisfaction and depression. However, self-esteem in general significantly reduced over time; simultaneously and interestingly, psychosomatic health, loneliness, and overall anxiety significantly improved after the transition. Furthermore, longitudinally girls adopted a wider range of coping strategies to deal with stressful events, although both the selection and efficacy evaluation varied across coping strategies among individuals.

This study is the first to explore Chinese girls’ development during early adolescence. Developmental trends are established in Chinese adolescent girls’ physical, social, and psychological domains. Despite evidence consistent with the universalities of this life stage as established in Western literature, this study also highlights cultural differences in the developmental experiences of Chinese adolescents. Taken together, the findings reveal a positive developmental phase with little evidence of increases in adaptation difficulties or mental health outcomes. These empirical findings are in contrast to Western research, which often highlights early adolescence as a time of adaptation difficulties. Overall, this study contributes to the literature on adolescent development. The role of culture and implications for future research and practice are also discussed.
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1.1 Aims and outline of this thesis

This thesis will argue that early adolescence provides an ideal time to study developmental transitions, because this period of life accommodates multiple rapid, and sometimes simultaneous changes, in different domains. It is also a time of major biological change with substantial implications for psychological change.

Despite the research interest in early adolescence, limitations exist. Longitudinal studies of the developmental changes in this life stage are needed. Compared with growing empirical evidence and theories on adolescent development based on Western populations, studies on adolescent development in China are scarce.

Therefore, to fill in the research gap in studies on adolescent development, this thesis aims to provide evidence and argument whether Western-established models are applicable to Chinese context, thus contribute to the knowledge of generality of classic theories, and to generate implications for local practice.

Figure 1.1 A study of longitudinal changes in Chinese adolescent girls’ physical growth, social contexts, and mental health during the transition from primary to junior high school.
A central concern of this thesis is the debate about whether adolescence as a period of “storm and stress” is cross-culturally universal or whether cultural differences lead to an alternative account of adolescent development. Currently, some researchers have highlighted important cultural differences, whereas others have also shown universalities across cultures. However, both camps were often limited by the fact that they either focused on genetic or maturational factors (“nature”; e.g., Hall, 1904), or on factors relating to “nurture”. Subsequently, these theories were succeeded by studies that emphasize relations between the individual (biological) and contextual ecological variations (including culture and history) that were involved in the course of adolescent development (Lerner & Steinberg, 2009). Based on such understanding, this thesis will examine the issues of adolescent development by testing a broad range of concepts tackling the physical, social, and psychological domains of the adolescent, by adopting a three-phase longitudinal study of adolescents in China (see Figure 1.1). By utilising a large battery of standardised measures at each phase (see Chapter 5 for questionnaire composition), this thesis will chart the developmental changes in multiple indicators of Chinese adolescent development. The empirical data obtained from this thesis will be used to examine the following three main research questions:

Research Question 1: What are the longitudinal changes in Chinese adolescents’ physical growth?
Research Questions 2: What are the longitudinal changes in Chinese adolescents’ social contexts?
Research Question 3: What are the longitudinal changes in Chinese adolescents’ mental health?

Within each main research question, subsidiary questions will be tested within these themes. The subsequent literature review chapters will thus discuss existing research evidence of both main research questions and secondary constructs in details in relation to each developmental domain, respectively.

To report the study, which was driven by these three main research questions, this thesis comprises ten chapters, including four literature review chapters (including this chapter; Chapter 1-4), a method chapter (Chapter 5), a descriptive chapter of variables’ interrelations (Chapter 6), three main
empirical results chapters (Chapter 7-9), and a concluding general discussion chapter (Chapter 10).

This chapter serves as a general introduction to the thesis, focusing on the general research topics and relating cultural backgrounds. Chapter 2 focuses on research exploring physical growth during adolescence, and the developmental changes over time. Chapter 3 reviews literature on adolescents’ social contexts and relative developmental changes, including: family, peers, and schools. Chapter 4 carries on the discussion on literature with research evidence on mental health during adolescence. Chapter 5 then gives a comprehensive description of the methodology and data analysis procedures employed in this study. The first results chapter (Chapter 6) gives an overview of the interrelations of all the variables in this study, followed by three empirical chapters of longitudinal changes. The main empirical results of analysis are reported in the corresponding order to three main research questions as well as the literature reviews chapters. Chapter 7 presents data on longitudinal changes in physical growth of Chinese adolescents to answer Research Question 1. Chapter 8 presents results on longitudinal changes in social contexts of Chinese adolescents to respond to Research Question 2, and Chapter 9 investigates Research Question 3 by presenting findings on longitudinal changes in Chinese adolescents’ mental health. The final chapter of this thesis, Chapter 10, concludes the thesis with a general discussion on the key findings in this study, the implications of these empirical results, limitations of the study, and recommendations for future research.

After zooming out for an outline of the thesis, this chapter will return and proceed with more details to the different issues aforementioned. It briefly introduces early adolescence as an ideal period of time to study developmental changes. This is followed by an overview of the debate of whether this time stands for “storm and stress”. The controversies in research evidence throughout history were identified and raised the question of whether this hypothesis exists in China. To understand the developmental changes during this stage, two theoretical frameworks are introduced. They also provide theoretical guidance to this study. The chapter proceeds with an overview of cultural factors, which may influence adolescent development in China, and concludes with a summary of the key issues and their implications for the thesis.
1.2 Introduction

1.2.1 Early adolescence – “The ontogenetic laboratory”

The passage from childhood into and through adolescence is composed of a series of transitions that unfold gradually, sometimes simultaneously, and touch upon the adolescent’s physical and physiological, through cognitive, emotional, and behavioural, to the social relational and institutional aspects (Coleman, 1974, 2011; Ellis, Boyce, Belsky, Bakermans-Kranenburg, & van Ijzendoorn, 2011; Meaney, 2010; Williams & Currie, 2000).

The most obvious and dramatic changes are the biological and physical transformations associated with puberty. The young adolescent experiences shifts in body size and shape, increases in hormones and cognitive capacities, changes in brain structures, which are linked to their physical abilities and maturation (Ellis et al., 2011), as well as awareness of gender identities and sex roles (Hill & Lynch, 1983). Parallel to the aforementioned individual developmental transitions in this life period, early adolescents also face the multiple contextual transitions, in relation to major institutions of society, including: family, peers, schools, and broader community (Crockett & Crouter, 2014). To be specific, alongside the biological changes in the physical domains, adolescents also face the development of self and cultural identities, transformations of relationships with parents and peers, and formations of friendships and social networks, which linked to the transition from dependence on parents and families to growing intimacy with peers and greater independence (Brown & Larson, 2009). Around the same times, many adolescents are also undergoing the transition from primary to junior high school, adapting to new physical environments, educational demands, and social relations (e.g., Wigfield & Eccles, 1994, 2002; Eccles & Roeser, 2011).

Many of these developmental changes happen during the early years of adolescence (van der Laan, Veenstra, Bogaerts, Verhulst, & Ormel, 2010), and over half a century ago researchers proposed that the young person roughly at the age of 9-13 was experiencing unique developmental changes which were beyond the existing knowledge and theories based upon childhood or adolescence (e.g., Blair & Burton, 1951). With such recognition and research evidence, the notion of early adolescence started to be accepted as a legitimate developmental stage in the science of adolescent development (Thornburg,
1.2.2 The “storm and stress” hypothesis

Given the multiple transitions across many domains during early adolescence, the adaptational capacities of adolescents are often put into test (Urdan & Midgley, 2003), and distress and problems in emotional and psychological domains, as well as subjective wellbeing, self-perceived competence and coping abilities become salient among some adolescents as they navigate these transitions and sometimes even beyond (Simmons & Blyth, 1987). Indeed, evidence points to early adolescence as a critical period of time in terms of internalizing and externalizing mental health difficulties, including, increases in psychological distress, declines in self-esteem and motivation, and growing risk for academic failure and delinquent behaviours (Baker, Grant, & Morlock, 2008). In a word, early adolescence is a period of “storm and stress” (Hall, 1904). To take a further look at this term by tracing back to its origin, Hall (1904) borrowed from the German writings of Goethe and Schiller, who wrote novels full of idealism, commitment to goals, revolution against the old, passion and feelings. There is certainly a sense of parallel between the themes from these authors and the psychological development of adolescents in the modern literature. Building on such understanding, Brooks-Gunn (1991) conceptualized “storm and stress” as two overlapping yet different dimensions. “Stress” is defined in terms of the potentially stressful life events

1983). Nowadays the age bracket of early adolescence varies from one research to another, and in this study, early adolescents referred to young persons of 11-14 years old (Steinberg, 1993). Very few developmental periods are characterised by so many changes at so many different levels (Ellis, et al., 2011), and early adolescence was therefore regarded as an “ontogenetic laboratory” for many researchers in developmental science (Steinberg & Lerner, 2004). As a result, early adolescence has received wide research interest in Western literature (Reitz, Dekovic, & Meijer, 2006), and still calls for scholarly attention. Despite such enquiries which may take various forms, one of the key questions has been on how successfully the adolescents cope with these physical, contextual, and emotional changes that occur to them during early adolescence (La Fontana & Cillessen, 2010; Lerner & Lerner, 2013). Following this line of questioning, the next session will generally review the premise of adolescence as a period of “storm and stress” as established in Western literature (e.g., Hall, 1904; Cote, 2013).
that characterised this life stage in adolescence; while “storm” refers to emotional instability and outburst of temporary negative behaviours.

Much of previous research on adolescence has been focused on testing this hypothesis (e.g., Larson & Ham, 1993; Simons & Blyth, 1987), however, there are also researchers questioned this view by arguing that although early adolescents in this life stage may experience some difficulties, yet most adolescents are free from “storm and stress” in their transition from childhood into adolescence (Arnett, 1999; Wigfield & Eccles, 2002), and refined the statement as “although adolescence may be stormy and/or stressful for some, it is not typically a developmental problem, nor is it inevitable or ubiquitous” (Hollenstein & Lougheed, 2013).

In keeping with this position, research on adolescent development has been shifting from focusing on whether this period is inevitably stormy and stressful, to examining variations associated with adolescents and their developmental contexts involved in the course of adolescent development, including culture and history (Bronfenbrenner, 1979, 2005; Bronfenbrenner & Morris, 2006). Underpinning the complex variations and relations in adolescent development and the contexts where the development is embedded, theoretical frameworks of adolescent development will be reviewed in the next session, with focus on: focal theory (Coleman, 1974, 2011), and bioecological system model (Bronfenbrenner & Morris, 2006).

1.3 Theoretical frameworks of adolescent development

Paralleled with research on testing the hypothesis of adolescence as a time of “storm and stress”, many researchers developed theoretical frameworks to answer the question of why early adolescence is stormy and stressful to some adolescents, while others have no difficulties navigating the developmental transitions in this stage.

1.3.1 Cumulative effects of developmental transitions and the focal theory of adolescence

As outlined above, adolescence, especially early adolescence, accommodates multiple developmental transitions in many aspects. Moreover, early adolescence is not only a period of physiological, cognitive, and social
transformations, but also a time when multiple transitional changes occur simultaneously (Simmons & Blyth, 1987). Each of these life events might independently influence the emotional development of adolescence and their wellbeing, and the “pile-up” of these events may collectively contribute to greater stress. In particular relevance to changes in early adolescence, such “pile-up” comprises the physical transformations initiated by the onset of puberty, social relationship renegotiations with parents and peers, and adjustment to institutional transitions from primary to junior high school (Steinberg, 1993). Although some of these events are normative and predictable, while others happen at random (Steinberg, 1993). In other words, besides the universal developmental tasks and expectations of this life stage, adolescents also have to deal with the here-and-now tasks of everyday living. Yet the adjustment to one transition may be affected by the number of other changes, which also take place in the adolescent at the same time. Research has shown that the discontinuities and resulting difficulties of such synchronous changes in adolescence, for example, the co-occurrence of onset of puberty and transition from primary to junior high school in early adolescent girls, may be easier for adolescents to cope with when these problems are dealt with one at a time or come into focus at different stages (Simmons & Blyth, 1987).

This idea upholds Coleman’s (1974, 2011) focal theory of adolescent development. According to the original focal model (Coleman, 1974), if the adolescent experiences transitions at different times rather than simultaneously, they are less likely to experience difficulties. By contrast, when adolescents experience more than one transition at a time, they are more likely to be at risk of having psychological and developmental difficulties. Hence, a potential explanation to the fact that some adolescents during this life stage have difficulties making the transitions while other do not, is that different relationship patterns in adolescence and associated concerns come into focus of the adolescent at different ages. However, these patterns overlap and the resolution to one problem is not essential to facing another. Furthermore, the adolescent may not follow a fixed sequence of dealing with these problems, although some particular themes may come into focus to the majority of adolescents at particular ages (Coleman, 1974, 2011). For example, “parental relationships” and “authority in large group” were most focused in early adolescence among girls, whilst “Heterosexual relationships” came into
increasing attention in middle adolescence (Coleman, 1974, p.137). The focal theory of adolescence has been tested empirically and received support from a range of studies (e.g., Hendry, Shucksmith & McCrae, 1985; Kroger, 1985; Simmons & Blyth, 1987).

The focal theory of adolescent development offered an explanation to the differences in adolescent transition outcomes, and it points to the need for more recognition of the nature, timing, and different stages of adolescents’ transitions, including the significance of the transition itself. Following this line of reasoning, the adolescent transitions and their embeddedness in associated contexts will therefore be interpreted through the bioecological system model next.

1.3.2 Adolescent development in contexts – the bioecological system model

As reviewed earlier, adolescent development involves multiple transitions and changes in relations between themselves and the multiple levels of contexts in which they are embedded. The contemporary theoretical framework for such scholarship involves relational developmental systems theoretical models (Overton, 2010), and an example of these models is Bronfenbrenner’s bioecological system model (e.g., Bronfenbrenner & Morris, 2006). In a similar vein, bioecological system model emphasizes that the basic process of human development involves mutually influential relations between the developing individual and the multiple levels of their changing contexts (Bronfenbrenner, 1979, 2005; Bronfenbrenner & Morris, 2006).

In specific, the bioecological model suggests that the broad context is made up of nested systems. At the most proximal level to the individual is the microsystem, which the individual actively participates in, such as family, peer groups, and schools, which together represent the primary microsystems the adolescent interacted with. The further levels include mesosystem (interaction of microsystems), the exosystem, equalling influences external to the adolescent’s microsystem, and the macrosystem (e.g., the overarching societal and cultural blueprint including values and ideologies, such as collectivistic beliefs). From this perspective, adolescent development can be understood through the reciprocal interactions between them and their contexts (multilayer systems). Bronfenbrenner and Morris (2006) later added another system as Chronosystem, relates to what might happen in time,
indicating the patterning of contextual events and transitions over time (e.g., longitudinal changes in the adolescent and their relating systems over time). Other hypothesis also applied Chronosystem to explain contextual factors that may interact with timing of events, indicating it is the timing or the synchronicity of the transitions in adolescence that puts the adolescent’s developmental outcomes at risk. This resonates the aforementioned focal theory on the importance of timing of transitional events.

Guided by the bioecological system model, research designs in social and developmental psychology have increasingly incorporated individual difference measures and measures of their social contexts (Li, Lynch, Kalvin, Liu, & Lerner, 2011). Such studies have encompassed various domains of the adolescent’ developmental contexts, including the family, peer groups, schools, and beyond, and they have investigated a wide range of indicators regarding adolescent transitions in multiple domains, including parent-child relationships (Branje, Hale, Frijs, & Meeus, 2010), peer relationships (Li et al., 2011), school transition adjustment (Rice, Frederickson, & Seymour, 2011; Arens, Yeung, Craven, Watermann, & Hasselhorn, 2013), subjective wellbeing (Atkinson, 2013), and mental health difficulties (Ford, Goodman, & Meltzer, 2003), as well as delinquency and substance abuse (Reitz et al., 2006). Besides influences from these microsystems of the adolescents’ developmental contexts, factors at the level of macrosystem, such as general social-cultural norms, also modify the development of adolescent and their socialization in the respective culture (Magnusson & Statin, 2007). Therefore, to study transitions in adolescence within certain cultural context through bioecological system model, it is important to take into account of cross-cultural and intra-cultural differences of adolescent development while investigating universal processes.

As implied by chronosystem, developmental contexts undergo processes of historical and social changes. Adolescents in many parts of the world experience socio-political, economic, and cultural changes that have an impact on their lives (e.g., regarding family, life standards, and health). As mentioned above, research reviews on adolescent development have shown that the experience of transitions and changes does not necessarily result in problematic or difficult development (e.g., Coleman, 2011; Steinberg, 1993). Empirical research has dealt with questions of whether certain social, economic, and political changes include risks and chances and how they impact adolescent
development (e.g., Greenberger, Chen, Beam, Whang, & Dong, 2000; Griffin, 2013). However, questions concern conditions and functions of cultural values and norms for both positive and negative developmental outcomes and the roles of cultural factors in these processes remain. A major gap is the lack of longitudinal data and the scarcity of culture-informed approaches.

1.3.3 Summary of adolescent development research in Western literature and emerging issues in cross-cultural studies

To continue with the brief reflection upon the above reviewed literature on adolescent development, a few limitations can be identified. First, existing literature primarily relied upon white, middle-to upper-middle class, Western, Caucasian (often American), small sizes, and homogeneous samples (e.g., Dubas, Graber, & Petersen, 1991), but the findings in one sample may not necessarily generalize to another. Besides, interactions between culture, ethnicity, social economic status, and minority status can prove detrimental to the adolescent’s healthy development and are still poorly understood to date (Lerner, 2006). Second, relatively few studies in adolescent transitions have dealt with normal adolescents, and much research has been done on “problem” adolescents (e.g., delinquent adolescents). Of those that have, few are concerned with the consequences of experiencing several developmental transitions at a time (Elder Jr., Caspi & Burton, 2013). Third, differentiating from existing research interests, one universal characteristic of adolescents that is often ignored is the excitement of growing up, which concerns the movement away from childhood toward increasing skills, forming new relationships, and achieving the important roles in given societal and cultural contexts (Demetrovics, 2012).

Despite the cultural-informed studies on adolescent development is still in need, a few emerging issues in cross-cultural studies should also be noted. First, traditional cross-cultural research tends to emphasize mean differences across cultural groups (e.g., people of Culture A score or rank higher on Variable × than those of Culture B). Little attention has been paid to the examination of differences in the longitudinal changes and the resulting developmental processes. Second, interdisciplinary models that consider multiple biological, psychological, and contextual levels of functioning which bring together the expertise of diverse scientists to provide integrated knowledge about the holistic properties of the developing adolescent are
warranted. Third, in recent years, the definition and measurement of adolescents’ wellbeing have become issues of widespread interest and importance (Benson & Scales, 2009; Scales, Benson, & Roehlkepartain, 2011). Despite attentions to conceptualising and evaluating wellbeing in academic and in policy circles, wellbeing remains a narrowly defined term in education and health studies which may compromise efforts to assess and promote it effectively (Ereaut & Whiting, 2008).

Nevertheless, a growing number of national and cross-national research protocol on adolescence with strength of covering multiple dimensions and quality indicators of adolescents’ life and wellbeing are being put into practice, thus enable the quantification of patterns and trends in prevalence of key health behaviours, health indicators, and contextual variables, and inform educators, researchers, and policy-makers depends upon grounded models of adolescent wellbeing that are relevant to today’s cultural-contextual structures and ethos, and that resonate with adolescents, teachers, families, and society. For example, the world health organization collaborative cross-national survey Health Behaviour in School-Aged Children (HSBC), Global School-based Student Health Survey (DSHS) developed by the World Health Organization (WHO) in collaboration with United Nations’ UNICEF, UNESCO, and UNAIDS and with technical assistance from CDC; Taiwan Youth Health Survey (TYHS) conducted by the Bureau of Health Promotion, starting in 2005, rotating junior or senior higher schools.

Research on adolescent development especially on adolescent wellbeing in Mainland China is scarce (Jiang, Petersen, Peng, Tai, & Bian, 2005). With recognition of limitations in previous literature and the emerging issues in cross-cultural studies on adolescent development, it is therefore important to undertake empirical research in Chinese populations to provide evidence and argument whether Western-established theories are applicable to Chinese context, thus contribute to the knowledge of generality of classic theories and generate implications for practice. Before moving on to research questions of this study, the next two sessions will outline background information on several cultural factors, which may contribute to understanding adolescent development in China.
1.4 Cultural and social dimensions of China – The past and today

1.4.1 Confucianism and Collectivism

Chinese culture, rooted in Confucian philosophy and embodied in a collective context for several thousand years, differs markedly from Western culture (King & Bond, 1985; Lin, 2010). Throughout Chinese history, the predominance of Confucianism ideologies created a system of education and became the official philosophy of the state (Lin, 2010).

Confucianism is fundamentally a social theory with its primary purpose of achieving a harmonious society (King & Bond, 1985). In the Confucian tradition, the individual is never an isolated, separate entity. An individual is always regarded as part of a social network with a specific role in relation to others, or as a social, interactive, or relational being (Lai, 2008) who is required to fit into and conform to the existing orderly world. These Confucian concepts construct human relationships in hierarchical patterns and have provided a particularly Chinese form of order linking the individual, the family and the state. Therefore, individuals are socially situated and defined within an interactive context (Lai, 2008). As a result, the Chinese concept of a person, developed from Confucian philosophy, is based on the individual’s transactions with their fellow human beings (King & Bond, 1985).

Collectivism is often used as the dominant ideology in describing Chinese culture (Voronov & Singer, 2002). The collectivist culture of the Chinese is developed from the notion of the Confucian ideal state, the essence that the individual is responsible for collective good. With this cultural ideal, Chinese individuals are trained to pay greater attention to the maintenance of relationships and a stable social order, and less attention to the pursuit of personal needs and rights (Voronov & Singer, 2002). The former means the Chinese see themselves situated symbolically in the web of a relational network through which they define themselves (Bond, 1986). The latter means achievement goals of individuals are often presented as being for the benefit of a group (Oyserman, Coon, & Kemmelmeier, 2002) and people act in accordance with external expectations or social norms to function as integral parts of the social networks, instead of emphasizing independence, personal achievement and growth and the rights of individuals as most Western people do (Lai, 2008). Such cultural notions are also reflected in adolescent
development, and proved insight into their psychological processes (Triandis, 1996, 2007). Recent evidence, however, indicates that both independent and interdependent values can coexist within the same individual regardless of their cultural background (Suh, Diener & Updegraff, 2008). Some researchers revealed patterns similar to the individualistic approaches in Chinese urban adolescents (e.g., psychological autonomy) found in Western cultures (e.g., Chen-Gaddini, 2012). Such coexistence of both individualistic and collectivistic approaches in some Chinese adolescents supports Suh et al. (2008)’s view, and indicates that Chinese collectivistic cultural notions influence their adolescents, and it is also important to note that such values of being individualistic or collectivistic may function together and sometimes complement each other within the adolescent, especially in certain unique cultural and familial circumstances (Schonpflug & Yan, 2013, 2014).

1.4.2 Modern changes

China has been experiencing significant economic and social changes since the Open Door Policy in 1978, towards a market-oriented society (Tisdell, 2009), which may undermine the traditional cultural systems. These changes have occurred over a relatively short period of time and have resulted in intensive economic development, improved quality of life, and higher level of educational attainment (Li, 2004). Alongside, today’s adolescents are subject to a much wider range of information about the wider world than they were three decades previously, fuelled in part by explosion in new media and communication structures and information technology. Awareness of what is going on well beyond the boundaries of the local area is now the norm, and with it has come the sense that Chinese adolescents are part of a much larger society.

However, these changes can be seen as a double-edged sword. For example, cultural values of Chinese parents changed over the past few decades as a result of the transformation of the society. Chinese parents nowadays particularly in high socioeconomic status urban families, valued autonomy and independence. The urbanization and socioeconomic development were associated with a decline in material dependence within the family and an increase in positive attitudes toward children’s independent and exploratory behaviours. Similar findings concerning changes in cultural values of
independence and individuality have been reported in other societies such as Germany (Eickhorst, Lamm, Borke, & Keller, 2008; Keller & Lamm, 2005).

On the other hand, during the period of economic liberalization, China has shown a hybrid governance that has combined earlier Maoist socialist, nationalist and developmentalist practices and discourses of the Communist Party with the more recent market logic of market socialism (Qian & Wu, 2008), which promotes the search for individual success and highlights the importance of the free market. Under such influence, China has transformed into a highly unequal and divided society, with growing income inequality and unequal access to social services by individuals (Wang, 2008), and materialistic values prevail (Chan, 2013). These trends pose risk to social cohesion and also influence the development of Chinese adolescents.

Social changes are closely linked to education, especially where education is considered a major vehicle of social mobility and life success. High levels of educational attainment are especially important in China, where possessed only limited natural resource and wealth. Therefore, human capital, gained through education, is an important asset in ensuring Chinese people’s competitiveness in the global economy (Li, 2004), and this has lead Chinese students under great pressure to excel in schools at very young age.

The economic transitions in China have also been linked to shifts in cultural beliefs and beauty ideals among adolescents living in urban areas (Lee & Lee, 2000). This shift may be increased by other sociocultural factors including pressures from peers, relatives, parents, and other social environmental factors, and play an important role for adolescents in setting their own body image standards to evaluate their physical growth, even if these standards are considered unhealthy (Chen, Jackson, & Huang, 2006). In the meantime, the process of urbanisation also brought about changes in diet and lifestyle, such as an increase in the availability of sweets and fast-food and in the use of television, personal computers and cars, all of which can pose potential health risks (Chen & Jackson, 2008).

In a word, to understand today’s Chinese adolescents in this era, it is crucial to acquire a broader and more modern perspectives; old knowledge built on stereotyped simple cultural beliefs is still of importance, but might no longer adequate. With the broader changing context at societal level in view, the next
session will zoom in to a few cultural factors at the policy and practice level that have closer links to today’s adolescent development in China.

1.5 Adolescence in China – Cultural and social influences on Chinese adolescent development

The ideas, values and practices of a particular culture are significant in scaffolding adolescent developmental and their psychological wellbeing (Nsamenang, 1992; Triandis, 1996, 2007). Together they provide guidance on behaviours that are normalised or accepted as appropriate within the social milieu (Triandis, 1989, 2001). Thus to study Chinese adolescent development, it is necessary to understand the cultural practice and norms which shape the development of Chinese adolescents.

1.5.1 Single child – From “4-2-1” to “1-2-4” phenomenon

Since 1979 China has adopted the One Child Policy and has resulted in most city-dwellers being only-children. Early research were focused on whether only child would become spoiled and overprotected, given the fact that the only child received attention and investment from two parents and four grandparents (“4-2-1” phenomenon; Wang & Fong, 2009). However, Peng (2011) argued in response to concerns over spoiling of the single or only children, that parents are actually demanding even more of children at younger ages than parents of previous generations.

The aspirations of many parents, who had limited educational opportunities themselves, are now invested in their only children (Hua, Jin, Gu, et al., 2014). This together with the possibilities for upward mobility in society has led to a highly competitive educational system. In addition, strong traditional ideas of being children in the family persist, based on the Confucian traditions of respect for parents and elders, filial piety, obedience and discipline. There are increasing concerns about the effects of all these pressures on the health and wellbeing of youth in China (Shang & Katz, 2014). Researchers further raised the “1-2-4” phenomenon surrounding the One Child Policy which means that only children will have to bear the responsibility of supporting both of their parents and, sometimes, all four of their grandparents in their old age, as they cannot rely on siblings to help them care for their aging family (Zhang & Goza, 2006). In addition, due to technological advancements and improved
healthcare, people are living longer and therefore the size of the aging population worldwide is growing (Kunzig, 2011). This argumentation in the growing number of elderly people in China will lead to the costs of which will fall on the only children (Wang, 2008).

Traditionally, the support system for the elderly in China is family-based. The old saying of having sons to support parents in their old age preserved for years (Li & Yi, 2011). This also led to the traditional desire for male child (Ebenstein & Leung, 2010). Although infanticide and sex selective abortions in China is illegal, the latest census figures suggest that there is a gap between males and females, and this gap has led to a marriage crisis and may lead to violence and criminality among males (Li, Yi, & Zhang, 2011).

To resolve the various issues created by the One Child Policy, earlier this year the Chinese government has already instituted exceptions to the policy, such as allowing parents who are only children to have a second child. Implications for the policy changes can only be tested in future; nevertheless, Chinese adolescents are developing in unique cultural contexts, and to study adolescent development in such sociocultural contexts, it is important to acknowledge the cultural specific policies and practice.

1.5.2 Chinese adolescents in schools

Schools are where adolescents spend the most of their time, and to understand adolescent development it is important to know something about the education system (an element of the exosystem in Bronfenbrenner’s terminology; Bronfenbrenner & Morris, 2006). Similar to the Western education structure (see Table 1.1), the Chinese educational system consists of five tiers: kindergarten; primary (elementary) school; junior high school; senior high school, and; college or university. Chinese schools widely adopt the grade level organization which often known as the 6-3-3 plan (Table 1.2). It involves spending 6 years in a primary school, 3 years in a junior high school, and finally transition into a 3-year senior high school. Thus for Chinese students, who move from primary school to junior high and then on to senior high school, have to experience disruption twice. Although there are also some experimental schools adopt K-12 system, due to their small numbers in total, the mainstream educational context still is dominated by the 6-3-3 system.
Different from the distinctions between private and public schools in the UK or the U.S., one controversial phenomenon in Chinese educational system is the designation of “key schools” (Wu, 2013). Key schools are schools distinguished from ordinary schools by their academic reputation and are generally allocated more resources by the state. The designation of “Key School” status exists for selected schools at every educational level: elementary, secondary, and higher. In addition, there are various levels of the “key” designation itself (Wu, 2013). There are national key institutions; provincial or municipal key institutions, and county

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1 As described in the chart above, formal education in the US is generally mandatory to 16. School-level education is divided into “years” in UK, and grades K (Kindergarten) – 12 in the US correspond to Years 1 – 13 in the UK
2 “Year” is used in the UK to describe a student’s “grade”
3 Kindergarten
or district key institutions. In all cases, this stratified structure has given key schools numerous privileges. They receive the lion’s share of public funding (especially Project 211 Universities4). They can select the best students through city-wide or region-wide examination and transfer the best teachers in the area to teach in their school. They receive much more funding from the government, and in getting funds for upgrading equipment or the purchase of expensive items such as computers; they always have priority (Wu, 2013). Because of these advantages, key schools often boast 90% to 99% admission rates to universities (Gao, 2011). In addition, key schools dominate the creation and distribution of primary and secondary school education materials. Their best teachers are not only called upon to write and grade national examination test papers, but they are also publishing researchers who authoritatively resolve secondary school disputes through their domination of district education bureau publications. Some key schools are even affiliated with overseas alumni associations that are a source of prestige and hard currency. Such schools embody China’s modernization goal of defining success in relationship to international standards.

Most of secondary schools in China comprise both junior and senior high grades, and entering into key school at junior high often eases the way to continue with senior high grades in the same school; because those schools often favour their existing students to keep the coherent education to their own level. Furthermore, admission into key secondary schools often paves the way for entering elite colleges and universities in China and abroad; as a result, the competition to obtain admission into these key schools is fierce and puts school children under ever-increasing pressure.

4 Project 211 is the Chinese government’s new endeavour aimed at strengthening about 100 institutions of higher education and key disciplinary areas as a national priority for the 21st century.
Competition for places in key schools is not limited to students’ academic credits. Although secondary schools are meant to receive students from their feeder primary schools or students whose registered residence is within their educational area selected by computer system on a random basis, in practice they take the best students from a wide geographical radius. Take one key school in Beijing as an example (as shown in Figure 1.2), only 10% of their students were assigned by computer, 35% were chosen in terms of students’ academic credits, 25% were selected giving consideration to students’ specialty, 20% due to the relations of students’ parent(s) workplace and school, 10% by attending pre-secondary school classes run by the key school itself and achieving the due credits.

![Figure 1.2 Primary to secondary school admission proportion in a key school in Beijing](image)

In China, besides the enrolment ways of key school as shown above, parent-initiated school choice became prevalent in the mid-1990s. Since then with the help of the government policies which legalize the intake of choice students (State Council, China, 1993), it has been exercised actively by parents and schools for different purposes: for parents, it is an opportunity to let their child receive better education; for schools, to generate more funds. Key schools attract top-performing students, which in turn enables them to come out at top of the exam league tables. The good performance in exams attracts more out-of-zone (as shown in Figure 1.2) choice students who have to pay the school an additional large sum of money commonly known as sponsorship fees or

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5 Data were obtained from internal source based on one junior high school in Beijing in 2011
school selection fees. That is, the students did not score well enough on the admission test to attend these schools on full subsidy, so parents who can afford to do so must incur some of the fees. This source of additional funding can greatly improve school performance in terms of employing more qualified teachers, purchasing more advanced teaching facilities and increasing teachers’ income. Du (2000) argued that the process of choice if socially constructed, but by its nature disadvantages families who often find it hard to get access to key schools. This invariability results in school segregation and unequal student outcomes.

Expenses on choosing a school and class might be unique in China. This operation takes place because educational authority and schools have the freedom to set their own practice, which may differ from the general policy of compulsory education; the stratification of schools and classes; and charges that correspond to recourses used (Jiang, 2001). As a whole, the condition reflects an endorsement for market ideology in the educational institution for the distribution of resources. Accordingly, the rule of games is to strengthening differentiation and stratification, and thereby, parent involvement with school by means of family wealth is important in the provision of and access to the resource.

China is a test-driven country. However, the cultural notions of cultivating and leaning among Chinese also emphasize education both broadly defined as well as specific to schooling. Cultivation through schooling is still regarded as the primary way for social mobility. However, it is also important for building character, or qualities such as being hardworking, self-disciplined, preserving, and moral. Many of the cultural beliefs and views about children’s development and learning in China are distinctly linked to views about education and the importance of children’s schooling. Nevertheless, the argumentation on Chinese educational systems and school practice identified two issues that need to be addressed. First, Chinese adolescents go through school transitions earlier (at primary to junior high school level); second, Chinese parents consider their children’s schooling as a collective efforts, and they actively involve themselves by means of school involvement and school selections.

Taken together, the above review does not claim to be a definitive explanation for the developmental process of Chinese adolescents, and there are many
other cultural factors which influence Chinese adolescent development; however, it does highlight two points: there are neglected areas which need to be explored within the Western dominant perspective of adolescent development; and given the distinct sociocultural differences at levels of ideology and practice in China compared with that in the West, Chinese adolescents may create a developmental path on their own account.

1.6 Conclusion and implications for thesis

This chapter begins with a description of the aims, research questions, and outline of this thesis. It then argues that early adolescence is an “ontogenetic laboratory” which provides researchers with the opportunities to study multiple developmental transitions accommodated in this life stage, and has long term implications for both adolescents and societies. It proceeds with the hypothesis of adolescence as a time of “storm and stress” and contemporary challenges to this view, followed by a brief review of two main theoretical frameworks of adolescent development: the focal theory and bioecological model. Cultural factors are then reviewed in relation to their roles in Chinese adolescents’ development. The next chapter (Chapter 2) will review previous literature on adolescent development regarding their physical growth.
CHAPTER 2 THE DEVELOPING BODY – PHYSICAL GROWTH DURING ADOLESCENCE

2.1 Aims of this chapter

Chapter 1 set the scene for the establishment of the broad research enquiry of Chinese adolescent development. It first reviewed the commonly accepted premise of adolescence as a period of storm and stress, and then moved on to the introductions of two main theoretical models of adolescent development, which also serve as the guidance of this study. The chapter also provided information on certain cultural factors, which may contribute to understanding previous research literature and empirical data from this study.

This chapter will review research evidence in both Western and Chinese literature on adolescents’ physical growth. Several themes are identified, including pubertal development, body image and concerns, as well as gender issues.

2.2 Introduction

Puberty is developmentally the most significant milestone occurring during early adolescence (Berenbaum, 2010). It represents a key transition in psychological function, and many studies of adolescent development consider puberty.

In pace with changes in many aspects of adolescents’ physical growth triggered by the onset of puberty, adolescents also experience increasing awareness of their gender identity (Hill & Lynch, 1983; Beltz & Berenbaum, 2013), and face societal expectations and pressure from mass media, parents, and peers, in terms of the feminine ideals and gender roles (Byne, 2006).

Self-perception together with the attitudes toward the body represents two important dimensions of body image. Individual differences in these characteristics and the timing of the changing processes mean these changes must be incorporated into the child’s perceptions towards the developing body and personally evaluated in a diversity of settings and influenced by social norms and standards of the dominant culture (Thompson & Hirschman, 1995; Moradi, 2010).
Amplified by social comparison, body dissatisfaction emerges when the discrepancy between the real and ideal body image comes forth, and by adopting body image management behaviours such as weight control dieting, social interaction avoidance, and clothes selections, children also involve themselves in the actions of body image improvement and enhancement. Besides the growing self-consciousness in the physical self, development of cognitive abilities and the psychological process of adolescence typically set in motion an unsettling review of personal identity that is rooted in the body (Harter, 1990). As Erikson (1950) once contended that the physical changes associated with puberty serve as a catalyst for adolescents to question childhood identifications and to consolidate these with current self-conceptions, personal ideologies, interpersonal values, and future aspirations.

2.3 Puberty and physical development during adolescence

During adolescence, puberty initiates a series of complex physiological changes, most visibly in the developing body (Williams & Currie, 2000). In addition to an increase in height and weight and the attainment of mature reproductive capacity, the adolescent also undergoes changes in the distribution of body fat, alterations in body proportions, and development of secondary sexual characteristics (Tanner, 1962; Christie & Viner, 2005).

Studies on puberty and a pubescent child concern three main variables and their interactions, and they are: chronological age, pubertal status and pubertal timing (Christie & Viner, 2005). Pubertal status refers to the current level of pubertal development at a given point in time. Pubertal timing indicates whether the adolescent’s physical maturation is occurring early, on time, or late, relative to same-sex peers (Dubas, et al., 1991; Ellis, 2004). Studies on pubertal timing suggest early pubertal timing to be particularly important, and has been linked to different types of externalizing problem behaviours and internal psychological outcomes among girls, including substance abuse, delinquency, low self-esteem, and depression (Graber, Lewinsohn, Seeley, & Brooks-Gunn, 1997; Sontag, Graber, & Clemans, 2011; Crockett, Carlo, Wolff, & Hope, 2013).

However, a review of literature reveals that the majority of studies on adolescent health and psychosocial development do not measure pubertal development and, of those that do, there is little consistency in the methods
and conceptualization of pubertal processes and their role in adolescent development. Thus, relevant conclusions about the impact that puberty or pubertal timing may have on health and development is difficult to discern, and continue to limit comparisons across studies and in turn hamper overall progress in the field of study on adolescent development. In sum, methodological issues, a general lack of conceptual clarity, and paucity in systematic research contribute to a scarce of knowledge concerning how physical changes, body image, and related behavioural and psychological contributes may differ across time, cultures, and ethnic groups.

Rests on the assumption that the onset of puberty itself is a novel event that calls for new psychological adaptations, the stressful change hypothesis (Simmons & Blyth, 1987) predicts that, regardless of timing, girls experiencing the pubertal transition will manifest higher levels of distress than pre or post-pubertal girls. The rationale for this proposition has its origins in the stress-distress paradigm, which assumes that change itself is inherently stressful and requires adjustment.

Concerning the relation between off-time pubertal development and girls’ problem behaviours, two hypotheses have traditionally been prominent in the literature and supported by empirical data (e.g., Brooks-Gunn, Petersen, & Eichhorn, 1985; Silbereisen & Kracke, 1997), the maturational deviance hypothesis (off-time) (e.g., Alsaker, 1995) and the stage termination hypothesis (early timing) (e.g., Petersen & Taylor, 1980). The prior hypothesis emphasizes the negative outcomes of being off-time, while the latter indicates the early timing warrants more attention to facilitate less problematic transitions (e.g., Petersen, Sirigiani, & Kennedy, 1991). Contemporarily, several hypotheses have been advanced to explain the link between early pubertal timing and psychosocial functioning of adolescent girls and to describe during what circumstances the link is most likely to occur: the peer socialization hypothesis and the contextual amplification hypothesis (Ge & Natsuaki, 2009). The peer socialization hypothesis (Stattin, Kerr, & Skoog, 2011) posits that early-maturing girls will seek out friends with older girls and other early maturers and socialize themselves into problem behaviours (Kort-Butler, 2009). The contextual amplification (Casp, Lynam, Moffitt, & Silva, 1993) posits that implications early timing will have for girls’ adjustment depend on external conditions; certain social contexts will either strengthen or weaken the association between early pubertal timing and
problem behaviour, and deviant contexts may increase such probabilities (Ge, Natsuaki, Jin, & Biehl, 2011). Recently, an integration of these two hypotheses was proposed (Stattin et al., 2011). The idea was that the negative peer socialization of early-maturing girls should be more prevalent in deviant contexts. However, there are no studies published in which a macro-social approach has been taken to studying the developmental significance of girls’ pubertal timing.

More recently the research effort has been to identify specific aspects of puberty (biological and psychosocial) that might confer a differential sensitivity to the development of internalizing problems in particular girls during puberty. Pubertal timing, physical, biological and hormonal changes, peer involvement, culture, and ethnicity are possible relevant factors; although no one factor alone is likely to account for the increased incidence of internalizing disorders in girls during early adolescence. Longitudinal studies are required to determine the direction and persistence of effect. More research using a developmental psychopathology framework is needed, which would examine not only puberty itself but also the complex relationship among these factors and serve to link the various theoretical perspectives (e.g., medical models, social learning theory) together.

2.4 Body image and concerns

Preoccupation with the body and its image is a central theme during adolescence (Fisher, 2014). A negative body image in adolescence has been linked to negative psychological experience, such as low self-esteem, anxiety, and depression (Paxton, Eisenberg & Neumark-Sztainer, 2006). It is also related to behavioural problems like dieting and eating pathology (Swanson, Crow, Le Grange, Swendsen, & Merikangas, 2011), and suicide intention and attempts (Gupta & Gupta, 2013). Therefore, understanding body image and the ways in which the child pictures their body is important from a theoretical as well as a practical standpoint.

Body image is discriminated as a multidimensional construct that generally includes perceptions of body appearance, thoughts and beliefs regarding body shape and appearance, attitudes reflecting how one feels about their body size and shape, and behaviours that embody actions related to appearance (Thompson & Hirschman, 1995; Cash & Smolak, 2011). In research literature the
topic of body image appears in a variety of fields such as communication, psychology, and textiles and clothing (Rudd & Lennon, 2000).

Notions of ideal body types are influenced significantly by sociocultural norms among Western samples, particularly females (Tiggemann, 2011). The current ideology of the feminine body is composed of a set of unattainable contradictions – ultra-thin yet curvaceous, small-hipped and large-breasted, firm but not too muscular, and strong but graceful (Krane, Choi, Baird, Aimar, & Kauer, 2004). This thin and attractive body ideal has become the dominant narrative of hegemonic femininity in most Western world that is reinforced through everyday discourse (George, 2005). Such body image ideal approximates ever-narrowing standards for desirability in relation to body size, youthfulness, and grooming practices, to name just a few criteria (Jeffreys, 2005). The standards represented by this ideal are socio-historically specific, in that thinness and physical attractiveness for example, are not inherently desirable, but rather they have been constituted as such within the current cultural climate (Malson & Ussher, 1996), and feelings and attitudes toward the body vary depending on situational contexts (e.g., Williamson Thompson, Anda, Dietz, & Felitti, 2002). Studying adolescents’ body image is even more complex in the developmental years when body image is forming. Nevertheless, to highlight the literature on body image, two aspects have received extensive studies: weight status and physical attractiveness.

2.4.1 Thinness, overweight, and obesity

Body weight has always been in the central of body image studies, especially among women and girls. Following Ford and Beach’s (1952) ground-breaking ethnography, research in the past few decades has reliably documented cross-cultural (e.g., Cassidy, 1991), temporal (e.g., Swami, Gray, & Furnham, 2007), and individual differences (e.g., Swami, Hadji-Michael, & Furnham, 2008) in the perceptions and attitudes toward body weight.

In terms of cross-cultural differences, the available evidence broadly suggests that the ideal body weight is slimmer in contexts of high, compared to low, socioeconomic status or in more Westernized societies (Swami & Furnham, 2008), where thin, and possibly even underweight body is considered maximally attractive (see Calogero, Boroughs, & Thompson, 2007 for review). In less socioeconomically developed (or non-Western) societies, plumpness is
(or was) linked with psychological traits of fertility, sexuality, and attractiveness (e.g., Brown, 1991; Teti, 1995) and individuals positively evaluate overweight, and sometimes-obese figures (e.g., Swami, Frederick, Aavik, et al., 2010; Swami, Knight, Tovee, Davies, & Furnham, 2007).

The body is a primary means through which individuals negotiate social meanings and identities by cultural standards (Swami et al., 2010). Currently, in Western society, overweight may be viewed by some as symbolic of an individual’s moral failing in self-control (Ritenbaugh, 1991), representing laziness, weakness, a lack of impulse control, irresponsibility, the primitive, and the unattractive (Farrell, 2011), whereas thin, toned bodies indexed discipline and willpower (Huff, 2001). Compared to men, being fat has a disproportionate, negative effect on women’s experiences in education, employment opportunities, health care, romantic relationships, and portrayal in the media (see Fikkan & Rothblum, 2012 for review). Weight concerns predict lower levels of body satisfaction among girls and young women (Ousley, Cordero, & White 2008). Weight-based teasing among children and adolescents is linked to lower self-esteem, lack of peer acceptance, lower participation in physical activity, and unhealthy weight control practices, which can lead to disordered eating and exercise addictions (Levine & Murnen, 2009).

In contrary to the thin ideal and the stereotyped social interpretations to fatness, the prevalence of overweight and obesity among children and adolescents has increased in recent decades and has become a public health concern worldwide (Ogden, Carroll, Kit, & Flegal, 2012). Obesity in adolescents has been of particular concern because the period of adolescence is characteristic of physiological (e.g., pubertal maturation and body composition), behavioural (e.g., diet and physical activity), and psychological (e.g., body satisfaction and low self-esteem) changes.

However, a few methodological issues may over-predict the level of obesity in children and adolescents. Obesity is defined as an excess of body fat mass and ideally a definition based on percentage of body fat would be used, which is impracticable for epidemiological use (Cole, Bellizzi, Flegal, & Dietz, 2000). Body mass index (BMI) instead has been widely accepted as a standard for the assessment of obesity in physic-psychological studies (Williams, Taylor, Wolf, Lawson, Crespo, 2008). However, dynamic growth makes the choice of definitions more complex for children and adolescents. Three sets of standards
in terms of BMI are used internationally to define weight status in children: US Centres for Disease Control and Prevention (CDC) 2000 standard (Kuczmarski, Ogden, & Guo, et al., 2002), the International Obesity Task Force (IOTF) standard (Cole, Bellizzi, Flegal, & Dietz, 2000), and the WHO 2006 standard (World Health Organization, 2012). The use of different criteria results in differing reports of prevalence rates, and it is even harder for cross-cultural comparative studies without a consensus on diagnostic criteria (Goon, Toriola, Shaw, 2010). Further, BMI essentially adjusts weight for variation in height, thus weight by itself is limited; it is difficult to interpret weight independent of height. Low or high weight may have an independent effect and implications for a person’s body image irrespective of height. Individuals who are very short or very tall may also deviate from norms of desirable height and hence experience their body in a negative way, irrespective of weight. Research found low body height was among the most important predictors of body dissatisfaction (Jackson & Ervin, 1992), however, whether height concerns also contribute into girls’ body dissatisfaction and whether shortness is perceived as less consequential for adolescent girls are not clear.

2.4.2 Body dissatisfaction

Body dissatisfaction refers to the negative self-evaluations of one’s body shape, size, and appearance (Menzel, Krawczyk, & Thompson, 2011), which occurs when perceptions of one’s actual physical attributes do not match the personal or societal body shape standards endorsed by the individual (e.g., actual-ideal body image discrepancy), the larger the discrepancy between one’s perception and preference; the greater one’s body dissatisfaction (Heron & Smyth, 2013). Evidence shows body dissatisfaction increases during the adolescent years (McCabe & Ricciardelli, 2001). The most drastic increase in body dissatisfaction for both boys and girls occurs during early adolescence when dramatic appearance changes initiated by the onset of puberty took place (Graber, et al., 1996), therefore, research on body dissatisfaction contributes to the understanding of early adolescents’ physical development.

Body dissatisfaction is generally claimed by many studies as Western culture-bound syndromes (Gordon, Perez, & Joiner, 2002). Although recent reports show an increase in body dissatisfaction in non-Western countries such as Japan (Pike & Borovoy, 2004), Malaysia (Mellor, Ricciardelli, McCabe, et al., 2009), and
China (Chen & Jackson, 2008), however, cross-cultural studies report lower levels of both negative body image and disordered eating in non-Western compared to Western societies (e.g., Mahmud & Crittenden, 2007). This is consistent with the finding that there are marked cross-cultural differences in ideal body size (e.g., Brewis & McGarvey, 2000). Furthermore, studies have reported that Asian women not only have lower body dissatisfaction than Western women, but also have a lower likelihood of engaging in weight loss behaviours (Lowry, Galuska, Fulton, et al., 2000). However, recent work suggests that the biggest difference in ideal body size is not found between Western and non-Western societies, but rather between samples that differ in socioeconomic status (with low socioeconomic samples idealizing a heavier ideal compared with high socioeconomic samples (e.g., Swami, et al., 2007).

Research indicates that body dissatisfaction is a gendered experience that is more common among women than men (Maphis, Martz, Bergman, Curtin, & Webb, 2013), and adolescent girls are widely reported at greater risk for body-related concerns (Cash & Pruzinsky, 2002). However, a close examination reveals methodological biases may make it more likely to find body dissatisfaction among females than among males. First, research that does not control for actual weight may amplify the dissatisfaction that some women feel with their bodies. Second, although many women and girls have normal and even underweight, researchers seem to inquire only about behaviours used to lose weight. Another methodological bias concerns the notion of body image as a multidimensional construct (Cash & Brown, 1989). While most research on global body dissatisfaction reports women to be more dissatisfied (e.g., McCauley, Mintz, & Glenn, 1988), research examining specific foci reveals different findings and women are most concerned with the size of their thighs, buttocks, and hips; the areas primarily associated with weight gain (Monteath & McCabe, 1997). Males, on the other hand, have indicated a desire for a more muscular appearance (McCabe & Ricciardelli, 2001), although Mable, Balance, and Galgan (1986) found that men and women did not differ in terms of ideal body for different parts of the body. Research focusing on global body dissatisfaction does not provide an indication of whether there are parts of the body that have greater salience to the individual, nor whether there are parts of the body where there are larger differences between the actual and ideal body size. In the meantime, despite the inconsistency in research findings, there has been limited research that has assessed concerns or satisfaction with
different parts of the body. Little research has been done among children or adolescents, and the magnitude of these discrepancies between children’s actual and ideal body for the various parts of the body are unknown. Longitudinal work on changes on body dissatisfactions among children and adolescents are still in need.

2.4.3 Physical appearance comparisons

Social comparison theory has informed much of recent body image research (Myers & Crowther, 2009). However, comparison of physical appearance differs from Festinger’s (1954) traditional view on social comparison in a few ways. First, physical appearance comparisons are often associated with extremely dissimilar targets (e.g., models, celebrities) in contrast to similar targets within one’s social group (Myers & Crowther, 2009). Second, people often make physical appearance comparisons even if these comparisons make them feel worse about themselves or they do not believe they can change the current circumstances (Bosch, Buunk, Siero, & Park, 2010). Third, physical appearance comparisons are associated with strong negative consequences including increased body dissatisfaction, disordered eating, and low self-esteem (Boroughs, Krawczyk, & Thompson, 2010). Although it remains unclear whether girls’ everyday physical appearance comparison is as different from other comparison topics, research should be cautious before applying traditional comparison theory to physical appearance comparisons. Determining if and how physical appearance comparisons differ in contrast to other topics also could suggest new and effective intervention methods or individual differences that might mitigate some of the negative effects associated with physical appearance comparisons.

There is ample support for the role of social comparison in people especially women and girls’ body image and socio-psychological influences. However, when studying social comparison during adolescence a few limitations should be noted. First, there is little information on appearance-related social comparisons during adolescence even though there are clear indications that social comparison is employed by early adolescents to evaluate their academic competence among peers (Ruble, 1983). Second, existing research has focused primarily on models or celebrities as targets for appearance comparisons during adolescence, whereas peers play a vital part of adolescents’ social life.
and play an increasingly prominent role in defining social expectations, establishing identity, and evaluating self (Brown, Mory, & Kinney, 1994). Third, previous research has not specified the particular body part attributes that are involved in appearance social comparisons, but have assessed the body as a whole in terms of body image. However, reliance upon such a global approach does not permit an analysis of the relevance of various attributes for social comparison processes. It is through examining specific attributes that a better understanding of social comparison and body image for adolescents will be possible.

2.5 Gender issues

Identity theorists frequently define adolescence as a critical juncture in the formation of a mature understanding of the self, including gender identity (Erikson, 1959, 1968). Traditionally, gender identity has been defined as an individual’s knowledge of his or her membership in a gender category as male or female (e.g., Kohlberg 1966). However, this traditional view of gender as a fixed or biologically determined position has been replaced by the concept of gender as a dynamic, socially constructed category. Through their development, adolescents continually negotiate their gender identity in the context of multiple and competing messages, discourses, and role possibilities (Lorber, 1996). According to Tajfel and Turner’s (1986) social identity theory and Spence’s (1993) multifactorial gender theory, gender identity not only includes one’s identification with one gender group, but also takes into account one’s personal and public gender esteem and the effect of gender stereotypes on one’s behaviour (Smith & Leaper, 2006).

Gender identity is constructed in relation to other equally important axes of difference such as culture, race, and class, and these categories in turn inform gender (Hooks, 1981). The effects of socio-cultural context on gender identity involve the culture-specific guidelines (e.g., gender roles) for behaviours considered appropriate, gender stereotypes, social status of the two genders, and various patterns of gender socialization in different societies (e.g., Moore 1998). Thus particular ways of doing legitimate and legible versions of “boy” or “girl” are deeply entwined with normative practices of heterosexuality. Thus, the construct of gender identity and its influences on individual’s
psychological adjustment cannot be understood adequately without considering the broader cultural context in which they develop and function.

Traditional gender roles associate femininity with beauty and concern with appearance (Freedman, 1988). For youth, gender is a child characteristic with significant implications for development; it helps create a set of environmental expectations for girls, and their gender differences in behaviours (Gilliam, 2005). Categories of age and developmental stage such as “adolescence” carry with them certain expectations regarding how to perform particular bodily practices. The categories such as “adolescent” intersect with categories such as “gender” in ways, which influence how girls may present and perform their bodies, and this is in ways, which differ considerably from how they conduct and perform their bodies as “children”. Although recent research has demonstrated that girls are subject to the pressure of heterosexuality even while in primary school (Renold, 2000), it is not before adolescence that girls’ gender and sexuality become explicitly linked. For 10 and 11-year-old girls soon to enter adolescence, behaviour and gender expectations are highly monitored and peer acceptance is of utmost importance (George & Browne, 2000). Subtle gestures or suggestions around gender performance can make girls hyperaware of their bodies and the messages they put forth. The notion of “doing girl” for early adolescents uses feminist post-structuralist theorizing to explain how girls strive to position themselves within acceptable frameworks of femininities, for example, demands the adolescent girl present as being interested in fashion, make-up, celebrities, being co-operative and diligent, conscientious with a care and concern for relationships with teachers and friends and a (heterosexual) interest in boys (Renold & Allen 2006); on the other hand, it has little place for girls to effectively demonstrate their cleverness (masculine) as displays of confidence are often seen as assertive (Renold & Allen, 2006). Gilligan (1982)’s work concerning the “loss of voice” holds that, for girls, puberty and the transition toward adult maturity can involve the suppression or disguise of central elements of identity in favour of conformity with cultural gender stereotypes and of prioritizing others’ needs ahead of one’s own (Roeser, Galloway, Casey-Cannon, et al., 2008). To the extent that being beautiful and not being too smart is a prevailing cultural gender role for girls, they may be conforming to that role at the expense of cultivating other important aspects of themselves and their education (e.g., Pipher, 1994).
Researchers indicate that girls whose behaviours matched gender prescriptions were more likely to be psychologically well adjusted because they would be fulfilling a psychological need to conform to internalized cultural standards of gender. Bem (1974, 1981), however, challenged this perspective, arguing that the need to adhere to an internalized standard of gender would promote negative adjustment. Meanwhile, the sociocultural context of gender inequality is particularly influential in shaping adolescent girls’ development (e.g., Tolman & Porche, 2000). Despite significant ethnic, cultural, and socioeconomic variations in their life experiences, all adolescent girls mature in a society that privileges men over women in the labour market and in cultural life, places an extraordinary amount of pressure on girls to strive towards feminine ideals, has high rates of violence against women and girls, and presents young women with contradictory sexual messages (Phillips, 1998), and the increase in gendered social pressure is likely to result in adolescent girls’ increased vulnerability to negative mental health outcomes (Tolman, Impett, Tracy, & Michael, 2006). However, the hypothesized relationships between gender identity and psychological adjustment, though supported by studies based on American samples (mainly White Americans), may not hold true for children from a different cultural context (Corby, Hodges, & Perry, 2007).

2.6 Limitations of previous studies on physical growth during adolescence and research need for Chinese adolescents

It is useful to return to the aim of this chapter as addressed in the beginning, on the review of previous literature of physical growth during adolescence, and emphasise the need to consider the physiological mechanism through which genetic and environmental factors affect development in adolescence. Puberty is a key mechanism because it is associated with psychological changes, including cognition and social relationships. Existing studies on body image exposed a lack of research examining the relative importance of sociocultural influences and types of sociocultural pressures on body image in non-Western populations (Chen, Gao, & Jackson, 2007; Mellor et al., 2009). Research on the topic of racial differences shed no light on how women and girls who are neither Black nor White navigate the personal and social consequences of beauty standards; the Western paradigm of race common in much of the literature is insufficient and exclusionary. No studies have
examined the beauty standard to culture, nor have studies examined other potentially salient body image variables (e.g., other than body size, body parts alterable by weight loss behaviours).

A review of literature on Chinese studies on the physical development of children and adolescent revealed that few similar studies have been conducted, especially on early adolescents. Within the limited publications many have been restricted to local journals in Chinese language, and focus on medical or biological aspects of this population (e.g., Wu, Yang, & Zhang, et al., 2005). Although there is a significant body of literature on body dissatisfaction and disordered eating among Chinese sample in Hong Kong and, to a lesser extent, Taiwan (e.g., Lee, 2004; Wong, Ho, Lai, Leung, Stewart, & Lam, 2005), however, Hong Kong reflects a 150-year blending of Chinese and Western cultures that is without parallel in the modern world. Similarly, the special social, economic, and political characteristics of Taiwan make it difficult to determine the extent to which data collected in Taiwan can be generalized to other Chinese populations.

Until recent years, girls from China were assumed to be at very low risk for the development of body dissatisfaction, pathological weight concerns, and disordered eating. However, the traditional belief that being overweight is a sign of healthiness in adolescents is changing within the country (Park, Im, & Im, 2003). With increasing Internet and media exposure, Chinese adolescents are exposed to topics such as dieting, weight loss, and the Western ideal body image. Many Chinese adolescents are likely to feel pressure to be thin and try to lose weight (Lee, 2004). With changing beliefs about weight status in China, it is important to assess weight perceptions of adolescents and to determine how these perceptions relate to actual weight and their attitudes towards it. Studies also revealed that China is fast catching up with the West in the prevalence of overweight and obesity (Yu, Han, Chu, et al., 2011). However, the absence of agreement on the definitions to be used in classifying obesity in China has meant that the prevalence and trends of obesity have not been accurately documented for Chinese children. National and local surveys often give different rates of obesity, and surveys from different parts of China cannot be compared or combined within China or internationally because of the different diagnostic criteria used. Height concerns are pronounced in China (e.g., Jackson & Chen, 2007). Chen, Jackson, and Huang (2006) found
Mainland Chinese adolescents reported significantly more concern about shortness in height stature than either being overweight or facial appearance, which was also a prominent source of appearance dissatisfaction for both boys and girls. Sociocultural correlates of body image found eating disorder symptomatic adolescents and matched non-symptomatic peers could be differentiated on the basis of appearance pressure, teasing, and social comparison among Chinese adolescents (Jackson & Chen, 2007). The study did not assess body image per se, but high correlations between eating pathology and body dissatisfaction suggest that sociocultural processes are also germane to understanding weight concerns among the Chinese. In a study of sociocultural factors that shape body image among Chinese adolescents, Xu et al. (2010) found that girls reported higher levels of body dissatisfaction than boys. However, there is also a lack of research examining whether sociocultural factors extend to body dissatisfaction, aside from weight.

China has seen dramatic transformations in ideals of femininity since the 1970s (Huang, 2006). The specific Chinese cultural and social contexts influence children’s gender socialization (Cheung, 1996). The conceptualization of gender stereotypes in Chinese culture is different from that in Western culture. For example, Yu and Xie (2008, 2010) found that the communal traits, almost exclusively defined as feminine characteristics in Western cultures, were incorporated into both feminine and masculine traits in Chinese culture. Thus, less distinction between masculine and feminine traits among Chinese children may reduce the negative attitudes toward the other gender. Similar to Western children (Carver, Yunger, & Perry, 2003), older Chinese children tend to hold more flexible attitudes toward gender stereotypes than younger children (Fan & Fang, 2004). Despite in the last few decades the increasing number of research on children’s gender development in Chinese culture (e.g., Knobloch, Callison, Chen, Fritzsche, & Zillmann, 2005), most of these studies focused primarily on describing the developmental trends of gender stereotyping and the basic process of gender identity formation, such as gender label and gender constancy. Researchers have neither studied children’s gender identity from a multidimensional perspective, nor examined the relationships between different dimensions of gender identity and psychosocial adjustment.
2.7 Conclusion and implications for thesis

This chapter reviewed literature in both Western and Chinese contexts under the topics of pubertal development, body image and concerns, and gender issues to offer an overview of research evidence on adolescent physical growth.

The next chapter (Chapter 3) will carry on with this line, and review literature on social contexts of adolescents, in terms of family, peers, and schools.
CHAPTER 3 ADOLESCENTS AND SOCIAL CONTEXTS

3.1 Aims of this chapter

Chapter 2 outlined adolescents’ developing body, in terms of pubertal development, body image and concerns, gender issues, together with an endeavour to illustrate adolescents’ own perceptions, attitudes, and adjustments towards these developmental changes. Following this, as adolescents mature, the establishment of a unique social identity is another critical developmental task awaits them as they step out of childhood and progress into adolescence.

This chapter will systematically describe the social aspects of adolescent development and relationships between adolescents and their social contexts. As will be shown, this chapter is guided by bioecological model (Bronfenbrenner, 1979, 2005; Bronfenbrenner & Morris, 2006), and considers three main social contexts in adolescents’ life, including family, peers, and schools. This chapter will also make reference to contemporary research findings in Chinese literature on adolescents’ social contexts, accordingly. Attempts will be made to examine cross-cultural comparisons between evidence drawn from both Western and Chinese settings.

3.2 Introduction

Adolescents develop within multiple social subsystems with each subsystem bi-directionally affecting the contributions of other subsystems and collectively contributing to the overall functioning, growth, and adaptation of the child (Magnusson, 2000). Interest in these social systems and implications for adolescents’ development has burgeoned in recent decades. Studies have considered adolescents’ family, peers, and schools contexts, and they have investigated a wide range of adolescent experience including parents and peers relationships, friendship, school attitudes and engagement, and psychological health. Supportive families, positive peer relationships, and teachers and classmates with high levels of social cohesion provide key contexts that are protective of the adolescent’s healthy development (Currie, Zanotti, Morgan, et al., 2012). Aside from individual factors, the influence from social systems is also significant (Viner, Ozer, Denny, et al., 2012).
Bronfenbrenner & Morris (2006)’s bioecological system model contains six important components, the individual, *microsystem, mesosystem, exosystem, macrosystem,* and chronosystem. According to this theory, each of these components of an ecological system affects the adolescent’ behaviour and interacts with other systems at different layers (Bronfenbrenner, 1979, 2005). This suggests that systems at all the different layers not only generate independent influence on the individual’s behaviour, but also produce joint influence on the adolescent. Specifically, the *macrosystem* refers to social and philosophical ideals that define a particular culture or society, such as culture, and value. The *exosystem* refers to conditions and settings in the parents’ life that do not directly contain their children but influence the children indirectly through their direct influence on parents, such as family social economics status. The effects of these exosystemic contexts may enhance or hinder the parents’ ability to effectively communicate with, discipline, and support the adolescent. *Mesosystems* refer to relationships and interactions between the adolescent’s microsystems, such as parental involvement in schoolwork, parents’ attitudes towards adolescents’ friends, and peer norms upon school. In other words, a major function of mesosystem is to bridge one microsystem with another or more other microsystems, and the main principle of such functions is that the stronger and more complementary the linkage between systems, the more positive the influence of mesosystems on a child’s development (Pantin, Szapocznik, & Coatsworth, et al., 2009). Microsystems refer to the social contexts in which the adolescent participates directly, such as family, peers groups, and school. Within each social setting, the adolescent maintains relationships with a network of people (e.g., parents, friends, classmates, and teachers). Through these sets of relationships, each microsystem shapes adolescent development toward either health or dysfunction. Chronosystem indicates changes in time.

This framework fits a growing body of research revealing the importance of the significant changes in relationships with both adults and peers experienced by adolescents during school years (Wentzel, 1999).
3.3 The family context

The family is one of the most important developmental contexts for adolescents. Within the family, parents are the first and foremost socializers of children, having a tremendous influence on the child’s perception of and interactions with the world. Decades of research show a link between the family context and adolescent adjustment (Smetana, Campione-Barr, & Daddis, 2006).

Parent-child relationships are characterised by significant changes as a result of children’s biological maturation and cognitive development (Steinberg,
During this developmental stage, adolescents become more critical of parental regulations of their personal choices, and they are expected to distance from parents and to establish a stronger relationship with peers. As a result of these changes, some arguments and continuing conflicts are to be expected. Previous studies have reported that most of the arguments involved everyday activities in the home, rather than major conflicts resulting from extraordinary circumstances (Steinberg, 2001).

Adolescents in China did not distance from the family. Instead, they were expected to take on more responsibility as they aged and to obey their parents even during adolescence (Chan, 2008). Any questioning or talking back was considered disobedience (Detzner, Xiong, & Eliason, 1999). Recent studies with adolescents have shown a shift in the dynamics of parent-child relationships in Chinese families due to rapid socioeconomic changes (Chapter 1). Thus the shift of values and modes of behaviours seemed to play a critical role in changing parent-child relationship.

Gender and age of adolescents have been shown to affect the degree to which adolescents interact with their parents. Girls compared to boys, were more likely to disagree with their parents, particularly mothers. Early adolescents experienced more frequent conflicts with their parents, and mid adolescents tended to experience more intense conflicts with their parents (Laursen, Coy, & Collins, 1998; Adams & Laursen, 2007).

3.3.1 Parents attachment

Bowlby’s (1982, 2008) theory of emotional attachment suggest that, all infants have an innate, biologically based tendency to form an attachment bond to stronger and wiser individuals, who become their attachment figures. Through repeated daily experiences with these attachment figures, children develop cognitive affective attachment representations of themselves as being (un)worthy of care and protection and of the tendencies of these figures to be (un)available, (un)responsive, and (in)sensitive to their need for protection (Cassidy, 2008). Attachment, therefore, is often described as the discriminating bond that a young child forms with their primary caregiver (Cassidy, 2008). Although all children will become attached to caregivers who are consistently part of their lives, there are individual differences in the quality of each parent-child attachment relationship.
This representational model or internal working model guides the adolescent’s attachment behaviours. Theoretically, attachment bond is a positive influence on development throughout the life span by providing a sense of emotional support and of closeness and continuity to later psychosocial development, especially during times of important life transitions (Bowlby, 1982). Adolescence is such a time of important life transitions. During this period, adolescents confront the task of developing their identity and learning how to become autonomous, independent individuals while remaining involved in close relationships, especially with parents. However, Bowlby (1977) observed that adolescence is characterized by a decline in overt attachment behaviours such as seeking physical proximity with parents. Weiss (1982) also found that explicit reliance of the child on parental support diminished during adolescence; although, psychological health during this period is still grounded in the adolescents’ confidence in the availability and commitment of parental figures to them. Therefore, though the physical attachment may decrease, the emotional connection maintains its importance (e.g., Paterson, Pryor, & Field, 1995). Attachment theory postulates that the parent-child relationship develops from a behavioural to a mental level, where the cognitive and affective inner working model of the parent’s availability shapes the adolescent’s state of mind regarding attachment (Bretherton & Munholland, 2008). In this view, attachment is essential not only on a behavioural level during early childhood but also as a mental construct across the lifespan, making attachment theory a useful frame for studying emotional well-being in the transition during adolescence from childhood to adulthood. There is now convincing research indicating that secure attachment during adolescence is associated with the presence of a parent who is sensitive to the adolescent’s internal state of mind (Allen, 2008). In the meantime, distinct developmental changes are found in parent-child communication toward less parental control and reduced knowledge and less willingness of adolescents to share information with their parents (Keijzers, Branje, Frijns, Finkenauer, & Meeus, 2010; Keijzers & Poulin, 2013). However, the parent’s role and influence does not necessarily decrease. As Reitz et al. (2006) noted, the parents’ role may change to become more managerial, and advising and parental knowledge, discipline, and support may be important factors influencing the adolescents’ development. Nevertheless, it is reasonable to expect that the effects of parenting practices do vary not only because children become more mature and independent but also because peers and teachers take on an increasing role in
affecting the adolescent’s development (Barber, Stolz, Olsen, Collins & Burchinal, 2005).

3.3.2 Parental involvement

Apart from providing the emotional climate through family styles to boost parenting practice and functioning as the secure base for attachment to facilitate the developing child to explore social relations out of family, parents also actively involved in adolescents’ social activities, and have direct influence on adolescents’ other social subsystems (Hayes, Hudson, & Matthews, 2004, 2007).

Parents’ involvement in school has evolved into a complex array of parental actions, including parental participation in school activities and events, parental discussion of school with their child at home keeping abreast of what is going on in the child’s school life, and help children with their schoolwork (Hayes et al., 2007). This large and growing body of literature suggests that different kinds of parental involvement are effective at different times during the student’s life (Jeynes, 2014).

Several reviews and meta-analyses have demonstrated the positive relationship between parental involvement and academic achievement among students at all levels (Hill & Tyson, 2009). Although the importance of parental involvement is undisputed, still, research clearly indicates that too few parents, from kindergarten through high school, are actively involved in their children’s school life (Steinberg et al., 1996). With insufficient parental involvement even in primary school, research suggests that there is a steep decline in overall parental involvement as children matriculate through school systems, and it drops significantly during the middle and high school years (Simon, 2004). Mau also noted some racial differences in the types of parental involvement in which parents engaged. Although this relationship has been demonstrated in samples from around the globe, the theoretical conceptualization and measurement of parental support is predominately the work of researchers from the West, mainly the US (Barber et al., 2005). Not known is whether Western measures fully capture the construct of supportive parenting across all cultures. Moreover, while the positive influence of parental involvement in school seems universal, little is known what involvement in practice is most helpful for facilitating school success.
Part of the reason for the limited insight about what kinds of parental involvement helps the most stems from the fact that research on parental involvement frequently suffers from one or more of the following limitations: first, many studies are not based on large nationally representative samples; second, the vast majority of studies obtain measures of parental involvement and academic achievement within the same time frame, raising questions about the direction of causality; third, the definitions that some studies use for parental involvement are often distinct to the study, making it difficult to know whether parental involvement, overall, is helpful for students or merely certain aspects of parental involvement (Christian, Morrison, & Bryant, 1998); fourth, given the distinct definitions of parental involvement used in various studies, it is sometimes difficult to make conclusions regarding which aspects of parental involvement are most helpful (Christian et al., 1998); last, some studies examine parental involvement in such a specific context (focusing on either a specific school subject, or children with special needs, etc.) that it is difficult to generalize to the general population.

3.4 Peer contexts

The peer group represents another primary social context in adolescents’ life (Coleman, 1980; Brown & Larson, 2009). Peers have been regarded as significant rivals to parents in modelling behaviour and values (Collins & Laursen, 2004). In early adolescence, the dependency on parental relationships decreases, while peer and friendship relationships become more intensive, important, and time-consuming (Crosnoe, 2011). Accordingly, it has been proposed that the peak of peer influence occurs between the ages of 11 and 13 years (Berndt, 1979). During this period, interactions with peers are highly rewarding and influential for emotional wellbeing (Spear, 2010; Steinberg, 2008). Erikson (1963) specifically named peers as a key agent in adolescent development. It is during this period that children begin learning important social and academic skills as they interact with their peers. Indeed, peer relations theory and research indicate that early adolescence is a developmental period during which youth are especially concerned with getting along with classmates and expanding their social networks, and when they often report concerns with their current peer relationships and social standing (de Bruyn, Cillessen, & Wissink, 2010; La Fontana & Cillessen, 2010).
During early adolescence, friendships are the most prominent extra-familial feature of this expanding network. Different from peers, friends are peers with whom the adolescent deliberately has a close and intimate relationship. The adolescent trusts their friends, relies on them, and expects their support (Hartup & Stevens, 1997). Thus, friendship has a special place within the peer group, where there is a lot more give and take in a relationship; the principle of fair treatment encourages an openness of self-disclosure through communication and sharing of problems and advice. Hence, youth who share characteristics are more likely to become friends (Goodreau, Kitts, & Morris, 2009), and same-sex friendship groups are more common than mixed-sex groups in adolescence (Cairns, Xie, & Leung, 1998). However, peer relationships also tend to be in a state of flux (Cairns, Leung, Buchanan, & Cairns, 1995), and thus changes in peer relationships as a social context become common during this time of life (Wang, Iannotti, & Nansel, 2009).

3.4.1 Peer attachment

As mentioned above, primary attachment relationships occur primarily between child and parents prior to adolescence. During adolescence, however, primary attachment relationships begin to form between child and peers, not just with parents (Millings, Buck, Montgomery, Spears, & Stallard, 2012), and might be more important than parent attachment on adolescent adjustment (Brown & Larson, 2009). Although adolescents seek to individuate from family of origin by turning to friends in order to meet many attachment needs, they continue to rely on parents to provide a secure base to explore other relationships (Bretherton & Munholland, 2008). More precisely, a secure representational model of attachment provides the child with the capacity to explore the social world confidently and to meet the challenges associated with forming and maintaining healthy peer relations. On the same account, attachment theorists have long argued that representations of attachment relationships, or internal working models, are carried forward into new, extra-familial relationships, particularly their relations with peers (Bretherton & Munholland, 2008). Thus, the quality of the primary relationship engenders a set of internalized relationship expectations that affect the initiation and maintenance of extra-familial (e.g., peer) relationships. Research demonstrates that adolescents with secure attachments to primary caregivers in infancy
demonstrate higher levels of socio-emotional functioning and reciprocity in peer relationships (Ranson & Urichuk, 2008).

Individuals hold multiple attachments with specific partners, attachment representations in the individual’s social worlds are organised hierarchically (Mikulincer & Shaver, 2010), with attachments in specific close relationships predict outcomes more strongly than general representations (e.g., Sibley & Overall, 2007), and according to attachment theory, the internal working models of relationships with parents should most directly influence the manner in which children think and feel about their interactions and relationships with close friends (Bretherton & Munholland, 2008). However, the hypothetical situation in previous studies involved an unspecified peer, rather than a close friend.

To date, most studies examining links between attachment and peer relations have been conducted with children (Dykas & Cassidy, 2011). A large and convergent body of literature indicates generally that, compared to insecure children, secure children demonstrate greater social competence and have more positive peer group status. However, despite this extensive child-based research, relatively few studies have examined whether attachment is linked to adolescents’ peer relations. This lack of research is surprising because adolescent peer relations have great social and emotional importance and have the capacity to set individuals on different trajectories for overall adjustment later in life (Collins & Laursen, 2004).

3.4.2 Peer norms

Many children actively select peers who behave similarly as themselves as friends. For example, Kupersmidt and colleagues (1995) demonstrated that as similarity in behaviour and peer reputation increased between children, the likelihood of the initiation of a shared friendship increased. Friends tend to be similar on various attributes. Two processes often explain this homogeneity. First is reciprocal influence process, where children attempt to change each other to create a more satisfying friendship (Ennett & Bauman, 1994). Second is selection process indicating friends select each other base on common attributes (Bauman & Ennett, 1996). The majority of studies on peer influence have not separated the effects of friendship selection from effects of friendship influence. This might have led to an overestimation of the influence effect.
(Aseltine, 1995). Studies also indicated that compared to friendships during childhood, friendships formed during adolescence are more likely to share similar values (Berndt & Perry, 1990), shared attitudes towards academic excellence in school is often one of them, given the amount of time youth spend in the school context and the enormous opportunities for them to interact with peers (Kindermann, 2007).

Support for the importance of considering the role of the peer context in school engagement comes from contemporary developmental systems theories, which stress that systematic relations between individual and contextual variables provide the bases of human behaviour and development (see Figure 1, Brofenbrenner, 1979, 2005; Lerner, 2006). Research and theory has begun to highlight the potential relations between academic behaviours and peer relationship among adolescents, suggesting that peers may influence adolescents’ achievement and attitudes toward academics. Interpersonal relationships with peers at school are important in providing social and instrumental support, such as help with homework and encouragement to do well in school. Academically successful students and students who hold high expectations for themselves tend to affiliate with peers who are highly motivated academically, value good grades, and are similarly involved in academics. There is increasing evidence that peers play a crucial role in academic adjustment (e.g., Wentzel, Battle, Russell, & Looney, 2010), including China (e.g., Li, Lynch, Kalvin, Liu, & Lerner, 2011). However, although there is a growing empirical base showing that peer norms matter for academic adjustment, it is still relatively small compared with work on peers and social adjustment issues.

3.5 School contexts

School is particularly important as a social and learning institution. In most countries, adolescents attend schools and probably spend more time at school than in any other social contexts. Hence, the physical environments, learning atmosphere, and interaction with classmates and teachers in the school will greatly influence adolescents’ learning and development. School policies can also exert an influence on specific behaviours of adolescents.
3.5.1 School climate

Across many cultures, the developmental transition into adolescence often co-occurs with the social transition into middle school, and the concurrent shift from family members to peers as primary socialization agents suggests another important contextual factor in shaping adolescent development: school climate. The definition of school climate as a multilevel concept, includes more than just the experience children have on school grounds, is an extension of previous conceptualisations of school climate and is mostly used in contemporary literature (e.g. Cohen, McCabe, Michelli, & Pickeral, 2009). Hence, there is more than one level of school climate, and in the present study, five indices were included: school affect, pressure from schoolwork, school emphasis on achievement goals, social relationships classmates and teachers, and school safety.

**School affect**

In recent decades, social psychologists have paid greater attention to the non-academic aspects of education (Coleman, 1990; Steinberg, Brown, & Dornbusch, 1996). School affect is a key part of this emerging tradition. School affect taps the felt connections to the actual school community rather than abstract commitment to the educational process. In short, it is a domain-specific form of socio-emotional adjustment, namely students’ adjustment to everyday life in their own schools (Moody & White, 2003). Like other social psychological dimensions of schooling, school affect is tied to academic achievement and educational attainment but also signals wellbeing, social competence, and adaptation to major societal institutions (Johnson, Crosnoe, & Elder, 2001; Roeser, Eccles, & Sameroff, 2000).

**Pressure from schoolwork**

Relative to primary schools, middle schools are characterized by higher expectations for students’ school performance (Eccles, Midgley, Wigfield, et al., 1993). Accordingly, academic learning is among the most important sources of stress among young students worldwide and appears to be quite severe especially in Asian countries (Brown, Teufel, Birch, & Kancherla, 2006; Huan, See, Ang, & Har, 2008). Asian students usually have high academic burden (Lee & Larson, 2000), low satisfaction regarding their academic
performance, and high expectations (Crystal, Chen, Fuligni, et al., 1994) and thus may suffer more academic stress (Ang & Huan, 2006; Ang, Huan, & Braman, 2007) than their counterparts in Western countries. Among studies on Chinese adolescents, academic-related factors, such as underachievement, pressure from transitional examinations, and study workload are associated with poor mental health (Li & Zhang, 2008; Liu & Tein, 2005).

School emphasis on achievement goals

According to the theory of achievement goals (Ames & Archer, 1988; Elliot, 1997), the type of goal structure that emphasised in school guides students’ degree of involvement, the cognitive strategies they use to complete their tasks, their self-perceptions as learners, and their motivation to learn (Elliott, 2005). The achievement goals are often considered as two categories: the goal to learn, to master, and to develop and improve ability is often compared with the goal to demonstrate, to perform and to prove ability (e.g., mastery versus performance goals (Ames & Archer, 1988; Meece, Anderman, & Anderman, 2006).

In school where task goal structure is emphasised provide diversified and stimulating learning opportunities, emphasize effort, support student autonomy, encourage students to use self-reference criteria, and realize that mistakes are part and parcel of the learning process. In contrast, schools where encourage ego goal structure tend to group students by ability, value students who succeed over other students, extend privileges to students with better grades, and use evaluation procedures that encourage students to compare themselves with their classmates (Kaplan, Middleton, Urdan, & Midgley, 2014; Meece et al., 2006).

Social relationships with classmates and teachers

Early adolescence is an age at which non-familial social interactions take on greater importance, influencing students both socially and academically (Rodkin & Ryan, 2012). Indeed, relationships with authority figures and peers within school settings are considered key socializing agents for school students (Reddy, Rhodes, & Mulhall, 2003). Research consistently finds the relationship between teachers and students to be one of the most important factors in student success. This has been reported for students from many race
and ethnicity groups (e.g., Scrimsher & Trudge, 2003; Woolley & Grogan-Kaylor, 2006). It should also be noted that adolescents are exposed to positive and negative social interactions during the school day, both of which likely have a strong influence on subsequent adjustment and behaviour (Card & Hodges, 2008).

To a lesser extent, researchers have worked to identify qualities of adolescent group relationships. Group relationship qualities are similar to dyadic friendship or peer relationship qualities in that they focus on the attachment to, and potential support received from, the group. However, conclusions drawn regarding associations between group relationship qualities and adjustment are more tentative, because fewer empirical studies have explored those relationships. Adolescent adjustment has been hypothesized to be associated with whether adolescents believe themselves to be members of a group, how involved and attached the adolescents feel to a particular group, and how important the group is to the adolescents (Brown, 1990). Ethnographic studies have indicated that adolescents who belong to a group and who feel valued by the group are likely to have a more positive self-image, greater self-confidence, and well-developed interpersonal skills in comparison to adolescents who do not belong to a group or who feel that they are not valued by fellow group members (Hallinan, 1980). From this perspective, students’ perceived bonding and supports from classmates might have important influence on students’ school experiences, when taking the class as a group setting. However, studies on children’s non-adult relationships primarily focused on peers or friends rather than classmates as a unique social setting.

Due to their position of authority and time spent with students in the classroom, teachers hold a unique position to support and impact students’ beliefs and behaviours in their academic and social life at school. Moreover, schoolteacher is a responsive adult with whom children develop a relationship of trust, fostering a sense of connectedness to the school environment. A growing number of researchers are focusing attention on the relationships that develop between teachers and students (Decker, Dona, & Christenson, 2007; Hamre & Pianta, 2001). This emerging research is theoretically diverse and includes perspectives on motivational and self-systems processes (Connell, & Wellborn, 1991), social support networks (Malecki & Demaray, 2003), and attachment theory (Pianta, 1999). Although these theoretical orientations vary,
they all incorporate dimensions of positive involvement and emotional support as well as negative dimensions of alienation and conflict in their definitions of supportive and non-supportive relationships with teachers. Further, they all propose that positive and negative features of teacher-child relationships influence a broad range of emotional, behavioural, and cognitive outcomes both within and beyond the contexts of schools (Woolley & Grogan-Kaylor, 2006; Kindermann, 2011; Wentzel, Battle, Russell, & Looney, 2010). Given the strength of these associations, teacher-student relationships may be particularly important at this juncture (Davis, 2003).

Teacher-student relationships certainly exist within different cultures, although the way in which these relationships function across cultures and ages may differ (Chong, Huan, Quek, Yeo, & Ang, 2010). Theoretical models developed to explain how teachers promote student behaviour and attitudes (e.g., self-determination theory; Deci & Ryan, 2000) are quite similar to family socialization models, and empirical findings are beginning to provide support for these models (Thuen, 2007). However, despite the fact that researchers have demonstrated that teachers can provide key socialization experiences, the importance of each of these various experiences as indicators of different kinds of development in different cultures, is not known and more research is needed (Davidson, Lickona, & Khmelkov, 2008). Despite increased awareness about the positive benefits of supportive teacher-student relationships, very little is currently known about early adolescents’ perceptions of their relationships with teachers, and prior research on these relationships has focused primarily on students in early elementary school (e.g., Ladd, Birch, & Buhs, 1999; Saft & Pianta, 2001).

**School safety - Bullying and being bullied**

Bullying occurs within a social context, and the intent is to cause harm to another (Cook, Williams, Guerra, Kim, & Sadek, 2010). Bullying may be in the form of physical aggression or relational aggression using words, gestures, or social exclusion (Vlachou, Andreou, Botsoglou, & Didaskalou, 2011). The method of bullying changes as children develop cognitive awareness, for example, they may develop subtle forms of relational aggression often purposely hidden from adults (Schonert-Reichl, Smith, Zaidman-Zait, & Hertzman, 2012). The intent of relational aggression is to obtain a goal such as social status or power (Vlachou et al., 2011). Children who are bullied are at
risk of poor developmental outcomes including depression and loneliness, and they are at increased risk of suicide and early school leaving (Cook et al., 2010; Troop-Gordon & Gerardy, 2012). Although it is very difficult to compare the results of the frequency of violent behaviour in different cultures and educational systems, the results of studies in many countries have suggested that the frequency of violent behaviour among students had been on the increase (Carney & Merrell, 2001). There is a tendency for victimization to decline as age increases (Fonzi, Genta, Menesini, et al., 1999). On the other hand, the frequency of bullying others has failed to reveal a consistent and clear pattern across studies. In addition to that, the results of numerous studies have pointed to the negative and long-term consequences of bullying for all participants including the child who is bullying others as well as the recipient (Pepler, Craig, Connolly, et al., 2006).

3.5.2 School goals

**Personal achievement goals**

Conceptually parallel with school emphasise on achievement goals as ego or task oriented, students’ personal achievement goals can also be categorised as personal task goal and personal ego goal (Covington, 2000). Students’ personal achievement goal structures are also important indicators to understand students’ academic functioning and school adjustment. As mentioned above, although there are subtle differences among goal theorists regarding the exact nature and functioning of these two types of goals, there is considerable overlap in these different conceptualizations (Ames, 1992; Elliot, Shell, Henry, & Maier, 2005). Students who express a task approach goal orientation are focused on aims such as learning as much as possible, overcoming a challenge, or increasing their level of competence. Students with an ego approach orientation want to demonstrate their ability relative to others or to prove their self-worth publicly (Eccles & Wigfield, 2002). However, in real life it seems that students could, and often might, pursue task and ego goals at the same time (Kaplan et al., 2014).

Research on the impact of school, classroom, and family environments show that more critical for the motivation of learners is not their actual environment but rather how they subjectively perceive and interpret the messages conveyed in those environments. Therefore, in studies of learning environment conducted within the achievement goal tradition, students’ perceptions of the goal
structures in their classrooms and schools emerge as a strong predictor of the achievement goals they pursue in those contexts (Kaplan et al., 2014). When students believe that their teachers in school deem mastery of the learning tasks and deep understanding of the material more important than test scores per se, they tend to embrace similar attitudes toward learning and espouse a personal mastery goal. When students feel their classroom and school cultures promote competition and reward better performers, then they are likely to internalize these values and personally adopt either a performance-approach or a performance-avoidance goal. Students’ perceptions of the learning environment also directly affect their motivation and socio-emotional adjustments (Roeser & Eccles, 1998; Friedel, Cortina, Turner & Midgley, 2007).

Prior research examining the potential effect of achievements goals has often failed to account for existing differences in students’ performance or perceived competence (Friedel, Cortina, Turner, & Midgley, 2010). While researchers have explored learning outcomes in relation to achievement goals, the ways in which these goals change over time have remained largely unstudied. The middle school transition provides an informative window on this question, given the many changes that take place during this period (e.g., school structure, curriculum, teaching practices, classroom groupings), which are likely to affect students’ motivational dynamics (Eccles & Roeser, 2011). Though scant, the data to date largely support the idea that goals change during this period.

There has been little work on how children’s goals develop. Although Nicholls documented that both task goals and ego goals are evident by second grade (Nicholls, Cheung, Lauer, & Patashnick, 1989; Nicholls, Cobb, Wood, Yackel, & Patashnick, 1990), he also suggested that an ego goal orientation becomes more prominent for many children as they get older as a result of both developmental changes in their conceptions of ability and systematic changes in school context. The relations of goals to performance should also change with age as the meaning of ability and effort change and as the social conditions under which tasks are performed change (Urdan & Midgley, 2003; Shim, Ryan, & Anderson, 2008). Developmental studies of multiple goals are badly needed. Very little is known about how these kinds of multiple goals emerge during childhood and whether the relation of these different goals to performance varies across age and context.

*Personal school goals*
Individual motivation has been conceptualized in terms of self-articulated personal goals, such as life tasks, personal projects, personal strivings, and future goals (Cantor, Norem, Niedenthal, Langston, & Brower, 1987; Emmons, 1986; Nurmi, 1989), and how people appraise their goals along several dimensions, such as importance, commitment, progress, effort and stress (for a review, see Austin & Vancouver, 1996). One assumption made within this framework is that by setting personal goals, individuals direct their lives and their own development (Nurmi, 1993; Salmela-Aro, 2009; Salmela-Aro & Nurmi, 1997). It has been suggested that people construct their goals by comparing their individual motives to the opportunity space created by their environments (Nurmi, 2004). People also adjust their personal goals during major life transitions in order to adapt to the outcomes of those transitions and environmental changes related to those transitions (Nurmi, 2004; Salmela-Aro & Suikkari, 2008). During their adolescent years, youth are faced with many transitions that do not only have important consequences for their later development but also for their personal goals and related appraisals. Previous research has shown, for example, that the educational transition to junior high school primarily has negative consequences for adolescent development, such as loss of self-esteem and intrinsic motivation (Eccles & Midgley, 1989; Otis, Grouzet, & Pelletier, 2005), and a drop in grades (Blyth, Simmons, & Carlton-Ford, 1983), which may affect students’ personal goals directly or indirectly. In the present study students’ future plan after high school has been used as an indicator of personal goal.

3.5.3 School Behaviours

*School involvement*

School involvement is a term that researchers have operationally defined in various ways in an effort to access the extent to which students are involved and committed to school and motivate to learn (Steinberg, 1993). Studies on the developmental changes in school involvement among school children find that as students grow older and especially during the transition from primary into middle school, their school involvement generally decline (Holas & Huston, 2012).

*Absenteeism*
Absenteeism in school students refers to excused or unexcused absence from school (Kearney, 2008). Absenteeism, also called hidden dropout or irregular school attendance, is considered as the first stage of school dropout (Rosenblum, Goldblatt, & Moin, 2008). Whether studies focus on dropout (Fortin et al., 2004; Fortin, Marcotte, Potvin, Royer, & Joly, 2006) or on absenteeism (Kearney, 2008), the explanatory factors are similar and are usually personal, familial, and school variables. In general, the impact of school context in absenteeism has been neglected in favour of a mainly psychological approach (Kearney, 2008). According to Pellegrini (2007), school non-attendance is too frequently conceptualized from a psychopathological perspective. For example, terms like truancy or school refusal carry with them the connotations that the problem lies within the child (Carroll, 2010). One aspect of the newer research on absenteeism is how transition from one level of education to another can lead to truancy, and school level transition has also been used to explain why both dropout and truancy patterns increase when children move from primary to middle school (e.g., Akos, 2002).

Disruptive behaviours

Primary differences in the way males and females present symptoms of disruptive behaviour within the school context have been reported in the research literature. Generally males tend to exhibit external behaviours or symptoms at school, such as harming others or the environment by, for example, stealing, lying, fighting, or destroying property (Kann & Hanna, 2000). Females’ behaviours are often not as aggressive as those of males, females tend to be less noticed and receive fewer disciplinary referrals; females tend to engage in covert behaviours that usually occur without the awareness of adult caretakers (McMahon & Wells, 1998).

3.5.4 School adaptation

The transition from primary to middle or junior high school is a normative aspect of adolescent development. Moving from the familiar environs of the primary school to secondary school is both an important milestone and challenge that confronts most early adolescents. Whilst there is variation between school systems around the world, the challenges that this transition presents bear remarkable similarity (Humphrey & Ainscow, 2006) and in large measure are due to the disparity between the cultures of the primary and secondary school
(Ganeson, 2006). Indeed Topping (2011) notes that many children see transition as a normal part of their journey through the years of formal schooling. Although the majority of children successfully cope with this move and find that many of their initial fears do not eventuate, there is evidence to suggest that the academic progress of children can be compromised when children change schools (Ashton, 2008). The health, well-being and potential for disengagement of early adolescents is therefore of concern for educators (Dinham & Rowe, 2008), as evidence suggests that this disengagement increases as students move through secondary school (Daly, Shin, Thakral, Selders, & Vera, 2009). Assisting students to successfully navigate the journey from primary to junior high school is of importance to educators, parents and policy-makers alike, therefore, before considering these factors in more detail it is necessary to review the key features of the transition process itself.

The transition from primary to junior high school

The primary to junior high school transition generally includes a change of school campus, where in comparison to primary schools, is physically larger, mixing with a new and different peer group, is more impersonal due to a larger student-teacher ratio, and have a departmentalized instruction structure where students learn from numerous teachers who will have different teaching styles (McDevitt & Ormrod, 2012), and are often required to move to different locations throughout the day for their classes on time with correct equipment. Such challenges are a contrast to the primary school where children spend the majority of their day in the same classroom with the same teacher and the same group of peers, having their personal equipment is conveniently located in this one classroom. Furthermore, instead of performance-based evaluations in primary schools, social comparison-based evaluations, such as public honour rolls and strive for high academic standing relative to other students, are frequently used in junior high schools (Eccles & Roeser, 2011).

The transition between different school environments is often characterized by discontinuity in physical location, alienation from peer groups, and insecurity in teacher relationships (Ashton, 2008). For children who transferred into junior high school they must adjust to no longer being the oldest in the school and may find that they are treated as being younger and less independent by their teachers or other adults in school than they had been in primary school (Yates,
1999). While some children make this move with many of their peers from primary school, for others they may be required to make the journey alone. Many students have to travel significant distances, often by public transport, to access their new school. Many also find it hard to meet the academic demands of new junior high school, and school work can also be an issue in this regard. Moreover, in junior high school level, children are expected to take greater responsibility for their own learning process and result, with regard to school performance, tests, and assignment (Elias, 2002). The decision to engage in this more difficult environment may well be reliant on the extent to which children themselves believe that they can meet all of these challenges, see value in what they are doing and whether they perceive the classroom to be a safe and supportive environment (Roeser, et al., 2000).

Despite the many challenges that are presented by the move from primary to junior high school, there is also much to look forward to. Adolescents are excited at the prospect of having more freedom, more subject choices, making new friends, opportunity to participate in a wider range of extra-curricular activities (Coffey, 2009). However, they also worry about getting lost on campus, having more and harder homework, being bullied by older students, and having difficult teachers (Coffey, 2009). For many early adolescents in the Western cultures, the social aspects of school take precedence over academic concerns. Sweetser (2003) notes that children place the need to belong to a peer group above all else. Past research on early adolescents has pointed to the significance of the relationship that exists between children’s perceptions of caring and support from teachers, peers, and parents to positive aspects of school experience (Daly et al., 2009; Reddy, et al., 2003).

Whilst most students cope with this transition to the secondary level of schooling (Jindal-Snape & Miller, 2008), some perceive it as a period of stress that can be anxiety provoking (Ashton, 2008; Grills-Taquechel, Norton, & Ollendick, 2012). This struggle may be supported by declines in mental health at school, academic performance, school attendance, and involvement (Ashton, 2008; Daly et al., 2009; Dinham & Rowe, 2008). Concerns about junior high school are not limited to the year of transition, but it may pervade throughout junior and senior high school years. If school transitions are not navigated successfully, students are at an increased risk for lower school quality of life (Topping, 2011), poorer academic performance (Chung, Elias, & Schneider,
greater depressive symptoms (Barber & Olsen, 2004), and lower self-esteem (Eccles & Roeser, 2011). Scholars studying the transitioning process between primary school and middle school have noted that middle schools typically house increased peer pressure, bullying, fighting, and accessibility to drugs and alcohol (Cook, MacCoun, Muschkin, & Vigdor, 2008). Additionally, concern has also been expressed about the stress caused by being in the youngest class in a school, as children relatively younger than their peers often have lower self-esteem and feel more strained (Fenzel, 1992). Gender appears to be a factor in adjustment to school transitions, and results have largely documented higher levels of anxiety in females than in males during school transition (Rice, et al., 2011).

Some studies suggest the pre-transition year is characterised by higher levels of anxiety; however, it is often unclear whether this is part of normal adolescent development or is linked to the stressors of impending school transition (Grills-Taquechel, et al., 2012). Rice et al. (2011)'s study of a small sample of UK students found both school-related and generalised anxiety symptoms were highly correlated with concerns about school (including social, structural and academic factors) both before and after the transition to middle school. Surprisingly, little is known about the long-term contribution of worries prior to entering middle school on adjustment in middle school. Most studies have either evaluated worries after the transition has taken place or measured worries subsequently with adjustment indices (e.g., Wenz-Gross, Siperstein, Untch, & Widaman, 1997). In addition, individual differences in adjustment were not considered. Accounting for these differences could bring new insights into the interplay between worries and subsequent adjustment. Finally, these studies largely neglected characteristics of the new school environment (e.g., school emphasis on achievement goals, Meece, et al., 2006) that is liable to either weaken or strengthen the relationship between worries about middle school transition and adjustment.

3.5.5 Limitations of previous research on adolescents' social contexts and research need for Chinese studies

The above sessions in this chapter reviewed previous literature on family, peers, and schools during adolescence in both China, and predominantly in
Western contexts. Several research limitations and cross-cultural gaps can be identified, with regards to each context, accordingly.

Research on family so far has been mostly on parent-child relations especially attachment that focused on infancy and early childhood, and it is relatively less known how parent-child and their attachment relationships change during adolescence (Paterson, et al., 1995). Although there is some evidence to support the universality of attachment and the need for relatedness (van IJzendoorn & Sagi-Schwartz, 2008), attachment at different developmental stages manifest itself with different features, thus is changing dynamically over time. On a similar account, another limitation is the lack of longitudinal studies. Consequently, little is known about the longitudinal changes or effects of family contexts. Several earlier studies that examined the impact of family on adolescents’ outcomes were predominantly based on cross-sectional data, which prevented researchers from concluding whether the expected effects were a result of the initial level of children’s outcomes or if family contexts also influenced the developmental trajectory of children’s outcomes. It is also unclear to what extent relations between parent attachment and involvement are universal across cultures. Culture is a contextual factor that has been suggested to have a great influence upon the parent-child relationship in both Western and non-Western societies (Song, Thompson, & Ferrer, 2009). Still, the number of published studies focusing on associations between parental rearing and adolescents’ wellbeing in non-Western societies is limited compared with the number of studies presenting data from Western societies. Specifically, investigations performed in rapidly developing non-Western countries are sparse.

Studies on the peer contexts of adolescents largely focuses on peer influence, and results provide an inconsistent picture; this may resulted from the fact that the characteristics of the peers have often not been taken into consideration. In addition, the stability and quality of peer relationships also changes over time (Poulin & Chan, 2010; Way & Greene, 2006). Researchers who have examined the link between peer relationships and adjustment typically have focused on either the qualities of peer relationships or the general behavioural characteristics of individuals. Researchers, further, have limited their inquiry to either the impact of close friends (Savin-Williams & Berndt, 1990) or the impact of the broader peer group (e.g., cliques, crowds, and friendship groups;
see Brown, 1990). Peer relationships are affected by culture-specific views on interpersonal relationships and norms, which have to date only rarely been investigated (French, Pidada, & Victor, 2005). Development of close relationship with peers is a universal task of adolescence, but the cultural context in which these peer relationships develop differs. Peers norms play an important role in the socialization and selection of close peers, however, while much research has been done on peer influence especially on negative outcomes during this life stage, less has been done on positive contributor or outcomes in peer norms. What’s more, although there is abundant research on peer relationships in Western cultures (Bukowski, Newcomb, & Hartup, 1996), very little is known in a cross-cultural context, less is known in a Chinese population.

Studies on school transitions often adopt a cross-sectional approach rather than longitudinal design, and among the longitudinal research, the majority of them studied students’ transition experiences or adjustment at two time points as before and after the transition, missing is the time point of during the transition when students just entered their new school. The majority of studies have been conducted with students from Western cultural backgrounds. Few studies have been conducted with students from Eastern backgrounds, such as Chinese students (Hui & Sun, 2010). Results of cross-cultural studies (Yu, 1996) indicate that Chinese students excel their Western counterparts on academic achievements, are more interested in schoolwork than other activities, and like school more. However, how Chinese students make their school transitions have been missed from local research literature.

3.6 Conclusions and implications for thesis

The bioecological system theory (Bronfenbrenner, 1979; 2005) offers a broad orientation for viewing the social worlds of the developing child. However, limited research has explored the longitudinal changes of the contextual factors that shape and influence adolescent’s development. While each of the above-noted social contexts of the adolescent represents an important component of their developmental ecology, when these components are separated and examined in piecemeal fashion across studies, it is impossible to consolidate findings and identify whether certain microsystem is more important to consider than others and how they change longitudinally. As
such, a primary goal of the present study was to simultaneously consider multiple components of these social contexts and integrate these microsystems into the social ecological model to provide a systematic, comprehensive, and longitudinal overview of the cybernetic and dynamic contexts in adolescents’ social worlds.

Alongside the rapid changes in the physical body (see Chapter 2) and social contexts (current Chapter), the psychological functioning of the adolescent is also experiencing developmental transitions. In next chapter (Chapter 4), the psychological domains of adolescents will be explored in details in terms of global life satisfaction, self-esteem, psychosomatic symptoms, mental health difficulties (loneliness, anxiety, depression), and coping.
CHAPTER 4 MENTAL HEALTH DURING ADOLESCENCE

4.1 Aims of this chapter

Followed literature reviews on adolescents’ physical growth (Chapter 2) and social context (Chapter 3), this chapter will proceed with research literature on adolescents’ mental health and wellbeing, in terms of:  global life satisfaction, self-esteem, psychosomatic symptoms, mental health difficulties (loneliness, anxiety, depression), and coping. These areas of mental health will be reviewed with regards of their concept, characteristics, prevalence rates, and developmental trends. This chapter will also explore research findings on these topics in cross-cultural contexts.

4.2 Global life satisfaction

Global life satisfaction has been defined as a cognitive appraisal of the quality of one’s life in general (Huebner, 2004), and has been a major indicator of adolescent subjective wellbeing (Diener & Diener, 1995). It also has broad educational and social implications. Because a major goal of most educational programmes is to enhance the quality of life in their students (Landesman, 1986), the impact and quality of school practice can be improved if teachers and educators have a better understanding of the way students perceive their lives. Given these reasons, life satisfaction constitutes an informative index for understanding adolescent development (Loewe, Bagherzadeh, Araya-Castillo, Thieme, & Batista-Foguet, 2014).

Compared with research on global life satisfaction of adults, research on adolescents’ global life satisfaction is little. Though scarce, previous Western literature suggests a slight decline in global life satisfaction from early to middle adolescence (Goldbeck, Schmitz, Besier, Herschbach, & Henrich, 2007), and it is suggested that adolescents were more critical and self-conscious and thus less happy than pre-adolescents (Goldbeck et al., 2007). However, despite the main trend of developmental decline during adolescence reported by many authors, there are also research evidence contradicted this view. For example, a Scottish study (Levin, Currie, & Muldoon, 2009) reported a significant improvement in adolescent between 1994 and 2006.
In contrast to abundant life satisfaction research on Western samples (mainly adults), only a limited number of studies have been conducted with children and adolescents across cultures (Leung & Zhang, 2000). Possible reasons for this research gap have been led to a lack of well-validated, age-appropriate measures of children and adolescents (Huebner, 2000), given the assumption that children or early adolescents may have difficulty in evaluating their global life satisfaction because they may have difficulty integrating evaluative information from various life domains (Harter, 1985). However, in this study, the HBSC items on global life satisfaction was adopted and has been suggested to show potential utility of global life satisfaction among early adolescents (11-15 years; Levin et al., 2009, 2011).

So far much research has been conducted to identify factors leading to or hindering life satisfaction in Western populations, systematic research among adolescents in Chinese societies has just begun, with work so far mainly from Hong Kong (e.g., Sun & Shek, 2010). Large-scale and systematic cross-cultural investigations, especially on developmental stability of life satisfaction are still lacking.

4.3 Self-esteem

Self-esteem, defined as a favourable or unfavourable attitude toward the self (Rosenberg, 1965), is generally regarded as an important index of adolescents’ mental health and wellbeing (Rey, Extremera, & Pena, 2011). It has been studied mostly as a one-dimensional construct as global self-esteem, and in recent years, a number of authors begin to study self-esteem in a multi-dimensional manner (e.g., Harter 1982, 1999). It is also important to distinguish the parts from the whole; for example, Marsh (1986)’s research provides clear empirical evidence that global and specific self-esteem cannot serve as substitutes for one another.

With respect to the content of self-esteem, research suggests the relative importance of different self-esteem domains on the judgement of global self-esteem varies across age as children transition into and through adolescence. Within the framework of multidimensional self-esteem (Harter, 1982), self-esteem in specific domain may follow similar or variable developmental trajectories. Previous studies on self-esteem among adolescents have reported declines across many domains with age (Eccles et al., 1993).
Apart from studies on age-differences of self-esteem, it is of developmental importance to study normative changes of different self-concept across developmental transitions. Past research suggests that, across many domains, early adolescents first entering middle schools experience a significant drop in self-esteem, which is rebuilt during late adolescence (Harter, 1998). On the other hand, children in early primary school have relatively high self-concept (Wigfield & Eccles, 1994). This age difference in self-esteem in part also reflects transitional stress experienced by early adolescents. Early adolescence coincides with multiple transitions, including the educational transition from primary school to middle school, cognitive emergence of formal operation reasoning, and the onset of puberty (see Chapter 1). The cumulative effects of these transitions result in heightened stress in this age period that often leads to declines in self-esteem (Eccles, Wigfield, Midgley, Reuman, Maclver, & Feldlaufer, 1993; Harter, 1990). The affect dimension of the self-system is also often found to experience depression during this transition (e.g., Petersen, Compas, & Brooks-Gunn, 1993), which will be discussed below.

Research on self-esteem keeps growing, yet it is important to note that the majority of evidence on the role of self-esteem in child development mostly comes from research on Western populations, it is not clear whether the processes by which self-esteem affects development and mental health are similar in other ethnic or socioeconomic groups, including China. Furthermore, most cross-cultural research on self-esteem has been conducted with adults, thus to what extend these controversial patterns of cultural differences in self-esteem can be generalize to adolescent samples warrants more investigation.

4.4 Psychosomatic symptoms

Psychosomatic symptoms are important indicators of psychosocial health and wellbeing (Griffin & Christie, 2008). By definition, they are often described as subjective physical symptoms (e.g., headache) as well as psychological symptoms (e.g., feeling low) that are not caused by an underlying physical disease (Natvig, Albrektsen, Qvarnstrom, 2001).

Psychosomatic symptoms are found common during early adolescence, though the frequency, duration, intensity, and their disabling effects vary among individuals. However, evidence suggests age to be important factor in
having psychosomatic symptoms especially among adolescent girls. Studies show that older girls report more symptoms than their younger peers (e.g., Murberg & Bru, 2007; Hjern, Alfven, & Ostberg, 2008).

Research with children and adolescents has demonstrated an increased risk for psychosomatic symptoms in the presence of psychosocial factors operating through social stress at a micro (individual) level, such as family problems, peer pressure, lack of support from parents and teachers (Karademas, Fotiou, Kokkevi, 2008), as well as factors at the macro (societal or national) level (e.g., Holstein, Currie, Boyce, et al., 2009). Findings also provide support for the relationship between psychosomatic symptoms and other mental health indicators, such as poor life satisfaction, depression (Piko, 2006), negative moods (Jellesma, Rieffe, Terwogt, & Kneepkens, 2006), unhappiness (Natvig, Albrektsen, & Qvarnstrom, 2003), and a lower health perception (Piko, 2007). There has been emerging consensus that physical health and mental health are associated, however, research exploring the relationship between mental and physical health among adolescence is limited.

Stress in the school setting has been shown to be significantly associated with psychosomatic symptoms in school-age children in Norway, Sweden and Finland (Murberg & Bru, 2007; Hjern, et al., 2008). But this relationship has never been explored in a Chinese setting, where there are growing concerns about the stressful school environment.

Given the extreme emphasis on academic achievement among Chinese school children (Chapter 1), school grades and future schooling have been found to be Chinese students’ primary concerns (Sun, Dunne, Hou, & Xu, 2013). A few studies have touched on educational pressure and psychosomatic symptoms in Chinese adolescents with limited symptoms including headache and stomach-ache only (Hesketh, Zhen, Lu, Dong, Jun, Xing, 2010), this is the first study which examined a comprehensive range of symptoms and explicitly address this in a school transition setting. In addition, although there has been a growing consensus that physical health and mental health is associated, research exploring the relationship between mental and physical health among adolescents is limited. Consequently, whether and how emotional and psychological distress manifest itself through bodily expression is poorly understood both in the West and Chinese contexts.
4.5 Mental health difficulties

In recent years, the mental health difficulties in adolescence have been increasing in a particularly insistent way (e.g., Olino, Stepp, Keenan, Loeber, Hipwell, 2014; Newland, et al., 2014). On the other hand, other studies suggest that these problems are restricted to a minority (e.g., Ford, Goodman, & Meltzer, 2003). Widespread concerns together with inconsistent findings about adolescent mental problems, therefore, have generated intense debate and resulted in adolescence being high on research interest and policy agenda. However, despite the inconsistent findings on mental problems’ prevalence and trend in adolescence, mental problems, on its own account, makes a significant contribution to morbidity and mortality, which if unrecognised renders young people vulnerable to poor psychological functioning in the immediate and longer term.

Psychiatric conceptualisations comprise categories of mental disorders or mental illnesses, broadly defined as patterns of symptoms or behaviours that are associated with impaired functioning (WHO, 2012). Guided by this view, in this section, selected mental health difficulties are reviewed, including: loneliness, anxiety, and depression. While anxiety and depression show high prevalence rates in adolescent samples in the Western context, and are therefore worthy of consideration in a Chinese context. Loneliness was also explored because it may be of significance in a Chinese context where most children grew up without siblings due to One Child Policy (see Chapter 1).

4.5.1 Loneliness

Loneliness is reported to first emerge as an intense recognizable phenomenon in adolescence (Goossens, 2012; van Roekel, Scholte, Verhagen, Goossens, & Engels, 2010). Indeed, although popular culture depicts adolescence as a time of sociability and old age as a time of loneliness, research evidence tends to challenge this view, and van Dulmen and Goossens (2013) have shown that younger adolescents feel lonelier than older adolescents and many adolescents from different cultures report feeling lonely.

Loneliness results from the perception that one’s interpersonal relationships do not meet personal expectations (Van Roekel, et al., 2010), while others (e.g., van Dulmen & Goossens, 2013) have suggested developmental and social
factors that explain adolescent loneliness, as developmental changes, separation from parents, maturation, striving for personal autonomy, and the struggle for significance (van Dulmen & Goossens, 2013), among which developmental changes during adolescence has received much research attention. Developmental changes increase the risk for physical isolation, and increase the chances that these experiences will be perceived as social isolation and interpreted as loneliness. The social world changes rapidly during the adolescent years. These changes alter the content and frequency of social experiences, and the identity of the participants (Viner et al., 2012). As social experiences change, so do expectations about social interactions and perceptions of what constitutes social isolation. The literature regarding the relation between loneliness and the size of one’s social network is not entirely consistent. The amount of time youth spent alone tended to be uncorrelated with their feelings of loneliness (Goossens, 2012). Findings such as this indicate that it is critically important to distinguish physical isolation (aloneness) from perceived social isolation (loneliness) in understanding the unique risks for loneliness that confront adolescents, as adolescents are experiencing multiple changes in their developmental course during this stage and each of these developmental changes creates new challenges in adolescents’ social relationships. To sum up, the operative factor appears not to be the objective/quantitative aspects of one’s social status, but rather the subjective/qualitative dimensions. In all cases where quantitative and qualitative factors have been compared, relational quality has been significantly more predictive of loneliness than the size of network or the frequency of social contacts.

Although loneliness is considered a normal part of adolescent development, it can cause considerable distress. Sustained loneliness in particular is likely to be associated with various forms of psychopathology (Qualter, Brown, Munn, & Rotenberg, 2010), including internalizing and externalizing problems (Goossens, 2006; Schinka, van Dulmen, Mata, Swahn, & Bossarte, 2011). Loneliness is also associated with poorer general health (Hawthorne, 2008; Qualter et al., 2010).

The ultimate objective of research on loneliness during adolescence is to describe and understand the natural course of loneliness across this period of life. However, few data are available on the average developmental trend in
adolescent loneliness. Among the limited research, findings are inconsistent (Benner & Graham, 2009). A recent study of a large sample of adolescents found that 36.1% of participants experienced increases in loneliness from middle childhood into adolescence (Schinka et al., 2013). At the descriptive level, longitudinal studies are sorely needed, but until recently such efforts have been scarce. At the explanatory level, the combined role of environmental and personal factors as determinants of adolescent loneliness has long been recognized (Ladd, 2006). However, important changes have occurred in the theoretical frameworks used to account for this joint influence of context and individual.

4.5.2 Anxiety

Anxiety is a cognitive, emotional, behavioural and physiological response of an individual experiencing a feeling of danger or threat and the cause of which they are not aware of (Rapee, Schniering, & Hudson, 2009). For many children and adolescents, anxiety is a normal transient experience, which parallels the bio-psychosocial changes in their development (Rapee et al., 2009). For some others, anxiety is one of the most prevalent mental health difficulties in adolescence, with evidence that it is relatively stable, highly comorbid, and associated with later mental health difficulties (particularly depression) and psychosocial difficulties (Essau, Leung, Conradt, Cheng, Wong, 2008).

The larger part of the research literature on developmental paths of anxiety covers clinical populations, tracking anxiety mostly in the form of anxiety disorders in time. The results mostly show that the manifestation of anxiety differs with age (Rapee et al., 2009). As for non-clinical samples, the majority of studies have focused on overall anxiety and its development over time (Olatunji & Cole, 2009). In such cases, anxiety is often operationalized as a unitary construct without acknowledgement of the possibility that different dimensions exist that may have different developmental structures.

Nevertheless, anxiety is a multidimensional construct with components that differ across age and may function differently in time (Spence, Paula, & Cynthia, 2003). Different stability rates have been established for different components of anxiety. Since the different components of anxiety in childhood lead to different problems in adolescence and adulthood (Olatunji & Cole, 2009), a
multidimensional evaluation of anxiety is crucial when investigating the development of anxiety over time and when planning an intervention.

Research on developmental trends generally shows an increase in anxiety during childhood and adolescence (Silverman & Treffers, 2001). This may be due to the development of cognitive skills, which enable the development of worries to continue with developmental trends in adolescence (Lowe, Raad, & Lee, 2008). However, research on developmental trends of adolescent anxiety has been constrained by methodological weaknesses. In particular, a large proportion of studies have been cross-sectional, employing single informant designs and clinical or convenience samples, tremendous variations exist in the number assessments, the length of follow-up, symptoms assessed, the treatment of gender in the analysis, and the specific analysis employed (Essau, Conradt, & Petermann, 2000).

Despite these marked methodological differences and limitations, one possible reason for disparate findings regarding stability and change is that there are qualitatively different subgroups in the population, showing different levels and rates of change in anxiety symptoms over time. Some individuals may show strong continuity of symptoms, whereas others may show a decline or sharp increase in symptoms over time. Research on identifying the attributors to such individual difference in anxiety is now well recognized that a combination of psychological, social, and biological factors is likely to contribute to the development of youth anxiety (Rapee, et al., 2009). Consistent with contemporary integrative and multifactorial models, a range of correlates and risk factors for anxiety, usually assessed at one point in time, has been identified (Rapee, et al., 2009). In keeping with an ecological model of development (Bronfenbrenner, 1979, 2005; Bronfenbrenner & Morris, 2006), these factors may be broadly grouped into individual characteristics (e.g., genetic factors, female gender, temperamental features including shyness and negative affectivity, neuroticism, poor social skills, poor physical health), family characteristics (e.g., low parental warmth, high parental control) and social and environmental factors (e.g., peer relationship difficulties, negative life events, and low socioeconomic status).

Research has found cultural differences in anxiety (Choi, Nisbett, & Norenzayan, 1999). Environments and the broader sociocultural context vary in the same way per generation; therefore it makes sense to measure trends in
anxiety by observing the same generation over time. Moreover, as mentioned above, research to date has generally focused on a general anxiety variable or only one aspect of anxiety (e.g., OCD or social anxiety); however, it may be that different symptoms or subtypes of anxiety are impacted. Compared with research and theory on anxiety in the Western context, studies on Chinese children and adolescents’ anxiety are in need. Among the existing literature in Chinese sample, school-related problems, such as academic performance and peer relationships, are the predominant sources of anxiety (Wang & Holcombe, 2010).

4.5.3 Depression

Conceptualization of depression varies among studies in literature. Guided by Diagnostic and Statistical Manual of Mental Disorders-DSM-IV (1994), in this study, depression is defined and studied as a complex pattern of deviations in behaviours, cognition, and feelings, using Beck Depression Inventory-II (Beck, Steer, & Brown, 1996; Chinese Behavioural Science Corporation, 2000). In the presentation of the results within this chapter, the chief symptom headings of depression will be produced based on results, and further discussed in later session.

A number of studies on depression in adolescence reported dramatic increase during this period of life (e.g., Millings, Buck, Montgomery, Spears, & Stallard, 2012). These studies consistently found linear increases in depressive symptoms with individual differences in rates of increases. In addition, research has indicated that depressive symptoms are associated with functional impairment among adolescents (Millings et al., 2012) and that subclinical depressive symptoms in adolescence predict the onset of major depression in adulthood (e.g., Balaz, Miklosi, Kereszteny, et al., 2013).

Life stress has been identified as risk factor for depression during adolescence (Monroe, Slavich, & Georgiades, 2009), and levels of stress increase (Ge, Lorenz, Conger, Elder, & Simons, 1994), which may help to explain the increase in rates of depression during this developmental period. In addition to environmental risk factors (e.g., stressful life-events; Ge, Conger, & Elder, 2001; Wu, 2009), genetic and biological factors (Bienvenu, Davydow & Kendler, 2011) and cognitive vulnerabilities (e.g., negative attributional style, Abela,
Stolow, Mineka, et al., 2011) are suggested to contribute to the onset of depression during adolescence.

Research on depression among adolescence has further demonstrated that depressed affect is associated with other serious consequences for adolescents, such as emotional and disruptive behaviour, truancy, substance abuse, adolescent pregnancy (Stange, Alloy, Flynn, & Abramson, 2013), and suicide attempts (Gibbons, Hur, Bhaumik, & Mann, 2006). Given its associations with a variety of negative correlates and outcomes, a particular concern of study on depression is the increase in the number of adolescents for whom the occurrence of depression becomes chronic or co-occurs with other disorders. Problems in meeting basic developmental challenges have been linked empirically to chronic depression in the presence of other mental problems (Petersen, et al., 1992). A number of studies have characterized symptom courses as individual differences in initial levels and longitudinal changes in severity (e.g., Van Oort, Greaves-Lord, Verhulst, Ormel, & Huizink, 2009).

Although at the level of diagnosis, depressive episode should be distinguished from chronically depressed mood, much of the research presented about adolescent depression has been drawn from cross-sectional data for which indicators of depression have been assessed only at one point in time. Additionally, because the variable-centred approach has been the primary conceptual and analytical tool in research on individual development (Wilson, Pritchard, & Revalee, 2005), the general trend has been to examine the relations between variables in large groups of individuals (e.g., boys and girls), rather than being gender-specific. Moreover, as indicated by Wilson and colleagues (2005), the identification of patterns of depression (of boys and of girls) across early adolescence might be as important as trying to understand which variables are related to it across that period of development.

Despite the inconsistent findings concerning the direction of changes in depression, many of the available epidemiological studies on depression focus on short-term, within-person changes or cross-sectional age differences. Moreover, developmental scientists traditionally have examined cognition and emotion separately, and little is known about specific cognition-emotion interactions that contribute to depression during adolescence.
Nevertheless, how depression is experienced, expressed, understood, and perceived by others is powerfully shaped by specific cultural contexts (Kirmayer, 2012). Epidemiological studies in China suggest that the incidence rates of child and adolescent depression are high and prevalence of depression among adolescents is rising in recent years (Lee, Tsang, Huang, et al., 2009). Apart from interpersonal relationships (Li & Prevatt, 2008), studies indicated that academic pressure is a crucial source of stress for Chinese adolescents and constitutes an important risk factor for depression within this population (e.g., Chen, et al., 1995). Prior research on depression in China has focused on testing whether models of depression developed in Western cultures extend to Chinese samples. Findings from some of these studies suggest that certain aspects of adolescent depression are universal (e.g., Cheng, 1997). On the other hand, other research has pointed to key differences in the antecedents and correlates of depression between cultures (Greenberger, Chen, Beam, Whang, & Dong, 2000). Thus, continued research is needed to examine whether etiological models of depression developed within Western cultures extend to non-Western cultures such as China.

4.6 Coping

Coping is defined as the actions and cognitions used to manage stressful demands (Lazarus & Folkman, 1984). However, based on the argument that children and adolescents do not have the coping skills that typical adults have, developmental researchers conceptualize coping as children’s profile of emotional, cognitive and behavioural responses in dealing with specific difficulties (Skinner & Zimmer-Gembeck, 2007). In accordance with developmental research, this study defines coping as including all emotional, cognitive, behavioural, and interpersonal (social) responses in children and adolescents to their problems.

As outlined in Chapter 1 adolescence is a developmental phase characterized by multiple transitions. The young adolescent faces a series of concurrent transitions in physical, cognitive, psycho-emotional, and behavioural development. The development of coping can be understood by considering these developmental processes that give rise to it, as well as the environmental contexts within which it unfolds. Families, peers, and schools create demands
on adolescents and may result as stressors; at the same time, they also function as resources in adolescents’ coping process (Lazarus & Folkman, 1984).

4.6.1 Coping strategy

Though a multitude of coping strategies have been observed and the categorizations of them used in various studies have been inconsistent, one widely used categorization adopts three categories of problem-solving, emotion distraction, and avoidance coping strategies (Wilson, et al., 2005). A problem-solving coping strategy is defined as an individual’s active planning and efforts to change the environment of psychological stress. An emotional distraction strategy refers to an individual’s attempt to reduce the negative emotion caused by stressful events. An avoidance strategy is described as an individual’s attempts to separate from the source of stress. Each coping strategy categories includes specific coping behaviours. Once coping strategies have been deployed, individuals reappraise the environment and make judgments about the effectiveness of their responses. Thus, appraisal influences the deployment of coping responses, which in turn, influences reappraisal of the environment. It should also be noted that these coping strategies are predominantly behavioural in nature and reflect the personal resources that are available to early adolescents.

Studies examined consistency of coping during early and middle adolescence indicates signs of both consistency and inconsistency in adolescents’ coping response. Some findings show that coping change from context-to-context, and across phases of the same context (Crocker & Isaak, 1997). Despite such view of coping as a dynamic process, most other researchers have examined the notion of coping as a dispositional variable. This trait approach to coping assumes that adolescents possess a stable coping style that predisposes them to cope in a similar manner across situations. One possible conclusion is that appraisal may be more inconsistent than actual coping responses (Skinner & Zimmer-Gembeck, 2007). However, at the moment these thoughts are speculative, but it might help to explain some of the contradictions reported in the literature concerning consistency of coping and the concept of coping style.

In general, adolescents are reported to use a wider range of coping strategies than children, and it is this increasing flexibility and organisation of their responses that is likely to be most adaptive, which may owe to their improved
cognitive abilities and social skills development during adolescence (Skinner & Zimmer-Gembeck, 2007). To be specific, in spite of individual differences, some authors have concluded that behaviours aimed at changing the stressful situation are very common, but decrease in use during adolescence, whereas coping focused on managing emotions and reducing tension increases (Frydenberg & Lewis, 2000). Skinner and Zimmer-Gembeck (2007) showed that support seeking, problem solving and distraction are the most often coping strategies in adolescence.

Considering cross-cultural differences in coping strategies, it has been found that individuals living in a collectivistic culture may engage in more passive or avoidant coping because of their tendency to appraise stressors as a threat, whereas those with more individualistic orientation are expected to engage in more active approach to coping because of their tendency to appraise stressors as a challenge (Skinner & Zimmer-Gembeck, 2007). Such influence of culture on coping strategies further increases the importance of exploring this construct in a collectivistic culture of China. Furthermore, given the fact that such comparative studies are often based on older adolescents or adults, to study the topic on early adolescents will contribute to the missing literature.

4.6.2 Coping efficacy

Coping involves attempts at managing stressors, so by definition coping can be effective or ineffective. Within the general psychology literature, coping effectiveness has been conceptualized in terms of the quality of fit between environmental demands and the person (Lazarus & Folkman, 1984). Effective coping strategies facilitate performance and manage or alter the problem that causing stress. Developing effective and positive coping behaviour is one way to manage stressors during transformation from childhood till adolescence. On this account, identifying differences in effective and ineffective coping attempts with specific stressors would reveal important information about the nature of coping effectiveness.

There is little research on effectiveness of coping as a whole concept or specific coping strategy, even less among adolescents. This may result from the fact that studies on coping either consider coping as whole solely, or because coping efficacy was interpreted through selections and applications of coping strategies. Nevertheless, the limited data seems to suggest some age-related
differences in the effectiveness of specific types (and application) of coping strategies across childhood and adolescence. Although adolescents theoretically possess a greater number of coping responses than children, they are able to select the most effective coping responses for a given stressful demand (Aldwin, 2000). From a developmental perspective, these findings indicate that adolescents can use cognitively-based coping strategies more frequently and more effectively than children.

4.7 Conclusions and implications for thesis

This chapter provide an overview of research on adolescents’ mental health, focusing on their global life satisfaction, self-esteem, psychosomatic symptoms, loneliness, anxiety, depression, and coping. In the following chapter (Chapter 5), the methodological approach used in the research will be described. Chapter 6 will provide an overview of the interrelations of all the variables examined in this study, before moving on to empirical results on longitudinal changes in Chinese adolescent girls’ physical growth (Chapter 7), social contexts (Chapter 8), and mental health (Chapter 9).
CHAPTER 5 METHODOLOGY

5.1 Aims of this chapter

The aim of this chapter is to describe and defend the research methodology adopted in this study. It first outlines the research design, the reasons for the choice of a longitudinal repeated-measure quantitative study. Information is provided in detail on the demographic characteristics and recruitment of sample, including ethics considerations. Further this section outlines variables studied, respective research questions and measures in the questionnaire, and each individual measure is reported with its sources, applications, characteristics, and modification in this study. Following full information on the questionnaire, procedures of data collection and practical issues relating to conducting research with children and young people in Beijing are discussed. The chapter concludes with a brief analysis plan that will guide the structure of the following results chapters (Chapter 6 to 9). To sum up, guided by the broad research objective and set within Chinese cultural context (Chapter 1), this chapter bridges the previous three literature chapters and each relating research questions (Chapter 2-4) with the research findings presented in the following four chapters (Chapter 6-9).

5.2 Design and rationale

The aims of the study were to first explore and extend current information on multiple developmental changes in early adolescents’ life portrayed in domains of their physical growth, social contexts, and mental health overtime especially during the transition from primary to junior high school (see Figure 5.1).
Note: The horizontal arrow shows the transition process and developmental changes over time.

Figure 5.1 A study of longitudinal changes in Chinese adolescent girls’ physical growth, social contexts, and mental health during the transition from primary to junior high school

Governed by these main research objectives, the present research was designed as a questionnaire-based prospective longitudinal three-phase study using a repeated-measure design to provide a coherent account of adolescents’ transition experience and developmental outcomes (see Figure 5.2 below for detailed research domains and supporting topics).
School ranking  
Family SES  
Grade  
Chinese culture  

<table>
<thead>
<tr>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
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<tbody>
<tr>
<td>Pre-transition</td>
<td>During transition</td>
<td>Post-transition</td>
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**Physical growth**
- Pubertal development
- Body image and concerns
- Gender issues

**Social contexts**
- *Family and friends*
  - Parent attachment
  - Parental involvement
  - Peer attachment
  - Peer norms

**School**
- School climate
- School goals
- School behaviours
- School adaptation

**Mental health**
- Global life satisfaction
- Self-esteem
- Psychosomatic symptoms
- Mental health difficulties (loneliness, anxiety, depression)
- Coping (strategy, efficacy)

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- Pubertal development
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  - Parental involvement
  - Peer attachment
  - Peer norms

**School**
- School climate
- School goals
- School behaviours
- School adaptation

**Mental health**
- Global life satisfaction
- Self-esteem
- Psychosomatic symptoms
- Mental health difficulties (loneliness, anxiety, depression)
- Coping (strategy, efficacy)

---

*Note: Age = Chronological age; Grade = School grade*

Arrows represent potential influences; arrows in bold represent key influence and direction of changes

Figure 5.2 An overview of the research design and variables in this study
The self-report questionnaire method is often used to obtain information on social and behavioural variables and the relationships between these variables among children and young people (HBSC, 1998, 2002, 2006, 2010, Shaw, Currie, Koudelka, & Simpson, 2011). In this vein, and also in order to actually let children speak for themselves and eliminate the buffering effect of other informants, questionnaire approach was adopted in this research. Moreover, questionnaire-based surveys were considered to be suitable in this study as they encompass data collection on phenomena like developmental trends that cannot be directly observed. It also has its strength in describing the characteristics of a large population, while no other method of observation can provide this general capacity. Consequently, large samples are feasible, which makes the results robust even when analysing multiple variables. Standardized questions and measures also ensure that similar data can be collected from groups and then interpreted comparatively (Palmquist, 2004). In the words of Angus and Katona (1953, p16, as cited in Colorado State University, The Writing Studio, 2014), “It is this capacity for wide application and broad coverage which gives the survey technique its great usefulness”. Interviews and daily diaries provide richer sources of information but more difficult to capture the changing trends or patterns which can represent a big population, as the aim of qualitative research is to understand experience as unified (Flick, 2014). In addition, they are more labour-intensive and time-consuming; qualitative studies may also neutralise subjectivity and objectivity (Creswell, 2013), thus were not used in this study.

The questionnaire-based survey took place at three time-points (pre-school-transition, during transition, and post-school-transition) following the same sample from primary to junior high school to capture the developmental changes in early adolescents’ life (see Figure 5.1). A longitudinal design was chosen for several reasons. First and foremost, longitudinal studies are often used in psychology to study developmental trends. The advantages over other study designs, such as cross-sectional studies, are well documented (Bryman, 2012; Baltes, Reese, & Nesselroade, 2014, for a review). The key benefit of a longitudinal study is that researchers are able to detect developments or changes in the characteristics by measuring prevalence at several points in time and can provide information on causation, prognosis, and stability of the target population (Hunter, Cox, Teagle, et al., 2002; Twisk, 2013). Cross-sectional design was considered less appropriate because it may bring in
extraneous differences between cohorts rather than true developmental changes (as in puberty) or transitional process. By contrast, longitudinal design can reveal links between early experiences and later outcomes, and indicate the changes over transitional processes (Cohen, Manion, & Morrison, 2013). In addition, while cross-sectional data only allow investigation of differences between individuals, longitudinal studies also allow researchers to differentiate between change over time in aggregate (group) data and changes within individuals as well as variation between them (Bryman, 2012). Longitudinal studies also allow researchers to distinguish short to long-term phenomena, which cannot be evaluated by using one-off cross-sectional studies. To this end, longitudinal design was adopted in this study rather than cross-sectional approach.

Furthermore, a longitudinal study can be either prospective or retrospective. When a longitudinal study is to be conducted on adolescents, a prospective study is preferable for a number of reasons. It follows samples into the future, allowing researcher to track events before and as they occur, whereas a retrospective longitudinal study covers only the past (Rogosa, 1995). By collecting prospectively, the problems of recall bias that occur in retrospective studies are avoided. As well as exploring the developmental stressors among adolescents, a prospective study can illuminate the factors that protect adolescent from risk and create resilience. Valuable insights can also be obtained from observing the developmental sequences of them (Bryman, 2012; Cohen, et al., 2013). In practice, the investigation of outcomes suggesting resilience as well as poorer outcomes can be undertaken in greater detail via a prospective study (Twisk, 2013).

Repeated measures design can detect the effect of the independent variable even when the effect is small, it also allows for the detection of change in children or their environments from one data point to the next (Hunter et al., 2002). By using standardized measures, the present study will bridge the gap of the scarce application of such instrument in China and offer a comparative view from the Eastern culture on existing European and American dominated literature.

Longitudinal studies also has potential disadvantages. For example, it takes long time to get results, needs to have large sample size and accurate sampling to reach representativeness, and is often threatened by subject attrition or
practise effects resulting from repeated testing (same measures for variables used to ensure the comparisons). In this study, these potential drop-backs were considered carefully and steps were taken to optimize the research process (see research procedure for detail) and its reliability at all phases.

5.3 Participants

Data were collected from 622 (out of a total of 669; 47 girls from the potential Time 1 were absent due to illness or other academic commitments at the time of data collection; see Table 5.1) girls from 14 primary schools reside in 4 main districts in Beijing at Time 1, constituting a participation rate of 92.97%. Data from 92.77% of the participating girls were usable (N=577). Following the transition into junior high school, 502 girls of the 577 original respondents participated at Time 2 with coverage of 13 middle schools, 462 participated at Time 3, and eventually produced 471 and 425 usable questionnaires at subsequent phases, respectively (data verification and treatment of missing values will be discussed below in data analysis). On completion of the third wave, 425 respondents were matched across all three waves, from whom longitudinal results were obtained (demographic characteristics of participants are shown in Table 5.2 and Table 5.3).

Table 5.1 Participants and attrition rate across three phases

<table>
<thead>
<tr>
<th></th>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participating schools</td>
<td>N=14</td>
<td>N=13</td>
<td>N=13</td>
</tr>
<tr>
<td>Participants approached</td>
<td>N=622</td>
<td>N=502</td>
<td>N=462</td>
</tr>
<tr>
<td>Usable data</td>
<td>N=577</td>
<td>N=471</td>
<td>N=425</td>
</tr>
<tr>
<td>Response rates</td>
<td>92.77%</td>
<td>93.82%</td>
<td>91.99%</td>
</tr>
<tr>
<td>Longitudinal attrition rates</td>
<td>N/A</td>
<td>13.00%</td>
<td>1.91%</td>
</tr>
<tr>
<td>Final attrition rates</td>
<td>N/A</td>
<td>N/A</td>
<td>26.34%</td>
</tr>
</tbody>
</table>
Girls were asked to supply various biographical details about themselves, including age, date of birth, weight and height. BMI scores were calculated to reflect girls’ weight status (see Chapter 7 for classifications and analysis details). Age was calculated as the time between the date of birth and the date when the survey took place at each time point. Weight and height were acquired in the measurement of kilograms and metres. School information was collected to enhance retention rates. As seen in Figure 5.3, in practice, samples were drawn from schools in four main districts where the majority of schools and universities distributed in Beijing rather than the total municipality.

Socio-economic status (SES) of participants was obtained by two questions. The first question asked information on both parents’ occupation of the participant and answers were condensed into a classification similar to the British Registar General’s social classification of occupations ranging from 1 (high occupational status) to 5 (low occupational status). Information that cannot be categorised under any occupation classifications was coded as “unclassifiable”. To minimise the effects of missing data and obtain accurate information on socio-economics status, information on the status of father and mother was combined, using the highest occupational status for each couple as the family SES indicator. In addition, the second question was on girls’ perceived family well-off situation (“How well-off do you think your family is?” also see HBSC, 2010) measured on a 5-point Likert scale with lower point indicating higher well-off status. Chi-square analysis revealed strong
association between SES based on results from objective evaluation and subjective report $\chi(16) = 211.826, p < 0.01$, (N=393, analysis is based on final sample with matching usable data). As such, classification of family SES was based on categorizations of parents’ occupation, and unusable values were replaced with girls’ perceived family well-off status. Other popular SES scales such as the HBSC Family Affluence Scale (FAS) which was based on a set of questions on the material condition of the household in which participants live (e.g., car ownership, bedroom occupancy, holidays and home computers) was considered not appropriate because Beijing is a metropolis city with greater differences between SES groups, and at the same time material condition might generate inaccurate information given to the fact that Chinese families tend to compare with each other thus invest more into material ownership which might exceed their actual financial situation. As a result, in this study, the combination of objective classification and girls’ subjective perception of their family SES is considered a better solution compared with using material ownership as SES indicator.

Table 5.2 describes the demographic characteristics of the whole sample at each phase. The BMI mean scores across three time points all fell into healthy range (adjusted for age) (IOTF, 2012). As can be seen, following the transfer into junior high school, more girls transitioned into key schools, which indicates that the changes in school ranking was representative of the school transition outcomes in China (see Chapter 1). Given the longitudinal changes in this study would be based on the final sample (N=425), Table 5.3 illustrates the demographic information obtained at Time 1, except that information on junior high school ranking were collected at Time 2. As girls transferred into junior high school, the proportion differences between ordinary and key school was more balanced. The sample was well distributed across the socio-economic groups according to their parental occupations and their perceived family affluence.

Table 5.2 Participants of the whole sample at each time point
Table 5.3 Demographic characteristics of the final sample

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>N=425</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronological age (in years)</td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>12.20 (0.74)</td>
</tr>
<tr>
<td>Range</td>
<td>9.75-13.58</td>
</tr>
<tr>
<td>Height (in meters)</td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>1.50 (0.06)</td>
</tr>
<tr>
<td>Range</td>
<td>1.33-1.68</td>
</tr>
<tr>
<td>Weight (in kilograms)</td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>40.00 (5.93)</td>
</tr>
<tr>
<td>Range</td>
<td>26-65</td>
</tr>
<tr>
<td>BMI</td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>17.69 (1.99)</td>
</tr>
<tr>
<td>Range</td>
<td>12.20-28.06</td>
</tr>
<tr>
<td>School grade</td>
<td></td>
</tr>
<tr>
<td>Primary school Grade 6</td>
<td>N=577 (100%)</td>
</tr>
<tr>
<td>Junior high school Grade 1</td>
<td>0</td>
</tr>
<tr>
<td>School ranking</td>
<td>Key school N=149 (25.8%)</td>
</tr>
<tr>
<td></td>
<td>Ordinary school N=312 (73.4%)</td>
</tr>
<tr>
<td>Family SES (N/%)</td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>30 (7.1%)</td>
</tr>
<tr>
<td>Good</td>
<td>77 (18.1%)</td>
</tr>
<tr>
<td>Fair</td>
<td>162 (38.1%)</td>
</tr>
<tr>
<td>Fine</td>
<td>113 (26.6%)</td>
</tr>
<tr>
<td>Low</td>
<td>43 (10.1%)</td>
</tr>
</tbody>
</table>

Note: Final sample refers to the group of children who participated in all three phases

To sum up, demographic information provided an overview of the characteristics of the sample in this study, offered comparative data when studying cross-cultural differences, and also served as an easy entry leading to the more psychological questions in the questionnaire.

Before moving onto the sample recruitment procedures, it is important to note the sample attrition pattern and treatment in this study. As known to all longitudinal researchers, sample attrition is a feature of longitudinal data in which individual participants drop out from the study over time. It is one of the major methodological problems in longitudinal studies, which poses a
threat to weaken generalizability of findings if participants who stay in the study differ from those who drop out. Attrition rates from 30% to 70% are often reported (Tortora, 2009), and the longer the follow-up period, the higher the chances are for dropout (Menard, 2007). Differences in mean levels of variables between those who drop out and those who stay in a study do not necessarily imply that there are differences in associations between variables (Menard, 2007). Although precautions were paid attention to through sample recruiting process (see below for details), the study also examined possible effects of attrition on estimates of associations between variables after data collection (see empirical chapters).

As shown in Table 5.1, a comparatively bigger attrition rate occurred following the transition from primary to junior high school at Phase 2. Result of independent t-test on demographic information revealed that girls who remained in the study (N=471) and girls who dropped out of the study (N=106) did not differ significantly at phase 1 and 2. These observations indicate that sample attrition was not a major source of bias in this study. It should be noted that sample attrition in sequent sessions also resulted in the researcher’s practical consideration and accessibility to participants. Firstly, at Phase 2 after students transferred into junior high schools, participants were excluded when the number of participants was less than five in one school. This was due to the consideration that participants in the same school were in different classes, and it took schools more efforts to arrange a small number of participants from all different classes into one classroom setting. Secondly, following the completion of primary school study, girls who went to study abroad or returned to their hometown were also excluded from subsequent survey due to loss of contacts or physical distance. Therefore, the main reason for the dropout at Phase 2 should not be understood as participant-biased. Nevertheless, retention rates were enhanced for those participants who continued their study into junior high school within the same districts or city. The researcher was open and friendly to all the participants and their interest in the project and maintained on-going informal contacts also helped maintain participants’ retention.
5.4 Recruitment

The recruitment process aimed to ensure that the sample was as diverse as possible within the boundaries of the target population (Denscombe, 2007); efforts were made to select the most representative sample to mirror larger populations, reduce confounding variables, and guarantee the equality in the comparison.

The sampling process involved the researcher initially contacting teachers working in primary and middle schools and with their help further contacts were made to the dean of educational administration or principals in each school, seeking permission to recruit school children for survey conduction. In this manner, teachers responded as designated contact person and manager of the school setting. Contacts to school level were made in the first instance via phone calls to introduce the researcher, research outline, and followed with alert letter, which contained a brief description of the survey process and background information. Copies of introductory letters and supporting materials were sent by mail or fax to the principal and/or other school officials when requested. Schools were also reassured that the research was of value/interest; would be conducted safely and ethically; and would place a minimal burden on their staff and participants. As a result, most contacted settings granted permission and consent was obtained for investigation from school level (see Table 5.1 for sample information and attrition rates).

Subsequently, school principals or other school authority informed class teachers about the survey. With the help of contact teachers, survey packets including a cover page outlining the research purposes (to foster knowledge about puberty, school transitions, adolescent wellbeing, and potential research implications to educational practice) were provided to class teachers and query or concerns in relation to the research intention, survey content, time scale, venue, or dissemination, from head teachers were answered by researcher. Hence, girls as prospective research volunteers were recruited in their classrooms during schools hours, provided with a survey packet that included a cover page outlining the research purposes and key survey elements, data confidentiality, assess to result and potential benefits for

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6 Recruitment refers to the sampling process at Time 1 to obtain original sample for the longitudinal study
participants and wider community, child consent were completed by potential participants in school. This included information about the time involved, the participation was voluntary, and they were assured that if they participated, their answers would not be revealed to their parents, teachers, or anyone else, and they maintain the right to withdraw from the research at any point. Potential participants were also given a parents/guardians consent form to take home providing information about the study and participation details, the voluntary nature of participation, opportunity to voice any questions or concerns, and email address and phone number of the researcher as well as the phone number of a local counsellor (an alumna from University of Edinburgh, and currently works in hospital), willing to discuss, in confidence, any issues of concern raised by the child or parents/guardians regarding the survey. In fact, none of the girls or their parents availed themselves of this offer at Time 1; however, a few participants were in touch with the researcher after the survey at Time 1, yet no contacts were made to the counsellor throughout the whole study. Thus, by implementing the opt-in consent with participant girls and an opt-out consent process with their parents/guardians, adolescents participated if they voluntarily chose to do so and if their parents did not object to their participation. This is in line with the ethical guidelines of the British Psychological Society (BPS, 2009) and advice on carrying out ethical research with children and young people (see below for ethical considerations in details). Eventually girls from two to five classes according to the size of each school who had agreed to participate were selected from Grade 6 among all primary schools approached.

It had been acknowledged and addressed to the potential participants at the initial recruitment about the longitudinal nature of this study would require participants’ being able to participate at all three phases. Thus the re-recruitment at Time 2 and Time 3 were non-problematic on condition of the researcher was granted with permission to conduct the survey in middle schools where original participants were tracked according to their primary school records and information obtained on Time 1 questionnaire. As such, the re-recruitment procedures at Time 2 and Time 3 were very similar with that at Time 1. However, given credit to the completion of the survey at its initial phase, and interpersonal help from class teachers, all the contacted middle schools at Time 2 opened their doors to the researcher, which also paved the way for the re-recruitment at Time 3. As the majority of participants stayed in
the same class and school at Time 3, and previous contacts had been made at early phase, it is understandable that the re-recruitment went smoothly and obtained a high retention rate.

To sum up, the sampling procedures as described in this study might reflect only the Chinese approach in the initial stages of most similar studies. Given the importance of Chinese value on Guanxi (interpersonal relationship) (Shang, Fu, & Chong, 2012), it has been advocated as a pervasive relationship lubricant that helps to increase the efficiency and effectiveness of organizational performance (Shang et al., 2012), in the case of the sample recruitment process, the Guanxi between the researcher and class teachers obviously played a key role (see below for more practical issues on conducting research among school children in Beijing).

5.5 The questionnaire

Questionnaire in forms of compositing questions and measures is the core element of any survey-based study. How a questionnaire is designed, what questions will be asked, how the questions progress, and how analysis will proceed, are all of great importance (Baltes et al., 2014). In agreement with this, the questionnaire in this study is composed of questions carefully selected and adapted, written in child-friendly language, with structure and sequence of questions carefully considered (e.g., the questionnaire progresses from demographics warming up individual questions to standardized multiple-item psychological measures), and was carefully piloted among target participants before commence of the survey.

5.5.1 Selection, modification, translation, and permission to use of standardized instruments

When designing survey questionnaire, researchers often consider the inclusion of existing instruments. In this study, well-established measures and scales that had been applied among Chinese sample were considered first (see Table 5.4 for an overview of questions and measures included; see Appendix for full questionnaire). A wide range of standardized measures were replicated and adapted from previous studies, this allowed an investigation of whether the findings reported in Western studies would be duplicated in
Chinese context. For instance, items from the HBSC, a cross-national health survey were selected for this research. As a cross-national research study conducted in collaboration with the WHO, the HBSC could provide resourceful comparable data, and some of the scales were of high validity rate given its long-time establishment (HBSC, 2010). The adoption of HBSC items in current research also exerted the possibility of cross-cultural comparison with findings from many other countries. Efforts were made to find culturally appropriate measures, and subsequent modifications were made to suit sample and research objectiveness in this study (see below for descriptions of individual question and measure).

All questions and measures adopted in the questionnaire were originally produced in English language. After its composition, the questionnaire was thus translated into Chinese before use. Meaning-equivalence is considered to be an important component of the questionnaire’s validity (Wagner, Hansen & Kronberger, 2014; Iwata, 2014), thus particular attention was paid to the translation process. At the initial questionnaire design stage, individual questions and measures in its original language (English) were put up together under research themes, under the categorical title of My body, My family and friends, My school, and My feelings. The sequence of questions was then rearranged and modifications to measures were carefully made to suit the research need and suitability for the target sample (e.g., item “Loss of interest in sex” was removed from Beck Depression Inventory-II, for the consideration of being inappropriate with early adolescents; see modifications in each questionnaire descriptions). After the questionnaire content and its cohesion were carefully modified, the questionnaire as a whole was translated into Mandarin Chinese by the researcher, and checked by peer Mandarin speaking PhD students. During the translation process, the Chinese translated questions and measures that had been used among Chinese sample previously were taken as reference critically (e.g., Physical Appearance Comparison, Inventory of Parent and Peer Attachment, Harter Self-esteem Questionnaire, Children’s Loneliness Scale, Spence Children’s Anxiety Scale, Beck Depression Inventory-II). The revised questionnaire in Chinese was then translated back to English by British-born-Chinese postgraduates who is fluent with both English and Chinese, and checked by native English speakers, to compare the meaning equivalence and accuracy, and to ensure that the Chinese version captured the correct notion of each item. After a few times of revision, the questionnaire was piloted on a
small group of target participants (N=10) to check the face validity and content validity of the questionnaire (also mentioned in procedure) (Creswell, 2013). To note that, at the time of carrying out the questionnaire translation, the researcher had 7 years translation experience, excellent and certificated proficiency in both Mandarin Chinese and English, proven ability to translate educational, psychological, and also complicated texts in law, IT, business contracts, and official documents, and fully aware of ethical and multicultural issues. On this account, the fact that the translation process was directed and conducted mainly by the researcher was of thorough thought.

Adherence to ethical standards in using any existing standardized instrument is important to protect and preserve respondents’ rights, as well as the integrity of the instrument. Also, many of these questionnaires are copyright or trade mark protected. Therefore, permission to the usage and translation of certain scales in present questionnaire was sought from the instruments’ originators or publishers. Questions and measures available in Mandarin were used as references in the translation process of the questionnaire (see above). Modifications to measures were made only when necessary. Rationales, descriptions, reliability and validity tests, result interpretation, and discussion were presented in full detail. Administration, scoring, and interpretation instructions contained in the manual of each instrument were strictly followed to ensure that tests and questionnaires were properly used.

5.5.2 Ethical considerations

Ethics codes for both psychological (e.g., code of ethics and conduct from BPS, APA, SRCD) and educational research were followed (e.g., revised guidelines from BERA; Bryman, 2004; Cohen et al, 2007; Alderson & Morrow, 2004, 2011) in this study. Because the sample of the research was early adolescents, participants’ rights and issues related to research with children and young people governed the research design, conduct, and report (Alderson & Morrow, 2004; 2011). Cross-cultural differences and cultural specifics in research ethics were also considered. First and foremost, the researcher is aware that researchers who are cross-culturally literate increases their chances of working in an ethical manner with participants from different backgrounds. Second, current systems of research practice are rooted in Western culture, therefore, research procedures can be more ethically appropriate by
acknowledging and incorporating practices relevant to the culture of participants and their larger community (in this study, Chinese students, parents, teachers, and school faculties). Third, indigenous values and practices were taken into consideration in questionnaire modification and results interpretation. For example, sex can be a taboo among school children in China, and the BDI-II item on loss of interest in sex was therefore removed in the questionnaire used in this study. Traditional individually focused psychoeducational processes and goals can often exist in opposition to Chinese collectivist value-orientations. Therefore, attention was paid in discussion of relevant results especially in relation to Chinese educational practice and cultural values. To name, just a few of the salient issues above related to conducting ethical research with Chinese participants, this also contributes to designing and implementing research across cultures.

Permission to undertake the study was obtained from Moray House School of Education, University of Edinburgh, approved by Research Ethics Committee. Enhanced disclosure from Disclosure Scotland and Certificate of No Criminal Convictions Certificate from China were both obtained for the researcher before the commencement of this study.

Data were kept confidentially. Questionnaires were kept in locked cabinet and electronic data sheets were saved on secure University servers with password login. Participants in the research were informed that information provided was to be securely stored against access by persons other than the researcher. Research reports will be acknowledged to participants in this study.

5.5.3 Instruments

As seen in Table 5.4, the questionnaire at each phase consisted of four parts: my body, my family and friends, my school, and my feelings. The sequence of questions was designed to ease the way of completing the questionnaire from subjective to personal topics, considering the potential sensitivity related to each domain. Core questionnaire elements were tested through all three phases; meanwhile, elements that considered more stable in feature development were excluded from the subsequent phases after phase 1 (e.g. Family SES). Details of all the measures are provided below (see Appendix for full questionnaire items).

Table 5.4 An overview of the longitudinal questionnaire composition with questions and measures’ details under research themes
<table>
<thead>
<tr>
<th>Measure</th>
<th>Measuring Instruments</th>
</tr>
</thead>
<tbody>
<tr>
<td>My body - Physical growth</td>
<td></td>
</tr>
<tr>
<td>Pubertal development</td>
<td>• Pubertal Development [Petersen et al, 1988]</td>
</tr>
<tr>
<td></td>
<td>• Perceived pubertal timing scale [Dubas, Graber, &amp; Petersen, 1991; HBSC, 2006, 2010]</td>
</tr>
<tr>
<td>Body image and concerns</td>
<td>• Body change, body size, dieting behaviour, perceived looks [HBSC, 2006, 2010]; care about height, care about figure [Simmons, Black, &amp; Zhou, 1991]</td>
</tr>
<tr>
<td></td>
<td>• Physical appearance anxiety scale, [Reed, Thompson, Brannick, &amp; Sacco, 1991]</td>
</tr>
<tr>
<td></td>
<td>• Physical appearance comparison scale [Thompson, Fabian, Moulton, Dunn, &amp; Altabe, 1991]</td>
</tr>
<tr>
<td>Gender issues</td>
<td>• Positive feelings about being girls; act like boys, [Simmons et al., 1991]</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Measures at Time 1</td>
<td></td>
</tr>
<tr>
<td>Pubertal development</td>
<td>• Pubertal Development [Petersen et al, 1988]</td>
</tr>
<tr>
<td></td>
<td>• Perceived pubertal timing scale [Dubas, Graber, &amp; Petersen, 1991; HBSC, 2006, 2010]</td>
</tr>
<tr>
<td>Body image and concerns</td>
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</tr>
<tr>
<td></td>
<td>• Physical appearance anxiety scale, [Reed, Thompson, Brannick, &amp; Sacco, 1991]</td>
</tr>
<tr>
<td></td>
<td>• Physical appearance comparison scale [Thompson, Fabian, Moulton, Dunn, &amp; Altabe, 1991]</td>
</tr>
<tr>
<td>Gender issues</td>
<td>• Positive feelings about being girls; act like boys, [Simmons et al., 1991]</td>
</tr>
<tr>
<td>Measures at Time 2</td>
<td></td>
</tr>
<tr>
<td>Pubertal development</td>
<td>• Pubertal Development [Petersen et al, 1988]</td>
</tr>
<tr>
<td></td>
<td>• Perceived pubertal timing scale [Dubas, Graber, &amp; Petersen, 1991; HBSC, 2006, 2010]</td>
</tr>
<tr>
<td>Body image and concerns</td>
<td>• Body change, body size, dieting behaviour, perceived looks [HBSC, 2006, 2010]; care about height, care about figure [Simmons, Black, &amp; Zhou, 1991]</td>
</tr>
<tr>
<td></td>
<td>• Physical appearance anxiety scale, [Reed, Thompson, Brannick, &amp; Sacco, 1991]</td>
</tr>
<tr>
<td></td>
<td>• Physical appearance comparison scale [Thompson, Fabian, Moulton, Dunn, &amp; Altabe, 1991]</td>
</tr>
<tr>
<td>Gender issues</td>
<td>• Positive feelings about being girls; act like boys, [Simmons et al., 1991]</td>
</tr>
<tr>
<td>Measures at Time 3</td>
<td></td>
</tr>
<tr>
<td>Pubertal development</td>
<td>• Pubertal Development [Petersen et al, 1988]</td>
</tr>
<tr>
<td></td>
<td>• Perceived pubertal timing scale [Dubas, Graber, &amp; Petersen, 1991; HBSC, 2006, 2010]</td>
</tr>
<tr>
<td>Body image and concerns</td>
<td>• Body change, body size, dieting behaviour, perceived looks [HBSC, 2006, 2010]; care about height, care about figure [Simmons, Black, &amp; Zhou, 1991]</td>
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</tr>
<tr>
<td></td>
<td>• Physical appearance comparison scale [Thompson, Fabian, Moulton, Dunn, &amp; Altabe, 1991]</td>
</tr>
<tr>
<td>My family and friends - Social contexts</td>
<td>Family SES</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td></td>
<td>• Parents occupation</td>
</tr>
<tr>
<td></td>
<td>• Perceived family well-off <em>(HBSC, 2006; 2010)</em></td>
</tr>
<tr>
<td>Parents</td>
<td>• Parental involvement <em>(HBSC, 2006; 2010)</em></td>
</tr>
<tr>
<td>Perceived family well-off</td>
<td><em>(HBSC, 2006; 2010)</em></td>
</tr>
<tr>
<td>Parents</td>
<td><em>(HBSC, 2006; 2010)</em></td>
</tr>
<tr>
<td>Parents</td>
<td><em>(HBSC, 2006; 2010)</em></td>
</tr>
<tr>
<td>My school - School contexts</td>
<td></td>
</tr>
<tr>
<td>-----------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>School climate</strong>&lt;br&gt;  - School satisfaction (HBSC, 2006; 2010)&lt;br&gt;  - Affect at school (Patterns of adaptive learning survey-PALS, Midgley, Maehr, Hruda, et al., 2000)&lt;br&gt;  - Academic achievement, pressure from schoolwork, classmate support; bullying and being bullied (HBSC, 2006; 2010)&lt;br&gt;  - Perceived students-teachers relationships (PALS, Midgley et al., 2000)&lt;br&gt;  - Perceived school emphasis on achievement goals (PALS, Midgley et al., 2000)</td>
<td></td>
</tr>
<tr>
<td><strong>School goals</strong>&lt;br&gt;  - Personal achievement goals (PALS, Midgley et al., 2000)&lt;br&gt;  - Future plan after high school (HBSC, 2006; 2010)</td>
<td></td>
</tr>
<tr>
<td><strong>School behaviours</strong>&lt;br&gt;  - School involvement (HBSC, 2006; 2010); Absenteeism (HBSC, 2006; 2010); Self-reported disruptive behaviours (PALS, Midgley et al., 2000)</td>
<td></td>
</tr>
<tr>
<td><strong>School adaptation</strong>&lt;br&gt;  - Survey of adaptional tasks – middle school (SAT-MS, Elias, Ubriaco, Reese et al., 1992)</td>
<td></td>
</tr>
<tr>
<td><strong>School climate</strong>&lt;br&gt;  - School satisfaction (HBSC, 2006; 2010)&lt;br&gt;  - Affect at school (Patterns of adaptive learning survey-PALS, Midgley, Maehr, Hruda, et al., 2000)&lt;br&gt;  - Academic achievement, pressure from schoolwork, classmate support; bullying and being bullied (HBSC, 2006; 2010)&lt;br&gt;  - Perceived students-teachers relationships (PALS, Midgley et al., 2000)&lt;br&gt;  - Perceived school emphasis on achievement goals (PALS, Midgley et al., 2000)</td>
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<tr>
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<td><strong>School behaviours</strong>&lt;br&gt;  - School involvement (HBSC, 2006; 2010); Absenteeism (HBSC, 2006; 2010); Self-reported disruptive behaviours (PALS, Midgley et al., 2000)</td>
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<td><strong>School adaptation</strong>&lt;br&gt;  - Survey of adaptional tasks – middle school (SAT-MS, Elias, Ubriaco, Reese et al., 1992)</td>
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### My feelings - Mental health

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**Note:**

Developmental contexts mentioned in research objects were split into two main sessions in the questionnaire, considering the length and balance between sessions. Certain measures, including parents’ occupation, education, perceived family well-off, were only studied at Time 1, considering the consistency in the nature of these indicators, and the length control of questionnaire.

### 5.5.4 Pubertal development

*Pubertal development status:* Girls’ pubertal development status was assessed using the *Pubertal Development Scale (PDS)* (Petersen et al, 1988). The scale consists of five items referring to growth spurt, body hair, skin changes, breast development and whether they have reached menarche for girls. Girls were asked to indicate the level of physical growth they had reached in each of these domains on a 4-point scale ranging from 1 (Has not yet started) to 4 (Has completed). The item referring to menarche was scored as follows 1 (Has not yet started menstruating) to 4 (Has already started menstruating). Scores on five indices were summed up and averaged to provide a mean of the mean score as an indicator of girls’ pubertal development status. The PDS is a widely
used self-report measure and has shown to have adequate reliability and validity (Petersen et al., 1988). Previous studies have shown that the self-reported *PDS* is significantly correlated with other more objective measures of pubertal status, such as physician’s ratings on the Tanner stage (r=5.61-67, Brooks-Gunn, Warren, Rosso, & Gargiulo, 1987) or interviewer’s ratings (r=5.70, Petersen et al., 1988). In this study, the PDS showed high internal consistency among the indices across three time points, with Cronbach’s alpha α≥0.80. In addition, compared to other pubertal development scales, *PDS* is written in simple language and constructed with key development indices; therefore, in this study it was considered to be more suitable for usage in self-reported survey among children.

*Pubertal timing:* When the degree of physical development is standardized within peer groups, the resulting score can be used as an index of pubertal timing (Ge et al., 2001). Following previous conceptualisation and measurement approaches and for the study purpose of this research, means and standard deviations of pubertal indices obtained from *PDS* were used to categorize girls into early, on-time, or late pubertal timing. In specific, girls whose scores were one standard deviation above the mean for their group were classified as early maturing; girls whose scores fell within one standard deviation from their group mean were classified as on-time maturing; and girls whose scores were one standard deviation below their group mean were classified as late maturing. Such categorisation has been used as conventional procedure in numerous studies and recognised as a reliable indicator for studying pubertal timing among adolescence (e.g., Williams & Dunlop, 1999).

*Perceived pubertal timing:* Girls were also asked to assess their perceptions of their physical maturity relative to same-sex peers in form of the question “Do you think that your physical development is any earlier or later than most other boys/girls your age?” (Dubas et al., 1991; HBSC, 2006, 2010). Options ranged from (a) much earlier; (b) somewhat earlier; (c) about the same; (d) somewhat later; to (e) much later. For analyses, responses of much earlier and somewhat earlier were combined to represent self-reported early timing, and somewhat late and much later responses were combined to represent self-reported late timing. Thus, three groups of perceived timing were formed, paralleled with pubertal timing groups based on *PDS* scores. Although perceived pubertal timing is a single-item measure, previous studies have
shown adequate construct validity and reliability for this measure (Alsaker, 1992; Dubas et al., 1991; Graber et al., 1997; Siegel, Yancey, Aneshensel, & Schuler, 1999). Studies have demonstrated reasonable reliability coefficients for girls’ perceptions of their pubertal timing (Dubas et al., 1991; Graber et al., 1997). Graber et al. (1997), for example, found acceptable test retest reliability of girls’ perceived pubertal timing over 1 year (r=0.61). In this study, test retest reliability over 1 year is r=0.66.

5.5.5 Body Image and concerns

General perceptions and attitudes of the body: Individual items on body image were selected from HBSC (2006, 2010) protocol to assess girls’ perceptions and attitudes of their body, these questions focused on body change, perceived weight, diet, and perceived looks, and can rated with on dichotomous or Likert point scale. Care of body height and figure were assessed by individual questions, as “How much do you care about your height/figure” (Simmons et al., 1991), girls can rate on a 4-point Likert scale ranging from “not at all” to “very much”.

Physical Appearance State and Trait Anxiety Scale (PASTAS) – state (Reed et al., 1991): The measure evaluates current anxiety reported about different body sites, with degree of anxiety rated on a 5-point scale ranging from 0 (“Not at all”) to 4 (“Exceptionally so”). The PASTAS – state instructions asked subjects to rate their levels of anxiety about their bodies or specific body parts “right now” (The “trait” instructions were similar, but “right now” was replaced with “in general”). As reviewed in Chapter 2, body image and body dissatisfaction have been widely studied; however, most research studied these concepts as whole, thus little attention has been paid to which specific body part that may trigger body dissatisfaction or affect the perception and attitudes of body image as whole (Stanford & McCabe, 2002). PASTAS – state was therefore adopted in this study to fill in the research gap. The state version was adopted instead of the trait version because it is useful to assess the overall level of girls’ body image anxiety across three time points longitudinally and useful to identify which specific body part causes disturbance at specific time points (Thompson et al., 1991). Considering meaning equivalence in translation and practical reality, items from the original scale “my hips” and “my buttocks” were combined into one item, and “my stomach” and “my abdomen” were merged into one item;
complementally two more items “my height” and “my eyes” were added into the scale, given the fact that previous research suggested that children in China may have high concerns about their height (e.g., Jackson & Chen, 2010) and the high yet growing rate of short-sighted school children (Zhang, Zhu, & Guo, 2014). In Reed et al. (1991)’s original paper, it was suggested that items from the scale could be categorised into weight and non-weight subscales to help study children’s eating disorders. The reliability and validity of the subscales were found to be high (Thompson et al., 1991). In this study, when categorising into weight subscale (WS), items included were the extent I look overweight, thighs, hips and buttocks, stomach and abdomen, legs, and waist. Conversely, non-weight subscale (NWS) were height, ears, lips, wrists, hands, forehead, neck, chin, feet, and eyes. The internal consistency of WS were low, Time 1, $\alpha=0.49$; Time 2, $\alpha=0.39$; Time 3, $\alpha=0.46$. While NWS’s Cronbach’s alpha was even lower across three time points, $\alpha<0.10$. In this case, research analysis would focus on longitudinal changes of individual body part (see Chapter 7) and potential reasons that may cause the low internal consistency will be discussed later in detail (Chapter 10).

*Physical Appearance Comparison Scale (PACS) (Thompson et al., 1991):* Social comparison is found to be a potent predictor of body dissatisfaction in Western literature and appearance social comparison is considered a central contributor to body image (van den Berg & Thompson, 2007, see Chapter 2). *PACS* has five items that assess the tendency to compare one’s own appearance with that of others, which indicating the participants’ intentions on social comparison (e.g., “At parties or other social events, I compare my physical appearance to the physical appearance of others”). Thus this scale was adopted in this study to investigate girls’ social comparison intentions regarding appearance and how they change longitudinally. Another advantage of *PACS* compared with other scales on physical appearance comparison was that it includes not only indices on comparison of bodily features, but also indices on the comparison on the clothed body (“I compare how I am dressed to how other people are addressed”). Response options ranged from 1 (never) to 5 (always). Thompson et al. (1991) found the psychometric characteristics of the *PACS* to be adequate. The Cronbach’s alpha was high in this study across three time points, with Time 1, $\alpha=0.87$; Time 2, $\alpha=0.82$; Time 3, $\alpha=0.82$. 


5.5.6 Gender issues

*Individual questions on gender identities* (Simmons et al., 1991): Two individual questions were formatted: “How do you feel about being a girl”; “Would you say you act like a boy”. Answers ranged from 1 to 4, with higher score indicating higher level of contentment. These questions were reported useful to investigate young people’s feelings towards their own gender and behaviours regarding their gender roles (Simmons et al., 1991).

5.5.7 Families

*Inventory of parent and peer attachment* (IPPA, Armsden & Greenberg, 1987; IPPA-R, Gullone & Robinson, 2005) - Parent: The IPPA is a self-report questionnaire designed to assess participants’ perceptions of the quality of their relationships with parents and peers on a 5-point Likert-type scale format (1=“Almost never or never true”; 5=“Almost always or always true”). It has been used extensively in studies of adolescent attachment and its correlates. The IPPA-Parent consists of 28 items yields subscales reflecting the individual’s perception of the extent of trust (e.g., “When I am angry about something, my parents try to be understanding”), communication (e.g., “my parents encourage me to talk about my difficulties”), and feelings of alienation (e.g., “I get upset easily around my parents”) from their parents. These subscales are combined (with alienation scores reversed) to yield a summary index of the quality of the attachment relationship (Song, Thompson, & Ferrer, 2009). Attachment has been a key element when studying parents-child relationships. In this study, the use of self-report instrument like IPPA rather than an observational procedure was due to the consideration that attachment represents a relationship (either parents or peer relationships) from the point of view of the individual in the dyad, and in the case of this study, the adolescent. Another advantage of this measure is that it permits a similar assessment of the adolescent girl’s peer relationships, with parallel wordings of items (see below for IPPA-Peer). It should be noted that, although IPPA – Parent has a more recent version of studying maternal and paternal attachment respectively, with a corresponding peer item (Greenberg, Armsden, 2009), the original version of the scale was adopted in this study (as described above, with consideration of the IPPA-R), considering children may exhibit practice effects as items within each subscale were similar to each other. Another
consideration was to avoid discomfort the latter version may cause to children who has either parent figure absent. Therefore, if girls felt they had a very different relationship with mother and father, or either in the case of either parent was absent from the family, they were instructed to respond to the parent form for the parent who they were influenced most (see Chapter 9 on discussions). Previous research has demonstrated high test-retest reliability for this scale (Armsden & Greenberg, 1987), as well as good internal consistency and convergent validity. In this study, Cronbach’s alphas of each subscale were shown as follows: Parent trust, Time 1, $\alpha = 0.89$; Time 2, $\alpha = 0.86$, Time 3, $\alpha=0.83$; Parent communication, Time 1, $\alpha = 0.79$; Time 2, $\alpha = 0.70$, Time 3, $\alpha=0.90$; Parent alienation, Time 1, $\alpha = 0.88$; Time 2, $\alpha = 0.79$, Time 3, $\alpha=0.81$.

*Parents support with schoolwork (HBSC, 2006)*: The 5-item scale was measured on a 5-point Likert scale to provide information on parental involvement in children’s study and schooling experience (e.g. “If I have problem at school, my parents are ready to help”), with higher scores indicting higher support (1=“Never true”, 5=“Always true”). *Parents support with schoolwork* bridges the family context with children’s school life, which represents one of the mesosystems fits in the ecological model of their developmental contexts (Bronfenbrenner, 1979, 2005; see Chapter 3). Given the high parents’ investment and involvement in children’s academic study in China (Chapter 1), it will also generate implications for both schools and parents to their need. In this study, Cronbach’s alphas were always higher than 0.80 ($\alpha\geq0.82$) across three phases.

5.5.8 Friends

*Inventory of parent and peer attachment (IPPA, Armsden & Greenberg, 1987; IPPA-R, Gullone & Robinson, 2005) - Peer*: The IPPA-Peer consists of 25 items yields subscales reflecting the individual’s perception of the extent of trust (e.g., “I trust my friends”), communication (e.g., “I tell my friends about my problems and troubles”), and feelings of alienation (e.g., “I feel angry with my friends”) from their peers. Same as IPPA-Parent, these subscales can also be combined (with alienation scores reversed) to yield a summary index of the quality of the attachment relationship with peers (Song, et al., 2009). However, in practice, girls were instructed to think about their closest friends, rather than their peers in general, when responding to the IPPA-Peer (Armsden & Greenberg, 1987; also see Chapter 3). Good internal consistency and validity
have been reported by Armsden and Greenberg (1987, 2009; Wilkinson, 2010). In this study, Cronbach’s alpha of each subscale showed high internal consistency with $\alpha \geq 0.86$ at all three time points.

*Peer norms regarding academic excellence inventory (Kurdek et al., 1995):* Peer context in school was represented by students’ perceptions of peer norms supporting academic excellence by *Peer Norms for Academic Excellence* in this study. Participants indicated how much they agreed ($1 = $strongly disagree, $7 = $strongly agree) with each of 8 statements regarding how their friends felt and thought about school (e.g., “It is important for my friends to get good grades”). In Kurdek et al., (1995)’s study, Cronbach’s alpha for the summed composite scores was 0.84. In this study, Cronbach’s alpha is always higher than 0.90 (Time 1, $\alpha = 0.92$; Time 2, $\alpha = 0.91$; Time 3, $\alpha = 0.90$). This scale was selected in light of evidence that adolescents who experience academic failure, relative to their peers who experience academic success, are less likely to associate with peers who value academic excellence (Steinberg, Bornbusch, & Brown, 1992) and are more likely to affiliate with peers who eventually drop out of school (Fortin et al., 2006). As much as it provide insight into the relations of adolescent peer norms and their school adjustment (e.g., Kurdek et al., 1995), this scale also allows the researcher to investigate the effects of the peer norms that children hold on their friends selection and shaping their peer context.

**5.5.9 Schools**

*Affect at school:* Individual question was adopted from HBSC protocol (2006; 2010) as “How do you feel about school at present?” to obtain a general emotional tone of girls towards school at each time point. Affective experiences in school were further measured using the *Positive Affect at School and Negative Affect at School scales* extracted from Patterns of Adaptive Learning Survey (*PALS*) (Midgley, Maehr, Hruda, et al., 2000). Items in the two scales factor analysed together and therefore combined to create a 7-item *Affect at School Scale*. Scales in *PALS* were developed during a 5-year period and tested with various samples of children and adolescents from various ethnic and socioeconomic backgrounds (Midgley et al., 2000). *PALS* includes multiple scales and the validity of each scale was established separately (see Midgley et al., 2000). In this session of the questionnaire, five of standardized scales
measured on a 5-point Likert scale were adopted from PALS, including the *Affect at School Scale* mentioned above. The positive affects items were used by Roeser et al. (1996) and manifested substantial internal consistency. In this study, Cronbach’s alpha was found also high (Time 1, α = 0.89; Time 2, α = 0.86; Time 3, α = 0.86).

*Selected HBSC questions and measures on children’ school experience:* Individual and group questions were extracted from HBSC protocol (2006; 2010) to reveal girls’ perception of their academic achievement (“In your opinion, what does your class teacher(s) think about your school performances compared to your classmates?”), pressure of school work (“How pressured do you feel by the schoolwork you have to do?”), classmate support (three-item scale with Cronbach’s alpha $\alpha$=0.72 across all time points in this study), school involvement (a five item scale tackling students’ performance in class, e.g., “How often do you put up your hand to answer questions which teacher ask in class?”), absenteeism (“Do you sometimes stay away from school, not because you are ill, but because you want to do something else?” “How many days did you skip classes or school this term?”), being bullied (“How often have you been bullied in school this term?” and bullying others (“How often have you taken part in bullying other students in school this term?”). Answers were coded on Likert-point scales with higher scores indicating more positive school climate (scores on certain scales were reversed, for example, schoolwork pressure, frequencies of absenteeism, being bullied, and bullying others).

*Selected school measures from PALS on school relationships and behaviours* (Midgley, et al., 2000): As mentioned above, PALS has been widely used in many studies on school learning motivation and adjustment, in relation to the research objectives of this study, three subscales, *perceived teacher-student relationships, self-report of disruptive behaviours*, and *perceptions of school goals emphasis scale* were adopted in this session. *Perceived teacher-student relationship:* This 5-item scale measured students’ perceived teacher and student relationships in school (e.g., “In this school, teachers treat students with respects”). *Self-report of disruptive behaviours:* The 5-item scale attempted to operationalize students’ perceptions of themselves as disruptive (e.g., “I get into trouble more than most kids”) and therefore tapped on self-perceptions in relation to classroom norms and regulations. Children that perceive themselves as disruptive were likely to feel inadequate in the classroom and school setting, a feeling that
might result in or be the consequence of alienation. The scale was found to be a fairly accurate indicator of disruptive behaviour in Kaplan and Maehr’s study (1999). *Perceptions of school goals emphasis scale:* This scale comprised of 15 items in two subscales as *Perceptions of Emphasis on Ego Goals* (e.g., “In this school, we are encouraged to compete against each other for grades”) and *Perceptions of School Emphasis on Task Goals* (e.g., “In this school, mistakes are okay as long as we are learning”). The former scale consisted of 5 items and included items tapping student perceptions that relative ability is a salient and rewarded marker of success in the school, and that higher achieving students are treated better than other students. The latter scale consisted of six items, assessing students’ perceptions of an emphasis in the school on efforts, understanding, and the belief that all students can learn and successful.

**School goals**

*Future plan after high school HBSC (2010):* As argued in Chapter 3, in this study students’ future plan after high school was used as an indicator of personal goal, as “What do you think you will be doing when you are 16 (after high school)?”, with options “Don’t know”, “Unemployed”, “Working”, “Apprenticeship/trade”, “Vocational or technical school”, and “College or university”. Academic aspiration was considered necessary in composition of the questionnaire in consideration of the high expectation and investment Chinese society, parents and children put into it. Longitudinal changes would reflect children’s attitudes towards their personal goals for their future life.

*Personal achievement goals (Midgley et al., 2000):* A 6-item *Personal Ego Goals* scale (e.g., “I would like to show my teacher that I am smarter than the other kids”) which included items that assessed students’ desire to demonstrate their ability relative to others and to be recognized by their teachers and parents, and a 6-item *Personal Task Goals* (e.g., “The main reason I do my work in school is because I like to learn”) assessed students’ preferences for challenging work, task mastery and understanding, and learning new things, composed the achievement goal scale. Midgley et al. (2000) tested the reliability and validity of the personal goals and found them to be valid and reliable. In this study, Cronbach’s alpha (α) for *Person Ego Goals* ranged from 0.69 to 0.73 while that of *Personal Task Goals* ranged from 0.75 to 0.77, across three phases. Students’ goals studies have been received increasing research interest, due to its connection with other popular school experience indicators like self-efficacy,
regulation, and school motivation. *Personal achievement goals* scale from PALS is a well-established and used measure. An additional advantage of adopting this scale is that a similar assessment on children’s perceived school emphasis on these goals is also available from PALS (*Perceptions of school goals emphasis scale*, see above).

**School adaptation**

*Survey of Adaptional Tasks – Middle School* (SAT-MS) (Elias et al., 1992): SAT-MS examines the adaptation to problematic academic and interpersonal tasks that arise during the transition to middle school. It was employed in the study to capture the pre-transition concerns in a prospective manner at Time 1 before the transition, and it was used at subsequent time points (Time 2 and Time 3) to examine students’ concerns based on their experiences during and after the transition from a retrospective angle. Such cognitive appraisals of the adaptational tasks required provide a potent window onto the psychological impact of ecological and developmental transitions in this process (Moos, 1984). As mentioned in Chapter 3, research on school transition adjustment in general compares various educational (motivation, self-efficacy etc.) and psychological indicators (e.g., academic competence, loneliness, depression) based on children’s perceptions at each stage; how children think or concern about the upcoming transition, whether these prospective thoughts affect their transition experience, and how they change longitudinally as children transferring into the new school would provide a more thorough profile of children’s transition adaptation experience. In addition, as the scale was designed for primary to middle school transition adaptation, questions and wording of contents suit the study sample well. In specific, participants rate along a 4-point scale (1=”Not a problem”; 4=”Big problem”) using junior high school as the reference point. Three subscales tangled conflicts with authorities, older students (including 7 items, e.g., “Having a tough teacher”), peer relationships (including 7 items, e.g., “Not seeing your friends from elementary school enough”), and academic pressures (including 2 items, e.g., “Having to do harder school work”). Higher scores indicate bigger potentiality of difficulty and higher concerns about a particular issue or issues within certain categorization. Because the scale content were about difficulties in junior high school, at Time 1 girls at the end of primary school were asked to imagine to what extent the listed difficulties in future junior high school
might be problematic to them. At Time 2 and 3, participants were instructed to rate on their actual experiences on those adaptation difficulties, respectively. The alpha coefficient for the total adaptation difficulty was 0.92 in Elias et al. (1992)’s study; internal consistencies within each subscales were reported as Peer relationships, $\alpha=0.76$; Conflicts with authorities and older students, $\alpha=0.85$; Academic pressure, $\alpha=0.61$; Substance abuse, $\alpha=0.93$. In this research, Cronbach’s alphas for total adaptation difficulty are: at Time 1, $\alpha=0.62$; Time 2, $\alpha=0.71$; and Time 3, $\alpha=0.76$. Regarding subscales alpha coefficient, $\alpha$ is always higher than 0.71 across all three phases for three out of four subscales (Peer relationships, Conflicts with authorities and older students, and Academic pressure). However, Substance abuse showed very poor internal consistency (Time 1, $\alpha=0.15$; Time 2, $\alpha=0.26$; and Time 3, $\alpha=0.27$). Potential cultural and methodological reasons, analysis strategies, and results interpretation will be discussed in Chapter 8.

5.5.10 Mental health

Global life satisfaction

Selected individual questions from HBSC (2006, 2010) on school children’s positive health: Self-rated global life satisfaction is a subjective indicator of general health and wellbeing. Questions included: Degree of happiness (“In general, how do you feel about your life?”), girls rated their response on a 4-point Likert scale with higher score indicating higher satisfaction with their life (1=“I am not happy at all”; 4=“I am very happy”); Frequency of Happiness (“How often do you feel happy?”). 

Self-esteem

Harter’s (1985) Self-Esteem Questionnaire: This 36-item questionnaire has six subscales measuring children’s perceived self-esteem in five domains (Scholastic competence, Social competence, Athletic competence, Physical appearance, and Behavioural conduct) as well as Global self-worth. Each scale consists of six items followed by a description of two types of “kids”. Participant was first asked to decide which kind of kid is most like herself and then to decide whether it is very true or sort of true. Scale scores were computed by averaging across items and ranged from 1 to 4. Higher scores represent higher levels of self-perception. Harter (1985) standardized the questionnaire on American school children from Grade 3-8, comparable to Primary 3 to Secondary Grade
1 school children in China. The questionnaire has been shown to have very good reliability and validity (Boivin, Vitaro, & Gagnon, 1992; Harter, 1985). In this study, the reliability coefficient for each of the scales was satisfactory at each time of measurement (Cronbach’s alpha always greater than 0.70, with only one exception of Athletic competence at Time 1, \( \alpha = 0.68 \)). The Harter Self-Esteem Questionnaire was chosen for a few reasons other than its reputation as a widely-used measure. First, it can provide information about age trends in self-esteem between 8 to 13 years, thereby providing evidence about the continuity or discontinuity of self-esteem that suit the study purpose of longitudinal changes in adolescents’ self-esteem profile. Second, self-esteem can be studied in different domains by considering children’s self-perception as a multidimensional concept; it also provides a subscale as global self-esteem to overview self-esteem in general. Third, within-subject variation in self-esteem can be measured in response to normal, though potentially stressful events such as transitioning from primary to junior high school. Finally, the questionnaire also enables between-subject comparisons to be made in many circumstances. In addition, there is a more updated version of this measure available: Self-Perception Profile for Children – 8-13 (Harter, 1985, 2012).

Psychosomatic symptoms

*Psychosomatic health symptom checklist* (HBSC, 2006, 2010): Somatic health symptoms are important indicators of wellbeing. Frequent or sustained stress leads to emotional and physiological stress, which in turn affects the development of frequent symptoms. In this vein, girls in this study were asked how often they had experienced the following symptoms in the last six months, including: headache; stomach-ache; back-ache, feeling low, bad tempered; feeling nervous; difficulties in getting to sleep; feeling dizzy, neck pain, and tiredness. The checklist included 8 items originally and two items “neck pain” and “tiredness” were added into practice considering the fact that Chinese school children are facing heavy schoolwork and valuing highly in diligence, thus may exhibit more health complaints (see Chapter 1). Response options for each symptom ranged from “Rarely or Never” (scored as 1) to “About every day” (scored as 5). The checklist presents a non-clinical measure of adolescents’ somatic health with respects to multiple symptoms. All items on the checklist can be used together to measure somatic symptoms and showed adequate internal consistency for adolescent population (Currie et al., 2012).
However, in this study, the Cronbach’s alphas were low when studying the whole scale as a whole (Time 1, $\alpha=0.19$; Time 2, $\alpha=0.48$; and Time 3, $\alpha=0.22$). Potential reasons that may cause the low internal consistency among these symptoms will be discussed in Chapter 9.

**Mental health difficulties**

*Children’s Loneliness Scale* (Asher et al., 1984): The 24-item questionnaire assessed children’s feelings of loneliness and social dissatisfaction. The 16 primary items focused on children’s feelings of loneliness (e.g., “I’m lonely”), feelings of social adequacy versus inadequacy (e.g., “I’m good at working with other children”), or subjective estimations of peer status (e.g., “I have lots of friends”). The other eight “filler” items focused on children’s hobbies or preferred activities (e.g., “I watch TV a lot”). In this study all filler items were removed to restrict the length of the questionnaire. Girls responded to each of the item by indicating on a 5-point scale how much each statement was a true description of themselves ranging from 1=“Not true at all” to 5= “Always true”. An adapted version of this scale was then studied by Cassidy and Asher (1992), in which the statements were replaced with questions and children responded by answering “Yes”, “No”, or “Sometimes”. However, the original version of this scale was adopted in the questionnaire, and the reasons were three-folds. First, more levels of Likert scale (fewer or equal to seven levels) may exerts more accurate information (Finstad, 2010). Second, children may feel more appealing to statements in first-person narrative rather than being asked in question formats, given thoughts on the cultural differences in China. Last, one item was reported inadvertently omitted due to clerical error in the adaptation study (Cassidy & Asher, 1992). The 16-item scale was found to be internally consistent and internally reliable ($\alpha=0.90$, Asher, et al., 1984). In this study, Cronbach’s alphas were 0.87, 0.81, and 0.84 at each phase from Time 1 to Time 3, indicating satisfactory reliability.

*Spence Children’s Anxiety Scale* (Spence, 1997; Spence 1998; Spence et al., 2003): The SCAS consisted of 38 anxiety items; in this study six positively worded filler items were removed to limit the questionnaire’s length. The SCAS provides an overall measure of anxiety together with scores on six subscales each tapping a specific aspect of anxiety. Each item was rated on a 4-point scale coded on 0 (“never”) to 3 (“always”) to indicate how often each of the items happens to them. This yields a maximum possible score of 114, with higher
scores reflecting greater anxiety symptoms. Scores may also be produced for six anxiety subscales include Panic attack and agoraphobia (e.g., “All of a sudden I feel really scared for no reason at all”), Separation anxiety (e.g., “I would feel afraid of being on my own at home”), Physical injury fears (e.g., “I am scared of being in high places or lifts”), Social phobia (e.g., “I feel afraid that I will make a fool of myself in front of people”), Obsessive compulsive (e.g., “I have to keep checking that I have done things right”), Generalized anxiety disorder/overanxious disorder (e.g., “when I have a problem, my heart beats really fast”). The SCAS scale has now been used in a significant number of research studies to examine the structure of anxiety symptoms and as an indicator of anxiety among adolescents (Spence, Rapee, McDonald, & Ingram, 2001). Meanwhile, the scale advantages itself when being part a comprehensive questionnaire as it was designed to be relatively easy and quick for children to complete. Cronbach’s alpha of the scale was high (α=0.92) reported by Spence (1997), and the internal consistency of subscales was also acceptable (ranging from 0.60 to 0.80, see Spence, 1997, 1998, Spence et al., 2003). In this study, the co-efficient alpha was 0.89, 0.87, and 0.87 respectively across three time points, and subscales’ internal consistencies revealed relatively low in Separation anxiety (α=0.56) and Physical injuries (α=0.53) at Time 1, other than that, α fell within the range of 0.67 to 0.82, which is compatible to previous research. Further attention will be paid on data analysis and interpretation in result (Chapter 9) and discussion chapters (Chapter 10).

*Beck Depression Inventory-II (Beck et al., 1996)*: The BDI-II measures different areas of depression symptomatology, including affective, cognitive, motivational, and physiological domains. Each item out of a total of 21 items describes a specific behavioural manifestation of depression (such as somatic problems or loss of appetite), and each symptom item consists of several statements that range from neutral to severe forms of symptoms rating on a Likert scale from 0-3, yields a total depression score ranging from 0-63, with higher score suggesting higher level of depression. In this study, concerning the age range of the participants, item 21 (“Loss of interest in sex”) was excluded in the questionnaire. Internal consistency among the 20-item scale in this study was found satisfactory, with Time 1, α=0.80; Time 2, α=0.77; and Time 3, α=0.80.
Previously, researchers have made many attempts to check whether these items in BDI-II are loosely connected or can be grouped into subscales. In general, a two-dimensional structure composed of a cognitive-affective and a somatic-vegetative factor has been replicated empirically across studies. However, some studies have also suggested that the structure of BDI-II can be best described as three-dimensional, including cognitive self, performance difficulty, somatic symptoms (Lindsay & Skene, 2007). Taken together, the structure and model fit of previous studies in relation to the construct validity of BDI-II are inconsistent. In addition, a modified 20-item BDI-II was used in this study, whether such modification would produce new solution to the BDI-II model fit warrants further investigation. Therefore, principal factors extraction with Varimax rotation was performed on 20 depression symptoms and further confirmed with scree test. Two factors were extracted as Cognitive and affective attitudes (including Sadness, Pessimism, Past failure, Guilty feeling, Punishment feeling, Feeling disappointment, Self-criticalness, Suicidal thought, Worthlessness, Loss of pleasure, Crying, Agitation, Loss of interest, Irritation, and Indecisiveness), and Somatic disturbance (including Loss of energy, Changes in sleeping pattern, Changes in appetite, Concentration difficulty, and Fatigue).

Across three phases in this study, this two-factor solution of the depression revealed satisfactory internal consistency range from 0.70 to 0.75 for the prior, and 0.77 to 0.80 for the latter. Compared with BDI (Beck, Ward, & Mendelson, 1961), the BDI-II represents a substantial revision of the original version (Beck et al., 1996). In conjunction with the validity data (Shek, 1990), the BDI-II can be regarded as possessing acceptable psychometric properties, and it can be used as an objective assessment tool to measure depressive or maladjustment symptoms in adolescents (Steer, Ball, Ranieri, & Beck, 1997). The BDI-II was chosen over other similar instruments (e.g., The Children’s Depression Inventory – CDI, Covacs, 1981) because it was designed to reflect the depth of depression, and more importantly it could monitor changes over time, which was considered to suit the research purpose for this study better. The instrument remains widely used in research and it has been translated into multiple languages, including Chinese (Chinese Behavioural Science Corporation, 2000).

Coping strategy and coping efficacy

Kidcope (Spirito et al., 1988): The main scale of Kidcope consists of a 15-item younger version (for children aged 7-12 years) and a 10-item older version (for
adolescents aged 13-18 years) that assess the frequency of use and efficacy of coping strategies. Considering the age range of the sample and the longitudinal study nature, the younger version was adopted in the questionnaire. The instruction given with Kidcope asks participants to focus on coping with a stressor of the researcher’s choosing. For this study, girls were asked to focus on a general stressor of their own choice. The stressor-targeted direction was considered not appropriate because the research purpose of this study is to obtain a general coping pattern of early adolescents when they face different and sometimes even multiple stressors, rather than a situation-specific or time-specific coping response. The 15 items of alternative coping strategies can be categorized into 10 coping category scores, including Distraction (e.g., “Try to forget it”), Social withdrawal (e.g., “Keep quiet about the problem”), Cognitive restructuring (“Try to see the good side of things”), Self-criticism (“Blaming yourself for causing the problem”), Blaming others (“Blaming someone else for causing the problem”), Problem solving (e.g., “Try to sort out the problem”), Emotional regulation (e.g., “Try to calm yourself down”), Wishful thinking (e.g., “Wish the problem had never happened”), Social support (“Try to feel better by spending time with others like family, grown-ups or friends”) and Resignation (“Do nothing because the problem couldn’t be solved”). Each of the 10 coping strategies is scored for frequency, either being present or absent (answers on distichous scale was coded as 1=“Yes”, 0=“No”), and for efficacy, a score that ranges from 0-2 (“not at all”, “a little”, “a lot”). Response to efficacy level was only available for relative coping strategy when children opt for it. Spirito (1996) emphasized that Kidcope is a scale designed for screening purposes only. This means that its particular value is to identify a possible profile of stressors and coping strategies being used by individual child, rather than providing an overall coping score. In line with this argument, coping strategy and coping efficacy were studied individually.

5.5.11 Summary

To sum up, inspired by large scale exploratory research (e.g., Health Behaviour in School-Aged Children, Global School-based Student Health Survey, Taiwan Youth Health Survey), and to fill in the gap between Europe-America dominated literature on developmental and wellbeing studies in adolescence, the questionnaire includes comprehensive questions and measures to cover a
wide range of variables, in the hope of gaining a fuller picture of the developmental changes and outcomes of early adolescents in China.

5.6 Data collection

5.6.1 Procedure

Before assessment, the questionnaire was tested by 10 target primary school girls (mean age=11.50, SD=.85) in grade 6 in Beijing to check for content readability and comprehension, and to ensure language is appropriate, the length is acceptable, the basic aspects of the design and procedure were fit for purpose. The final questionnaire was revised with considerations of results from the small-scale pilot study and feedbacks from participating schools and teachers obtained during the sample recruitment process. The questionnaire design, translation, structure, and layout in printing form were peer reviewed by PhD students in Moray House School of Education to enhance content objectivity and format aesthetic.

After assent and consent were obtained from school children and their parents (see recruitment procedures above for details), adolescents were administered an array of measures during a 4-session protocol, My Body, My Family and Friends, My School, and My Feelings. Assessments were conducted at each participating school for the convenience of participants’ attendance. Girls in the same class or from different classes were gathered to sit either in their own classroom or selected activity room depending on the number of participants.

To create an open and relaxed atmosphere, and boost response rate, each survey session started with an informal introduction to warm up the setting and ensure participants understand that the survey was not a test in any sense, all the responses were equally acceptable, valid and welcomed, and the survey would serve as part of a PhD research study affiliated with University of Edinburgh and it had no direct relations to their schools or teachers; in the meantime, instructions for certain measures within the questionnaire were also explained (e.g. Harter Self-Esteem Questionnaire). Class teachers were carefully briefed on the neutrality of their role during data collection and agreed they should not attempt to influence or interpret the responses of participants.
Subsequently administered by researcher without respective head teachers present, participants filled out the questionnaire during regular school hours. Each participant was provided with a self-adhesive envelope in which to seal the completed questionnaire before handing it in. Girls were not paid for their participation; however, as a good will gesture, each girl received a Scottish souvenir pen, a keyring, and a fridge magnet at each phase respectively, as recompense to her time and efforts. The same procedure was carried out throughout all the three time points. The three waves were approximately six months apart, with data collected in June 2010, December 2010, and May 2011.

5.6.2 Practical issues of psychological research with Chinese adolescents

Based on the real-life experience of sample recruitment and data collection processes of this study, a few practical issues on conducting research with school children and young people in Beijing, not necessarily limited within Beijing, should be noted.

Different from the sampling process in most Western countries, where the key is to gain participant and their parents/guardians’ participation consent, the crucial phase in this study to conduct research on early adolescents at school was to get access to them through school contacts. As mentioned above, the “school principal – head teacher – class teacher – students – parents” manner to make arrangement for the survey, researchers had to require permission from several levels to reach school children as the endpoints to be participants, which might not be necessary in other cultures. The key gatekeeper of access to schoolchildren as research participants in Beijing, therefore, are not their parents or guardians, but schoolteachers.

Secondly, students’ physical and psychological health does receive much attention from schoolteachers or educational policy makers in China compared with educational attainment. As a consequence, schools show less interest in health and psychological research than research on education processes and attainment. The Chinese aspire to high levels of scholastic success, which is a way to achieve social mobility, respect, and family pride (Gow, Balla, Kember, & Hau, 1996); on this account, schools tend to be grade point oriented in China, especially in big metropolis cities where competition is even more severe (see Chapter 1). The prime mission of most schools,
especially primary and middle schools is to secure good exam results and students’ safety. To this end, many of schools adopted closed education (Liu, 2013), which means only school students, faculty, and staff, can get access into school; campus visitors will be strictly investigated. Once students come to school they are not allowed to leave campus until school dismissed. In addition, because schools are not obliged to participate in any student-involved research according to school or governmental policies, it puts individual researcher in a very disadvantageous position in terms of accessing school children for research purposes.

Thirdly, some schools are not very open to researchers from overseas universities who may wish to carry out studies on issues in China or based on Chinese school children, due to lack of understanding in research ethics. As more and more graduate students from China are now studying in overseas educational institutions, there have been a growing number of research studies carried out on school children in China. However, the ethical guidelines and procedures on doing research with children and young people are underdeveloped and obscure, which may also contribute to the fact that schools are assuming the role of gatekeeper for access to children as research participants.

A further issue that arose from the current study was some participating schools’ had concerns about the interpretation and dissemination of findings. Some schools indicated they were afraid that the data collected from their school students might be used against local educational practice or policy making. For instance, at Time 1, one primary school agreed to participate in the survey at the beginning as they thought the research would be affiliated with Beijing Normal University and they refused to participate after the researcher clarified that the research was a project to pursue PhD degree at the University of Edinburgh. Another example is that one of the participating schools asked their students to cross their names and school name with black markers on the completed questionnaires. In this case, on one hand, the school was worried whether their students would produce expected plausible results, and on the other hand, they were worried whether only “negative” or bad results would be reported and used to despise Chinese educational system or even national image since the researcher is studying in overseas university.
However, these practical issues may not represent themselves in all research conducted in China, thus should be understood with an open and reflective view. In the case of the present study, the completion of the sample recruitment and data collection among school children in Beijing was largely benefited from help of schoolteachers (Guanxi, see Chapter 1) and the renowned reputation of Beijing Normal University where the researcher initially graduated. As the top teacher training university in China, Beijing Normal University provides teachers to schools and universities throughout China. After graduation, the researcher maintained a wide connection with fellow graduates who became primary school to university teachers in Beijing after their graduation. A key to successful sample recruitment in this study was the interpersonal relationship resource of the researcher. The teachers efficiently introduced the researcher to their schools and actively helped with school contacts, questionnaire printing, and survey venue arrangements, which together played a decisive role in the sampling and data collection process of this research. Apart from their input to guarantee sample size, an additional benefit of having these teachers who were also class teachers of participating classes also boost response rate and minimise sample attrition. This may be explained by the influence of Confucius and its emphasis on values like filial piety and respect for authority (see Chapter 1), which to some extent helped establish order and subordination in the survey process.

5.7 Data Analysis

The aim of the study was to investigate the longitudinal changes of early adolescents’ physical growth, social contexts, and mental health during their transition from primary to junior high school, by means of questionnaire-based survey. Longitudinal data were obtained from schoolgirls at three time points.

Followed each data collection procedures, data were then coded in the Statistical Package for Social Sciences (SPSS) according to a detailed coding frame agreed with each individual standardized measure, and preliminarily screened for accuracy of data entry, missing values, and univariate or multivariate outliers. Assumptions of normality, linearity, multicollinearity, and homogeneity of variance-covariance matrices were also checked (Tabachnick & Fidell, 2007). The reliability coefficient (Cronbach’s α) of the each instrument was calculated and detailed in the questionnaire session.
5.7.1 Data preparation

**Normality and transformation of data**

Test statistics and standard errors can be biased under severe non-normality of data distribution, which tends to inflate the significance in result. In the current questionnaire the distribution of some instruments (e.g., *Beck Depression Inventory-II*) indicated that these variables were positively skewed, which is common in non-clinical populations because few participants would be clinically depressed. The variables were transformed using square-root transformation method (Weinberg & Abramwitz, 2008).

**Missing data**

Cases within some scales in the questionnaire contained item-level missing value at subsequent time point (a particular question on the scale was not answered) and thus a sum score could not be calculated. In order to obtain the maximum number of cases and to calculate sum scores of the variables, item-level missing data were imputed using *Last Observation Carried Forward (LOCF)* method (Molenberghs, Verbeke, & Kenward, 2008). The previous value (non-value) is used to fill in missing values at a later point in the study.

**Violation of sphericity and corrections**

When violations of sphericity occurred before applying repeated measures ANOVA, therefore, Greenhouse-Geisser correction and Huynh-Feldt correction were used to reduce Type I error rate. In specific, Greenhouse-Geisser correction was used when estimated epsilon (\(\varepsilon\)) is less than 0.75, and Huynh-Feldt correction was used when estimated epsilon (\(\varepsilon\)) is greater than 0.75 (Girden, 1992).

**Violation of homogeneity of variance and corrections**

When homogeneity of variance was violated before applying one-way ANOVA, Welch correction was used, and a Games-Howell test instead of a Tukey post hoc.
5.7.2 Analysis plan

The main analysis plan is straightforward. Given the more statistically nomothetic nature of the study that focus on relations among variables across the whole sample of adolescents and their longitudinal changes, repeated measure ANOVAs were applied to reveal the trends and outcomes in multiple changes that adolescent girls experienced throughout the transition process. Such analyses can yield information on which school practices in general, from adolescents’ points of view, seem to promote positive developmental outcomes which shapes the experience of adolescence, thus making such practices possible foci of future school-wide reform efforts. Apart from the main analysis that was carried out on all variables with matching data across all time points, Chi-square for association, Pearson’s correlation, one-way ANOVA, independent $t$-test, and principal component factor’s analysis were also employed to analyse individual variables in depth.

5.8 Conclusion and implications for thesis

The methodology of this study is shaped by the three research questions stated in previous chapters. This chapter therefore set out the design, rationale, structure, content, and procedures of the methodological and analytic approaches taken in the research reported in this thesis. Before turning to the results of the empirical investigation, Chapter 6 will describe the interrelations of all the variables in this study. Chapter 7 examines the longitudinal changes in adolescents’ physical growth, including physical changes and puberty, body image and concerns, and gender issues. Chapter 8 investigates longitudinal changes in adolescents’ social contexts, with regards to family, friends, and schools. The final empirical chapter, Chapter 9, reports longitudinal changes in adolescents’ mental health in terms of their global life satisfaction, self-esteem, psychosomatic symptoms, mental health difficulties, and coping.
CHAPTER 6 INTERRELATIONS BETWEEN VARIABLES

6.1 Aims of this chapter

The aim of this chapter is to provide a description of the interrelations between all the variables in this study as described in Chapter 5. Pearson’s product-moment correlations were conducted to investigate the strength and direction of associations that existed between variables at each time point of the study. Altogether, 53 variables were included in correlations analysis, and results between all the 53 variables under the headings of demographics, physical growth, social contexts, and mental health, respectively, and are reported for each time point chronologically (53×53, Time 1, Time 2, and Time 3). Results of correlations and longitudinal changes of interrelations between variables are summarised to shed light on developmental changes in these associations. The importance of demographics and the macrosocial contexts as influences were also explicitly acknowledged. Key findings were discussed, after which this chapter concludes with an overview of results and implications for thesis.
### Figure 6.1 An overview of variables examined in this study at three time points

<table>
<thead>
<tr>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-transition</td>
<td>During transition</td>
<td>Post-transition</td>
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<td><strong>Physical growth</strong></td>
<td><strong>Physical growth</strong></td>
<td><strong>Physical growth</strong></td>
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<tr>
<td>- Pubertal development</td>
<td>- Pubertal development</td>
<td>- Pubertal development</td>
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<tr>
<td>- Body image and concerns</td>
<td>- Body image and concerns</td>
<td>- Body image and concerns</td>
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<tr>
<td>- Gender issues</td>
<td>- Gender issues</td>
<td>- Gender issues</td>
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<tr>
<td><strong>Social contexts</strong></td>
<td><strong>Social contexts</strong></td>
<td><strong>Social contexts</strong></td>
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<tr>
<td>- Family and friends</td>
<td>- Family and friends</td>
<td>- Family and friends</td>
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<tr>
<td>- Parent attachment</td>
<td>- Parental attachment</td>
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<td>- Parent involvement</td>
<td>- Parental involvement</td>
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<td>- Peer attachment</td>
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<td>- Peer norms</td>
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<td>- School adaptation</td>
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<tr>
<td><strong>Mental health</strong></td>
<td><strong>Mental health</strong></td>
<td><strong>Mental health</strong></td>
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<tr>
<td>- Global life satisfaction</td>
<td>- Global life satisfaction</td>
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<tr>
<td>- Self-esteem</td>
<td>- Self-esteem</td>
<td>- Self-esteem</td>
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<tr>
<td>- Psychosomatic symptoms</td>
<td>- Psychosomatic symptoms</td>
<td>- Psychosomatic symptoms</td>
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<tr>
<td>- Mental health difficulties</td>
<td>- Mental health difficulties</td>
<td>- Mental health difficulties</td>
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<tr>
<td>(loneliness, anxiety, depression)</td>
<td>(loneliness, anxiety, depression)</td>
<td>(loneliness, anxiety, depression)</td>
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<tr>
<td>- Coping (strategy)</td>
<td>- Coping (strategy)</td>
<td>- Coping (strategy)</td>
</tr>
</tbody>
</table>

**Note:** Age = Chronological age; Grade = School grade; Arrows represent potential influences; arrows in bold represent key influence and direction of changes.
6.2 Introduction

Bioecological perspective posits that adolescent development takes place in multiple domains and there are complex interactions between not only the adolescent and their developmental contexts, but also these domains each other (see Chapter 1 and 3). In this study, three domains of adolescent development were investigated including physical growth, social contexts, and mental health. In line with the bioecological view, these domains are not separated from one another; instead, each of these domains consists of multi-attribute variables (see Figure 6.1), and their interrelations jointly contribute to the understanding of adolescent development (e.g., Bronfenbrenner & Morris, 2006).

Although most studies of adolescence and the role of contexts in shaping adolescent development are studies of a single domain or context examined in isolation from one another, previous literature provides evidence in the interrelations between these developmental domains or contexts and the developing adolescent. For example, age has been regarded as an important explanatory indicator in adolescents’ developmental outcomes (see Beilin & Pufall, 2013 for a review). Strong associations between SES and both academic achievement (Bumgarner & Brooks-Gunn, 2013) and behavioural disorders (Leijten, Raaijmakers, de Castro, & Matthys, 2013) have been reported among school children; SES has also been linked to adolescent mental health (McLaughlin, Costello, Leblanc, Sampson, & Kessler, 2012). Regarding physical growth, early pubertal timing, body image concerns, such as body dissatisfactions and physical appearance anxiety have been associated with both externalising and internalising problems among adolescents especially for girls (e.g., Graber et al., 1997; Sontag et al., 2011, Crockett et al., 2013, also see Chapter 2). Research on adolescent transitions has also evidenced early pubertal timing and multiple psychological problems among girls during the transition from primary to secondary school when girls often hit puberty during the same period of time (Blyth et al., 1983; Eccles & Midgley, 1989; Eccles & Roeser, 2011). Physical appearance comparisons has been associated with negative body image and socio-physical influences (Boroughs et al., 2010). Gender issues in terms of gender identity and sex roles suggested that gendered social pressure is likely to increase adolescent girls’ vulnerability to negative mental health outcomes (Tolman et al., 2006). In relation to social
contexts, families and friends have been indicated as both stressors and protective factors in the adolescent’s life (e.g., Scales et al., 2013; Smetana et al., 2006). Attachment relationships with parents and peers have been associated with multiple indicators of adolescents’ mental health, such as global life satisfaction, self-esteem, loneliness, depression, and coping (Allen, 2008; Armsden & Greenberg, 1987; Bowlby, 2008; Millings et al., 2012). Parental involvement and peer norms have been linked to school experience and adjustment of the adolescent (e.g., Hill & Tyson, 2009; Jeynes, 2014; Li et al., 2011; Wentzel et al., 2010). Pedagogical practices, student-teacher relationships, classmates, affect at school, academic achievement, and other aspects of the school milieu have also been found to have a significant impact on adolescents’ wellbeing in school setting and beyond (e.g., Card & Hodges, 2008; Cohen et al., 2009; Rodkin & Ryan, 2012). In addition, age and gender have also been linked with students’ school transition adjustment (Fenzel, 1992; Rice, et al., 2011). Respecting mental health, global life satisfaction and self-esteem have been suggested by many researchers as major indicators of adolescents’ subjective wellbeing, as well as protective factors to poor mental health and externalising problems (e.g., Diener & Diener, 1995; Rey et al., 2011). Psychosomatic symptoms have been found associated with school stressors among adolescents (Murberg & Bru, 2007; Hjern et al., 2008), and they also contribute to manifestation of mental health difficulties, such as poor life satisfaction, anxiety and depression (e.g., Piko, 2006; 2007). Psychosomatic symptoms and mental health difficulties both have been linked to poor psychological wellbeing and negative social behaviours, and their attributes include developmental and social factors at both micro (individual) and macro (societal or national) levels (Karademas et al., 2008; van Dulmen & Goossens, 2013, see Chapter 4). In relation to coping, the choice of coping strategies have been found associated with age, personal temperament, and social resource (Compas et al., 2001; Seiffge-Krenke, Aunola, & Nurmi, 2009); whereas coping efficacy associated with the nature of specific stressors or situations (Skinner & Zimmer-Gembeck, 2007).

Nevertheless, previous research findings provide evidence in a piecemeal fashion towards the interrelations between multiple developmental domains in the adolescent’s life. Yet there have been no studies on establishing a systematic overview integrating all the developmental indices into one model among Chinese adolescents. Therefore, before moving on to the empirical
results of longitudinal changes in domains of physical growth, social contexts, and mental health of Chinese adolescents, this Chapter will explore the interrelations between all the variables examined in the study to provide a descriptive overview of the data.

6.3 Results

Pearson’s correlations were conducted among 53 variables (see Figure 6.1) at three time points, respectively. To reduce the chance of Type 1 error and produce conservative results from multiple correlations, Bonferroni correction was applied to Pearson’s correlation coefficient, with significant level at 0.001. Associations as indicated by correlation results reported below were therefore statistically significant at 0.001 level.

6.3.1 Demographics

Demographic information including age, school ranking (key school, ordinary school), and SES (socioeconomic status) was tested. In general, age and SES positively correlated with each other (r=.247), and both found associated with BMI, PDS, pubertal timing, and perceived pubertal timing at all three time points; school ranking was not found to be associated with any variables across all time points. Detailed interrelations at each time point were further reported below.

At time 1, age positively correlated with BMI (r=.245), PDS (r=.335), pubertal timing (r=.284), perceived pubertal timing (r=.307), and negatively correlated with care about height (r=-.156). SES positively correlated with BMI (r=.221), PDS (r=.446), pubertal timing (r=.388), perceived pubertal timing (r=.309), and negatively correlated with act like boys (r=-.146), and school emphasis on ego goals (r=-.137).

At time 2, age positively correlated with BMI (r=.233), PDS (r=.371), pubertal timing (r=.323), perceived pubertal timing (r=.346), and negatively correlated with

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7 To keep correlation results explicit and limit the size of correlation table, 1) When a total score of a measure is available, subscales of that measure were excluded, 2) Global life satisfaction refers to degree of happiness, 3) Self-esteem refers to global self-esteem from Harter Self-esteem Scale, 4) Coping strategy was represented by the first three most often used strategies, problem solving, emotional regulation, and distraction; coping efficacy was represented by the three most effective coping strategies, including problem solving, cognitive restructuring, and social withdrawal.
school involvement \( (r=−.160) \). SES positively correlated with BMI \( (r=.213) \), PDS \( (r=.311) \), pubertal timing \( (r=.288) \), perceived pubertal timing \( (r=.260) \), and negatively correlated with self-esteem \( (r=−.167) \).

At time 3, age positively correlated with BMI \( (r=.229) \), PDS \( (r=.345) \), pubertal timing \( (r=.306) \), perceived pubertal timing \( (r=.349) \), and substance abuse \( (r=.167) \). SES positively correlated with BMI \( (r=.211) \), PDS \( (r=.261) \), pubertal timing \( (r=.234) \), and perceived pubertal timing \( (r=.301) \).

6.3.2 Physical growth

At time 1, BMI positively correlated with SES \( (r=.221) \), age \( (r=.245) \), PDS \( (r=.515) \), pubertal timing \( (r=.407) \), perceived pubertal timing \( (r=.357) \), body size \( (r=.410) \), physical appearance anxiety \( (r=.172) \), and physical appearance comparison \( (r=.213) \). PDS positively correlated with age \( (r=.335) \), SES \( (r=.446) \), BMI \( (r=.515) \), pubertal timing \( (r=.858) \), perceived pubertal timing \( (r=.634) \), body size \( (r=.226) \), dieting behaviours \( (r=.154) \), and negatively correlated with bullying others \( (r=−.199) \). Pubertal timing positively correlated with age \( (r=.284) \), SES \( (r=.388) \), BMI \( (r=.407) \), PDS \( (r=.858) \), perceived pubertal timing \( (r=.593) \), body size \( (r=.179) \), dieting behaviours \( (r=.189) \), and negatively correlated with bullying others \( (r=−.207) \). Perceived pubertal timing positively correlated with SES \( (r=.309) \), age \( (r=.307) \), BMI \( (r=.357) \), PDS \( (r=.634) \), pubertal timing \( (r=.593) \), and negatively correlated with care about height \( (r=−.185) \), and worry about school adaptations regarding conflicts with authorities and older students \( (r=−.220) \). Body size positively correlated with BMI \( (r=.410) \), PDS \( (r=.226) \), pubertal timing \( (r=.179) \), dieting behaviours \( (r=.264) \), and physical appearance anxiety \( (r=.197) \). Dieting behaviours positively correlated with PDS \( (r=.154) \), pubertal timing \( (r=.189) \), and body size \( (r=.264) \). Care about height negatively correlated with age \( (r=−.156) \) and perceived pubertal timing \( (r=−.185) \). Physical appearance anxiety positively correlated with BMI \( (r=.172) \), body size \( (r=.187) \), and physical appearance comparison \( (r=.229) \). Physical appearance comparison positively correlated with BMI \( (r=.213) \) and physical appearance anxiety \( (r=.229) \). Act like boys negatively correlated with SES \( (r=−.160) \).

At Time 2, BMI positively correlated with SES \( (r=.213) \), age \( (r=.233) \), PDS \( (r=.418) \), pubertal timing \( (r=.344) \), perceived pubertal timing \( (r=.266) \), body size \( (r=.403) \), dieting behaviours \( (r=.156) \), care about figure \( (r=.161) \), physical appearance anxiety \( (r=.189) \), and physical appearance comparison \( (r=.204) \). PDS positively correlated with SES
(r=.311), age (r=.371), BMI (r=.418), perceived pubertal timing (r=.846), perceived pubertal timing (r=.632), body size (r=.224), dieting behaviours (r=.199), and negatively correlated with care about height (r=.174), bullying others (r=.212), and conflicts with authorities and older students (r=.182). Pubertal timing positively correlated with SES (r=.288), age (r=.323), BMI (r=.344), PDS (r=.846), perceived pubertal timing (r=.549), body size (r=.221), and negatively correlated with care about height (r=.171), and bullying others (r=.214). Perceived pubertal timing positively correlated with SES (r=.260), age (r=.346), BMI (r=.266), PDS (r=.632), pubertal timing (r=.549), personal task goals (r=.194), and negatively correlated with worry about school adaptations regarding conflicts with authorities and older students (r=.159). Body size positively correlated with BMI (r=.403), PDS (r=.224), pubertal timing (r=.221), dieting behaviours (r=.310), and physical appearance anxiety (r=.218). Dieting behaviours positively correlated with BMI (r=.156), PDS (r=.199), and body size (r=.310). Care about height negatively correlated with PDS (r=.174), and pubertal timing (r=.171). Care about figure positively correlated with BMI (r=.161). Physical appearance anxiety positively correlated with BMI (r=.189), body size (r=.218), and physical appearance comparison (r=.216). Physical appearance comparison positively correlated with BMI (r=.204) and physical appearance anxiety (r=.216).

At Time 3, BMI positively correlated with SES (r=.211), age (r=.229), PDS (r=.356), pubertal timing (r=.331), perceived pubertal timing (r=.258), body size (r=.287), dieting behaviours (r=.158), care about figure (r=.209), physical appearance anxiety (r=.184), physical appearance comparison (r=.253), and substance abuse (r=.164). PDS positively correlated with SES (r=.261), age (r=.345), BMI (r=.356), pubertal timing (r=.863), perceived pubertal timing (r=.575), substance abuse (r=.185), and negatively correlated with care about height (r=.204). Pubertal timing positively correlated with SES (r=.234), age (r=.306), BMI (r=.331), PDS (r=.863), perceived pubertal timing (r=.497), and negatively correlated with care about height (r=.164). Perceived pubertal timing positively correlated with SES (r=.301), age (r=.349), BMI (r=.258), PDS (r=.575), pubertal timing (r=.497), substance abuse (r=.157), and negatively correlated with care about height (r=.221). Body size positively correlated with BMI (r=.287), dieting behaviours (r=.250), and physical appearance anxiety (r=.182). Dieting behaviours positively correlated with BMI (r=.158), and body size (r=.250). Care about height negatively correlated with PDS (r=.204), pubertal timing (r=.164), and perceived pubertal timing (r=.221). Care about figure positively correlated with BMI (r=.209), and substance abuse (r=.169). Physical appearance anxiety positively
correlated with BMI \((r=.184)\), body size \((r=.182)\), physical appearance comparison \((r=.184)\), and negatively correlated with frequency of using distraction as coping strategy \((r=-.169)\). Physical appearance comparison positively correlated with BMI \((r=.253)\) and physical appearance anxiety \((r=.184)\).

### 6.3.3 Social contexts

**Families and friends**

At Time 1, parent attachment positively correlated with parental involvement \((r=.569)\), peer attachment \((r=.242)\), and global life satisfaction \((r=.178)\). Parental involvement positively correlated with parent attachment \((r=.345)\), global life satisfaction \((r=.202)\), and negatively correlated with loneliness \((r=-.181)\). Peer attachment positively correlated with parent attachment \((r=.242)\), parental involvement \((r=.345)\), and negatively correlated with loneliness \((r=-.208)\). Peer norms positively correlated with personal ego goals \((r=.302)\).

At time 2, parent attachment positively correlated with parental involvement \((r=.583)\). Parental involvement positively correlated with parent attachment \((r=.583)\), and negatively correlated with anxiety \((r=-.174)\). Peer attachment and negatively correlated with loneliness \((r=-.167)\).

At time 3, Parental involvement positively correlated with peer attachment \((r=.541)\), and global life satisfaction \((r=.241)\). Peer attachment positively correlated with parental involvement \((r=.541)\), global life satisfaction \((r=.260)\), and negatively correlated with loneliness \((r=-.235)\).

**Schools**

At Time 1, school satisfaction positively correlated with affect at school \((r=.410)\), academic achievement \((r=.204)\), classmate support \((r=.299)\), bullying others \((r=.176)\), and teacher-student relationships \((r=.357)\). Affect at school positively correlated with school satisfaction \((r=.410)\), classmate support \((r=.160)\), teacher-student relationships \((r=.252)\), school emphasis on task goals \((r=.312)\), and personal task goals \((r=.325)\). Academic achievement positively correlated with school satisfaction \((r=.204)\), personal ego goals \((r=.224)\), and negatively correlated with pressure from schoolwork \((r=-.251)\), and adaptation problems with academics \((r=-.466)\). Pressure from schoolwork positively correlated with adaptation problems with academics \((r=.162)\) and negatively correlated with academic achievement \((r=-.251)\). Classmate
support positively correlated with school satisfaction (r=.299), affect at school (r=.160), and teacher-student relationship (r=.228). Bullying others negatively correlated with PDS (r=.199), pubertal timing (r=.207), and being bullied (r=.255). Being bullied negatively correlated with bullying others (r=.255). Teacher-student relationships positively correlated with school satisfaction (r=.357), affect at school (r=.252), classmate support (r=.228), school emphasis on task goals (r=.279), personal task goals (r=.293), future plan (r=.161), and negatively correlated with school emphasis on ego goals (r=.196). School emphasis on ego goals positively correlated with personal ego goals (r=.334), and negatively correlated with SES (r=.165), teacher-student relationship (r=.196), and school emphasis on task goals (r=.257). School emphasis on task goals positively correlated with affect at school (r=.312), teacher-student relationship (r=.279), personal task goals (r=.289), and negatively correlated with school emphasis on ego goals (r=.257). Personal ego goals positively correlated with peer norms (r=.302), academic achievement (r=.224), school ego goals (r=.334), school involvement (r=.359), and global life satisfaction (r=.222). Personal task goals positively correlated with academic achievement (r=.325), teacher-student relationship (r=.293), school emphasis on task goals (r=.289), and negatively correlated with school emphasis on ego goals (r=.143). Future plan positively correlated with teacher-student relationship (r=.161). Adaptation concerns regarding conflicts with authorities and older students negatively correlated with perceived pubertal timing (r=.220). Adaptation problems with academics positively correlated with pressure from schoolwork (r=.162), and negatively correlated with academic achievement (r=.466).

At Time 2, school satisfaction positively correlated with affect at school (r=.341), classmate support (r=.177), and school emphasis on task goals (r=.159). Affect at school positively correlated with school satisfaction (r=.341), school emphasis on task goals (r=.270), personal task goals (r=.193), and negatively correlated with coping efficacy of social withdrawal (r=.201). Academic achievement positively correlated with school emphasis on task goals (r=.157), and adaptation problems with academics (r=.440). Pressure from schoolwork positively correlated with adaptation problems with academics (r=.155). Classmate support positively correlated with school satisfaction (r=.177), and adaptation concerns about conflicts with authorities and older students (r=.160). Bullying others negatively correlated with PDS (r=.212), pubertal timing (r=.214), and being bullied (r=.200). Being bullied negatively correlated with bullying others (r=.200).
Teacher-student relationship positively correlated with school emphasis on task goals (r=.328), and personal task goals (r=.235). School emphasis on task goals positively correlated with school satisfaction (r=.159), affect at school (r=.270), academic achievement (r=.157), teacher-student relationship (r=.328), and personal task goals (r=.273). Personal ego goals positively correlated with school involvement (r=.178). Personal task goals positively correlated with perceived pubertal timing (r=.194), affect at school (r=.193), teacher-student relationship (r=.235), and school task goals (r=.273). School involvement positively correlated with personal ego goals (r=.178), and negatively correlated with age (r=-.160). Absenteeism positively correlated with substance abuse (r=.156). Adaptation concerns about conflicts with authorities and older students positively correlated with classmate support (r=.160), and negatively correlated with PDS (r=-.182), perceived pubertal timing (r=-.159). Adaptation problems with academics positively correlated with academic achievement (r=.440), and pressure from schoolwork (r=.155). Substance abuse positively correlated with absenteeism (r=.156).

At Time 3, school satisfaction positively correlated with affect at school (r=.249), classmate support (r=.242), and negatively correlated with school emphasis on ego goals (r=-.197). Affect at school positively correlated with school satisfaction (r=.249), academic achievement (r=.280), classmate support (r=.180), teacher-student relationship (r=.289), school emphasis on task goals (r=.365), and negatively correlated with school emphasis on ego goals (r=-.174). Academic achievement positively correlated with affect at school (r=.280), school emphasis on task goals (r=.155), and adaptation problems with academics (r=.359). Pressure from schoolwork positively correlated with adaptation problems with academics (r=.355). Classmate support positively correlated with school satisfaction (r=.242), and affect at school (r=.180). Bullying others negatively correlated with being bullied (r=-.229). Being bullied negatively correlated with bullying others (r=-.229). Teacher-student relationship positively correlated with school emphasis on task goals (r=.196). School emphasis on ego goals negatively correlated with school satisfaction (r=-.197), affect at school (r=-.174), and school emphasis on task goals (r=-.226). School emphasis on task goals positively correlated with affect at school (r=.365), academic achievement (r=.155), teacher-student relationship (r=.196), personal task goals (r=.180), and negatively correlated with school emphasis on ego goals (r=-.226). Personal task goals positively correlated with school task goals (r=.180), and negatively correlated with global life satisfaction (r=-.157). Adaptation problems with academics positively correlated with academic achievement (r=.359),
and pressure from schoolwork (r=.355). Substance abuse positively correlated with age (r=.167), BMI (r=-1.63), PDS (r=-1.85), perceived pubertal timing (r=-1.57), and care about figure (r=1.69).

### 6.3.4 Mental health

At Time 1, global life satisfaction positively correlated with parent attachment (r=.178), parental involvement (r=.202), self-esteem (r=.258), and negatively correlated with anxiety (r=-.180), and depression (r=-.268). Self-esteem positively correlated with personal ego goals (r=.222), global life satisfaction (r=.258), frequency of using problem solving as coping strategy (r=.218), and negatively correlated with anxiety (r=-.287), depression (r=-.292), and frequency of using distraction as coping strategy (r=-.178). Psychosomatic symptoms positively correlated with depression (r=.193). Loneliness positively correlated with anxiety (r=.293), distraction as coping strategy (r=.319), and negatively correlated with parental involvement (r=-.181), and peer attachment (r=-.208). Anxiety positively correlated with loneliness (r=.293), depression (r=.158), and negatively correlated with global life satisfaction (r=-.180), self-esteem (r=-.287), and problem solving as coping strategy (r=-.205). Depression positive correlated with psychosomatic symptoms (r=.193), anxiety (r=.158), distraction as coping strategy (r=.203), and negatively correlated with global life satisfaction (r=-.268), self-esteem (r=-.292), and problem solving as coping strategy (r=-.162). Frequency of using problem solving as coping strategy positively correlated with self-esteem (r=.218), and negatively correlated with anxiety (r=-.205), and depression (r=-.162). Frequency of using distraction as coping strategy positively correlated with loneliness (r=.319), depression (r=.203), and negatively correlated with self-esteem (r-.178).

At time 2, global life satisfaction positively correlated with self-esteem (r=.269), and negatively correlated with anxiety (r=.194). Self-esteem positively correlated with global life satisfaction (r=.269), and negatively correlated with SES (r=-.167), anxiety (r=-.421), and depression (r=-.221). Psychosomatic symptoms positively correlated with depression (r=.257). Loneliness positively correlated with depression (r=.255), and negatively correlated with peer attachment (r=.167). Anxiety negatively correlated with parental involvement (r=-.174), global life satisfaction (r=-.194), self-esteem (r=-.421), and problem solving as coping strategy (r=-.200). Depression positive correlated with psychosomatic symptoms (r=.257), distraction as coping strategy (r=.252), and negatively correlated with self-
Self-esteem ($r = -.221$). Frequency of using problem solving as coping strategy negatively correlated with anxiety ($r = -.200$). Frequency of using distraction as coping strategy positively correlated with loneliness ($r = .255$), and depression ($r = .252$). Coping efficacy of social withdrawal negatively correlated with affect at school ($r = -.201$).

At time 3, global life satisfaction positively correlated with parental involvement ($r = .241$), peer attachment ($r = .260$), and negatively correlated with personal task goals ($r = -.157$), and anxiety ($r = -.163$). Self-esteem negatively correlated with anxiety ($r = -.422$), and depression ($r = -.196$). Psychosomatic symptoms positively correlated with depression ($r = .206$). Loneliness positively correlated with depression ($r = .190$), and negatively correlated with peer attachment ($r = -.235$). Anxiety negatively correlated with global life satisfaction ($r = -.163$), and self-esteem ($r = -.422$). Depression positively correlated with psychosomatic symptoms ($r = .206$), loneliness ($r = .190$), frequency of using distraction as coping strategy ($r = .189$), negatively correlated with self-esteem ($r = -.196$). Frequency of using distraction as coping strategy positively correlated with depression ($r = .189$), and negatively correlated with physical appearance anxiety ($r = -.169$).

To sum up, variables within the same domain or context are more likely to be correlated with one another (e.g., pubertal timing and physical appearance comparison), although associations were also found between variables across different domains (e.g., pubertal timing and depression), and these include: first, demographic indicators age and SES associated with multiple physical growth indicators. Second, apart from age and SES, bullying others, concerns about conflicts with authorities and older students, and substance abuse were also correlated with physical growth indicators. Third, with regard to social contexts, families and friends indicators associated with multiple mental health indicators, including global life satisfaction, loneliness, and anxiety. School indicators revealed more associations between each other than interrelations across different domains, although age, SES, pubertal timing, PDS, perceived pubertal timing, care about figure, global life satisfaction, and efficacy of social withdrawal were found correlated with different school indicators at various time points. Fourth, mental health indicators were found correlated with SES, parent and peer attachment, parental involvement, and personal achievement goals.
6.4 Discussion of results

6.4.1 Demographics

Age and SES were both found associated with BMI and pubertal development indicators. Findings are consistent with previous studies. For example, age has been reported as an important predictor of pubertal status and pubertal timing (e.g., Stattin et al., 2011). Research on SES and pubertal development evidenced the association between higher SES and earlier pubertal timing by other researchers (e.g., van den Berg et al., 2010). Age effects have also been found in school involvement and substance abuse. As girls grow older, their school involvement declines, and they concern more about substance abuse. Such correlations again add evidence to existing literature (e.g., decline in school involvement, Holas & Huston, 2012; increase in substance abuse, Ge et al., 2011). Higher SES on the other hand was associated with higher adherence to gender roles (less likely to act like opposite sex), and perceive lower level of school emphasis on ego goals in this study. However, there is little research on interrelations between SES and either gender role indicators or school achievement goals, and future research is in need to establish confirmative associations. It is interesting that at Time 3 higher SES correlated with lower self-esteem in this study, which is inconsistent with authors who found SES as an indicator of higher levels of self-esteem (e.g., Twenge & Campbell, 2002), however, other authors also argued that SES may not have the same meaning or salience as a source of self-esteem (e.g., Birkeland, Melkevik, Holsen, & Wold, 2012). One reason to such inconsistency may also result from different measurement of SES, because there are several ways of measuring SES, although most include quantification of family income, parental education, and occupational status. Cultural factors may also response as mediators between SES and self-esteem in Chinese sample. Nevertheless, the interrelation between SES and self-esteem was only identified at Time 3 in this study, which cannot rule out the possibility that such associations might have happened by chance.

6.4.2 Physical growth

BMI, PDS, pubertal timing, and perceived pubertal timing associated with each other at all the three time points. Although other interrelations were
temporary rather than persistent, there are a few findings worth noting. First, higher PDS was linked to lower frequencies of bullying others, which is inconsistent with previous literature whereas pubertal maturation leapt out as a factor of bullying (e.g., Pepler et al., 2006). Second, although the interrelations between pubertal maturation and substance abuse is consistent with existing literature (e.g., Ge & Natsuaki, 2009), it should be noted that the variable on substance abuse examined in this study refers to students’ perceptions of to what extent substance abuse is a problem for them in school, which is different from their actual usage of substance (see Chapter 5 for descriptions of measure). Earlier pubertal timing was associated with lower frequencies of bullying others at Time 1 and 2, and these findings resonate the associations between pubertal maturation and bullying as reported above, and contributes to existing literature (e.g., Caspi et al., 1993; Ge & Natsuaki, 2009). Another interesting finding is the association between early pubertal timing and higher levels of personal task goals. Although such interrelations have not been tested before, the associations between pubertal timing and personal achievement goals may result from the cognitive development triggered by the onset of puberty (biological theory of pubertal timing, Mendle, Turkheimer, & Emery, 2007; Beltz & Berenbaum, 2013). Overall, PDS correlated with more variables than perceived pubertal timing, which associated with more variables than pubertal timing. These general findings are inconsistent with literature whereas pubertal timing has been suggested as a more important indicator of puberty than pubertal status (e.g., Crockett et al., 2013), and at the same time, findings in this study add evidence to the argument that perceived pubertal timing is of more importance than pubertal timing categories derived from pubertal status (e.g., Siegel et al., 1999). Considered collectively, these results demonstrate little evidence of the associations between either pubertal timing or pubertal status and internalizing problems among girls in this study.

With regards to indicators of body image and concerns, consistent associations were found across three time points: first, perceptions of bigger body size correlated with higher BMI, more likely to adopt dieting behaviours, and higher physical appearance anxiety. These findings support existing literature on the interrelations between weight problems (body size) and dieting behaviours as well as physical appearance anxiety, which often indicates that girls who perceive themselves as overweight are prone to dieting behaviours and more
anxious about their physical appearance (Paxton, Wertheim, Gibbons, et al., 1991; Swami et al., 2010). Second, higher *physical appearance anxiety* was associated with higher *BMI*, perceptions of bigger *body size*, and more *physical appearance comparison*. This indicates that girls with higher *BMI* feel more insecure about their physical appearance and exhibit more self-consciousness of their body, and this is consistent with findings from previous studies (e.g., Swami et al., 2007; 2010). However, whether higher physical appearance anxiety trigger more physical appearance comparisons or more frequent physical comparisons result in higher physical anxiety needs future verification to establish causal relations. Additionally, a few other interrelations worth notice. For example, *care about figure* was positively correlated with *substance abuse* at Time 3. This finding echoes the significant inverse relations between overweight and substance use disorders as reported by other authors (e.g., Petry, Barry, Pietrzak, & Wagner, 2008). In addition, *physical appearance anxiety* negatively correlated with frequencies of using *distraction* as coping strategy at Time 3. Plausible reason can be generated according to the cognitive model of anxiety, which suggests anxious people exhibit an attentional bias towards threat, manifested as enhanced detection of threat stimuli rather than distract from it (Rapee et al., 2009).

In relation to gender issues, *act like the opposite sex* negatively associated with *SES* at Time 1, and this has been discussed above. *Positive feelings about own gender* did not reveal any significant correlations with other variables at all time points. Therefore, gender issues examined by means of these two questions seem not respond as explanatory variables in this study.

### 6.4.3 Social contexts

**Families and friends**

Indicators of families (*parent attachment, parental involvement*) and friends (*peer attachment, peer norms*) associated closely with each other. Besides, *parent attachment, parental involvement*, and *peer attachment* were also correlated with mental health indicators (e.g., *global life satisfaction, loneliness, anxiety*). *Peer norms*, on the other hand, associated with school indicators regarding personal goals (*personal ego goals, also see below*). Hence findings in this study were consistent with existing literature: first, indicators of families and friends associated with one other, which can be explained by the internal working
model of attachment theory (Bowlby, 1982, 2008; Bretherton & Munholland, 2008, also see Chapter 3); second, parent attachment positively correlated with parental involvement (e.g., Bowlby, 2008); third, quality of attachment relationships with parents and peers predicts positive wellbeing, such as global life satisfaction (e.g., Cassidy, 2008; Paterson, et al., 1995), and they are protective factors to mental health difficulties such as loneliness and anxiety during adolescence (e.g., Allen, 2008; Bowlby, 2008; Millings et al., 2012); fourth, peer norms positively associated with personal ego goals, and this finding is in line with literature on peers norms and school adjustment (Kurdek et al., 1995; Wentzel et al., 2010; Veronneau & Dishion, 2011).

*Schools*

Regarding school climate indicators, a few interrelations are highlighted. First, higher affect at school was associated with more classmate support, better teacher-student relationship, higher school emphasis on task goals, and lower school emphasis on ego goals. These findings were consistent with previous research literature on the attributes to positive school affect (e.g., Eccles & Roeser, 2011; Roeser et al., 1996). Second, although for those who bully others may also be bullied by others, the consistent negative correlations found in this study between bullying others and being bullied indicate that they are two different constructs and often do not happen concurrently (e.g., Cook et al., 2010; Hong & Espelage, 2012). Third, interrelations between school emphasis on achievement goals and personal achievement goals were consistent with previous literature on goals studies which indicate school achievement goals influence personal achievement goals (e.g., Roeser & Eccles, 1998; Friedel, et al., 2007). In addition, the positive correlations between school emphasis on task goals and teacher-student relationship also add evidence to the optimal outcomes of school achievement goals that emphasize effort and support student autonomy (e.g., Kaplan et al., 2014; Meece et al., 2006).

With respect to indicators of school goals, it is interesting that at Time 1, academic achievement was positively associated with both personal ego goals and personal task goals. Additionally, personal ego goals associated with self-esteem whereas personal task goals correlated with global life satisfaction. Taken together, these seemingly controversial results in this study can be understood by the argument that in real life adolescents might pursue ego and task goals at the same time (Kaplan et al., 2014). Personal goals examined by future plan after high
school and revealed associations with teacher-student relationship, and this again is in line with consistent research findings that the relationship between teachers and students is one of the most important factors in student success (e.g., Scrimsher & Trudge, 2003; Woolley & Grogan-Kaylor, 2006).

Regarding school behaviours indicators, school involvement negatively correlated with age and this interrelation has been discussed above. Associations between absenteeism and substance abuse add evidence to the argument that school absenteeism was linked to substance misuse and other behavioural problems (Henry & Huizinga, 2007; Kearney, 2008). Nevertheless, disruptive behaviours did not show any significant associations with other variables in this study, although previously other research reported positive associations between disruptive behaviours and age (e.g., Currie et al., 2012).

With respect to school adaptation indicators, concerns about conflict with authorities and older students negatively associated with PDS and pubertal timing, indicating girls with advanced pubertal maturation and early pubertal timing showed less vulnerability to adaptation problems with authorities and older students. These findings are inconsistent with existing literature that often reports an opposite direction of association (e.g., Fenzel, 1992; Eccles & Roeser, 2011). Persistent positive associations were found between concerns about academics and pressure from schoolwork. Substance abuse was linked to absenteeism, age, BMI, PDS, pubertal timing, and care about figure. Although these connections were only found at Time 3, they are consistent with previous literature on attributes to substance abuse (Ge & Natsuaki, 2009). Concern about peer relationship was not found associated with other variables in this study, and this was in contrast to previous studies, which often indicates that peers play a crucial role in adolescents’ school adaptation (e.g., Wentzel et al., 2010).

6.4.4 Mental health

Global life satisfaction associated with self-esteem, anxiety, parent and peer attachment, parental involvement, and personal task goals. These pairwise interrelations between global life satisfaction and each individual indicator have been reported by other authors, respectively (see Loewe et al., 2014 for a review). This suggests that different factors lead to and hinder the quality of global life satisfaction. Likewise, self-esteem was also found associated with
multiple variables, including global life satisfaction, anxiety, depression, SES, personal ego goals, problem solving as coping strategy. Additionally, the negative associations between self-esteem and anxiety as well as depression, were consistent with previous studies, which suggested self-esteem a protective factor to negative psychological outcomes (e.g., Rey et al., 2011).

Indicators of mental health difficulties closely associated with one another, and this is consistent with findings on the interrelations between these constructs (e.g., Bor et al., 2014). As mentioned above, self-esteem, parent and peer attachment, parental involvement, were negatively associated with loneliness, anxiety, and depression in this study. Although results in this study did not establish causal effects between them, such associations were in sync with existing literature on adolescents’ self-esteem, parent and peer relationship quality are protective factors to their wellbeing (e.g., Diener & Rey et al., 2011; Bowlby, 2008; Millings et al., 2012). Psychosomatic symptoms associated with depression at all time points. These findings were also consistent with previous literature on the relationship between psychosomatic symptoms and other mental health indicators (e.g., Piko, 2006).

In relation to coping strategy and efficacy, results in this study indicate that distraction as coping strategy associated with mental health difficulties (e.g., depression, loneliness) and low self-esteem. On the other hand, problem solving as coping strategy was associated with positive mental health (higher self-esteem, lower levels of anxiety and depression). Associations between coping efficacy of social withdrawal and affect at school indicates that choice of coping strategy and rating on efficacy can be situation-specific when adolescents deal with different stressors. These results are consistent with previous literature on coping responses as an important correlate of psychological adjustment. The general trends, however, tend to be qualified by the nature of the stressor, the specific type of coping strategy used, and whether these associations are measured concurrently or prospectively (Compas, Connor-Smith, Saltzman, Thomsen, & Wadsworth, 2001). Although Fields and Prinz (1997) summarized the literature on developmental changes in self-reported coping across diverse stressful situations and drew the conclusion that the ability of differentiation and situation-specific use of coping strategies increases at first from preschool to primary school age with a second peak in adolescence. Results in this study, like several other studies,
failed to show developmental differences, suggesting moderate consistencies of reported coping strategies in different age groups (e.g., Donaldson, Prinstein, Danovsky, & Spirito, 2000).

6.4.5 Summary

First of all, results of correlations between variables in this study revealed that adolescent development accommodates complex interrelations between multi-attributes that tap into different domains and contexts. Second, interrelations between variables are not always persistent over time. Results of the longitudinal changes indicate that such interrelations are rather dynamic than static. Third, interrelations between variables as found in this study provide both consistent and inconsistent results compared to existing literature based on Western samples, which suggests potential cultural differences in the interrelations of domains and contexts indices. Fourth, as reported above, effect sizes for most of the associations were small (Cohen, 1988). However, it should also be noted that when interpreting the correlation results, the adoption of Bonferroni correction should be taken into consideration. It protected researcher from Type I errors; however, it may leave the researcher a little more vulnerable to Type II errors. Nevertheless, this is yet another reason that studies need to be replicated in future. Last, correlation analysis in this chapter aims to provide an exploratory overview of interrelations between all the variables in this study, and therefore it does not establish causal relations or distinguish dependent and explanatory variables.

6.5 Conclusion and implications for thesis

This chapter describes the interrelations of all variables studied in the study. As described above, some variables correlated with many other variables, some correlated with only a few variables, yet some showed no associations with any other variables at all. Longitudinally, some interrelations are persistent over time, and on the other hand, the associations between variables are not static, such interrelations form, disappear, strengthen, weaken, and also change in directions. This reflects the fact that adolescents construct, interpret, and make meaning of the contexts they inhabit, and although their active agency influences their developmental trajectory, the constructive nature of adolescent development is not readily apparent in current theorizing.
or empirical research. Therefore, it is important to study longitudinal changes in adolescent development as adolescents assert choices, make decisions, and develop within different contexts and cultures.

In line of this reasoning, the next three chapters (Chapters 7-9) will report results of longitudinal changes of all the variables in the survey. Specifically, Chapter 7 will focus on physical growth indicators, Chapter 8 will focus on social contexts indicators, and Chapter 9 will focus on mental health indicators. Last, Chapter 10, as general discussion of the thesis, will summarise key findings in relation to answering the research questions, and synthesize empirical results in this study with previous literature.
CHAPTER 7 LONGITUDINAL CHANGES OF ADOLESCENTS’ PHYSICAL GROWTH

7.1 Aims of this chapter

The previous chapter provided an overview of the methodological approach adopted within this thesis. In this chapter, primary attention is given to the longitudinal changes in measures of physical development and girls’ perceptions towards these changes during the transition from primary to junior high school (pre-transition, last term in Grade 6 primary school; during transition, first term in Grade 1 junior high school; post-transition, last term in Grade 1 junior high school, see Chapter 1 for more detail on Chinese educational systems). As illustrated in Figure 7.1, the central analysis presented in this chapter is to document whether, and to what extent, adolescents’ perceptions and adjustment towards their physical growth differ across three time points through the transition. This chapter proceeds with a brief summary of the reviewed literature from Chapter 1 and 2, and re-states the relevant research questions. This is followed by the presentation of empirical analysis and findings. The chapter concludes with a discussion of the main results in relation to the role of culture on adolescents’ physical growth as well as their perceptions and adjustments towards their developing bodies.

Figure 7.1 Longitudinal changes in physical growth during the transition from primary to junior high school
7.2 Introduction

As mentioned in Chapter 2, where a comprehensive review of research relating to the broad concept of physical growth during adolescence was presented, adolescence is widely acknowledged as an integrated transition across multiple domains: biological, cognitive, social, and psychological, when these transitions working together in shaping major changes in an individual’s attitudes, self-perceptions, and actual behaviour. As such, adolescence is best conceptualized as one component of a larger development continuum with the most obvious changes in their physical growth.

The physical growth of the adolescent is more salient and rapid compared to physical changes in younger or older age groups. High inter-individual variances in rates of growth, body size, physique, and during adolescence have received wide research recognition (e.g., Flanders, 2009). A growing body of evidence in Western societies suggests that actual weight status or BMI, weight perception, body image, and the overall image of the self may vary according to gender, pubertal status, and may be related to social pressure, attitudes, and norms of ideal body size and physical attractiveness. From these findings it is clear that the adolescent must be regarded as an individual entity, even within the framework of group classifications in the given standards (e.g., pubertal timing group, grade in school, chronological age).

7.2.1 Pubertal development

When considering physical growth and development, pubertal maturation is a key developmental process producing relevant physical changes and psychosocial changes, including the awareness of gender identity. The onset of puberty brings about physical changes that force individuals to reassess personal conceptions of their own body and how this fits into their existing conception of their self. The social and psychological experiences of puberty have generally been examined in terms of pubertal status and pubertal timing (Graber et al., 1996), and pubertal timing (being earlier, later, or the same as peers) has been suggested to play a more crucial role in adolescents’ development (Graber et al., 1996; Williams & Currie, 2000). In general, off-time development has been hypothesized to be problematic, because they may feel different from peers and hence have negative self-appraisals (Brooks-Gunn, Petersen, & Eichorn, 1985). In particular, early-maturing girls are most likely to
feel different from peers and have negative self-appraisals, which have also been linked to externalizing behavioural problems and internal psychological outcomes (see Sontag, Graber, & Clemans, 2011 for a review). To complicate matters, girls are more likely to make the transition from primary to junior high school during the pubertal transition; consequently research has been focused on the challenges from both events for adolescent girls (see Flammer & Alsaker, 2006). Much research has been done on puberty; however, the findings are inconsistent. For example, some studies of pubertal changes have been viewed more as an opportunity than a crisis (Papalia, Olds, & Feldman, 2001). Such controversy in research findings initiates new research, and further studies in return will test previous findings.

Research on puberty in Chinese adolescents is still under-examined compared with that in Western literature, and among the existing Chinese studies relating to puberty, focus has been on effects and adjustment of menarche (e.g., Yang, Ma, Fu, et al., 2013) and decline in age of menarche in the general population (Graham, Larsen, & Xu, 1999) rather than individual differences in pubertal timing and its impact of psychological development. In one recent study on timing and secular trends in pubertal development in Beijing girls (Chen, Wang, & Mi, 2014), for example, the median age of breast and pubic hair development and onset of menarche were studied to identify a secular trend toward earlier menarche between 1980s and the 2000s. However, the data were based on girls aged 6-18 during the years of 1940 to 2004, thus it is hard to provide compatible data to capture the pubertal development of contemporary Chinese adolescents. In respect to pubertal timing effects, whether the off-time or early-timing hypothesis is more applicable to Chinese adolescents presently is not clear. Therefore, in this study, followed longitudinal changes of puberty indicators, pubertal timing effects are examined among body image and mental health indicators. They are tested as alternative hypothesis for possible nonlinear patterns by comparing body image and mental health indicators across early-on-time, and late-maturing adolescents.

7.2.2 Body image and concerns

Body image encompasses beliefs and feelings about, and representations of, one’s body and its attributes, such as weight, size, and shape. The awareness of the social importance of appearance and the stigmas attached to differing from
the norm or ideal emerge quite early in development and amplified during adolescence when the body is experiencing rapid changes in every aspect.

Weight has often been a central focus of body image studies, and has been identified as the greatest concern of women regardless of age (Hurd, 2000). Weight-related self-perceptions and the attitudes towards one’s body are found influenced by social norms and the standards of the dominant culture (Swami et al., 2010). For example, evidence suggests that the ideal body weight is slimmer in more developed countries (Swami et al., 2010) while in less socioeconomically developed societies plumpness is positively evaluated (Swami et al., 2007). However, despite these cross-cultural differences, the prevalence of overweight and obesity among children and adolescents has increased in recent decades and has become public health concern worldwide (Ogden et al., 2012). The current prevalence of overweight among Chinese children and adolescents does not seem comparable yet with that reported in many developed countries. Alarmingly, however, although among adolescents age 12-18-year-olds the increase is slow, Zhang et al. (2010) found that the annual average weight increase among children of 6 to 11-year-olds was 1.21%, which is markedly higher than the rate of increase observed in other countries.

Body dissatisfaction is considered a Western culture-bond syndrome by many researchers (e.g., Gordon et al., 2002), and found more common among women than men (Maphis et al., 2013). It is even common among females of normal weight in Western societies (Homan, McHugh, Wells, Watson, & King, 2012). Although recent research shows an increase in body dissatisfaction in non-Western countries including China (Chen & Jackson, 2008), cross-cultural studies report lower levels of both negative body image and lower likelihood of engaging in weight loss behaviours in non-Western countries compared with Western countries (McArther, Holbert, & Pena, 2005).

Existing studies on body image, however, lack of research examining other indicators, which may contribute to the self-evaluation of body image other than weight status, body size, and figures. Height, specific body part, and looks are found to be among the most important predictors of body dissatisfaction in some studies (e.g., Tiggeman, 2011), however, whether these concerns also contribute into girls’ body image evaluation and whether they are perceived as less consequential for adolescent girls are not clear.
7.2.3 Gender issues

Gender identity is constructed under the effects of socio-cultural context with cultural-specific guidelines for behaviours, stereotypes, social status for two genders regarding their gender roles (Hooks, 1981). Thus legitimately “doing girl” is deeply entwined with normative practices of heterosexuality (Hill & Lynch, 1983; Renold & Allen, 2006). Traditional Western gender roles associate femininity with beauty and concern with appearance (Freedman, 1988), thus the notion of “doing girl” for early adolescents demands them being interested in fashion, make-up, celebrities, being cooperative, and conscientious with relationships and interest in boys (Ringrose, 2007). Puberty and the transition towards maturation of the female body heighten the awareness of girls’ gender identity, and to the extent that being beautiful and not being too smart is a prevailing cultural gender role for girls, they may be conforming to that role at the expense of cultivating other important aspects of themselves and their education (e.g., Pipher, 1994).

Focus on conformity with cultural gender roles may lead to less concern with other aspects of personal identity. On one hand, studies indicate that girls whose behaviours matched gender prescriptions were more likely to be psychologically well adjusted, because they would fulfil a psychological need to conform to internalized cultural standards of gender. On the other hand, Bem (1981) argued that the need to adhere to an internalized standard of gender would promote negative adjustment. Despite significant ethnic, cultural, and socioeconomic variations in their life experiences, whether these gender stereotypes and the hypothesised relationships between gender roles and psychological adjustment hold true for children and adolescents from a cultural context different from American samples is still yet to be investigated (Corby et al., 2007).

7.2.4. Research questions and hypothesis

The goals of this chapter is to answer Research Question 1 by examining the longitudinal changes in adolescent girls’ physical growth, in terms of their pubertal development, body image and concerns, and gender issues. Based on the reviewed theoretical concepts and existing research evidence, it was hypothesised that with age there would be pubertal changes, increased body image concerns, and greater gender issues. Empirical results in this chapter
are presented in three main parts, each part relating to a secondary research question and corresponding measures in the questionnaire, as shown below.

<table>
<thead>
<tr>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
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<tbody>
<tr>
<td><strong>Pre-transition</strong></td>
<td><strong>During transition</strong></td>
<td><strong>Post-transition</strong></td>
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<tr>
<td><strong>Physical growth</strong></td>
<td><strong>Physical growth</strong></td>
<td><strong>Physical growth</strong></td>
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<tr>
<td>• Pubertal development</td>
<td>• Pubertal development</td>
<td>• Pubertal development</td>
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<tr>
<td>• Body image and concerns</td>
<td>• Body image and concerns</td>
<td>• Body image and concerns</td>
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<td>• Gender issues</td>
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<td><strong>Social contexts</strong></td>
<td><strong>Social contexts</strong></td>
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<tr>
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<td>• Parent attachment</td>
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<td>• Parental involvement</td>
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<td><strong>Mental health</strong></td>
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<td>• Self-esteem</td>
<td>• Self-esteem</td>
<td>• Self-esteem</td>
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<tr>
<td>• Psychosomatic symptoms</td>
<td>• Psychosomatic symptoms</td>
<td>• Psychosomatic symptoms</td>
</tr>
<tr>
<td>• Mental health difficulties (loneliness, anxiety, depression)</td>
<td>• Mental health difficulties (loneliness, anxiety, depression)</td>
<td>• Mental health difficulties (loneliness, anxiety, depression)</td>
</tr>
<tr>
<td>• Coping (strategy, efficacy)</td>
<td>• Coping (strategy, efficacy)</td>
<td>• Coping (strategy, efficacy)</td>
</tr>
</tbody>
</table>

Figure 7.2 A longitudinal study on early adolescent girls’ physical growth

7.3 Pubertal development

7.3.1 Pubertal status and pubertal timing

Means and standard deviations of individual pubertal development and average pubertal status scores obtained from *Pubertal Development Scale* (Petersen et al., 1988) are presented in Table 7.1. At Time 1 it was found to be
difficult for girls to precisely recall the date of their first menses, which resulted in large number of missing value, inaccurate and unusable data. As a result, the question on date of first menses was removed from the questionnaire at Time 2 and 3 (see Chapter 5). Repeated measure ANOVA analysis and revealed a significant maturational progress in girls’ pubertal status between each two time points (T1<T2, T3**, T2<T3**) (F (1.607, 681.511) =409.973, p<0.0001, η²=0.49). This indicates that during the transition from primary to junior high school, girls were undergoing significant pubertal changes in their body regarding pubertal maturation. Inspections on means and standard deviations of each index revealed different maturing timing (see Table 7.1). Across three phases, growth spurt and body hair growth showed earlier signs in maturation, whereas skin change and breast growth were reported as starting later. At Time 1, slightly over a third of the girls experienced their first menses (N=164, 38.6%, mean age=12.53, SD=0.59), while the proportion reversed at Time 2 with 60.5% (N=257, mean age=12.99, SD=0.60), and by the time of Time 3, 73.2% of girls (N=311, mean age=13.42, SD=0.67) reported the onset of menarche.

Table 7.1 Means, standard deviation of PDS at three time points

<table>
<thead>
<tr>
<th>Scale (Mean/SD)</th>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDS</td>
<td>1.98(0.69)</td>
<td>2.37(0.70)</td>
<td>2.64(0.68)</td>
</tr>
<tr>
<td>Growth Spurt</td>
<td>2.15(0.75)</td>
<td>2.48(0.70)</td>
<td>2.66(0.73)</td>
</tr>
<tr>
<td>Body Hair</td>
<td>2.07(0.73)</td>
<td>2.32(0.74)</td>
<td>2.72(0.71)</td>
</tr>
<tr>
<td>Skin Change</td>
<td>1.64(0.67)</td>
<td>1.97(0.70)</td>
<td>2.15(0.76)</td>
</tr>
<tr>
<td>Breast Growth</td>
<td>1.90(0.77)</td>
<td>2.29(0.83)</td>
<td>2.47(0.82)</td>
</tr>
<tr>
<td>Menarche</td>
<td>2.16(1.46)</td>
<td>2.81(1.47)</td>
<td>3.20(1.33)</td>
</tr>
</tbody>
</table>

Based on PDS scores (Table 7.1) girls were thus categorised into three pubertal timing groups: early, on-time, and late (see Chapter 5 for categorisation procedures and rationale). Across three time points, the majority of girls’ were categorised as on-time compared with their peers (Table 7.2, Figure 7.3). The percentages of early maturers curved down from Time 1 (22.4%) through Time 3 (15.1%), while an increasing percentage of girls seemed to mature later than their peers at Time 2 (23.5%) compared with Time 1 (14.6%), and eventually dropped down at Time 3 (20.0%). Taken together over a third of girls were identified as off-time (both early and late maturers) compared with their peers.
Table 7.2 Number and percentage distribution of means, standard deviation of pubertal timing groups at each time point

<table>
<thead>
<tr>
<th></th>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early</td>
<td>N=95, 22.4%</td>
<td>N=74,17.4%</td>
<td>N=64, 15.1%</td>
</tr>
<tr>
<td></td>
<td>3.01(.20)</td>
<td>3.26(.15)</td>
<td>3.52(.19)</td>
</tr>
<tr>
<td>On-time</td>
<td>N=268, 63.1%</td>
<td>N=251, 59.1%</td>
<td>N=276, 64.9%</td>
</tr>
<tr>
<td></td>
<td>1.82(.40)</td>
<td>2.49 (.45)</td>
<td>2.76 (.37)</td>
</tr>
<tr>
<td>Late</td>
<td>N=62, 14.6%</td>
<td>N=100, 23.5%</td>
<td>N=85, 20.0%</td>
</tr>
<tr>
<td></td>
<td>1.10(.10)</td>
<td>1.43(.19)</td>
<td>1.57(.25)</td>
</tr>
</tbody>
</table>

Pubertal timing plays an important role in adolescents’ physical growth and mental health, especially among girls during early adolescence (see review of literature in Chapter 2). Based on pubertal timing groups categorised at Time 1, pubertal timing effects on body image and mental health indicators in this study were also investigated.

**Pubertal timing effects on body image indicators**

As shown in Figure 7.5, girls’ weight status was categorised into 6 groups (scored 1 to 6 from thinness grade 3 to obese) and analysed in relation to pubertal timing groups with one-way ANOVA. Significant pubertal timing effects were found (F (2, 146.719)=22.137, p<0.001). Post hoc tests revealed that early maturing girls were heavier (M=4.15, SD=0.05) than late maturers (M=3.60, SD=0.64) and on time maturers (M=3.79, SD=0.64). There were no significant differences between late and on-timers. Significant difference between pubertal timing groups was also found in body size (F(2,401) = 4.173, p <0.05). Girls who “don’t think about it” were excluded from the analysis, and results were based on girls who perceived themselves “much too thin” (=1) to “much too fat” (=5) with higher scores indicating heavier weight status. Post hoc tests revealed that early maturers (M=3.53, SD=0.69) were more likely to perceive themselves with heavier weight status than on-time maturers (M=3.24, SD=0.83). Pubertal timing effects were found in care about height (F(2,422)=5.030, p =0.01, η²=) and care about figure (F(2,422) = 3.495, p < 0.005, η²=). Post hoc tests revealed that late maturers cared more about their height (M=3.26, SD=0.57) than early maturers (M=2.87, SD=0.79), while early

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8 One-way ANOVA was used to analyze pubertal timing (based on PDS at Time 1) effects on body image and mental health indicators (data obtained at Time 3).
maturers cared more about their body figure (M=3.05, SD=0.82) than on-time maturers (M=2.81, SD=0.74).

Significant differences in physical appearance anxiety among three pubertal timing groups (early, on-time, and late maturers) were found in two items from the scale, regarding weight ($F(2,422)=4.417, p < 0.05$) and height ($F(2,422)=10.932, p < 0.001$), respectively. Post hoc tests identified early maturers concerned more about whether they were overweight (M=1.98, SD=1.15) than on-time maturers (M=1.59, SD=1.06); while they were less concerned about their height (M=1.87, SD=1.19) than late maturers (M=2.73, SD=1.16) and on-timers (M=2.35, SD=1.14). No significant pubertal timing effects were found in other items regarding physical appearance anxiety.

Pubertal timing effects were also found in physical appearance comparison ($F(2,422)=4.075, p < 0.05$). Post hoc tests revealed that early maturers were more likely to compare their physical appearance (M=2.69, SD=0.76) than late maturers (M=2.59, SD=0.65) and on-time maturers (M=2.69, SD=0.76).

To sum up, results of pubertal timing effects on body image indicators revealed that early maturers were more likely to be categorised into heavier weight groups based on their BMI, they perceived themselves with bigger body size, cared more about their figure, worried more about being overweight, and reported more physical appearance comparisons than late or on-time maturers. On the other hand, late maturers were found to care more about their height and worry more about being short. Therefore, it seems that in this study early pubertal timing effects were found on weight-related variables (weight status, body size, care about figure, concern about being overweight), while late pubertal timing effects were found on height-related variables (care about height, concern about being short). Overall, early maturers seem to be more sensitive about their physical appearance, since they reported higher physical appearance comparisons than either on-time or late maturers.

**Pubertal timing effects on mental health indicators**

Pubertal timing effects were found in the global life satisfaction indicator degree of happiness ($F(2,422)=8.581, p < 0.001$). Post hoc tests further identified the significant difference was between late and on-time maturers. Late maturers reported lower global life satisfaction (M=2.69, SD=0.62) than on-time
maturers (M=3.07, SD=0.70). No pubertal timing effects were found in self-esteem.

Significant difference was found in the total scores of psychosomatic symptoms between pubertal timing groups. At the individual item level, one symptom was found to differ significantly between pubertal timing groups (F(2,422)=11.121, p < 0.001). Early maturers reported to have higher frequencies of bad temper (M=2.86, SD=1.06) than on time (M=2.46, SD=1.06) and late maturers (M=2.06, SD=1.02), while on time maturers more often reported to have bad temper than their late maturing counterparts.

Regarding mental health difficulties, pubertal timing effects were found in loneliness (F(2,422)=3.191, p < 0.05). Post hoc tests revealed that early maturers reported higher levels of loneliness (M=30.02, SD=7.12) than late maturers (M=27.19, SD=6.31). There were no significant pubertal timing differences in anxiety at the overall level. However, pubertal timing effects were further identified in Social phobia among six subscales of anxiety (F(2,422)=4.254, p < 0.05). Post hoc tests revealed that late maturers reported higher level of Social phobia (M=7.60, SD=2.91) than on-time maturers (M=6.51, SD=2.94). However, no pubertal timing effects were found in Depression in this study.

In relation to coping strategy and efficacy, significant differences were found between pubertal timing groups in frequencies of using Self-criticism as coping strategy (F(2,140.155)=4.261, p < 0.05). Late maturers were further identified to use less frequent of Self-criticism when coping with stress (M=0.47, SD=0.50), which was significantly different from on-timers (M=0.65, SD=0.48), and early maturers (M=0.69, SD=0.46). Pubertal timing effects were also found in coping efficacy of Wishful thinking (F(2,337)=3.670, p < 0.05). As girls only reported coping efficacy scores when they used certain strategy, thus results were based on 340 girls (Late maturers, N=52; On-timers, N=211; Early maturers, N=77) rather than the whole final sample (N=425). Post hoc tests revealed that on-timers reported higher coping efficacy of Wishful thinking (M=1.05, SD=0.72) than late maturers (M=0.75, SD=0.76).

To sum up, early maturers reported higher frequencies of having bad temper and higher levels of loneliness. Late maturers on the other hand reported to have lower global life satisfaction (degree of happiness), higher levels of anxiety (social phobia), and higher frequencies of using self-criticism as coping strategy.
than on-time or early maturers. On-time maturers reported higher coping efficacy of *wishful thinking* as coping strategy. Taken together, in this study little evidence was found on the negative psychological outcomes of early pubertal timing.

### 7.3.2 Perceived pubertal timing

In accordance with the percentage distribution of pubertal timing groups based on *PDS*, a majority (T1, N=221, 52.0%; T2, N=249, 58.6%; T3, N=294, 69.2%) of girls perceived their physical developments as “about the same” as other girls.

![Figure 7.3 Percentage distribution of pubertal timing groups based on *PDS* (PT) and self-reported perceived pubertal timing (PPT) across three phases](image)

*Note: P=Pubertal timing group based on PDS, PPT=Perceived pubertal timing; E=Early, OT=On time, L=Late; T1=Time 1, T2=Time 2, T3=Time*

Following Williams and Dunlop (1999), Chi-square test for association was then conducted between pubertal timing groups based on *PDS* and girls’ perceived timing. Statistically significant moderately strong positive associations were found across all three time points (Time 1, $\chi^2(4) = 178.330, p < .0001, \phi = 0.458$; Time 2, $\chi^2(4) = 158.735, p < .0001, \phi = 0.432$; Time 3, $\chi^2(4) = 129.724, p < .0001, \phi = 0.391$) (Table 7.3). This suggests that although there was not an exact correspondence between objective and subjective measures of pubertal timing, a high degree of overlap was revealed.

<table>
<thead>
<tr>
<th></th>
<th>PT 22.40%</th>
<th>ET 17.40%</th>
<th>ET 15.10%</th>
<th>OT T1 63.10%</th>
<th>OT T2 59.10%</th>
<th>OT T3 64.90%</th>
<th>OT L1 14.60%</th>
<th>OT L2 23.50%</th>
<th>OT L3 20.00%</th>
<th>PT 11.50%</th>
<th>PPT 13.40%</th>
<th>PPT 8.90%</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>22.40%</td>
<td>17.40%</td>
<td>15.10%</td>
<td>63.10%</td>
<td>59.10%</td>
<td>64.90%</td>
<td>14.60%</td>
<td>23.50%</td>
<td>20.00%</td>
<td>11.50%</td>
<td>13.40%</td>
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<tr>
<td>T2</td>
<td>22.40%</td>
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<tr>
<td>T3</td>
<td>22.40%</td>
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<td>15.10%</td>
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<td>59.10%</td>
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<td>11.50%</td>
<td>13.40%</td>
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</table>

Table 7.3 Association between pubertal timing groups based on *PDS* (PT) and self-reported perceived pubertal timing (PPT) at three time points
7.4 Body image and concerns

7.4.1 Body Mass Index (BMI)

As shown in table 7.4, the BMI mean scores of the final sample (N=425) across three time points all fell into healthy range (adjusted for age), indicating the majority of girls’ growing rates of height and weight are in pace with their peers (WHO, 2006; Cole & Lobstein, 2012).

Table 7.4 Means, standard deviation, and range of age, height, weight, and BMI across three time points

<table>
<thead>
<tr>
<th>Perceived timing</th>
<th>PDS</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range</td>
<td>Range</td>
<td>Range</td>
</tr>
<tr>
<td>Age(years)</td>
<td></td>
<td>12.20(0.74)</td>
<td>12.79(0.74)</td>
<td>13.29(0.74)</td>
</tr>
<tr>
<td>Height(m)</td>
<td></td>
<td>1.50(0.06)</td>
<td>1.53(0.06)</td>
<td>1.55(0.06)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.35-1.68</td>
<td>1.36-1.70</td>
<td>1.38-1.70</td>
</tr>
<tr>
<td>Weight(kg)</td>
<td></td>
<td>40.42(6.24)</td>
<td>41.99(5.96)</td>
<td>43.04(5.84)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>26-65</td>
<td>27-65</td>
<td>28-67</td>
</tr>
<tr>
<td>BMI</td>
<td></td>
<td>17.79(2.12)</td>
<td>17.84(1.97)</td>
<td>17.82(1.88)</td>
</tr>
</tbody>
</table>
In order to reveal the weight status and its developmental changes of girls following the transition time, BMI scores were further categorised into six weight status groups according to the cut-offs for Asian girls suggested by IOTF (Cole & Lobstein, 2012). As shown in Figure 7.5, the majority of girls were classified as having normal weight (Time 1, 73.4%; Time 2, 76.0%; Time 3, 74.8%). The percentage of overweight or obese girls dropped down from 13.0% (Time 1) to 8.9% (Time 2) and with 6.6% at Time 3 (Figure 7.5), while a growing proportion of girls were identified as underweight (including Thinness Grade 1 to 3; Time 1, 12.4%; Time 2, 15.0%; Time 3, 18.6%).

Figure 7.4 Percentage distribution of weight status based on BMI according to IOTF cut-offs for Asian girls at Time 1, Time 2, and Time 3

7.4.2 Body dissatisfaction

Across three time points, girls increasingly wish to change something about their body (Time 1, N=222, 52.2%; Time 2, N=260, 61.2%; Time 3, N=261, 61.4%), F(1.520,644.339)=15.173, p<0.0001, η²=0.04, T1<T2**,T3**). This indicates a significant growth in girls’ dissatisfaction with their bodies in junior high. As seen in Figure 7.5, over one third of the girls across three time points perceived

Figure 7.5 Percentage distribution of body dissatisfaction among girls at Time 1, Time 2, and Time 3

0.00% 20.00% 40.00% 60.00% 80.00% 100.00%

T1 T2 T3

- Thinness Grade 3 0.20% 0.90% 0.70%
- Thinness Grade 2 0.90% 1.60% 3.30%
- Thinness Grade 1 11.30% 12.50% 14.60%
- Normal 73.40% 76.00% 74.80%
- Overweight 11.80% 8.00% 5.90%
- Obese 1.20% 0.90% 0.40%
themselves as a bit or much “too fat” (Time 1, N=147, 34.6%; Time 2, N=156, 39.1%; Time 3, N=146, 34.4%), with Time 2 revealed higher rates of reported complaints about their body weight, compared with that at the other two phases. This trend was further confirmed with statistical significance among girls who rated on their perceived weight status (N=371, F(1.978,731.711)=5.870, p<0.01, $\eta^2=0.02$, T2>T1**,T3**). In addition, the majority of girls who reported “Don’t think about it (weight status)” (N=106) were found to be of normal weight category based on their BMI (Time 1, 75%; Time 2, 66.7%; Time 3, 85%; Table 7.5). In other words, girls who were overweight or underweight tend to be more self-conscious about their weight status. Subsequently, although low in percentage, a growth in dieting behaviour was reported (Time 1, N=21, 4.9%; Time 2, N=31, 7.3%; Time 3, N=47, 11.1%). Despite the growing prevalence in adopting dieting behaviour, over half of the sample indicated that they need to lose weight although they were not on a diet (Time 1, N=233, 54.8%; Time 2, N=276, 64.9%; Time 3, N=231, 54.4%). This suggests that over half of girls were not satisfied with their body weight, in particular, they perceived themselves as overweight.

Longitudinally, girls’ reported intentions to diet increased significantly at Time 2 when they entered junior high school, and this remained stable at Time 3 (F(1.905,807.702)=14.902, p<0.001, $\eta^2=0.03$, T1<T2**,T3**). Despite the dominant attention paid on girls’ body change, body size, and dieting behaviour, the percentage of girls who perceive themselves as quite or very “good-looking” varied little over time (Time 1, N=112, 26.4%; Time 2, N=111, 26.1%; Time 3, N=109, 25.6%), and failed to reach statistical significance.

Figure 7.5 Percentage distribution of body change, body size (too fat), dieting behaviour, and perceived looks
Chi-square test was then applied to investigate the association between BMI and self-perceived weight status. At each of the three time points, girls’ perceived weight status was positively associated with their weight groups based on BMI (T1 $\chi^2(25) = 202.432, p <.0001, \phi = 0.309$; T2, $\chi^2(25) = 261.029, p <.0001, \phi = 0.350$; T3, $\chi^2(25) = 102.340, p <.0001, \phi = 0.219$). However, at Time 3, although statistically significant, the association was weak. Further analysis revealed that consistently from primary to junior high school girls who were classified as normal under BMI category tended to perceive themselves as a bit too fat (T1, N=88; T2, N=88; T3, N=80); and those who were slightly thin (Thinness Grade 1) tended to perceive themselves as normal (T1, N=29; T2, N=31; T3, N=29), such differences may contribute to the weak association between these two rating scales at Time 3 (Table 7.6). The discrepancies between the BMI categorized weight groups and girls’ reported perceived weight groups indicate that girls consider themselves as being underweight or overweight; this suggested that misperception of weight status exist in a considerable proportion of the sample.
Table 7.6 Association between weight groups based on BMI and perceived weight status at each time point

<table>
<thead>
<tr>
<th>Perceived weight status</th>
<th>BMI weight groups</th>
<th>Time 1 N(%)</th>
<th>Time 2 N(%)</th>
<th>Time 3 N(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Thinness grade 3</td>
<td>0(0)</td>
<td>0(0)</td>
<td>0(0)</td>
</tr>
<tr>
<td></td>
<td>Thinness grade 2</td>
<td>1(3.6%)</td>
<td>4(19.0%)</td>
<td>2(10.0%)</td>
</tr>
<tr>
<td></td>
<td>Thinness grade 1</td>
<td>3(10.7%)</td>
<td>7(16.3%)</td>
<td>4(16.7%)</td>
</tr>
<tr>
<td></td>
<td>Normal</td>
<td>21(75%)</td>
<td>14(66.7%)</td>
<td>17(85.0%)</td>
</tr>
<tr>
<td></td>
<td>Overweight</td>
<td>3(10.7%)</td>
<td>3(14.3%)</td>
<td>1(5.0%)</td>
</tr>
<tr>
<td></td>
<td>Obese</td>
<td>0(0)</td>
<td>0(0)</td>
<td>0(0)</td>
</tr>
</tbody>
</table>

Note: Higher grade indicates severe thinness

Care about height and figure

Longitudinally, at the mean level (Figure 7.6), girls revealed significant changes of their attitudes towards their height (F (1.898,804.785)=29.666, p<0.0001, η² = 0.07) and figure (F (1.688,715.878) =9.447, p<0.0001, η² = 0.02); both significant changes happened between primary school and two subsequent time points in junior high (T1<T2*,T3*). These developmental changes indicated that as girls transferred into junior high and as their bodies mature, they cared more about their height and figure. Compared with care about height, care about figure maintained even more stable growth with statistical significance. However, in general at all three time points, girls reported higher levels of care about their height than their figure.
7.4.3 Physical Appearance State and Trait Anxiety Scale - State (PASTAS-S)

Girls’ concerns about their physical appearance and specific body parts were investigated using PASTAS-S. Through three time points, their overall physical appearance anxiety showed a significant increase in mean scores (Figure 7.7, Table 7.7), \( F (2, 848) = 205.323, p<0.0001, \eta^2 = 0.33, T1<T2**, T3**; T2<T3**). However, because the internal consistency of this measure was low in this study (see Chapter 5), individual repeated measure ANOVA analysis was carried out on individual items of the measure. Three highest anxiety scores were found in: “Height”, “Legs”, and “Eyes” (see Figure 7.7 and Table 7.7). Longitudinal changes in physical appearance anxiety with each body part were presented in Table 7.7. Significant differences were identified among most of the body parts over time, while only “forehead” failed to reach statistical significance. Inspections of item means revealed that weight related body parts (e.g., weight, thighs, hips and buttocks, stomach and abdomen, legs, and waist) in general were higher than non-weight related items (ears, lips, wrists, hands, forehead, neck, chin, and feet), with height and eyes as exceptions. This indicates that other than girls’ high concerns with the extent to which they look shorter than their peers, and their eyes, they reported having more concerns about weight-related body parts than their non-weight-related body parts, in general.
Figure 7.7 Means of physical appearance anxiety regarding individual body parts across three time points
Table 7.7 Means, standard deviations, degree of freedom, F-value, p-value, and post hoc pairwise comparison results of physical appearance anxiety regarding individual body parts at three time points

<table>
<thead>
<tr>
<th>Mean(SD)</th>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
<th>df</th>
<th>F</th>
<th>p</th>
<th>η²</th>
<th>Post hoc</th>
</tr>
</thead>
<tbody>
<tr>
<td>PASTAS</td>
<td>13.70(5.05)</td>
<td>17.51(4.88)</td>
<td>18.76(4.96)</td>
<td>2</td>
<td>205.323</td>
<td>&lt;.0001</td>
<td>.33</td>
<td>T1&lt;T2**, T3**; T2&lt;T3**</td>
</tr>
<tr>
<td>Weight</td>
<td>1.15(1.01)</td>
<td>1.42(1.05)</td>
<td>1.68(1.11)</td>
<td>1.820</td>
<td>70.362</td>
<td>&lt;.0001</td>
<td>.14</td>
<td>T1&lt;T2**, T3**; T2&lt;T3**</td>
</tr>
<tr>
<td>Height</td>
<td>1.55(1.22)</td>
<td>2.07(1.19)</td>
<td>2.30(1.18)</td>
<td>1.904</td>
<td>79.767</td>
<td>&lt;.0001</td>
<td>.16</td>
<td>T1&lt;T2**, T3**; T2&lt;T3**</td>
</tr>
<tr>
<td>Thigh</td>
<td>0.97(1.01)</td>
<td>1.19(1.06)</td>
<td>1.19(1.09)</td>
<td>2</td>
<td>8.595</td>
<td>&lt;.0001</td>
<td>.02</td>
<td>T1, T2**, T1, T3**</td>
</tr>
<tr>
<td>Hips and buttocks</td>
<td>0.93(1.18)</td>
<td>1.21(1.24)</td>
<td>1.41(1.30)</td>
<td>2</td>
<td>21.143</td>
<td>&lt;.0001</td>
<td>.05</td>
<td>T1&lt;T2**, T3**; T2&lt;T3**</td>
</tr>
<tr>
<td>Stomach</td>
<td>0.98(1.25)</td>
<td>1.19(1.28)</td>
<td>1.18(1.26)</td>
<td>2</td>
<td>4.802</td>
<td>&lt;.01</td>
<td>.01</td>
<td>T1&lt;T2*, T3*</td>
</tr>
<tr>
<td>Legs</td>
<td>1.22(1.25)</td>
<td>1.71(1.31)</td>
<td>1.88(1.20)</td>
<td>2</td>
<td>43.068</td>
<td>&lt;.0001</td>
<td>.09</td>
<td>T1&lt;T2**, T3**; T3*</td>
</tr>
<tr>
<td>Waist</td>
<td>0.99(1.19)</td>
<td>1.41(1.26)</td>
<td>1.37(1.18)</td>
<td>2</td>
<td>22.485</td>
<td>&lt;.0001</td>
<td>.06</td>
<td>T1&lt;T2**, T3**</td>
</tr>
<tr>
<td>Ears</td>
<td>0.38(0.70)</td>
<td>0.52(0.80)</td>
<td>0.51(0.76)</td>
<td>2</td>
<td>11.324</td>
<td>&lt;.0001</td>
<td>.03</td>
<td>T1&lt;T2**, T3**</td>
</tr>
<tr>
<td>Lips</td>
<td>0.57(0.82)</td>
<td>0.69(0.84)</td>
<td>0.66(0.85)</td>
<td>2</td>
<td>5.562</td>
<td>&lt;.01</td>
<td>.01</td>
<td>T1&lt;T2**, T3*</td>
</tr>
<tr>
<td>Wrist</td>
<td>0.63(0.84)</td>
<td>0.81(0.92)</td>
<td>0.80(0.89)</td>
<td>2</td>
<td>11.585</td>
<td>&lt;.0001</td>
<td>.03</td>
<td>T1&lt;T2**, T3*</td>
</tr>
<tr>
<td>Hands</td>
<td>0.72(0.87)</td>
<td>0.90(0.91)</td>
<td>1.02(0.96)</td>
<td>1.943</td>
<td>19.759</td>
<td>&lt;.0001</td>
<td>.05</td>
<td>T1&lt;T2**, T3**; T2&lt;T3*</td>
</tr>
<tr>
<td>Forehead</td>
<td>0.72(0.89)</td>
<td>0.84(0.99)</td>
<td>0.80(0.94)</td>
<td>1.957</td>
<td>2.624</td>
<td>n/s</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Neck</td>
<td>0.56(0.83)</td>
<td>0.60(0.83)</td>
<td>0.78(0.92)</td>
<td>1.969</td>
<td>11.596</td>
<td>&lt;.0001</td>
<td>.03</td>
<td>T3&gt;T1*, T2**</td>
</tr>
<tr>
<td>Chin</td>
<td>0.54(0.86)</td>
<td>0.78(1.03)</td>
<td>0.63(0.93)</td>
<td>1.941</td>
<td>7.802</td>
<td>=.001</td>
<td>.02</td>
<td>T1&lt;T2**</td>
</tr>
<tr>
<td>Feet</td>
<td>0.56(0.85)</td>
<td>0.56(0.86)</td>
<td>0.72(1.02)</td>
<td>2</td>
<td>5.980</td>
<td>&lt;.01</td>
<td>.01</td>
<td>T3&gt;T1*, T2**</td>
</tr>
<tr>
<td>Eyes</td>
<td>1.21(1.32)</td>
<td>1.60(1.36)</td>
<td>1.81(1.33)</td>
<td>1.869</td>
<td>26.877</td>
<td>&lt;.0001</td>
<td>.06</td>
<td>T1&lt;T2**, T3**; T2&lt;T3*</td>
</tr>
</tbody>
</table>

Note. * The mean difference is significant at the .05 level.
** The mean difference is significant at the .01 level.
7.4.4 Physical Appearance Comparison (PACS)

A significant increase in girls’ physical appearance comparison was found over time, indicating their growing focus on social comparisons (F (1.883, 798.411) =19.417, p<0.0001, \( \eta^2 = 0.04 \), T1<T2**, T3**). It is interesting, however, to note that girls reported higher frequencies of comparing the way they dress with their peers in social occasions, than their bodily features. Comparing looks with others to determine whether one is attractive or not, scored lower than other items in this scale.

Table 7.8 Means and standard deviations of scale and indices scores of physical appearance comparison

<table>
<thead>
<tr>
<th>Mean (SD)</th>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAC</td>
<td>2.58(0.79)</td>
<td>2.74(0.73)</td>
<td>2.72(0.74)</td>
</tr>
<tr>
<td>Physical appearance</td>
<td>2.58(1.00)</td>
<td>2.69(0.99)</td>
<td>2.75(1.02)</td>
</tr>
<tr>
<td>Weight status</td>
<td>2.50(0.90)</td>
<td>2.69(0.92)</td>
<td>2.69(0.93)</td>
</tr>
<tr>
<td>Dresses</td>
<td>2.67(1.02)</td>
<td>2.88(1.04)</td>
<td>2.84(1.02)</td>
</tr>
<tr>
<td>Looks</td>
<td>2.39(0.86)</td>
<td>2.63(0.91)</td>
<td>2.60(0.86)</td>
</tr>
<tr>
<td>Figure</td>
<td>2.67(1.04)</td>
<td>2.79(0.92)</td>
<td>2.73(0.96)</td>
</tr>
</tbody>
</table>

7.5 Gender issues

Longitudinal analyses revealed that girls’ positive feelings about being a girl dropped down over time significantly by Time 3 (F(2,848)=5.307, p=0.01, \( \eta^2=0.01 \), T3<T1*,T2*). During this the same time period when girls when in the last term of their Grade 1 in junior high, they also reported to behave less like a boy compared with previous phases (F(2,848)=7.709, p<.0001, \( \eta^2=0.02 \), T3<T1*,T2**; Figure 7.8).

![Figure 7.8 Means of positive feelings about own gender and act like opposite sex](image-url)
7.6 Discussion

7.6.1 Pubertal development

Distinct individual differences exist in their pubertal stage, such as their age to menarche, commencement of puberty, rate of development, maturational timing, and the status of puberty. However, the precise measurement of the degree of pubertal development remains challenging when interpreting results based on specific standard criteria. In this study, growth spurt, body hair, skin change, breast growth and menarche were investigated as indices of pubertal development. Growth spurt and body hair were considered as early signs for the onset of puberty. Comparing results in this study with that from previous pubertal development research based on Tanner staging method (Tanner, 1962) using a cross-sectional study of 20654 healthy Chinese girls (Ma, Du, Luo, et al., 2009), ratings on breast development in this study were relatively lower. This may result from the difference between two measuring scales as well as girls’ perceptions of the developmental rate of individual pubertal index.

Comparisons of the percentage of each pubertal timing groups based on PDS and perceived pubertal timing both indicated that the majority of girls experiencing pubertal development at similar pace and perceived themselves as on-time with their peers. However, at each time point, over a third of the sample were classified as off-time. Associations between the pubertal timing groups based on two scales revealed a high degree of overlap, while their differences suggested that on-time developers tended to perceive themselves as late maturing, especially at Time 1 when girls were in primary school (Table 7.3). This might indicates that girls in this sample actually aspire to develop early. To explore this further, it is important to disentangle the psychological effects of overweight from the effects of early puberty. That is, are girls concerns about their body because they are early maturing or because they perceive themselves as overweight? Traditional Western views suggest that girls who mature earlier were bigger than their peers and often grew to be heavier and shorter than peers (Simmons & Blyth, 1987). One of the most difficult challenges facing early maturers therefore has been identified, as they do not fit the cultural image of ideal feminine beauty of a tall, slim figure. However, as reviewed in Chapter 1 and 2, for girls under 13 years old, the
China growth curves (Li, Ji, Zong, & Zhang, 2009) are slightly higher than WHO and CDC growth curves, but after those ages, the China growth curve fall behind and the differences became larger as age progresses. At the age of 18, Chinese girls are 2.5cm shorter as compared with the US girls. Differences in weight are very large for school children, especially among girls. The weight of US girls between 8 to 18 years was 4.1-20.5kg more than that of Chinese girls at the same age range. In other words, Chinese early adolescent girls (11-13 year olds) grow faster in height and at the same time their weight gains slower than their Western counterparts (Li et al., 2009). Such cultural differences in physical growth may contribute to the trend of girls’ preference of developing early.

Results of pubertal timing effects on body image indicators were largely on height stature and weight status, with early maturers being heavier, care, and worry more about weight and figure whereas late maturers preoccupied with caring about height and concern about beings shorter than others. Therefore, results in this study on early pubertal timing effects on weight-related indicators are consistent with previous literature in both Chinese and Western sample (Alsaker, 1992). Plausible reasons can be derived from above literature review on pubertal development (Chapter 2). To recap, the onset of puberty often initiates weight gain during adolescence and requires certain body mass index. Therefore, early maturers are often with higher BMI and more likely to perceived themselves as heavier than on-timers or late maturers. On the other hand, results of late pubertal timing effects on height-related indicators are relatively new to pubertal timing studies. Although results findings on height concerns among Chinese adolescents have been reported before, no research has linked height stature to pubertal timing either with Chinese or Western sample. However, as puberty triggers growth spurt, it is possible that the delay in height growth may put late maturers experience concern about being shorter than others. Apart from these pubertal timing effects on weight and height related body image indicators, early maturers were also found to be more prone to physical appearance comparison. This can be understood in line with the argument of early maturers’ insecurity of weight status. Meanwhile, from the biological theories of maturation, early pubertal timing is associated with cognitive and neurological development in the adolescent; therefore, early maturers may develop a sense of self-consciousness towards their physical self at an earlier stage than their age mates.
Regarding pubertal timing effects on mental health indicators, early pubertal timing was linked to higher frequencies of psychosomatic symptoms (bad tempter) and higher levels of loneliness. Reasons to these effects may be attributed to the neurological and hormonal changes triggered by the onset of puberty. The dramatic hormonal flux may result in instable emotionality (Angold & Rutter, 1992). Negative affect may emerge as the endocrine system enters gonadarche (Angold et al., 1999). Another reason to the higher levels of loneliness as reported by early maturers can be explained from the psychosocial view on pubertal timing. Early maturation places the pubertal adolescent in a flurry of social changes that they may not be developmentally ready for (Rierdan & Koff, 1993). The status of being not ready for interacting with the changing social contexts and being different physically and cognitively from later maturers and on-timers both put early maturers at risk of feeling lonely. Despite the above early pubertal timing effects, late maturers in this study were found to have lower levels of global life satisfaction in relation to degree of happiness and they also reported to have higher levels of anxiety in form of social phobia. The majority of pubertal timing research has been on the negative psychological effects of early pubertal timing in adolescent girls, thus it is interesting that results in this study linked late maturers with poor mental health. To understand results in this study, it might be helpful to link late pubertal timing effects on body images indicators, although whether higher concerns about height contribute to negative feelings of global life satisfaction or anxiety need future investigation to establish causal relations. No pubertal timing effects were found in this study on self-esteem and depression, although both mental health indicators have been closely related to early pubertal timing in Western studies (see Chapter 2 for a review). Nevertheless, results in this study seem to support the argument by cultural anthology researchers that the pathological outcomes associated with early pubertal timing are largely limited to the Western world (Borgerhoff-Mulder, 1989). Thus the potential effects on ethnicity should be considered in future research on puberty and mental health during adolescence.

7.6.2 Body image and concerns

Self-perception of body weight (or evaluation of one’s body size), together with the attitudes toward one’s body, composed of two important dimensions of body image.
In this study, values of Body Mass Index (BMI) were relatively low at all time points, and the majority of girls’ weight status at each time point was reported as normal. However, Wang et al. (2010) suggested that using BMI calculated by self-reported height and weight to classify subjects into BMI categories leads to an underestimation in the prevalence of overweight. Age has a statistically significant effect for weight, height and BMI. There was an increasing underestimation of self-reported weight and BMI with increasing age, while older adolescents significantly overestimated their height (Engstrom, Paterson, Doherty, Trabulsi, & Speer, 2003). To put these together, the adolescents’ reported weights were underestimated, and their heights were overestimated; therefore their resultant BMI would be underestimated (based on the formula of BMI=Weight/Height²). This conclusion is supported by previous studies in adults (Engstrom et al., 2003) and adolescents (Krebs, Himes, Jacobson, et al., 2007). Furthermore, a review of previous studies in adolescents showed a mean difference of -4.0 to 1.5 kg of weight, -1.1 to 6.9 cm of height and -3.0 to 0.2 of BMI value (Sherry, Jefferds, & Grummer-Strawn, 2007). In this study, BMI was calculated based on self-report values, thus whether age associated with differences between self-reported and measured values with older girls more likely to exhibit bias than younger ones was not available. Although one earlier study found no difference according to age (Janssen, Boyce, Simpson, & Pickett, 2006), other research has found the same trend for height but the opposite trend for weight (Krebs, et al., 2007); the bias in self-reported weight and height status and the effects on BMI, should be considered when interpreting the results from this study.

Comparing weight status groups based on BMI with girls’ perceived weight status most girls perceived their weight status in a consistent way with that calculated from BMI. It should be noted that misperception of weight status exists in a considerable percentage of girls when comparing their perceived weight status with their actual weight status. Such misperceptions include two aspects. First, girls categorized as overweight or obese as well as underweight tend to report themselves as normal weight. Second, underweight and normal weight groups tend to perceive themselves as overweight.

Results are consistent with previous observations on self-perception of body weight status in American children and adolescents (e.g., Tsigilis, 2006), and in Chinese adolescents (e.g., Xie, Liu, Chou et al., 2003; Xie, Chou, Spruijt-Metz
et al., 2006), where overweight girls tend to underestimate their weight than normal weight girls. As pointed by Xie et al. (2003; 2006), perception of being either overweight or underweight may have reflected the weight dissatisfaction status of adolescents in this study. Despite the influence of collectivist cultural values discouraging being different, both underweight and overweight may tend to report themselves as having normal weight. It may also be partially because such tendency, especially that for Chinese girls, was attributable to the ethnic difference in body composition during adolescent period compared with those in developed countries (Xie et al., 2006). Many reports have shown that in the Asian populations, such as the Chinese and Japanese, the growth and development of the skeleton and muscle are relatively lower than other ethnic groups (e.g., Asayama, Hayashibe, Endo et al., 2005). In other words, with same BMI, the Asian population will have relative higher body fat percentage than that of the other ethnic groups, and thus girls may be more likely to perceive themselves as overweight although their BMI values indicate their weight status is normal or even underweight. It has been suggested that younger children (6-11 years) in China are more heavily affected by various contributory factors to overweight and obesity than later years (12-18 years). Not only the magnitude of age-standardized overweight prevalence but also the rate of increase over the recent years has been higher for the younger age group than for the older age group (Ji & Sun, 2004). Plausible reasons for the discrepancy may due to the socioeconomic and behavioural factors that have changed over time in China (Ji & Cheng, 2008). Another plausible reason is that adolescents who perceive themselves as overweight may be more likely to control their weight (Kosti & Panagiotakos, 2006). A slim physique has become desirable among female Chinese middle school students; therefore, as girls transferred into new junior high schools, they may become more sensitive with their weight status and result in weight control behaviours. Together these plausible reasons may contribute to the results in this study where girls reported a growing trend in adopting dieting behaviours, more of them would like to change something with their body over time, and perceive themselves as too fat at Time 2 in specific when they just entered junior high school.

Longitudinally girls revealed a trend of increase in their care about height and figure in general. Results of the developmental increase in care about height were unexpected and they are different from the dominant concerns of weight status
among adolescents as reported in Western studies (e.g., Kosti & Panagiotakos, 2006). Therefore, results in this study suggest cross-cultural differences. Further investigation on girls’ concerns with specific body parts indicates dynamic and various developmental changes that might result from complex individual differences. For example, girls were undergoing rapid physical growth during adolescence, and their concerns about certain body part might change due to their individual timing and pace of development. Nevertheless, results in this study revealed that girls’ concerns about being shorter than others (height), legs and eyes are higher than to what extent one looks overweight (weight) across three time points (Figure 7.8). This is, however, consistent with Jackson and Chen’s study (2007; 2008) where Mainland Chinese adolescents reported significantly higher concern about shortness in height stature than either being overweight or about facial appearance. The plausible reasons for this may be five-fold. Firstly, as mentioned above, overweight in China especially among adolescents apart from younger children is not as prevalent as that in Western countries, thus concerns with being overweight is not overwhelming among adolescents. Secondly, most adult Chinese view plumpness as a sign of prosperity and robust health; whereas thinness is viewed as representing poverty or illness (Lee & Lee, 2000). This has been a long held traditional value. Adolescents under influence of such cultural factors may reduce their concerns about being (or feeling) overweight. Thirdly, in China, height ideals and biases are apparent in hiring criteria for positions in government, legal firms, banks, education, catering, and leisure industries that require women to be 1.60 meters tall (Chen, Jackson, & Huang, 2006), whereas there is no relative criteria for weight limits. Given its importance in the future career options, height problems may cause more concerns. Fourthly, adolescents who are taller than their peers are often considered more mature thus may be granted more freedom from home and more responsibilities in school (e.g., assigned tasks from teachers). Concerns with height relate to possibilities of more autonomy. Finally, height stature may influence the adolescent’s in establishing new social roles in junior high schools. Being tall in height may make the adolescent feel more secure and confident in socializing with peers or establishing new friendships in the larger school context of junior high schools.

Concerns with legs may be understood in accordance with height in stature, as leg length is a main indicator of height (Bogin & Varela-Silva, 2010). Leg-to-body ratio (LBR) is also considered a morphological feature that may influence judgments of
attractiveness, and a relatively high LBR is often perceived as attractive in women (see Sorokowski, Szmajke, Sorokowska et al., 2011, for a review). Results of these studies suggest that high LBR should be attractive, for it is a marker of an individual’s biological quality. To date, it has only been shown how the LBR influences attractiveness judgments in the United Kingdom (Bertamini & Bennett, 2009), Poland (Sorokowski, Sorokowska, & Mberira, 2012), the United States (Frederick, Hadji-Michael, Furnham, & Swami, 2010), and Malaysia (Swami, Einon, & Furnham, 2007). However, whether Chinese people, or Chinese adolescents in particular, also have similar view of LBR, and thus concern more with their height, has not been investigated.

Reasons of girls’ high concerns with eyes may result from the perspective of both their appearance and functionality. Specifically, on one hand, in judging beauty, a great emphasis is focused on eyes in Japanese and Chinese cultures (Kyo, 2012). The eyes certainly invoke Chinese standards of beauty, as well. By this account, eyes certainly become important index when considering positive body image; the size and shape of the eyes are particular important in evaluating female beauty. On the other hand, Chinese students’ impaired-vision and suspect-myopia have received research attention among local studies (e.g., Gao, Du, Shi, Chen, & Fang, 2013). The prevalence of poor vision in urban girls aged 7-18 years was 65.5% based on subjects from 30 provinces in China (Gao et al., 2013). In (Ji)’s (2008) study, over 95% of the students with the poor vision belonged to the suspect-myopia; this results means that 3 out of 4 Chinese middle school students suffered from myopia. The prevalence of both poor vision and suspect-myopia had a significant early tendency. Moreover, both increasing rates of myopia and its impairing degree were the swiftest during puberty (Ji, 2008). Generally, whatever the prevalence of confirmed poor vision or that of suspect-myopia was higher in girls than in boys, and higher in urban groups than in rural ones (Gao, et al., 2013). In other words, urban girls (like subjects in this study) manifest the highest prevalence of poor sight among all Chinese adolescents.

Significant longitudinal changes on girls’ social comparisons with appearance were identified in this study, with the biggest changes happened when girls entered junior high school compared with primary school. Such age/grade effects are in consistent with previous studies (e.g., Martin & Kennedy, 1993) that suggest that with development, children will increasingly use social comparison
processes to evaluate themselves, and social comparison tendencies increase with age from childhood to early adolescence. This may result from the fact that during early adolescence, children are increasingly sensitive to issues of peer conformity (e.g., Berndt, 1979). As girls transferred into a new school, they may use the overall cultural ideal of beauty as their normative standard and its interpretation within the school contexts as their references. Girls who conform to this ideal and having the ideal body and appearance may receive a socio-culturally-derived privileged status that might be translated into social status for adolescent girls in their new social groups (Crosnoe, Frank, & Mueller, 2008). Therefore, physical appearance comparisons played its role in both self-surveillance girls’ body image, but also establishing social status in a new environment. It is interesting that girls in this study showed greater interest in comparing their clothing with that of others during social occasions. This can be understood in line with Rudd and Lennon’s (2001) theory that posits apparel not only create the appearance as part of the body image, but also provide aesthetic evaluations which leads to satisfaction or dissatisfaction with the body (Markee, Carey, & Pederson, 1990). Individuals also actively manage (including controlling and altering) the aesthetics of their physical appearance and self-presentation through tools such as clothing. Therefore, physical appearance should be understood with a broader concept, with the clothed body as an important element of body image.

7.6.3 Gender issues

Girls at Time 3 the end of Grade 1 junior high revealed a significant decrease in their positive feelings about being a girl compared with the previous two time points. Following the same pattern, they also reported behaving less like a boy. Although the detailed reasons of such developmental changes are yet to be discovered, this trend may be due to the fact that as girls mature in their body, especially with development of secondary sex characteristics, girls’ awareness of their gender identity are heightened, which are accompanied by cultural gender stereotypes and guidelines of gender typing. Girls were thus facing the revising of self-image to adapt to Chinese cultural standards of gender.

The heterosexuality segregation manifests itself in separate guidelines of “doing girls” or “doing boys”. In such process of girls’ conforming to the well-established gender roles, on one hand, they behave more like a girl
(consequently, less like a boy), and on the other hand, they may not like it (less positive feeling of being a girl). This is in line with the Bem’s (1974, 1981) argument, that the need to adhere to an internalized standard of gender would promote negative adjustment. Given the fact that, adolescent girls mature in a society that, traditionally privileges men over women in the labour market and in cultural life, places an extraordinary amount of pressure on girls to strive towards feminine ideals, has high rates of violence against women and girls, and presents young women with contradictory sexual messages (Chan, Ngok, & Phillips, 2008), such gendered social pressure is likely to result in adolescent girls’ decrease in the enjoyment of “being a girl” (Tolman, Impett, Tracy, & Michael, 2006).

In contemporary China there are traditional values of gender typing. Chinese girls are expected to have higher pressure than their Western counterparts (Chan et al., 2008). In addition, to understand the developmental changes of these gender issues among Chinese adolescent girls, it is important to realize the dilemmas that they face within broader and specific socio-cultural contexts. China adopted One Child Policy in 1979, which resulted in girls being the single child in the whole family with two parents and four grandparents (the 1-2-4 phenomenon; Zhang & Goza, 2006; Chapter 1). Despite the great care and investment they receive, girls have to shoulder expectations from and responsibilities for the society, family, and themselves. Chinese people hold the beliefs about the value of education as a means for social mobility leads to a better life; therefore, girls have to strive in schools and battle with boys on all academic subjects. The traditional view of being submissive and beautiful as feminine virtue has long been worshiped in China. By contrast being socially dominant and clever are often considered as male qualities. Therefore, as girls make progress with their academic studies and advance in their physical maturation, they are placed in the ever-growing dilemma of choosing between beauty (being girl) and brain (being boy) or struggle to find a middle ground in between the two extremes (Skelton, Francis, & Read, 2010). Although the transitional view celebrates the stereotypes of traditional femininity, modern Chinese adolescent girls are judged by the double standards for being both beautiful and clever, which may confuse girls’ perceptions of gender typing.
In many ways, to be an adolescent girl is to be over-identified as a sexualized being, as Chinese educators, politicians, and parents have worked to control adolescent female sexuality: schools require all girls and boys to wear the same design of uniforms to diminish gender difference in school setting, girls and boys are not allowed to sit together in the cafeteria, sit together in classroom, or even texting each other in school, parents pick up their girls after school straight to home or tutoring classes (see Chapter 1) for extra training, and constantly monitor whether they make good use of their time; adolescent girls have struggled to determine how and when they are in control of their own changing bodies (Fine, 1992). Adolescent girls must navigate the conflicting messages they receive about their growing bodies and their emerging gender typing, and much of the research into early adolescence has not helped girls or their caregivers chart these treacherous waters, thus result in girls’ less positive feelings of being a girl.

7.7 Conclusion and implication for thesis

This chapter examined longitudinal changes of adolescents’ physical growth, in terms of their pubertal development, body image and concerns, and gender issues. Results revealed that adolescents’ pubertal development was at height, and with rapid changes in their body, adolescents also showed increasing concerns with their body image and a decline in the preference of their gender typing. However, two specific findings worth noting, first, adolescents showed preference of growing early, despite previous findings on the negative implications on early pubertal timing; second, although growing concerns about body image were identified in this study, the contributors tended to be different from Western studies. Findings in this study showed high concerns with height stature, legs, and eyes. Further discussion will be given in Chapter 10.

The next chapter (Chapter 8), empirical finding in longitudinal changes of early adolescents’ developmental contexts will be presented under each primer social context as family, friends, and school, respectively.
CHAPTER 8 CHANGING SOCIAL CONTEXTS: FAMILIES, FRIENDS, AND SCHOOLS

8.1 Aims of this chapter

The empirical analysis presented in previous chapter (Chapter 7) outlined the longitudinal changes in adolescents’ perceptions and adjustment to their physical growth with regards to their pubertal development, body image and concerns, and gender issues. The aim of this chapter is to examine longitudinal changes in adolescents’ social contexts of family, peers, and schools (Figure 8.1).

Figure 8.1 Longitudinal changes in adolescent girls’ social contexts during the transition from primary to junior high school

To guide the current empirical investigation of indicators of adolescents’ social contexts, this chapter borrows Bronfenbrenner and Morris’s (2006) bioecological model of human development to identify families, friends, and schools as key social contexts in adolescence within their broader bioecological contexts (Figure 8.2). As reviewed in Chapter 1, bioecological theory provides a contextual base to understand the larger system and interpersonal dynamics. From this perspective, behaviours within the social ecological contexts are understood as an attempt to provide a developmental profile of adolescent transitions.
Introduction

Adolescence is a period of life that is characterized by shifts in familial and social relationships. As argued by Cronbach (1982), understanding an adolescent’s experience requires an ecological perspective and that perspective has animated a wide array of contemporary studies with an increasing body of evidence supports the effects of the social environment on learning, behaviours, and health (e.g., Elliot et al., 2005).

This is particularly true when one is examining the impact of culture on adolescent transitions, as in this thesis. As addressed in Chapter 3, family, peers
and schools are the three premier contextual factors of adolescents’ development that strongly influence the adolescence they experience. When the child is young, the main context of their development can be found within the family (Karademas, et al., 2008). As the child grows up, friends and schools are likely to become more significant influences in their development (Collins & Laursen, 2004; Li, et al., 2011). Such relationship and social contexts changes may either promote or restrict development and adaptation, and researchers emphasize that in this dynamic it is indeed the way in which the developing adolescent perceives these relationships and changes that is crucial in the process of their development (Bronfenbrenner, 1997, 2005; Wang, Deveaux, Li, et al., 2014). In this study, three key aspects of adolescents’ social contexts were investigated under multiple indicators (see Figure 8.3).

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<th>Time 1</th>
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<td>• Mental health difficulties (loneliness, anxiety, depression)</td>
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<th>Time 2</th>
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<td><strong>Physical growth</strong></td>
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Figure 8.3 A longitudinal study on early adolescent girls’ social contexts
8.2.1 Families

Recent social-ecological research focuses on the family as a whole rather than on any particular dyad. With such understanding, parent attachment and parental involvement are posited to examine the family as a microsystem of adolescent development.

Parent attachment is an empirically well-corroborated framework that describes normative aspects and individual differences of child-parent relations and their socio-emotional correlates in subsequent development (e.g., Berlin, Cassidy & Appleyard, 2008).

During adolescence, relationships between parents and children undergo crucial changes. Developmental psychologists have suggested that a renegotiation of roles, rules, and expectations during adolescence occurs within the parent-adolescent relationship with the child’s increasing physical and social maturity (Collins & Laursen, 2004). Consequently, parents show less physical affection, become less protective, parental supervision, behavioural control, and communication decline across adolescence (Keijsers & Poulin, 2013). In other words, the intensity and frequency of attachment behaviours decline across childhood (Masche, 2010). Regardless of gender, older adolescents had less secure attachment to parents than younger adolescents (Gullone & Robinson, 2005). Each pattern or style of attachment has its own unique strategies for dealing and coping with stressful life circumstances and this may lead to differences in the experience of adolescent development.

Studies of parental involvement have revealed positive links when parents proactively encourage high academic aspirations and help children manage challenging schoolwork and teacher and peer relationships, but negative links when parents’ emotional support is reactive in response to children’ academic difficulties or behaviour problems at school (Cooper, Brown, Azmitia, & Chavira, 2005). Beside school, parents also involve in children’s peer relationships. Despite the stereotype of incompatible and contradictory parent and friend influences, it is more accurate to describe parents’ involvement in children’s peer relationships as setting the stage for both the selection of friends and the management of these relationships (Kakahara & Tilton-Weaver, 2009). As discussed by Coleman (1988), different forms of social relations may
operate differentially in the achievement of particular results (e.g., grades vs. school behaviour). For example, with respect to teacher-student parent relationships, positive involvement emerges from the development of reciprocated levels of trust and shared goals and from high expectations for the child. However, the consequences of these particular microsystem and mesosystem relationships for adolescents may be outcome and context specific (Coleman, 1988).

The importance of parents support in children’s school success has been widely reported in both Western and Chinese literature. On this account, the present study will focus on the longitudinal changes in parents’ involvement in schools.

8.2.2 Friends

Western literature shows that as children enter adolescence and have more control over their leisure environments, they may lean heavily toward peer-oriented, unstructured contexts as opposed to adult-led, structured contexts (Crosnoe, 2011). Peers become the most important reference group for adolescents (Gardner & Steinberg, 2005), and an increasingly important source of social support (Wentzel et al., 2010). Establishment of relationships with peers constitutes a major developmental task of early adolescence (Sullivan, 1953), and consequently the maintenance of satisfying peer relationships becomes a central task for early adolescents (La Fontana & Cillessen, 2010).

Not only do the quantitative changes occur in early adolescents’ peer interactions, notable developmental changes take place in the features and functions of friendship relations as well (e.g., La Fontana & Cillessen, 2010). Whereas during childhood friendships and peer relationships revolve around playmate activities, it is during early adolescence that friendship becomes mutually intimate sharing and self-disclosure (Berndt, 1992). During adolescence, friendship is often among same sex peers especially for girls (Cairns, Xie, & Leung, 1998), and with the onset of puberty, there is an increase in number of cross-sex friends (Collins, Welsh, & Furman, 2009). Quality of the friendship is found to be more important to the adolescent rather than number of friends (Nangle, Erdley, Newman, Mason, & Carpenter, 2003), and best friends contribute most to adolescents’ wellbeing (Bowker, Thomas, Norman, & Spencer, 2011).
Likewise, peer relationship is crucial to the development of a sense of social acceptance, and is an important index of a child’s current social competence and psychosocial adjustment. Despite attachment theory’s emphasis on close relationships, the vast majority of the initial studies exploring the relations between the parent-child attachment relationship and children’s peer relationships focused on such general indicators as peer acceptance (see Berlin et al., 2008, for a review) and not on close dyadic relationships (e.g., friendship). Consistent with the premises of attachment theory, however, the relations between attachment and friendship are generally stronger than the relations between attachment and peer relationships. Dyadic friendships characterized by high levels of companionship, support, security, and closeness and low levels of conflict are expected to provide adolescents with the social support and intimacy needed in times of crisis as well as with opportunities for spending time with peers and learning to solve peer relationship problems constructively.

8.2.3 Schools

Studies on schools have been prominent in not only educational but also psychological research (e.g., Roeser, 1998; Ruini, Ottolini, Tomba, et al., 2009). A central assumption behind these studies has been that school as a major context of adolescent development has significant influences on academic, social, and emotional functioning, especially during transitions between school settings (e.g., Roeser & Eccles, 1998). A review of the previous research reveals a few key themes in the school study literature, including school climate, school goals, school behaviours, and school transition adaptation (see Chapter 3).

School climate is typically defined as the total environmental quality, which includes ecology, milieu, social system and culture (Cohen et al., 2009; also see Chapter 3). Within a school setting, ecological players, such as the adolescent students, their peer classmates and teachers, interact and communicate with each other (see also a concentric circle of school ecology in Hong & Espelage, 2012). Together with the physical and institutional environments of the schools, such interactions and communication with peers and teachers in school should shape the climate of the given school, and convey the influence of one system to another in formation of adolescents’ school experiences.
(Bronfenbrenner, 1989). Studies on school classmates are normally discussed under the theme of peers and friends. On the other hand, affective teacher-student relationships play an important role in students’ school adjustment and the influence seems long-lasting (Baker, 2006). Several theories have been judged important for conceptualizing the role of teacher-student relationships (Martin & Dowson, 2009), and many are guided by an extended attachment perspective that depends on theory and research about mother-child relationships (Bergin & Bergin, 2009). The central idea in attachment theory is that positive relationships between parents and children promote feelings of security in the child. Emotional security in turn is considered to be a necessary precondition for exploration of the environment. According to an extended attachment perspective, sensitive teachers can serve as a secure base from which children can explore the school environment and become engaged in learning activities (Hallinan, 2008). Previous research has indicated that students who feel emotionally supported by their teachers are more likely to experience social and emotional adjustment or adaption (Chong et al., 2010; Murray & Greenberg, 2000), positive motivational orientation (Hamre & Pianta, 2001; Wentzel, 1999), a sense of control and autonomy (Furrer & Skinner, 2003), academic achievement (Roorda, Koomen, Spilt, & Oort, 2011), as well as meaningfulness of schoolwork (Thuen & Bru, 2000). Despite students’ school social relationships, students often experience an unwritten curriculum distinguished by informality and lack of conscious planning (Wren, 1999). This unwritten curriculum has often been defined as school culture, or the character of the school, as it reflects the patterns of values, beliefs, and traditions that have formed over the years (Power, 2015). One important factor of school culture is its emphasis on achievement goals as perceived by students (Covington, 2000), which will in turn act as an important contextual variable influencing students’ adjustment to school (Brandstätter, 2009). Research indicates that school climate is associated with interpersonal relationships between teachers and students as well as with students’ behaviour (Wentzel & Looney, 2008). Overall, students tend to internalize positive school-related values and goals and exhibit positive school conduct in a positive developmental context as provided by school (Wentzel, 2002).

Children’s school goals are studied by their personal achievement goals and personal future goal. In specific, achievement goal theory stresses aspects of
motivation that rely on value, or the reasons why students become engaged in academic tasks (Eccles & Wigfield, 2002). Previous research on achievement focused on two purposes students adopted by emphasizing mastery and performance goals, and longitudinal studies on students’ achievement goals’ changes have been examined less often than cross-sectional research among different age groups (Senko, Hulleman, & Harackiewicz, 2011), and among the existing longitudinal studies, results on developmental changes are inconsistent (e.g., Urdan & Midgley, 2003; also see Chapter 3). However, previous research has found that the evaluation of goals (not only achievement goals but also personal goals in general) in terms of high goal progress, low outcome expectations, and low stress is associated with psychological well-being (Sheldon, Kasser, Smith, & Share, 2002). Little has been studied among Chinese adolescents on the developmental changes of either achievement goals or personal school goals, even less on achievement goals’ longitudinal changes during school transition in a Chinese context.

Research on students’ behaviours at school includes both behavioural aspects related to academic studies and misbehaviours in school. As children grow older and follow their move into middle school, their school involvement generally decline (Holas & Huston, 2012). On the contrary, students’ absenteeism and disruptive behaviours increase during this period as children transition into adolescence (e.g., Currie et al., 2012), and move into junior high school (e.g., Kearney, 2008). Many parents and educators were concerned about potentially negative influences more common and more intense during the transition, prospective investigations of factors that could influence changes in feelings of self-worth that accompany the middle school experience (e.g., Barber & Olsen, 2004).

Research on school transitions from the prospective of students’ concerns prior to the transition and the subsequent changes or the long-term contribution of these concerns to the adjustment outcomes throughout the transition, has been rare (Rice Frederickson, & Seymour, 2011). Among those which studied students’ concerns relating to school experiences, three domains have been identified as concerns about academic demands, concerns about teachers, and concerns about peers (e.g., Akos, 2002; Berndt & Mekos, 1995). The research variables and their relations in each study are different from each other regarding these indicators of students’ concerns, overall, these results suggest
that students’ concerns are influenced by the features of given school and students who have difficulty dealing with their worries about school are at greater risk for academic, social, and emotional adjustment problems as they enter middle school (e.g., Duchesne & Ratelle, 2010).

8.2.4 Research questions and hypothesis

The adolescent, the social contexts, relations between the adolescent and the contexts, and relations between one context and another, change over time as the adolescent develops and as the environment changes. The goals of this chapter set out to answer Research Question 2 on the longitudinal changes in adolescent girls’ social contexts regarding their family, friends, and schools. Drawing on past findings on adolescents’ social contexts, the following hypothesis emerge: first, quality of relationship with parents would decline while friends would play an increasingly important role in adolescents’ socioemotional development over time; second, the transition from primary to junior high school would expect differences between two school settings and adolescent girls would experience adaptation difficulties making the transition into the new school context.

8.3 Results

8.3.1 Parent attachment

Through the transition, girls felt the same quality of attachment relationship with parents (Time 1, M=9.46, SD=1.77; Time 2, M=9.56, SD=1.53; Time 3, M=9.35, SD=1.54), and during the transition, such attachment in relationship was even higher than pre- and post- transition, although not with significant difference. Trust in parents declined significantly after the transition (F(1.933,819.694)=3.620, p<0.05, η²=0.01, T2>T3*). By contrast, Alienation in parents was found significantly higher post-transition (F(1.939,821.970)=6.846, p<0.001, η²=0.02, T2<T3**). Longitudinally, however, difference in Alienation between Time 3 and Time 1 is again very small. Similarly, significant changes in both Trust and Alienation were revealed between Time 2 and Time 3, this suggests that after the transition, girls found less trust and more alienation in their parents compared to that during their transition. Communication with parents was reported stable over time, although there was a slight decrease longitudinally.
8.3.2 Parental involvement

A continuous significant decrease in parents support with school work was revealed as girls transferred into junior high school through the last term of the first year (F(1.911,810.466)=28.682, p<0.001, $\eta^2=0.06$, T1>T2,T3**,T2>T3**). This indicates that in junior high, girls felt they received significantly less help from parents with their schoolwork (T1, M=4.10, SD=0.84; T2, M=3.97, SD=0.71; T3, M=3.77, SD=0.67).

8.3.3 Peer attachment

At both school settings, quality of girls’ attachment relationship with peers in general showed no significant differences as they transfer into junior high school (Time 1, M=10.40, SD=1.85; Time 2, M=10.32, SD=1.96; Time 3, M=10.49, SD=1.71). However, as girls made the transition into junior high, less trust in peers (F(2,848)=9.652, p<0.001, $\eta^2=0.02$, T1>T2,T3**); and less communication with peers were revealed (F(2, 848)=12.994, p<0.001, $\eta^2=0.03$, T1>T2, T3**). In the meantime, they also felt less alienation from peers when they were in junior high school (F(2,848)=35.167, p<0.001, $\eta^2=0.08$, T1>T2,T3**). Longitudinal changes in these indexes suggest that as girls experience the transitions in
adolescence, their attachment relationship with peers was mixed with both positive (Trust and Communication) and negative (Alienation) feelings.

Figure 8.5 Means of IPPA – Peer Trust, Communication, and Alienation at Time 1, Time 2, and Time 3

8.3.4 Peer norms

No significant change was found on girls’ peer norms regarding academic excellence over time (Time 1, M=3.35, SD=1.01; Time 2, M=3.28, SD=1.00; Time 3, M=3.35, SD=0.95). Inspection of means and standard deviation changes across time points revealed that although changes in scale means were not significant (p=0.443), relatively high standard deviations indicated that at each time point girls’ views towards peer norms regarding academic excellence varied differently from person to person.

8.3.5 School climate

Affect at school

Across all survey points through the transition, the majority of girls reported to like school (Time 1, 81.9%; Time 2, 85.7%; Time 3, 85.4 %). The prevalence changes were revealed between Time 3 and Time 1, with more girls reported to like school (Figure 8.6), indicating girls at Time 3 have higher school satisfaction than they did in primary school. However, this trend was not
statistically significant (Time 1, M=3.25, SD=0.77; Time 2, M=3.33, SD=0.75; Time 3, M=3.29, SD=0.73)

Figure 8.6 Percentage distribution of school satisfaction

In accordance with the trend found in the above HBSC single-item scale on girls’ satisfaction with school, result from scale on Affect at school (PALS) showed continuous growth across three time points (Time 1, M=2.91, SD=0.67; Time 2, M=3.00, SD=0.67; Time 3, M=3.07, SD=0.66), and such increasing trend was further identified as significant longitudinal changes (F (1.964, 832.614)=7.252, p=0.001, η²=0.02, T1<T3**).

Teachers’ perceptions of student academic achievement

The majority of adolescent girls in this study viewed academic achievement as “average” or “good” (Time 1, 79.5%; Time 2, 88.2%; Time 3, 84.7%; see Figure 8.7). Longitudinally, a small growing number of girls reported as above
average (Time 1, 51.3%; Time 2, 56.0%; Time 3, 56.0%), indicating girls at junior high school felt more positive perception from their teachers towards academic achievement. However, such longitudinal differences were not statistically significant.

**Felt pressure from schoolwork**

Prevalence in girls who felt pressure from schoolwork decreased at Time 2 and remained relatively stable at Time 3 (Time 1, 95.8%; Time 2, 84.0%; Time 3, 84.7%, see Figure 8.8). Correspondingly, girls’ felt significantly less pressure in junior high school than they did in primary school (Time 1, M=2.80, SD=0.83; Time 2, M=2.51, SD=0.92; Time 3, M=2.51, SD=0.91; F(1.899,805.374)=19.184, p<0.001, η²=0.04, T1>T2,T3**).

![Figure 8.8 Percentage distribution of perceived pressure from schoolwork](image)

**Classmate support**

Longitudinal changes in girls’ perceived classmate support decreased significantly from Time 1 through Time 3 (Time 1, M=4.14, SD=0.55; Time 2, M=4.07, SD=0.62; Time 3, M=3.97, SD=0.65; F(1.914,811.390)=10.107, p<0.001, η²=0.02, T3<T1**,T2*). This revealed that girls felt their classmates in junior high school were less supportive than their peers in primary school.

**School safety (being bullied, bullying others)**

As shown in Figure 8.9, the majority of girls reported never involved in being bullied, or bullying others. This indicates girls’ positive feelings about school safety at each phase.
Among those who involved in such occasions, the frequencies were limited between “once or twice” and “sometimes”, which is less than a once per week basis. It is very rare for girls to involve in such occasions several times a week.

![Graph showing prevalence of being bullied and bullying others](image)

**Figure 8.9 Prevalence of being bullied and bullying others**

Longitudinally, girls who were bullied decreased significantly at Time 2 and maintained a slow rate in reduction at Time 3 (F(1.902,806.535)=11.358, p<0.001, $\eta^2=0.03$, T1>T2*,T3**); bullying others was significantly less frequent at Time 2 (F(1.891,801.833)=3.805, p<0.05, $\eta^2=0.01$, T2<T1,T3*). In general, significant changes were revealed on being bullied at Time 2 only. In other words, during
transition, girls were less likely to be bullied by others, compared to that when they were in primary school. It was also at Time 2 when girls just entered junior high school, they reported significantly lower frequencies in bullying others than they did in primary school. Despite the longitudinal changes regarding girls’ perceived safety in school, the frequencies of being bullied and bullying others were rather low across all the three time points (Figure 8.10).

**Teacher-student relationship**

A significant improvement in teacher-student relationship was revealed longitudinally (Time 1, M=2.81, SD=0.72; Time 2, M=3.05, SD=0.62; Time 3, M=3.22, SD=0.66), and such changes were persistent through the transition (F(1.752,742.638)=45.545, p<0.001, $\eta^2=0.10$, T1<T2,T3**, T2<T3**). This indicates that girls perceived their relationship with teachers were better in junior high school than in primary school.

**Perceived school emphasis on achievement goals**

Perceived emphasis on achievement goals were examined by school emphasis on ego goals and task goals respectively. School emphasis on ego goals showed persistent longitudinal changes as it decreased significantly over time (F(1.776,752.877)=60.419, p<0.001, $\eta^2=0.13$, T1>T2,T3**,T2>T3**; see Figure 8.11). School emphasis on task goals revealed a significant increase at Time 2 (F(1.855,786.655)=18.748, p<0.001, $\eta^2=0.04$, T1<T2,T3**; Figure 8.11). Taken together, girls perceived their primary schools emphasize more on ego goals and less on task goals compared to their junior schools.

![Figure 8.11 School achievement goals in terms of school emphasis on ego goals and school emphasis on task goals across three phases](image-url)
8.3.6 School goals

**Personal achievement goals**

A significant decrease in personal ego goals was found at Time 3 (F(1.886,799.516)=4.855, p=0.01, η²=0.01, T1>T3*). Personal task goals increased significantly at Time 2 (F(1.831,776.418)=5.718, p<0.01, η²=0.01, T1<T2**). This indicates girls’ personal achievement goals shifted from emphasizing performance (personal ego goals) to gaining ability (personal task goals) as they transitioned from primary into junior high schools.

![Graph](image)

**Figure 8.12** Personal achievement goals in terms of personal ego goals and personal task goals across three phases

**Future plan after high school**

Non-parametric analysis of future plan after high school revealed a growing trend with the majority of them (Time 1, 71.8%; Time 2, 76.0%; Time 3, 77.4%) planning to continue their study in college or university, followed by further study in vocational or technical school (Time 1, 19.1%; Time 2, 14.0%; Time 3, 13.2%). The third widely chosen aspiration after leaving high school was “working”, as shown in Figure 8.13. In general, most of girls from Time 1 in primary school already had plans for their future aspiration after high school, and as they transferred into junior high, even fewer of them had no idea of what they would do after high school (Time 1, 3.1%; Time 2, 2.8%; Time 3, 1.4%).
8.3.7 School behaviours

School involvement

Involvement in school dropped down during the transition at Time 2 and stayed stable although with a trend in growth at Time 3 (Time 1, M=2.89, SD=0.57; Time 2, M=2.79, SD=0.66; Time 3, M=2.74, SD=0.54). Accordingly, longitudinal changes in girls school involvement were further identified between junior high and primary school (F(1.888,800.380)=8.259, p<0.001, $\eta^2=0.02$, T1>T2*,T3**), indicating girls in junior high school reported less involvement in school compared to that in primary school.

Absenteeism

Through the transition from Time 1 to Time 3, prevalence of girls who sometimes stayed away from school for non-illness reasons showed a decreasing trend (Time 1, 44.0%; Time 2, 39.8%; Time 3, 36.2%). Longitudinal changes were further identified between Time 3 and Time 1 (F(1.855,786.589)=4.512, p<0.05, $\eta^2=0.01$, T1>T3**), indicating that girls in primary school were more likely to stay away from school not because they were ill but because they wanted to do something else.

Self-report of disruptive behaviours
No significant longitudinal changes were found in girls’ self-report disruptive behaviours in school (Time 1, M=1.92, SD=0.55; Time 2, M=1.91, SD=0.36; Time 3, M=1.95, SD=0.38). In addition, it should be noted that through the transition, disruptive behaviours reported by girls at the mean level were fairly low (scale mean score range 1-5).

### 8.3.8 School adaptation

Problems with Peer relationships, Conflicts with authorities or older students, and Academics were significantly declined over time. Substance abuse on the other hand, increased significantly (Figure 8.14).

![Figure 8.14 Problems with adaptational tasks of secondary school transition](image)

As shown in Figure 8.14, problems with Peer relationships (F(2,848)=12.502, p<0.001, \( \eta^2=0.03 \), T1>T2**,T3*) and Conflicts with authorities or older students (F(1.843,781.274)=22.933, p<0.001, \( \eta^2=0.05 \), T1>T2,T3**) were significantly smaller during the transition at Time 2 than girls expected at Time 1, and perceptions upon these problems did not change significantly at Time 3. However, the perceived problems with these two adaptational tasks were still significantly smaller than previously expected at primary school (T3<T1*). Problems with Academic pressures revealed a significant change at Time 2, and such changes were not persistent (F(1.748,741.270)=5.857, p=0.01, \( \eta^2=0.01 \), T1>T2*). Problems with substance abuse increased at Time 3 (F(1.834,777.495)=14.487, p<0.001, \( \eta^2=0.03 \), T3>T1, T2*. Considering the low internal consistency of the substance abuse subscale among this sample,
longitudinal analysis was then applied to individual items within this subscale (alcohol, drugs, cigarettes, Figure 8.15).

![Figure 8.15 Problems with substance abuse in terms of alcohol, drugs, and cigarettes](image)

Significant differences were identified on cigarettes and alcohol usage between Time 3 and Time 1, indicating that in post transition time girls were more likely to involve themselves in alcohol (F(1.677,710.960)=5.577, p=0.01, \(\eta^2=0.01\), T1<T3*) and cigarettes F(1.804,764.974)=9.262, p<0.001, \(\eta^2=0.02\), T3>T1**,T2*) usage. Problems with drugs did not reveal longitudinal changes over time and remained consistently very low.

8.4 Discussion

8.4.1 Parent attachment

Quality of attachment relationship with parents stayed stable through the transition, although in post-transition time, Trust in parents dropped down while Alienation increased at the same time compared to transition time when girls just entered junior high school. In accordance with the stability revealed in overall quality of parent-child attachment relationship, Communication with parents showed no difference in longitudinal changes. Longitudinally, Trust in parent peaked at Time 2 during the transition whereas Alienation was at its bottom at the same time.
Previous research on parents attachment in the West suggests that distinct developmental changes in parent-child relationships towards a decline in attachment behaviours, although the parent’s role and influence does not necessarily decrease (Keijzers et al., 2010; Keijzers & Poulin, 2013). In this study, although decline in Trust and increase in Alienation were both found between during transition and post-transition time, longitudinally, there was no significant changes between pre- and post-transition time. In addition, during the transition, Trust in parents was at its highest while Alienation was at its lowest, indicating best attachment quality in parents when girls made the transition from primary to junior high school.

Plausible reasons for the stability in quality of attachment relationships may largely contribute to aforementioned culture differences in parental values and practice (Chapter 1): first, traditional Chinese family life is described as strongly influenced by Confucian values, which include a hierarchical family structure, clearly defined roles and responsibilities, deference to parental authority, in particular, reverence and respect for parents (filial piety), and children’s obligations to the family (Ho, 1996). Although Chinese adolescents reported to desire more autonomy from parents in attachment relationship, potential conflicts that may result in attachment decline were resolved primarily by giving in to parents through the notions of being Xiaoshun (filial piety) (Bian, Logan, & Bian, 1998). Second, with rapid economic development in China, this tradition has faced considerable challenge (Logan, Bian, & Bian, 1998), together with the endorsement of the One Child Policy, are believed to have influenced the manner in which parents build their attachment relationship and parenting practice with their children. Thus contemporary Chinese adolescents may exhibit the coexistence of different concerns, including desires for personal control and entitlement, as well as concerns with duty, hierarchy, and authority. Third, in collectivist cultures, which emphasize interdependence and more socio-centric conception of self, greater emphasis is placed on maintaining harmony in interpersonal relationships, and therefore alienation or conflicts may be muted. In this view, development is seen as increasing accommodation to the culture, and accordingly, these different pathways are proposed to diverge with age. Fourth, theoretically, attachment relationship with parents is a positive influence throughout development especially during times of important life transitions (Bowlby, 1982). Multiple transitions in adolescence including the academic transition
into junior high school is certainly such a time of life transition, as described earlier in Chapter 1 on parental involvement in school selection, which may involve more parent-child communication and mutual understanding thus might buffer the potential developmental decline in attachment quality in general. As such, in this study, longitudinal result did not reveal decline in attachment quality in relationship with parents revealed in Western literature (e.g., Keijsers et al., 2010).

8.4.2 Parental involvement

In this study, parental involvement declined persistently through the transition from primary to junior high school, and this trend was consistent with findings from other studies based on Chinese adolescents (e.g., Cheung & Pomerantz, 2012). Evidence from studies among Western population has also revealed similar trend in decline, however, such decline was often found later in middle and high school (Simon, 2004).

However, on understanding such decline, certain cultural differences in parental practice regarding to involvement with school should be taken into consideration. First, Chinese parents, compared with Western parents, placed much more emphasis on the importance of education and are more likely to involve direct intervention in their children’s academic learning, not only when involvement required by school or teachers.

Second, Chinese parents are expected to be more involved in their children’s schoolwork in the early grades and less involved later on, when a pattern of expectations of high achievement has already been established. Although, Western parents are reported to be more involved with children’s achievement relatively later in their development. In the meantime, compares with the relatively lax sequence of schooling in America or Europe (see Chapter 1), the strict testing sequence, cumulative nature, and the key and ordinary designation of schools in China may result in early parental involvement among Chinese parents in their children’s school experience. In China, at the equivalent of Grade 6 in the US (Years 7 in the UK), children have to compete to enter middle schools. Further streaming of children to school tracks (science vs. arts) occurs around Grade 9 (US; Years 10 in UK). In contrast, there is much less explicit streaming of students in the US or UK schools until children begin to consider whether to go on to college.
In addition, as questioned in Chapter 3, whether Western measures fully capture the construct of supportive parenting across all culture is not known. However, in the case of this study, it is necessary to consider the active roles that parents play in their children’s admission to junior high schools. As illustrated in Chapter 1, taking one key junior high school in 2011 as an example, 20% students were enrolled because of their parents’ occupation (“joint cooperation unit”), another 25% by speciality and 10% by pre-secondary school training class both required parents’ financing and close home monitoring. In addition, when students failed to reach the school admission requirement in all the official ways, in some cases, parents would pay for contribution fees to secure school place for their children (Wu, 2011). Certainly, such involvement will only happen before the transition, therefore, when interpreting the decline of parents’ involvement in this study, whether it was caused by the heightened involvement for preparing children into ideal junior high school should be taken into consideration.

To sum up, longitudinal declines through the primary to junior high school transition in this study are in line with findings from Western literature on parent support with children’s schoolwork. However, difference in the timing of such decline between Chinese and Western context, and the culture-specific practice of Chinese parents’ involvement with school choice should be taken into consideration when interpreting findings from this study.

8.4.3 Peer attachment

Quality of attachment relationship with peers remained stable throughout the transition. At subscale level regarding Trust, Communication, and Alienation, significant decrease was revealed at Time 2 when girls entered junior high school. Result of the overall peer attachment in this study is consistent with the argument that attachment quality tends to be stable over time (Brown & Larson, 2009). This suggests that quality of attachment is a characteristic of the particular relationship, besides reflecting the characteristics of the individuals in the relationship, a view that is also shared by some attachment theorists (Bretherton & Munholland, 2008).

The stability found in this study can be explained through the internal working model (Bretherton & Munholland, 2008). As reviewed in Chapter 3, attachment is often studied as a general working model which is thought to be
stable throughout the life span, although changes may occur as the person experiences new attachment relationships (Buist, Reitz, & Dekovic, 2008). In this study, the young person progresses through adolescence, they typically are exposed more frequently and for longer durations to a broader array of social networks, as the predominant family context of childhood expends to include interaction in social networks with peers and in school settings. The internal working models of relationships with parents therefore influence the manner in which adolescents think and feel about their interactions and relationship with peers and close friends.

Despite the overall stability, peer relationships during adolescence also tend to be in a state of flux (Brown & Larson, 2009), and in line with this reasoning that changes in different domains of attachment quality (Trust, Communication, Alienation) are common during this time of life. In this study, girls reported declines in both positive (Trust and Communication) and negative (Alienation) indicators of attachment quality. On one hand this may due to the wax and wane that adolescents may experience in their peer relationships as mentioned earlier. On the other hand, certain cultural influence may play a role. Western literature suggests that being sociable through communications in peer relationship may improve the attachment quality (Parker, Rubin, Erath, Wojlawowicz, & Buskirk, 2006). However, results from such investigations should be interpreted with caution because they focused on young children or new friendships that formed in summer campus (Parker & Seal, 1996). In China, like in other collectivistic cultures, a primary task of socialisation is to help youth learn how to develop cooperative and prosocial attitudes and behaviours (Chan, 2008). Compared with prosocial behaviour, sociability is neither highly appreciated nor valued in Chinese culture. Although children are encouraged to interact and to maintain harmonious relationships with others, it is believed that social interactions must be guided by prosocial orientations (Gow et al., 1996; Lai, 2008). Sociability itself may not be adequately relevant to social adjustment in peer relationships among Chinese adolescents. To this end, as girls progressed into adolescence and new school settings, Chinese adolescents may show more cooperating and sharing features in their relationships with peers which may reduce the feelings of Alienation, and in such process of forming new friendships, Trust and Communication seemed not playing as big part as they do when compared with their Western counterparts (e.g., Domino, 2000). Last, it should be noted that different from previous studies where the hypothetical situation of studying
peer attachment quality involved an unspecified peer or peer groups in general, girls in this study were instructed to reflect their perceptions upon a close friend rather than a random peer.

8.4.4 Peer norms

Peer norms regarding academic excellence did not show developmental changes over time, indicating girls’ consistent preference of having best friends sharing the same norms for academics throughout the transition. Results in this study is in consistent with Western developmental research which indicates that compared to friendships in childhood, friendships formed during adolescence are more likely to share similar values (Berndt & Perry, 1990), including shared attitudes towards academic excellence in school (e.g., Kindermann, 2007).

It should be noted, however, in this study such peer norms focused on adolescents and their best friends rather than peers in general. This is due to the considerations that developmental research has indicated establishing and maintaining close friendships during early adolescence is an important pursuit different from achieving acceptance by these larger peer groups (e.g., classmates; Harter, 1990). Because perceptions of peer norms held by close friends with whom adolescents interact regularly and with high intimacy in school setting are particularly relevant in regard to their social behaviours and academic adjustment rather than when interacting with peers in general through public (e.g., school-based) behaviours, they are likely to be more relevant to understanding of peer socialization during early adolescence.

Besides the theoretical explanations and research evidence on peer norms regarding academic excellence, cultural values and norms also play a part. Chinese society highly value academic achievement as influenced by Confucius tradition. One of the major developmental tasks regarding children’s socialization involves their academic excellence (Leung et al., 2004). Accordingly, one of the main criteria for being a well-developed child is his or her academic attributes, such as the child’s academic performance and attitudes towards academic work (Shek & Chan, 1999). Together with the functional value to the child’s future, limited educational resources also place great pressure on children and further shape their peer norms regarding academic excellence (Sun et al., 2013).
8.4.5 School climate

Overall, school climate in junior high school is perceived to be more positive compared to that in primary school. In specific, following the transition, girls in junior high school reported to have higher affect at school, feel less pressure from schoolwork, feel safer in terms of being bullied, have better teacher-student relationship, and perceive junior high school emphasize more on task goals (ability) and less on ego goals (performance). In other words, most of the school climate indicators share similar patterns in change.

These findings are in contrast to that in Western literature (e.g., Eccles & Roeser, 2011). Whereas in HBSC (2010) studies and others (e.g., Blyth et al., 1983; Goldstein, Boxer, & Rudolph, 2015), school indicators have been found to be worsen with increasing age across countries and regions, with liking school, perceived academic achievement and, to a lesser extent, classmate support and teacher-student relationship decreasing, and perceived school pressure increasing, indicating school increasingly not meeting students’ basic psychological needs from ages 11 to 15 (WHO, 2012).

Plausible reasons for the different findings in this study are three-fold: First, the school experience in primary and junior high school settings is different in China than in many other countries where previous empirical findings were established. Research in the West suggested the physical environment and teacher-student relationships are both the attributes to negative outcomes of the transition (McDevitt & Ormrod, 2010; Eccles & Roeser, 2009). students in junior high school stay in the same classroom with the same teachers for different subjects and the same groups of peers, and have their personal equipment in this one classroom in China, whereas students in Western literature have to move to different locations throughout the day to meet different teachers with the correct materials and equipment (e.g., McDevitt & Ormrod, 2012); therefore, Chinese students’ experience less change in this regard indicating less discontinuity in physical environment of school. Public honour rolls and incentives for high academic standing relative to other students emphasizing performance roles are normally more common in the end of primary school compared to the beginning of junior high under the pressure on entering an ideal key school in China, suggesting less pressure through social comparison regarding academic achievement and the shift of school emphasis on ego goals to task goals; while in Western literature the
opposite occurs (e.g., Eccles & Roeser, 2009). Chinese primary school teachers normally treat pupils as children with school disciplines and class rules, while middle school teachers normally treat students as equals and rationalise their decisions when apply such regulations, which is different from the inhumanity and alienation in teachers as reviewed in Western research (e.g., Ashton, 2008). Taken together, junior high school provides adolescents with a more positive school climate compared to primary school from students’ point of view.

Second, the timing and sequence of school transitions and their importance in the student’s educational and academic trajectory are different in China from that in most Western cultures. As reviewed in Chapter 1 on Chinese educational system, the 6-3-3 structure exerts two normative significant transitions in Chinese students’ life: the primary to junior high school transition and the entrance to university. The designation of key and ordinary middle schools consequently results in parents and students compete for the limited educational resource at an early stage. In addition, middle school normally house both junior and senior high levels and thus entering a good junior high school normally continue with subsequent senior high studies and provide the student with better resource for entering prestige university. Meanwhile, in both UK and US the pressure of school stratification or streaming of students occurs in secondary school (when students begin to consider whether to go to college), where typically house increased peer pressure, bullying, fighting, declines in affect at school, academic performance, school attendance, and involvement (Ashton, 2008; Daly et al., 2009; Dinham & Rowe, 2008).

Third, given the great value in Chinese culture and being the most important pursuit for adolescents in contemporary China, academic success constantly place more pressure on Chinese students, while for many early adolescents in the Western cultures, the social aspects of school take precedence over academic concerns (Sweetser, 2003). Therefore, the parameter of Chinese adolescents’ transition experience largely depends on how to entering into the ideal school for the benefit of their educational trajectory (before the transition), while for Western students are the need to belong to new peer groups (during and after the transition).

Despite the improvement among school climate indicators through the transition, perceived academic achievement stayed stable which is different
from the prevailing Western view that perceived good academic achievement was significantly less prevalent with increasing age (Currie et al., 2012; Veronneau & Dishion, 2011). Girls perceived classmate support declined through the transition, which is in consistency with Western literature (Currie et al., 2012). In all, the Chinese culture and educational practice attribute to the difference in girls’ perceived school climate that illustrated a different view from the European-American norm, and at the same time, there are also some universal elements that shared the same changing patterns among Chinese adolescents and their Western counterparts.

8.4.6 School goals

Girls’ achievement goals with regards to ego goals (oriented toward a comparative demonstration of abilities) declined longitudinally while their task goals (focus on the development of abilities and task mastery) showed an increase during the transition followed their transition into junior high school and stayed stable thereafter. The ways in which these goals change over time have remained largely unstudied both in Chinese and Western contexts. However, despite the scarce and inconsistency in Western literature in achievement goals (see Chapter 3), results in this study support previous studies that have documented goal fluctuations during the primary to junior high school transition (e.g., Shim, Ryan, & Anderson, 2008). They also deepen the understanding of the process. First, ego goals did not appear to be stable during the transition to middle school like some findings in Western samples (e.g., Midgley et al., 1998; Anderman & Anderman, 1999), but declined over time (e.g., Shim, et al., 2008). Second, task goals increased during the transition, again opposite to previous findings (e.g., Anderman & Anderman, 1999). Such developmental changes in achievement goals may be explained by the nature of the school transition. Given the many changes that take place during this period (e.g., school structure, curriculum, teaching practices, school workload, assessment systems, and school emphasis on achievement goals), which are all likely to affect students’ motivational dynamics (Eccles & Roeser, 2011). As suggested earlier on difference in school climate in different cultures, it is thus understandable that Chinese girls in this study showed different developmental patterns in achievement goal endorsement. In addition, high pressures on academic performance placed by parents and teachers on the adolescent at the end of primary school may also attribute to heightened ego goals before the
transition. Other less cultural-specific plausible reasons may include pubertal development and cognitive maturation during the transition from childhood into adolescence (Mendle et al., 2007).

Personal goals after high school condensed on college and university study throughout the transition with a slight increase in prevalence over time. Unlike the more balanced distributions among options as revealed in other cultures (e.g., Currie et al., 2012), such focused future aspiration for Chinese adolescents is hardly a surprise. It has been argued that to succeed academically and professionally has traditionally been overwhelming among Chinese people. This is partly attributed to the influences of Confucius doctrine and traditional values that look up to scholarship and relate status success with family honour and pride (Bao & Haas, 2009; Fong, 2004). Chinese children are therefore educated and socialised with the idea of academic attainment highly effective means for them to achieve a bright future and a rewarding career at very young age (Li, 2004). In the meantime, followed the transition into junior high school, the positive school climate as perceived by students may also encourage higher academic aspiration (Wang & Holcombe, 2010). In addition, researchers suggest that people construct their goals by comparing their individual motives to the opportunity space created by their environment (Nurmi, 2004), and adjust their personal goals to life transitions in order to adapt to the outcomes of those transitions and environmental changes related (Salmela-Aro & Suikkari, 2008). On this account, due to the restrained opportunities in Chinese society for students after high school and the underdevelopment of apprenticeship, students’ choices are limited mainly to either higher education or working. Last, as the education backgrounds of modern Chinese parents are growing higher, children are also under the pressure of conforming to parents’ expectations (children are supposed to achieve more than their parents; Li, 2004).

8.4.7 School behaviours

Longitudinally through the transition into junior high school, girls’ involvement in school and absenteeism both dropped down. Self-report disruptive behaviours, however, stayed stable over time.

Results of school involvement in this study are consistent with previous literature that also indicates that across the move, students’ school
involvement generally decline (Holas & Huston, 2012). A few reasons may contribute to such decline in this study. First, within the given school setting, routes to student involvement may be social or academic and may stem from opportunities in the school or classroom for participation, interpersonal relationships, and intellectual endeavours. In specific, students’ opportunities to participate and develop social relations were greater in primary schools (small school) than in middle school (large school) (e.g., Barker & Gump, 1964; Finn & Voelkl, 1993). Second, involvement in school is likely to take different forms in primary and junior high school years. In this study, longitudinal changes in girls’ personal and perceived school emphasis on achievement goals both revealed that in junior high school, the mastery of knowledge (task goals) is more important than showing it off (ego goals; see above). Furthermore, students may not become deeply invested in learning until they have the intellectual capacity to self-regulate and become intentional learners, which tend to occur at later age. In other words, students’ school involvement in primary schools may therefore manifest itself in display performance, while in junior high schools; students may focus more on building knowledge. A third explanation may be due to cultural difference on the notion of shyness. As reviewed in Chapter 1, in China, under the influence of Confucian philosophy, inhibition and self-restraint are considered indices of accomplishment, mastery, and maturity (King & Bond, 1985); shy, reticent, and inhibited children are believed to be well behaved and understanding (e.g. Domino, 2000). On this account, the decline in classroom involvement behaviours may reflect the inhibition of self-restraint functioning as children mature. Furthermore, the social acceptance and positive feedback that shy-inhibited children receive might ultimately lead to adaptive development. Taken together, although the developmental trend of decline in students’ school involvement seems universal in both Western literature and Chinese studies (e.g., Frericks, Blumenfeld, & Paris, 2004; Li et al., 2011), given the differences in cultural notions and practice (e.g., gender expectations, social functioning regarding shyness), it should be interpreted differently especially when considered as an outcome variable of adjustment to school or social environment.

Decline in absenteeism and the stability in self-reported disruptive behaviours indicate a positive profile of girls’ school conduct in junior high school. Although such developmental pattern is different from the dominant view
from Western literature on either adolescent development or school transitions, whereas absenteeism and disruptive behaviours both increase as children gaining in age among 11- to 15-year-olds (e.g., Currie et al., 2012) and the same developmental model has also been widely reported when children move from primary to middle school (e.g., Eccles & Midgley, 1989; Dodge, Dishion, & Lansford, 2006).

The explanatory factors by Western researchers are similar and are usually personal, familial, and school variables. Contextually, children move from self-contained, single-teacher primary school classrooms to large, fluid junior high schools (Eccles & Midgley, 1989), which leads to reductions in parent and teacher support and monitoring. Consequently, they spend more time with and are more influenced by peers (especially deviant peers). In addition to school transition, other changes that co-occur during this time period, such as the onset of puberty, also contribute to the increase in disruptive behaviour, independent of the changes in the structure of school (Ge et al., 2002). However, studies on disruptive behaviours or conduct problems are mainly among boys or adolescents in general regardless of their gender. In addition, given the cultural differences in girls’ school transition experiences, parenting practice, and gender differences, results in this study are likely to be interpreted differently from the Western norms.

First, based on results on the improvement in school climate revealed in this study, it is understandable that less prevalence in absenteeism was reported in junior high school compared to that in primary school. Second, as mentioned in Chapter 1, proper conduct in children is considered as a goal for children and indictor of successful parenting in China. Chinese parents monitor their children’s proper behaviour through Guanjiao (training). Previous research suggests that parental monitoring and parental valuation of tradition reduce the likelihood that Chinese children will engage in problem behaviours (Chen, Greenberger, Lester, Dong, & Guo, 1998). Moreover, given that Xiao (filial piety) is expected to derive from Guanjiao, which represents internalized parental expectations, adolescents who are high in Xiao will conform to parental expectations and requirements and avoid school misconduct. Third, grounded in the collective social norms that promote prosocial behaviours and celebrate inhibited social functioning through outwards behaviours, it is therefore understandable that Chinese adolescent
girls in this study showed a different developmental pattern in their school behaviours from their Western counterparts.

8.4.8 School adaptation

Longitudinally, except *substance abuse*, all the other subscales including *peer relationships, conflicts with authorities or older students*, and *academic pressure* were reported less problematic than expected. This suggests an overall positive transition experience for the adolescents in this study; however, is in contrast to Western literature which often identify the transition from primary to junior high school as a potentially anxiety-provoking turning point (see Chapter 3; e.g., Simmons & Blyth, 1987).

However, build upon results from this study in terms of different aspects of students’ school perceptions and experience (improved school climate, school goals, and school behaviours), which suggests a positive developmental and transitional change, the discrepancy (decline) between expected and actual adaptation concerns is hardly a surprise. The developmental trends in each indicator (*Peer relationships, Conflicts with authorities or older students*, and *Academic pressures*) resonate findings reported earlier in relation to stable peer attachment, improved teacher-students relationships, and reduced pressure from schoolwork. Although an increase of problems with substance abuse was identified after the transition, the mean scores of this subscale were very low at all the three time points, indicating substance abuse was considered a very small problems among this sample. Therefore, discussion in this session on adaptation differences found in this study compared with that in most Western reports would be focused on potential methodological attributes. For example, the above-cited studies based on Western population mostly use a variable-centred approach to examine the relationship between adjustment attributes and outcomes in a cause-effect fashion (e.g., Heubeck & O’Sullivan, 1998). This approach posits that individuals differ quantitatively on one or more variables of interest, and that the relationships between the variables apply to the entire sample studied (Magnusson, 1998). Although useful to determine the contribution of one or more independent variables on a specific dimension of adjustment, the analysis models stemming from this approach might not be appropriate for capturing the multidimensional nature of adjustment, not to mention that they could mask significant individual
discrepancies in adjustment patterns (Bergman, von Eye, & Magnusson, 2006). Moreover, these studies largely neglected characteristics of the new school environment that is liable to either lessen or strengthen the relationship between students’ concerns about junior high school transition and subsequent adjustment. This study examined the developmental profiles of continuous adjustment variables and students’ perceptions of environmental variables through the transition, thus the alternative methodology may also contribute to the differences in results. In a word, whereas researchers (in particular, Eccles et al., 1993; Simmons & Blyth, 1987) have pointed to many factors that contribute to the stressfulness of the junior high school transition, including increased academic demands and social comparisons, exposure to unfamiliar peers and teachers, and practices that fail to meet early adolescents’ developmental needs, the transition itself thus is not necessarily a threat to adolescents’ development but the attributors to stress which cause difficulty in transition experience and subsequent outcomes. Therefore, when such stress attributors were revealed in primary school instead of junior high school, which is the case in this study; the transition is thus an improvement for adolescents’ student life.

8.5 Conclusion and implication for thesis

Grounded in Bronfenbrenner and Morris’s (2006) bioecological model and guided by research objectives, results in this chapter are presented in line with literature reviewed in Chapter 3 in terms of adolescents’ social contexts with regards to their family, peers, and schools.

Adolescents in this study showed an overall stability in relationships with their parents and friends, and a general improvement in their school contexts through the transition from primary to junior high school. Apart from the general picture, parental involvement declined over time. Implications will be drawn from these changes in general discussion chapter (Chapter 10). The next chapter (Chapter 9) will present empirical data to answer Research Question 3 on longitudinal changes in adolescents’ mental health, and indicators including global life satisfaction, self-esteem, psychosomatic symptoms, mental health difficulties (loneliness, anxiety, and depression), and coping.
CHAPTER 9 LONGITUDINAL CHANGES IN ADOLESCENTS’ MENTAL HEALTH

9.1 Aims of this chapter

Chapter 7 and Chapter 8 presented longitudinal data in Chinese adolescents’ physical and social development, respectively (see Figure 9.1). With recognition that these physical and social transitions of the adolescent years are commonly accompanied by changes in their mental health and wellbeing, this chapter will present results from multiple standardised psychological measures examining the longitudinal changes in Chinese adolescent girls’ mental health in terms of their global life satisfaction, self-esteem, psychosomatic symptoms, loneliness, anxiety, depression, and coping.

Specifically, this chapter proceeds with a brief overview of the literature reviewed in Chapter 4 on adolescent mental health and wellbeing. Research questions were restated, and continued with empirical analysis and findings on developmental trends of individual mental health indicators. Cross-cultural differences were discussed through comparisons between results in this study and Western literature as well as local studies in Chinese populations. Potential cultural specific variables and plausible cultural roles were addressed.

Figure 9.1 Longitudinal changes in adolescent girls’ mental health during the transition from primary to junior high school

<table>
<thead>
<tr>
<th>Time 1</th>
<th>Pre-transition</th>
<th>Physical growth</th>
<th>Social contexts</th>
<th>Mental health</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time 2</td>
<td>During transition</td>
<td>Physical growth</td>
<td>Social contexts</td>
<td>Mental health</td>
</tr>
<tr>
<td>Time 3</td>
<td>Post-transition</td>
<td>Physical growth</td>
<td>Social contexts</td>
<td>Mental health</td>
</tr>
</tbody>
</table>

The transition from primary to junior high school
9.2 Introduction

Developmental psychopathologists know adolescence as a very special phase of life. Many of mental illness typically have their onset during adolescence (Powers, 2010), and consequently it is during adolescence that much psychological adaptation or maladaptation becomes particularly evident (Roeser, Eccles, & Freedman-Doan, 1999).

Previous studies indicate that early adolescents are more vulnerable with regards to mental health status, especially among girls, and a large number of adolescents report psychosomatic health symptoms, mental health problems and concerns (Haugland, Wold, Stevenson, Aaroe, & Woynarowska, 2001). A review of literature shows that mental health difficulties in adolescence are prevalent in the general population worldwide (Srinath, Kandasamy, & Golhar, 2010). They are characterised by several factors, including increasing prevalence, downward developmental trend, and long-term persistence (see Chapter 4). In Bor et al. (2014)’s comprehensive review of time trends of young people’s mental health which examines 19 epidemiological studies conducted across 12 countries, overall, the findings for internalizing problems suggest an increasing symptom burden in recent cohorts of adolescents, especially girls. Such consistency in previous and current findings in the Western literature raises the question of whether the same developmental pattern exists among non-Western, for example, Chinese adolescent girls. The objectives of this study were thus to estimate the prevalence of mental health wellbeing and mental health difficulties, and to examine the longitudinal changes of adolescents’ mental health throughout the transition from primary to middle school.

9.3 Research questions and hypothesis

A review of the literature shows that many studies have been carried out in the West to investigate adolescent mental health (e.g., Byrne, 2000; Trzesniewski, Donnellan, Moffitt, et al., 2006), while in contrast, there has been very limited local research into the mental health and wellbeing of adolescents in China, especially Mainland Chinese populations. More than two decades ago, Shek (1988) conducted a comprehensive epidemiological study to assess the mental health status of adolescents in Hong Kong. And, so far there has been little study conducted in China. It can be concluded, however, that
Mental health is a continuous construct and comprises a broad composite of background variables. In line with this reasoning, multiple indicators were selected to examine adolescents’ mental health and wellbeing, and based on which Research Question 3 was formulated to investigate the longitudinal changes in adolescents’ mental health, in terms of their global life satisfaction, self-esteem, psychosomatic symptoms, mental health difficulties, and coping (see Figure 9.2). In view of prior research, it was hypothesised that over time adolescents’ global life satisfaction and self-esteem would decline with increasing age, psychosomatic symptoms and mental health difficulties would increase, and they would use a wider range of coping strategies and opt for strategies with higher efficacy.

<table>
<thead>
<tr>
<th>Time 1</th>
<th>Physical growth</th>
<th>Social contexts</th>
<th>School</th>
<th>Mental health</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-transition</td>
<td>Physical growth</td>
<td>Social contexts</td>
<td>School</td>
<td>Mental health</td>
</tr>
<tr>
<td></td>
<td>Pubertal development</td>
<td>Parent attachment</td>
<td>School climate</td>
<td>Global life satisfaction</td>
</tr>
<tr>
<td></td>
<td>Body image and concerns</td>
<td>Parental involvement</td>
<td>School goals</td>
<td>Self-esteem</td>
</tr>
<tr>
<td></td>
<td>Gender issues</td>
<td>Peer attachment</td>
<td>School behaviours</td>
<td>Psychosomatic symptoms</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Peer norms</td>
<td>School adaptation</td>
<td>Mental health difficulties</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(loneliness, anxiety, depression)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Coping (strategy, efficacy)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time 2</th>
<th>Physical growth</th>
<th>Social contexts</th>
<th>School</th>
<th>Mental health</th>
</tr>
</thead>
<tbody>
<tr>
<td>During transition</td>
<td>Physical growth</td>
<td>Social contexts</td>
<td>School</td>
<td>Mental health</td>
</tr>
<tr>
<td></td>
<td>Pubertal development</td>
<td>Parent attachment</td>
<td>School climate</td>
<td>Global life satisfaction</td>
</tr>
<tr>
<td></td>
<td>Body image and concerns</td>
<td>Parental involvement</td>
<td>School goals</td>
<td>Self-esteem</td>
</tr>
<tr>
<td></td>
<td>Gender issues</td>
<td>Peer attachment</td>
<td>School behaviours</td>
<td>Psychosomatic symptoms</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Peer norms</td>
<td>School adaptation</td>
<td>Mental health difficulties</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(loneliness, anxiety, depression)</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td>Coping (strategy, efficacy)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time 3</th>
<th>Physical growth</th>
<th>Social contexts</th>
<th>School</th>
<th>Mental health</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-transition</td>
<td>Physical growth</td>
<td>Social contexts</td>
<td>School</td>
<td>Mental health</td>
</tr>
<tr>
<td></td>
<td>Pubertal development</td>
<td>Parent attachment</td>
<td>School climate</td>
<td>Global life satisfaction</td>
</tr>
<tr>
<td></td>
<td>Body image and concerns</td>
<td>Parental involvement</td>
<td>School goals</td>
<td>Self-esteem</td>
</tr>
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<td></td>
<td>Gender issues</td>
<td>Peer attachment</td>
<td>School behaviours</td>
<td>Psychosomatic symptoms</td>
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<tr>
<td></td>
<td></td>
<td>Peer norms</td>
<td>School adaptation</td>
<td>Mental health difficulties</td>
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<td></td>
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<td></td>
<td>(loneliness, anxiety, depression)</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Coping (strategy, efficacy)</td>
</tr>
</tbody>
</table>

Figure 9.2 A longitudinal study on early adolescent girls’ mental health
9.4 Results

9.4.1 Global life satisfaction

Longitudinally no significant changes were found in *Degree of Happiness* (Time 1, M=2.99, SD=0.68; Time 2, M=3.03, SD=0.64; Time 3, M=2.98, SD=0.71), although a trend of increase in “very happy” was found at Time 2 during transition (Figure 9.3). In general, the majority of sample in this study reported to be “quite” or “very happy” with their life at each time point (Time 1, N=339, 79.7%; Time 2, N=350, 82.3%; Time 3, N=333, 78.3%).

![Figure 9.3 Prevalence of degree of happiness throughout the transition](image)

There was also no significant difference in *Frequency of Happiness* over time, although a trend of increase was found at Time 2 (Time 1, M=3.52, SD=0.78; Time 2, M=3.58, SD=0.73; Time 3, M=3.58, SD=0.74).

![Figure 9.4 Prevalence of frequency of happiness throughout the transition](image)
As shown in Figure 9.4, the majority of girls in this sample were likely to feel happy “Sometimes” or “Often” (Time 1, N=356, 83.8%; Time 2, N=369, 86.8%; Time 3, N=362, 85.2%).

Prevalence of both degree and frequency of happiness suggest positive *Global Life Satisfaction*. Longitudinally changes in both indicators further revealed an overall stable status of adolescents’ *Global Life Satisfaction* throughout the transition time.

### 9.4.2 Self-esteem

As shown in Figure 9.5 and Table 9.1, longitudinally girls’ self-esteem on *Athletic competence*, *Behavioural conduct*, and *Global self-esteem* dropped significantly through the transition period. These effects reflect the gradual decline over time in girls’ ratings of their self-concept in sports ability (F(1.927,817.186)=26.446, p<.0001, η²=0.06, T1>T2*,T3**, T2>T3**); behaviours (F(1.904,807.384)=20.869, p<.0001, η²=0.05, T1>T2,T3**, T2>T3*); and global self-perception (F(1.880,797.015)=34.506, p<.0001, η²=0.08, T1>T2,T3**, T2>T3**). The largest changes of self-esteem in *Behavioural conduct* and *Global self-esteem* were between Time 1 (last term in Grade 6 primary school) and Time 2 (first term in Grade 1 junior high school), while the biggest change of self-esteem in *Athletic competence* was between Time 2 (first term of Grade 1 in junior high school) and Time 3 (last term in Grade 1 in junior high school). *Physical appearance* was found decreased significantly at Time 3 compared with the other two time points (F(1.871,793.370)=22.142, p<.0001, η²=0.05, T3<T1,T2**), this indicates that girls’ self-esteem in physical appearance only dropped down significantly at the last term of Grade 1 junior high, rather than when they made the transition from primary to junior high (first term Grade 1). The overall longitudinal changes indicate that patterns of change differ across domains. Self-esteem in *Scholastic performance* and *Social acceptance* showed no significant longitudinal changes. At the mean level, *Physical appearance* scored relatively lower than the other domains, followed by *Athletic competence*. 
Figure 9.5 Means of subscales of Harter Self-Esteem at three time points
Table 9.1 Means, standard deviations, degree of freedom, F-value, p-value, and post hoc pairwise comparison results of self-esteem

<table>
<thead>
<tr>
<th>Self-esteem</th>
<th>Mean (SD)</th>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
<th>df</th>
<th>F</th>
<th>p</th>
<th>η^2</th>
<th>Post Hoc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scholastic performance</td>
<td>2.80(0.58)</td>
<td>2.86(0.56)</td>
<td>2.82(0.58)</td>
<td>1.752</td>
<td>2.240</td>
<td>n/s</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>Social acceptance</td>
<td>2.88(0.49)</td>
<td>2.84(0.46)</td>
<td>2.84(0.53)</td>
<td>1.864</td>
<td>1.003</td>
<td>n/s</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>Athletic competence</td>
<td>2.86(0.46)</td>
<td>2.79(0.48)</td>
<td>2.67(0.50)</td>
<td>1.927</td>
<td>28.464</td>
<td>&lt;0.001</td>
<td>0.06</td>
<td>T1&gt;T2*,T3**,T2&gt;T3**</td>
<td></td>
</tr>
<tr>
<td>Physical appearance</td>
<td>2.69(0.60)</td>
<td>2.64(0.57)</td>
<td>2.49(0.54)</td>
<td>1.871</td>
<td>22.142</td>
<td>&lt;0.001</td>
<td>0.06</td>
<td>T3&lt;T1,T2**</td>
<td></td>
</tr>
<tr>
<td>Behavioural conduct</td>
<td>2.95(0.51)</td>
<td>2.85(0.49)</td>
<td>2.76(0.54)</td>
<td>1.904</td>
<td>20.869</td>
<td>&lt;0.001</td>
<td>0.05</td>
<td>T1&gt;T2,T3**,T2&gt;T3*</td>
<td></td>
</tr>
<tr>
<td>Global self-esteem</td>
<td>3.00(0.53)</td>
<td>2.84(0.56)</td>
<td>2.76(0.55)</td>
<td>1.880</td>
<td>34.506</td>
<td>&lt;0.001</td>
<td>0.08</td>
<td>T1&gt;T2,T3**,T2&gt;T3**</td>
<td></td>
</tr>
</tbody>
</table>

* The mean difference is significant at the .05 level.
** The mean difference is significant at the .01 level.
9.4.3 Psychosomatic symptoms

Longitudinally, all the symptoms except Stomach-ache and Neck pain (which were both endorsed with relatively high frequency and stayed stable) showed significant changes between different time points, as shown in Table 9.2 for details. Specifically, both Difficulties getting to sleep and Tiredness decreased persistently from Time 1 through Time 3. The significant changes in reporting of Headache, Backache, Bad temper, and Feeling dizzy happened between Time 1 (in primary school) and the other two subsequent time points (in junior high school). At Time 2, Feeling low was significantly lower than other two time points, and at Time 3, Feeling nervous was reported significantly lower than the other two time points.

Despite the above longitudinal changes, it should be noted that means of all psychosomatic symptoms were generally low in this sample and most of the symptoms happened at a weekly or monthly basis on average. Moreover, prevalence of each psychosomatic compliant was also changing over time. At Time 1, the first three high frequency symptoms were: Tiredness, Difficulties getting to sleep, and Neck pain. At Time 2, they were: Tiredness, Bad temper, and Neck pain, and at Time 3 Bad temper, Stomach-ache, and Neck pain. Interestingly, across three-time points neck pain was reported at consistently high levels of frequency (Figure 9.6).

![Figure 9.6 Means of psychosomatic symptoms in the past 6 months](image-url)
Table 9.2 Means, standard deviations, degree of freedom, F-value, p-value, and post hoc pairwise comparison results of psychosomatic symptoms

<table>
<thead>
<tr>
<th>symptom</th>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
<th>df</th>
<th>F</th>
<th>p</th>
<th>η²</th>
<th>Post hoc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headache</td>
<td>2.07(0.97)</td>
<td>1.76(0.87)</td>
<td>1.78(0.86)</td>
<td>1.823</td>
<td>28.838</td>
<td>&lt;0.001</td>
<td>0.06</td>
<td>T1&gt;T2,T3**</td>
</tr>
<tr>
<td>Stomach-ache</td>
<td>2.36(0.95)</td>
<td>2.42(0.91)</td>
<td>2.46(0.94)</td>
<td>1.950</td>
<td>1.488</td>
<td>n/s (0.23)</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Backache</td>
<td>1.66(0.89)</td>
<td>2.02(0.99)</td>
<td>2.04(0.99)</td>
<td>1.922</td>
<td>34.433</td>
<td>&lt;0.001</td>
<td>0.08</td>
<td>T1&lt;T2,T3**</td>
</tr>
<tr>
<td>Feeling low</td>
<td>2.40(1.19)</td>
<td>2.10(1.03)</td>
<td>2.35(1.15)</td>
<td>1.944</td>
<td>17.523</td>
<td>&lt;0.001</td>
<td>0.04</td>
<td>T2&lt;T1,T3**</td>
</tr>
<tr>
<td>Bad temper</td>
<td>2.17(1.15)</td>
<td>2.49(1.09)</td>
<td>2.49(1.08)</td>
<td>2</td>
<td>16.184</td>
<td>&lt;0.001</td>
<td>0.04</td>
<td>T1&lt;T2,T3**</td>
</tr>
<tr>
<td>Feeling nervous</td>
<td>2.12(1.22)</td>
<td>2.27(1.03)</td>
<td>1.92(0.92)</td>
<td>2</td>
<td>16.946</td>
<td>&lt;0.001</td>
<td>0.03</td>
<td>T3&lt;T1,T2**</td>
</tr>
<tr>
<td>Difficulties in getting to sleep</td>
<td>3.00(0.98)</td>
<td>2.40(0.91)</td>
<td>2.23(0.91)</td>
<td>2</td>
<td>95.913</td>
<td>&lt;0.001</td>
<td>0.18</td>
<td>T1&gt;T2,T3**;T2&gt;T3*</td>
</tr>
<tr>
<td>Feeling dizzy</td>
<td>1.86(0.78)</td>
<td>1.72(0.69)</td>
<td>1.73(0.70)</td>
<td>2</td>
<td>6.817</td>
<td>=0.001</td>
<td>0.02</td>
<td>T1&gt;T2**;T3*</td>
</tr>
<tr>
<td>Neck pain</td>
<td>2.42(1.00)</td>
<td>2.43(0.97)</td>
<td>2.42(0.93)</td>
<td>2</td>
<td>0.022</td>
<td>n/s (0.98)</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Tiredness</td>
<td>3.27(1.31)</td>
<td>2.64(1.03)</td>
<td>2.32(1.05)</td>
<td>1.970</td>
<td>87.379</td>
<td>&lt;0.001</td>
<td>0.17</td>
<td>T1&gt;T2,T3**;T2&gt;T3*</td>
</tr>
</tbody>
</table>

* The mean difference is significant at the .05 level.
** The mean difference is significant at the .01 level.
Figure 9.7 Percentage of girls’ experiencing more than once a week of each psychosomatic symptom at three time point.
At Time 1, 5.2% of girls in this sample report experiencing Headaches, 13.4% Stomach-ache, 2.9% Backache, 14.8% Neck pain, 45.6% Tiredness, and 1.6% Dizziness more than weekly during the past six months, while 18.3% Feeling low, 15.5% are Irritable (Bad temper), 16.0% are Nervous and 30.1% have Difficulty getting to sleep. Compared with Time 1, lower percentages of girls experienced Headache, Feeling low, Feeling nervous, Difficulty getting to sleep, Neck pain, and Tiredness more than a week at Time 2 and Time 3 (Figure 9.7), indicating improved psychosomatic health regarding these indicators. As can be seen in Figure 9.7, the most drastic changes happened on Difficulty getting to sleep and Tiredness.

Having multiple psychosomatic symptoms is defined as having two or more symptoms more than once a week (HBSC, 2010). 52.7% of girls reported multiple health complaints at Time 1 in primary school, and the proportion dropped down as they transferred into junior high school (Time 2, 28.7%; Time 3, 25.6%).

9.4.4 Loneliness

Longitudinally, girls reported the most Loneliness during the transition at Time 2 (Table 9.3), and it dropped down significantly after the transition (F (1.909, 809.372)=5.307, p=0.01, $\eta^2=0.01$, T2>T3**). No significant differences were found in Loneliness between two school settings (primary vs. junior high school).

| Table 9.3 Means, standard deviations, and range of loneliness at three time points |
|---------------------------------|-----------------|-------------|--------------|
| Mean (SD)                      | Minimum | Maximum |
| Time 1                         | 29.87(7.42) | 16     | 59           |
| Time 2                         | 30.15(6.31) | 16     | 53           |
| Time 3                         | 28.84(6.90) | 16     | 55           |

9.4.5 Anxiety

Similar to longitudinal changes as revealed above for Loneliness, throughout the transition, girls’ reported overall anxiety decreased after the transition (Time 3) when compared with the time they entered junior high school at Time 2 (see Table 9.4) (F (1.808, 766.743)=4.569, p<0.05, $\eta^2=0.01$, T2>T3**). There were no longitudinal differences in Anxiety between primary and junior high
school. In order to provide compare this data with normative data of this measure mean scores and standard deviations are provided in Table 9.4.

**Table 9.4 Means, standard deviations, and range of anxiety at three time points**

<table>
<thead>
<tr>
<th></th>
<th>Mean (SD)</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time 1</td>
<td>31.97(13.72)</td>
<td>5</td>
<td>83</td>
</tr>
<tr>
<td>Time 2</td>
<td>32.16(12.34)</td>
<td>8</td>
<td>84</td>
</tr>
<tr>
<td>Time 3</td>
<td>30.67(11.30)</td>
<td>6</td>
<td>70</td>
</tr>
</tbody>
</table>

Longitudinal changes were further explored in subscales of anxiety throughout the transition. *Social phobia* reduced persistently from Time 1 through to Time 3 (F(1.970, 835.269)=27.942, p<0.001, $\eta^2=0.06$, T1>T2,T3**,T2>T3**). *Generalized anxiety disorder* significantly reduced after transition compared with that prior or during the transition (F(1.934, 820.025)=4.213, p<0.05, $\eta^2=0.01$; T3<T1,T2*). *Obsessive compulsive* increased significantly in junior high school (F(1.839, 779.595)=16.015, p<0.001, $\eta^2=0.04$; T1<T2,T3**). *Separation anxiety* (F (1.863, 789.968)=5.303, p=0.01, $\eta^2=0.01$, T2>T3**) and *Physical injury fears* (F(1.626, 689.408)=5.366, p=0.01, $\eta^2=0.01$; T2>T3**) significantly decreased from Time 2 to Time 3. No change was found in *Panic attack and agoraphobia* over time (Figure 9.8).

![Figure 9.8 Means of subscales of SCAS at three time points](image_url)
9.4.6 Depression

The Beck Depression Inventory (BDI)-II total score for the entire sample at three time points ranged from 0-38. The overall mean scores of Depression revealed a longitudinal trend of increase over time (Time 1, M=9.36, SD=5.96; Time 2, M=9.71, SD=5.97; Time 3, M=9.76, SD=6.50), however, such change was not statistical significance (p=0.47).

To identify the BDI-II's factor structure in this sample, principal factors extraction with Varimax rotation was performed on the 20 depression symptoms separately for times 1, 2 and 3. This yielded five factors with eigenvalue that exceeded unity and accounted for 50.79% at Time 1, 49.53% at Time 2, and 53.41% at Time 3, of the total variance. To avoid over-factoring, further analysis that employed the scree test (Cattell, 1966, Gorsuch, 1974) showed that two factors could be extracted meaningfully and were applicable to Time 1, 2 and 3 data. The two-factor solution, which could be considered as a relatively adequate representation of the data, was rotated to a Varimax criterion for interpretation (Nie, 1983). The two main factors were categorised as cognitive and affective aspects of Depression (Sadness, Pessimism, Past failure, Guilty feeling, Punishment feeling, Feeling disappointment, Self-criticalness, Suicidal thoughts, and Worthlessness, Loss of pleasure, Crying, Agitation, Loss of interest, Irritating, and Indecisiveness), and somatic complaints (Loss of energy, Changes in sleeping pattern, Changes in appetite, Concentration difficulty, and Fatigue). Loadings of variables on factors are reported in Table 9.5. Variables are grouped by size of loading and underlined to facilitate interpretation. Further analysis on the reliability of the factors extracted showed that these two factors were internally consistent; Cronbach’s alpha was obtained for three time points as seen in Table 9.5.

While Table 9.5 showed the Varimax-rotated factor structure of the BDI-II for all three time-points, Figure 9.9 revealed the longitudinal changes in the means of both factors. Factor 1 increased as girls transitioned into junior high school (Time 2) and maintained stable till Time 3 (F(1.871, 793.394)=5.428, p=0.01, η²=0.01; T1<T2,T3*), while somatic symptoms (Factor 2) decreased by the end of junior high school (F(1.901, 806.025)=4.654, p<0.05, η²=0.01; T1>T3*).

Table 9.5 Two-factor solution of depression (BDI-II)
Time 1 Eigenvalue of Factor 1 = 4.41 (22.06% of variance); Factor 2 = 2.27 (11.35% of variance), total 33.41%
Time 2 Eigenvalue of Factor 1 = 3.99 (19.93% of variance); Factor 2 = 2.28 (11.42% of variance), total 31.35%
Time 3 Eigenvalue of Factor 1 = 4.39 (21.94% of variance); Factor 2 = 2.48 (12.40% of variance), total 34.34%

Figure 9.9 Longitudinal changes in Depression with two factors

9.4.7 Coping

Percentage of the sample responding to each coping strategy was presented in Figure 9.10, and at each time point, the three top coping strategies which girls adopted were: Time 1, Problem solving, Emotional regulation, and Social withdrawal; Time 2, Emotional regulation, Distraction, and Problem solving; Time 3, Emotional regulation, Cognitive restructuring, and Problem solving. The coping strategies of Blaming others, Resignation, and Self-criticism were least frequently reported at all three time points. Strategies of Problem solving and Emotional regulation were used of high frequency through all time.

In order to perform longitudinal analysis to examine changes in girls’ coping patterns, responses to coping strategies were converted to dichotomous scores,
reflecting whether a coping strategy was used ("Yes"=1) or not ("No"=0); mean and standard deviation scores for girls at each time point who reported use of each coping strategy and longitudinal changes of significance were thus shown in Table 9.6.

Overall, most changes in coping strategies were revealed between Time 3 and the two prior time points. By the last term in junior high school girls reported to lower frequency in use of distractions, social withdrawal, and resignation, and more frequent use of cognitive restructuring, self-criticism, emotional regulation and social support (Table 9.6).

![Figure 9.10 Prevalence of coping strategy at three time points](image)

**Figure 9.10 Prevalence of coping strategy at three time points**
Table 9.6 Means and standard deviations of coping strategy at three time points

<table>
<thead>
<tr>
<th></th>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
<th>df</th>
<th>F</th>
<th>p</th>
<th>η²</th>
<th>Post Hoc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distraction</td>
<td>0.80(0.40)</td>
<td>0.84(0.37)</td>
<td>0.77(0.42)</td>
<td>1.434</td>
<td>3.559</td>
<td>&lt;0.05</td>
<td>0.01</td>
<td>T2&gt;T3**</td>
</tr>
<tr>
<td>Social withdrawal</td>
<td>0.80(0.40)</td>
<td>0.79(0.41)</td>
<td>0.73(0.44)</td>
<td>1.487</td>
<td>5.388</td>
<td>&lt;0.05</td>
<td>0.01</td>
<td>T3&lt;T2**, T1*</td>
</tr>
<tr>
<td>Cognitive restructuring</td>
<td>0.77(0.42)</td>
<td>0.77(0.42)</td>
<td>0.86(0.35)</td>
<td>1.870</td>
<td>8.221</td>
<td>&lt;0.001</td>
<td>0.02</td>
<td>T3&gt;T1, T2**</td>
</tr>
<tr>
<td>Self-criticism</td>
<td>0.48(0.50)</td>
<td>0.62(0.49)</td>
<td>0.63(0.48)</td>
<td>1.219</td>
<td>17.523</td>
<td>&lt;0.001</td>
<td>0.04</td>
<td>T1&lt;T2, T3**</td>
</tr>
<tr>
<td>Blame others</td>
<td>0.41(0.49)</td>
<td>0.42(0.49)</td>
<td>0.40(0.49)</td>
<td>1.277</td>
<td>0.221</td>
<td>n/s (0.80)</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Problem solving</td>
<td>0.87(0.34)</td>
<td>0.84(0.37)</td>
<td>0.85(0.36)</td>
<td>1.979</td>
<td>0.882</td>
<td>n/s (0.41)</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Emotional regulation</td>
<td>0.84(0.37)</td>
<td>0.86(0.35)</td>
<td>0.92(0.28)</td>
<td>1.761</td>
<td>6.729</td>
<td>&lt;0.01</td>
<td>0.02</td>
<td>T3&gt;T1**, T2*</td>
</tr>
<tr>
<td>Wishful thinking</td>
<td>0.76(0.43)</td>
<td>0.79(0.41)</td>
<td>0.80(0.40)</td>
<td>1.472</td>
<td>1.611</td>
<td>n/s (0.20)</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Social support</td>
<td>0.77(0.42)</td>
<td>0.72(0.45)</td>
<td>0.79(0.41)</td>
<td>1.914</td>
<td>3.336</td>
<td>&lt;0.05</td>
<td>0.01</td>
<td>T2&lt;T3*</td>
</tr>
<tr>
<td>Resignation</td>
<td>0.33(0.47)</td>
<td>0.60(0.49)</td>
<td>0.49(0.50)</td>
<td>1.469</td>
<td>45.700</td>
<td>&lt;0.001</td>
<td>0.10</td>
<td>T2&gt;T1, T3**: T1&lt;T3**</td>
</tr>
</tbody>
</table>

* The mean difference is significant at the .05 level.

** The mean difference is significant at the .01 level.
Girls only reported efficacy for those coping strategies that they had opted for at each time point, therefore, longitudinal analyses were performed among sub-groups of participants rather than the whole sample (Table 9.7). Figure 9.11 shows that at Time 1, *Distraction, Cognitive restructuring, and Problem solving* were reported with highest coping efficacy scores. At time 2, *Distraction, Problem solving, and Emotional regulation* were rated as more efficient; at Time 3, the three most helpful strategies were rated as *Cognitive restructuring, Problem solving, and Social withdrawal*.

![Figure 9.11 Means of coping efficacy at three time points](image)

Statistically most longitudinal differences in efficacy ratings for each coping strategy were between two time points at junior high school (Times 2 and 3) compared to Time 1 at primary school. Post hoc analyses revealed that girls found *Social withdrawal, Problem solving, Emotional regulation, Wishful thinking,* and *Social support* were more helpful at Time 2 than Time 1; while *Social withdrawal, Social support,* and *Resignation* were found at Time 3 to be more helpful than at Time 1. At Time 2 *Distraction* and *Emotional regulation* were reported of significant higher efficacy than Time 3 (Table 9.7).
Table 9.7 Means, standard deviations, and longitudinal changes in coping efficacy across three time points

<table>
<thead>
<tr>
<th>Coping Strategy</th>
<th>Time 1 Mean (SD)</th>
<th>Time 2 Mean (SD)</th>
<th>Time 3 Mean (SD)</th>
<th>df</th>
<th>F</th>
<th>p</th>
<th>η²</th>
<th>Post Hoc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distraction (n=254)</td>
<td>1.28(0.70)</td>
<td>1.37(0.73)</td>
<td>1.17(0.80)</td>
<td>2</td>
<td>4.418</td>
<td>&lt;0.05</td>
<td>0.02</td>
<td>T2&gt;T3*</td>
</tr>
<tr>
<td>Social withdrawal (n=229)</td>
<td>1.00(0.71)</td>
<td>1.27(0.81)</td>
<td>1.18(0.73)</td>
<td>2</td>
<td>7.614</td>
<td>&lt;0.01</td>
<td>0.03</td>
<td>T1&lt;T2**; T1&lt;T3*</td>
</tr>
<tr>
<td>Cognitive restructuring (n=238)</td>
<td>1.26(0.69)</td>
<td>1.27(0.73)</td>
<td>1.37(0.66)</td>
<td>2</td>
<td>1.588</td>
<td>n/s(0.21)</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>Self-criticism (n=131)</td>
<td>0.64(0.65)</td>
<td>0.49(0.65)</td>
<td>0.60(0.69)</td>
<td>2</td>
<td>2.061</td>
<td>n/s(0.13)</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>Blame others (n=68)</td>
<td>0.59(0.65)</td>
<td>0.57(0.68)</td>
<td>0.66(0.66)</td>
<td>2</td>
<td>0.223</td>
<td>n/s(0.80)</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>Problem solving (n=276)</td>
<td>1.19(0.70)</td>
<td>1.35(0.76)</td>
<td>1.28(0.66)</td>
<td>2</td>
<td>3.756</td>
<td>&lt;0.05</td>
<td>0.01</td>
<td>T1&lt;T2*</td>
</tr>
<tr>
<td>Emotional regulation (N=296)</td>
<td>1.00(0.73)</td>
<td>1.30(0.69)</td>
<td>1.05(0.75)</td>
<td>2</td>
<td>15.136</td>
<td>&lt;0.001</td>
<td>0.05</td>
<td>T2&gt;T1,T3**</td>
</tr>
<tr>
<td>Wishful thinking (N=243)</td>
<td>0.86(0.79)</td>
<td>1.12(0.72)</td>
<td>1.02(0.73)</td>
<td>2</td>
<td>7.450</td>
<td>=0.001</td>
<td>0.03</td>
<td>T1&lt;T2**</td>
</tr>
<tr>
<td>Social support (N=211)</td>
<td>0.84(0.66)</td>
<td>1.14(0.73)</td>
<td>1.01(0.63)</td>
<td>2</td>
<td>9.940</td>
<td>&lt;0.001</td>
<td>0.05</td>
<td>T1&lt;T2**; T1&lt;T3*</td>
</tr>
<tr>
<td>Resignation (N=74)</td>
<td>0.28(0.51)</td>
<td>0.49(0.60)</td>
<td>0.54(0.58)</td>
<td>2</td>
<td>4.186</td>
<td>&lt;0.05</td>
<td>0.05</td>
<td>T1&lt;T3*</td>
</tr>
</tbody>
</table>

* The mean difference is significant at the .05 level.
** The mean difference is significant at the .01 level.
9.5 Discussion

9.5.1 Global life satisfaction

At the mean level, comparisons of data in this study with the international report from 2010 HBSC survey (Currie et al., 2012) suggest that girls in this sample were slightly not as happy, or were less likely to admit to feeling very happy in terms of both its extent and frequency of happiness, than would be the case in the general population of Western girls during the age of 11-15 years old. This finding replicates previous results from surveys of different nations which also have shown notable variability in the mean levels of reported global life satisfaction (Diener, Sandvik, Seidlitz, & Diener, 1993), with Chinese students report lower life satisfaction and general happiness than do students in the U.S. (e.g., Diener et al., 1993).

As reviewed in Chapter 4, past research demonstrated different correlates of adolescent life satisfaction, including: intrapersonal (e.g., internal locus of control, self-efficacy) and interpersonal variables (e.g., family relationships, peer relationships). However, cultural factors may influence children’s cognitive, emotional, and social development and their overall wellbeing through different social and cultural experiences of parenting, family life, and schooling (Basic Behavioural Science Task Force, 1996). On this account, apart from living conditions between countries and psychological factors (see Diener, Diener, & Diener, 1995 for review), a few cultural differences may contribute to the differences in this study. First, constrained emotion is regarded as essential in Confucianism ideology, and it is also possible that adolescent girls believed it might seem prideful and arrogant to report to be “very happy” or “always happy”. Second, apart from cultural influence in general, levels of life satisfaction should also be considered within the school context, and there has been evidence that school life satisfaction is a key indicator for Chinese adolescents’ Global life satisfaction. Although education is valued in most cultures, the extreme emphasis on academic achievement among Chinese seems phenomenal (Stevenson & Lee, 1996). School grades and future schooling have been found to be Chinese students’ primary concerns (Yu, 1996). In contrast, studies with U.S. students find that the school satisfaction domain is the weakest indicator for global life satisfaction (Huebner, Gilman, & Laughlin, 1999). Such contrast may result in the overall
lower levels of *Global life satisfaction* in Chinese adolescent girls, when compared with their Western counterparts.

Adolescent girls’ *Global life satisfaction* reports were fairly consistent in this study, even in the context of the transition from primary to junior high school. Lower scores for some categories at Time 2 (during transition) might reflect the hedonic treadmill theory in which adolescents are hypothesized to adapt to baseline levels of life satisfaction following changing life events (Diener, Suh, Lucas, & Smith, 1999). However, these differences between mean scores showed no statistically significance throughout the transition. These findings are different from the Western norms as reviewed earlier, which suggest a general decline of Global life satisfaction in adolescence across many countries, including America (e.g., Suldo & Huebner, 2004), Israel (e.g., Ullman & Tatar, 2001), South Korea (e.g., Park, 2005), as well as China (e.g., Chang, McBride-Chang, Stewart, & Au, 2003). Given the fact that a Scottish study (Levin, Currie, & Muldoon, 2009), on the other hand, reported a significant increase in *Global life satisfaction*, results from this study therefore support the model proposed by Suh et al. (2008) that life satisfaction is strongly influenced by aspects of culture.

Nevertheless, a few plausible reasons contribute to the stability in *Global life satisfaction* in this sample. First, culture shapes the way in which people experience and express their life satisfaction (Diener, 2009). According to Oishi and colleagues’ (1999) framework for understanding relationship between culture and subjective wellbeing, *Global life satisfaction* depends on the order in which the underlying life events are priorities at a given age or stage by the adolescent. Thus culture may determine the relative importance of various life domains to global life satisfaction by influencing their values. Considering it within the Chinese culture, where family and social obligations and education are highly valued, meeting these social norms and expectations are the primary sources of life satisfaction; moreover, given the pressure of emphasis on academic success in Chinese societies in particular, competent cognitive and academic development can be seen as a means to achieving life satisfaction especially for school children. The majority of these factors are all distinct from those in Western cultures such as the United States, where independence and personal feelings and interests are highly valued, self-related domains are more important for their judgments of life satisfaction.
Therefore, the relatively stable and objective social norms and expectations from family, social obligation, and education may contribute the static feelings in adolescents’ Global life satisfaction. Second, cross-cultural studies have found that Asian adolescents, who are raised in collectivistic cultures that emphasize filial piety, harmony, moderation, and family and social obligations, tend to pay less attention to the self than do their Western counterparts from individualistic cultures (Bond, 1986; Domino, 2000). Thus the longitudinal stability found in this study may result from the less sensitivity in realizing or intention to evaluating their life satisfaction. Third, Global life satisfaction is a broad and complex construct, which encompasses an evaluation of the full range of overall functioning, and an appraisal of one’s life in general and in specific domains, such as family, health, social support, and environment (Diener et al., 1999; Huebner, 2004). As mentioned earlier in this chapter, early adolescents may have difficulty in evaluating their global life satisfaction because they may lack of the ability to integrate evaluative information from various life domains, thus result in neutral responses over time (e.g., Harter, 1985). Fourth, the present study comprised only early adolescents representing an age range that might be too narrow to detect developmental effects in a relatively broad psychological construct.

To sum up, Chinese adolescents reported lower levels of Global life satisfaction compared with Western data. Although life satisfaction reports can be sensitive to changes in life circumstances, longitudinal data in this study seems to suggest that there is also substantial temporal stability in global life satisfaction during adolescence.

9.5.2 Self-esteem

Girls’ reported compatible self-esteem at the global level as well as in individual domain when compared with previous studies in the West (Harter, 1982; Muris, Meesters, & Fijen, 2003), and China (Chang et al., 2003); although there are also slight variations across studies. The consistency in results across studies supports that the Harter Self-esteem Questionnaire is a reliable tool for examining self-esteem in children and adolescents (Muris et al., 2003).

Results in this study on the normative longitudinal changes in self-esteem among adolescents confirm developmental theories derived primarily from Western research. In specific, Global self-esteem decreased consistently over time,
and the same patterns of change were also found in individual domains of Athlete competence and Behaviour. Such decline was consistent with studies in the West, which have reported declines in adolescents’ self-esteem across many domains with age, especially during the primary to middle school transition (Eccles et al., 1993; Marsh, 1989). In Marsh’s study for example, physical, academic, and appearance related self-concept of Australian adolescents all reached the lowest level around Grade 8, which is equivalent to the age of the present sample. This age difference in self-concept in part also reflects transitional stress experienced by early adolescents. Early adolescence coincides with simultaneous transitions of three kinds. There is the educational transition from primary school to junior high school, cognitive emergence of formal operation reasoning, and, in most early adolescents, the onset of puberty. It is important to note that while each of such factors can increase risk for the adolescent, ultimately and in reality they are cumulative in nature (Cunningham et al., 2008). The cumulative effects of these transitions, therefore, result in heightened stress in this age period (e.g., see Eccles & Midgley, 1989, for a review; also see Chapter 1). From this view, it is understandable that girls reported persistent decline through the transition.

Physical appearance dropped down over time and reached its significance at the end of junior high school. Cole et al. (2001) found that developmental changes in self-esteem of Physical appearance represents discontinuous rather than smooth functions, with breakpoints occurring during transitions from primary to junior high school. In this study, the breakpoint seemed to happen at Time 3 (post-transition) rather than Time 2 (during transition). This, however, agrees with the view that the outcomes of adapting to a more challenging school setting may reveal themselves not at the initial phase of the transition but rather the post-transition time (Schneider, 2013). Similar with the explanations above on the relative lower ratings in Physical appearance, previous argument of its decline among early adolescent girls when they make the transition into middle school has been on either the unfavourable body changes brought upon by puberty (van den Berg et al., 2010) or environmental changes that might account for lowered self-perception (Arens et al., 2013).

Scholastic performance and Social acceptance in this study did not show significant changes over time. However, a slight increase in girls’ self-concept on academic ability was revealed when they entered junior high school, which
is inconsistent with previous findings on decreasing trend in school transition studies (e.g., Barber & Olsen, 2004; Eccles & Midgley, 1989; Otis, et al., 2005). Such increase occurred approximately at the time of cognitive changes (concrete to formal operational thought; Cole et al., 2001). It may also be explained by the fact that students in the last year of primary school were under great pressure and in severe competition in order to enter key junior high school (see Chapter 1 and 3), which may tax girls’ competence in their scholastic performance. Therefore, after the fierce competition in the final days of primary school, girls in junior high school would display slightly higher self-esteem in their Scholastic performance. On this account, it is important to take consideration of cultural differences in educational practice when studying relating psychological attributes. In the meantime, the subtle decrease revealed in girls’ self-esteem of Social acceptance may result from the changing social networks which brought by the transition into a new school. Loss of contacts with old friends from primary school and challenges of establishing new peer groups in a bigger friend’s pool both may contribute to such decrease.

To sum up, ratings and overall developmental changes were both consistent with the previous literature in both Western (e.g., Eccles & Midgley, 1989) and Chinese literature (e.g., Lau, 1989), however, individual domain changes also revealed distinct patterns (e.g., Social acceptance maintained stable throughout the transition).

**9.5.3 Psychosomatic symptoms**

Prevalence of individual symptoms is different across cultures, and from one another within this sample at each time point. Individual difference may contribute to the variations in prevalence rates, and supports previous argument that subjective somatic symptoms are common during adolescence, though the frequency, duration, and intensity vary among individuals (e.g., Dul, Knopf, Zhuang, et al., 2011; Jellesma et al., 2006). However, consistent with previous quantitative studies, Backache and Neck pain were frequently reported (Griffin & Christie, 2008; Jellesma et al., 2006), with perceived aetiology was often commented on and seen as related to lack of activity (e.g., sitting in classroom), type of activity (e.g., doing homework), workload (e.g., study at school), and defined diagnoses (e.g., migraine) (see Ottova et al., 2012).
for review). Comparisons with Currie et al. (2012)'s report deprived from HBSC Survey, in this study, Headache, Dizziness, Backache, Bad temper are lower than data from the European and American sample, whereas Stomach-ache and Sleeping difficulty were reported higher in this study.

Some researchers used the psychosomatic symptoms checklist to produce a scale mean score to indicate levels of symptoms at an overall level (e.g., Vieno, Lenzi, Santinello, & Scacchi, 2013), and some studies applied factorial analysis to generated symptoms classifications which often favours a two-factor model labelled as somatic and psychological symptoms (e.g., Haugland et al., 2001). Similar analytical attempts were made in this study; however, the internal consistency was very low when the checklist was considered as an integrated scale, and factorial analysis on the longitudinal data generated different categorises (see Chapter 5). Therefore, data analysis were carried out and reported on the basis of each individual item from the checklist. The low internal consistency in the scale suggests that girls in this study might not have learnt a common interpretation. Current thinking on somatic interpretation is often biased toward viewing awareness of symptoms as necessarily distressing (Cioffi, 1991), such discrepancy may due to cultural factors which may influence the way a somatic complaint is described, expressed, and categorized. For example, in Haugland and Wold (2001)'s study, dizziness seems to constitute a category largely experienced as a normal physiological change (e.g., dizziness after getting up quickly), sleeping difficulty was seen as a result of lifestyle (e.g., sleeping during the day), and stomach-ache was most often described as period pain or pain after over eating. Lack of qualitative data from this study limits the knowledge of whether such differences exist in this sample. Nevertheless, it provides an explanation in understanding the prevalence rates in some of the psychosomatic symptoms in adolescence, and illustrates the need to validate symptom checklists in the target population in future research.

Results of longitudinal changes as compared with Time 1 in primary school, the prevalence of experiencing psychosomatic symptoms more than once a week dropped down significantly in junior high school (Time 2 and Time 3), among many symptoms including Headache, Feeling low, Feelings nervous, Difficulty getting to sleep, Neck pain, and Tiredness. The decline indicates an overall improved psychosomatic health status for girls in this sample following their
transition into junior high school. When consider this decline in the perspective of age trends, results in this study inconsistent with previous findings of developmental increase in Western adolescent girls (e.g., Cavallo, Zambon, Borraccino, et al., 2006; Karademas, et al., 2008; Hagquist, 2009).

Because this study is the first to examine longitudinal changes in Chinese adolescents’ psychosomatic health with a comprehensive symptoms checklist in primary and junior high school, comparative local data were thus not available. However, Therese, Yan, Li, Zhou, Ye and Zhu’s (2009) cross-sessional study with a different range symptoms also found high levels of *Headache* and *Stomach-ache* in Chinese primary school children, although availed no data from middle school. Such cross-cultural difference in the developmental trends of psychosomatic symptoms can be explained in the presence of psychosocial factors operating through social stress at a micro (individual) level (e.g., Gerber & Puhse, 2008), as well as factors at the macro (societal or national) level (e.g., Holstein et al., 2009; see Chapter 4). Considering the occurrence of time trends in girls’ psychosomatic symptoms and the transition from primary to junior high school, it should be noted that the school transition pressure might play an important role. Stress in school setting has been shown to be significantly associated with psychosomatic symptoms in school-age children in Norway, Sweden and Finland (Murberg & Bru, 2007; Hjern, Alfven, & Ostberg, 2008; Karvonen, Vikat, & Rimpela, 2005). Although less is known about how such school-related stressors may affect psychosomatic symptoms among adolescents. However, with regards to the Chinese schooling, it should be noted that students in China undergo the school transition earlier than their Western counterparts. As reviewed in Chapter 1 and Chapter 3, Chinese educational system consists of a nine-year compulsory study for school aged children with a structure of 6-3-3, indicating the first school transition between Primary 6 and Junior 1. Although, according to relevant policies, primary school students should transfer to junior high automatically as the case in most Western countries, however, given to the designation of ordinary and key school with key school have the lion share in educational resource and their students have higher rates of entering key universities or oversea institutes, most of the students choose to apply for school of their choice. The application criteria are not only based on academic records, but many others (see Chapter 1), together put primary school students under great pressure, especially in Grade 6, the last year of primary school. On the other hand, students in most Western countries
transfer to middle school automatically, and the first time they are under pressure of school transition is in secondary school (senior high middle school) when they start to consider whether to go to college or universities. Given the priorities of key schools, limited educational resources, and inequalities in its distribution, severe competition in a huge population in China, it is not hard to image the pressure on students’ shoulders at each turning point for school transition. Such cultural-specific educational phenomenon not only serve as the rationale for the improvement in girls’ psychosomatic symptoms, it also set the context for understanding other mental health indicators, which will be discussed in following sessions within this chapter.

At the individual symptom level, the most drastic longitudinal changes were found in Difficulty getting to sleep and Tiredness, with highest prevalence found in primary school (Time 1). Despite the controversial developmental patterns in many symptoms as mentioned above, the significant increases in Backache and Bad temper were actually in line with findings from previous Western research, which often explained by heavy workload (Hesketh, et al., 2010) and brain development (Steinberg, 2013), respectively. Stomach-ache and Neck pain showed no significant longitudinal changes, however, it should be noted that at the prevalence level, they both revealed higher frequencies in girls experiencing such symptoms across all time points, which replicates previous research (e.g., Berntsson et al., 2001; Hjern, et al., 2008; also see above). In contrast to the rise in prevalence of having two or more psychosomatic symptoms more than once a week among girls (e.g., Currie et al., eds, 2012), longitudinally girls in this study reported an obvious decrease in proportion of having multiple symptoms, and such trend seems logical considering the declines in majority symptoms.

To sum up, this is the first attempt to apply the HBSC originated psychosomatic symptoms checklist in China among adolescents. Significant changes indicate an overall improvement in many symptoms. The fluctuations in significant temporary or consistent changes between time points indicate the instability of these symptoms during adolescence.

9.5.4 Loneliness

Generally levels of loneliness reported in this study were high compared to those reported for equivalent age cohorts in some earlier Western studies (e.g.,
Asher et al., 1984), and similar with findings in adolescents in Turkey (Demir & Tarhan, 2001), a country with its smaller parts in Europe and its larger part in Asia; as well as evidence from Chinese literature among girls in Primary Grade 6 (Wang & Li, 2011). This finding agrees with Chen and colleagues’ (2014) reports, which addressed the higher rates of loneliness in Chinese youth compared with in other countries.

Considering the norm of emotion restrain that characterises Chinese culture (King & Bond, 1985), it is surprising that girls were willing to report loneliness freely. However, the sanctions against self-expression may not be operative because loneliness may be perceived as the result of situational constraints rather than as a personal deficit. Apart from this, a few reasons may result in the high level of loneliness in Chinese adolescents. First, Goldenberg and Perlman (1984) found that dysfunctions in the family was more closely associated with the loneliness of younger adolescents, while deficits in peer relationships were more closely linked to the loneliness in their older age. Therefore, intimate relationships with the family, then friends are crucial to experiencing or avoiding loneliness in adolescence (Ernst & Cacioppo, 1999). From this perspective, girls in this study mostly are the only child having no siblings in the family and both parents preoccupied with their own life. Considering relationships outside of the family, within the individualism–collectivism framework, and in collectivistic culture like China, where strong interpersonal ties are normative, individuals are more likely to feel lonely. Furthermore, girls in this study experienced the transition from primary to junior high school; the improvement in their feeling lonely may result from the establishment with new peer groups and friendships. Second, in line with the earlier account, it is important to acknowledge that culture may not only help shape overall levels of individualism, but also the circumstances under which individuals within a society feel lonely. Results in this study differed from the view that adolescents in individualist cultures may feel lonelier, and support Anderson (1999)’s findings, which reported Chinese to feel lonelier than Americans. Indeed, the few studies providing comparisons of multiple countries are consistent with the idea that individuals of collectivistic societies are more likely to feel lonely than those in individualistic societies (e.g., Yang & Victor, 2011). In the same vein, results from this study also support the argument that loneliness is higher in collectivistic as compared with individualistic societies.
Result of longitudinal changes in loneliness indicates a significant improvement after the transition. However, findings from previous research on the developmental trends of loneliness were rather inconsistent. As reviewed in Chapter 4, some developmental researchers suggest an increase in loneliness as children transitioned into adolescents. Other researchers concluded that loneliness peaked in adolescence and children at this developmental stage tend to experience loneliness more intensely than other age groups (Hawthorne, 2008; Goossens, 2006; van Roekel, et al., 2010). Meanwhile, one longitudinal study on loneliness suggests that the level of loneliness for adolescent girls remains fairly stable across time while boys exhibit a slight decrease across the same time period (van Roekel et al., 2010). To support findings in this study, evidence can be drawn from Ostrov and Offer (1978)’s findings that has shown younger adolescents feel lonelier than older adolescents, and in Hamid and Lok (2000)’s study on loneliness in Hong Kong Chinese, younger adolescents were found to express greater loneliness. Evidence from Mainland China agrees with the age decline as well (Chi & Xin, 2003).

A few reasons may contribute to the improvement in this study. First, as mentioned above, the One Child Policy has resulted in adolescents in most cities being only-children. Researchers normally argue that contemporary adolescents with no siblings may feel lonelier as they grow up. However, being the only child may offer another possibility for their emotional development concerning Chinese adolescents’ social relationships. Most of the girls from this study for example live with parents who are dual workers occupied with fulltime jobs, which normally leave the child with day care or other adult caregiver. Such status of being alone, away from significant others from the family starts from very young age, and this may train the child to develop relevant adaptation abilities and skills. For example, television, computer games, mobile phones, and other forms of distraction become a substitution for interpersonal communication in the family (Huang & Leung, 2009). Second, adolescence is thought to be the stage of life when time spent alone begins to have conscious and deliberate functions (Larson, 1990). Children rarely strive to be alone and often find it hard to make constructive use of time spent alone. In adolescence, however, time spent alone is used to deal with the important developmental tasks of individuation and identity formation (e.g., to take greater psychological distance from one’s parents and to contemplate plans for the future in an attempt to form a sense of identity;
Goossens, 2006; Larson, 1990). As a result, successful negotiation of these important developmental tasks in adolescence is reflected in the fact that adolescents come to appreciate the benefits of being alone or feel less negative about being alone. Third, as discussed in Chapter 8 on Chinese children’s prosocial attitudes and behaviours to underscore girls’ adjustment to social relationships with peers, such cultural virtue may also protect Chinese children from the feelings of loneliness, as loneliness results from the subjective feelings of insufficient interpersonal relationships at its core. Last, loneliness results from a deficiency in a person’s social relationship. Results from this study on attachment with parents and friends showed no decline over time, which showed little evidence of deficiency in social relationships regarding families and friends. In addition, studies on loneliness in early adolescence indicated that self-esteem had direct effect on loneliness; with low self-esteem in social competence contribute to feelings of loneliness (e.g., Stoeckli, 2009). On this account, results on girls’ self-esteem of social acceptance in this study showed no significant longitudinal changes or transition effects, as reported earlier in this chapter. Taken together, it is hardly a surprise that eventually girls’ feelings of loneliness improved.

To sum up, loneliness feelings were higher in Chinese adolescents compared with their Western counterpart. Developmentally, however, a significant improvement was found in this study at the post-school transition stage. Cross-cultural differences and developmental universalities in plausible reasons were discussed.

9.5.5 Anxiety

The overall mean anxiety scores were 29.87 (Time 1), 30.15 (Time 2), and 28.84 (Time 3) in this study (also see above for results details), which were similar to previous reports by Spence (1998; 28.59), yet higher compared with results in other studies that include adolescents, such as Australian (21.72; Spence et al., 2003), Belgian (16.90; Muris et al., 2002), Dutch (16.56; Muris, Meesters, Merckelbach, & Hülsenbeck, 2000), German (22.75; Essau et al., 2002, 2008), or Japanese participants (20.93; Ishikawa, Sato, & Sasagawa, 2009), but lower compared to samples from England (34.33), aged between 12 and 17 (Essau, et al., 2011). It is not clear whether this represents the differences in age range of the adolescents in these studies, or genuine cultural differences. Certainly the
possibility of cultural differences in the reporting and experience of anxiety symptoms warrants further investigation. Plausible reasons, however, may include: first, the highly stressful educational environments and the importance of academic achievement in their future career and life may contribute to the elevated level of anxiety symptoms of Chinese adolescents (see Li & Prevatt, 2008; Fonseca, Yule, & Erol, 1994), especially when compared with their Western age mates. Second, manifestations of anxiety are also determined by cultural factors associated with socialization practices (Li, Ang, & Lee, 2008). Western socialization practices encourage individualism and independence (Essau et al., 2008), which may contribute to the lowing of anxiety problems in children and adolescents. By contrast, Chinese socialization practices are generally characterized by being restrictive, encouragement of self-control, as well as high emphasis on other peoples’ opinions emotional restraint and obedience to authority (Xie & Leong, 2008), which may contribute to a high level of anxiety symptoms among Chinese children and adolescents. A third reason might be methodological. Some of the previous evidence was collected from both girls and boys and results were reported as whole without considering gender differences, while this study solely focused on girls. Given the fact that gender differences in anxiety has been widely reported in both Chinese and Western literature, with girls reporting higher anxiety than boys (Essau et al., 2008; Li et al., 2008; Muris et al., 2000; Spence, 1998; Spence et al., 2003). Although there are no clear reasons for these gender differences, some authors suggested that girls may be biologically wired to be more anxious and worrisome than boys (Lewinsohn, Gotlib, Lewinsohn, Seeley, & Allen, 1998). Another possibility is that compared to boys, girls are socialized to be more anxious and fearful and are reinforced when reporting their inner worries and fears (Ginsburg & Silverman, 2000).

In keeping with higher levels in the overall anxiety scores reported in this sample, multiple subscales also scored higher than previous findings (e.g., Muris et al., 2000; Essau et al., 2002). Comparisons between means of sub dimensions of anxiety showed that Social phobia was being most common. This is in agreement with previous studies as reported in China (Zhao et al., 2012) and Germany (Essau et al., 2002). Physical injury fears in this study received the lowest scores, which differed from previous reports in China (Zhao et al., 2012) and the West (Essau et al., 2008), where Separation anxiety and Panic attack
scored the lowest respectively. However, there were no clear patterns within
the group with respect to the combination of types of anxieties reported across
studies. Different ratings on individual dimension of anxiety may results from
cultural factors (Choi, et al., 1999; Markus & Kitayama, 1991), however, further
studies are needed to explore the discrepancy. To understand the high scores
in Social phobia found in this study, supporting evidence have been found by
Dong et al. (1994) that Chinese children and adolescents, especially those 11-
to 13- years olds, reported higher levels of fears related to social evaluation,
such as fear of failure and criticism. In addition, researchers indicated that the
first born or only child tend to be shy and more fearful (Divya & Manikandandan,
2013). On top of the potential universalities in rating high in Social phobia as
their Western counterparts, the age range of this sample as well as their single
child status, therefore, together contribute to girls’ high rating in Social phobia.

Similar with the longitudinal decline found in Loneliness, girls reported
improvement in overall anxiety following their transition into junior high
school at Time 3. Results in this study differed from previous research findings
which in general shows an increase in anxiety during childhood and
adolescence (e.g., Silverman & Treffers, 2001), as well as literature on primary
to junior high school transitions, which often reports higher risk of anxiety in
junior high school (e.g., Murberg & Bru, 2007). However, in Spence (2003)’s
study, the same decrease with increasing age was suggested between the age
group 13-14 and 12 years old. This finding is also consistent with Muris et al.
(2000), who found a decrease in anxiety with 7-19-year-olds and with previous
studies that reported a decline in children’s fears with increasing age
(Ollendick, Yang, King, Dong, & Akande, 1996).

Findings in this study also showed age differences in the number of anxiety
symptoms. While Generalized anxiety, Separation anxiety, Physical injury fears,
and Social phobia decreased with age, Obsessive-compulsive symptoms increased
as girls became older. In general, such developmental trends found in this
study agree with Mellon and Moutavelis (2007)’s argument that there was a
systematic age-related increase associated with social anxiety, and in specific
as adolescents move into adulthood, social circumstances rather than physical
fears become the predominant objects of anxiety. In the Spence study (1997),
the mean scores for Separation anxiety, Obsessive-compulsive symptoms, Panic
attack problems, and Social phobia declined with age, whereas no significant age
effects were found for Physical injury fears or Generalize anxiety. In a recent study by Van Oort and colleagues (2009), decrease was found in symptoms of Generalized anxiety, Separation anxiety, Social phobia, Panic attack and Obsessive-compulsive in adolescents aged 10 to 18. Hale et al. (2008) found that levels of Panic and Separation anxiety decreased, whereas levels of Social phobia did not significantly change from age 12 to 16. Symptoms of Generalized anxiety disorder were found increases among girls. In Essau and colleagues’ (2011) study, the only significant age difference was found for Separation anxiety. Taken together, findings regarding stability and changes of individual dimension of anxiety is rather disparate, indicating the multiple facets of the anxiety under the SCAS construct differ from one another, and one possible reason for the inconsistent age-related findings might be that there are qualitatively different subgroups in the population, showing different levels and rates of change in anxiety symptoms over time. Nevertheless, of particular interest in this study, is the consistent increase found in Obsessive-compulsive symptoms. There is no clear support for such longitudinal trend in this subscale of anxiety, although it might be because items of SCAS that tap Obsessive-compulsive symptoms viewed by girls in this sample as more socially acceptable. This potential discrepancy has also been reported by Essau et al. (2011) in their study with adolescents aged 12 to 17 from Cyprus in Greek version of SCAS. Such meaning equivalence issues should thus be emphasized when adopting Western established measure in other countries.

To sum up, results from this study on adolescent anxiety support the hypothesis proposed earlier in this chapter, as the overall levels of anxiety among Mainland Chinese samples were higher than those in the previous studies with Western counterparts (e.g., Muris et al., 2000; Essau et al., 2002; Spence et al., 2003). Comparisons with previous local evidence further reassured that during the primary to middle school transition, girls experienced higher levels of anxiety (Zhao, Xing, & Wang, 2012). It seems that Chinese socialization practice may exert influence on anxiety in general. Taken together, results in general replicated previous studies, with cross-cultural differences identified as well. However, more studies are needed to explore cultural context and environmental experiences that account for the high rates of anxiety in China, especially among children in primary school.
9.5.6 Depression

The overall mean score of depression based on Beck Depression Inventory-II in this study was between 9.36 and 9.76⁹, within minimal depression severity range designated by the BDI-II technical manual (Beck et al., 1996). In Wang and Gorenstein (2013)’s comprehensive review of the psychometric properties of the BDI-II in both clinical and non-clinical samples, the mean score ranged from 5.1 to 38.4. Since sample standardization is not demographically representative of the population and little evidence has been provided regarding the gender and culture fairness of the items and total score, the original authors recommended development of local norms. On this account, when compared with previous results from local studies on depression among adolescent girls, the findings in this study were slightly lower. For example, in Wu (2010) as well as Wu and Huang (2012)’s studies, the overall depression scores were 12.2 and 13.0, respectively.

The relatively low depression rates found in this study could be attributed to a few reasons. First, a recent cross-national epidemiological study of depression by Bromet and colleagues (2011) revealed that people in low- and middle- income countries tend to feel less depressive than high-income countries. China demographically belongs to developing countries with low income, and it thus fit Bromet’s model, however, the associations of demographic attributors and depression rates in specific countries are still unclear. Second, despite demographics factors, researchers are now working on good evidence that Chinese people might be genetically less susceptible to depression (e.g., Flint & Kendler, 2014).

Longitudinally, the overall depression scores showed no significant changes. This is in contrast with the Western norms of dramatic increases in depression during adolescence as reviewed in Chapter 4 and recapped above (e.g., Keenan, Feng, Hipwell, & Klostermann, 2009). However, since the BDI-II was built on non-theoretical assumptions, researchers often choose factor analysis to account for variance in test performance and determine which psychological events make up test performance. Besides reducing the items to

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⁹ The mean score was generated from 20 items out of the 21 item BDI-II, while results from cited literature were obtained from items, therefore, caution should be made when making comparisons between studies; see Chapter 5 Method for details of measurement adjustment and rationale.
explain the structure of data covariance, factor analysis can also determine how and to what extent selected items cluster on one or more factors, which may provide more accurate information on the examined construct. In this study, factor analysis showed a robust dimension of general depression composed by two constructs: cognitive-affective and somatic aspects. This two-factor construct is in agreement with Beck (Beck, et al., 1996)’s construct using the means of exploratory factor analysis, as two oblique factors, represented by the cognitive-affective and somatic dimensions. Further evidence for the two-dimensional structure includes studies based on nonclinical samples using a different language version of the BDI-II (Dozois, Dobson, & Ahnberg, 1998; Gorenstein, Wang, Argimon, & Werland, 2011). Confirmatory factor analysis also reported two-dimensional structure replicated the model-fit based on exploratory analysis empirically across studies (Dozois, et al., 1998; Uslu, Kapci, Oncu, Ugurlu, & Turkcapar, 2008). Meta-analysis of selected empirical studies on this factor structure of the BDI-II concluded that much of the data variability can be attributed to the common dimension of severity of depression and the other part to somatic symptoms (McPherson & Martin, 2010). Taken together, the consistency of the obtained solutions seems to support the proposal of the Diagnostic and Statistical Manual of Mental Disorders—Fourth Edition (DSM-IV), which suggests the cognitive-affective symptoms are central to making the diagnosis, supplemented by the somatic symptoms in the assessment of depressive syndrome.

On this account, in this study Factor 1 the cognitive-affective aspect shows developmental increase, which is consistent with Western findings on the prevalence of depression in adolescents. Factor 2 the somatic aspect reveals decline over time, and it is, however, in keeping with the longitudinal trend reported above on psychosomatic symptoms (see result session within this chapter). To explain the increase in the cognitive-affective aspect of depression therefore may draw upon theories from previous literature (see Chapter 4). Another explanation is sample specific. Adolescent girls in this study were mainly recruited from above average primary and middle schools in general. This group of adolescent population may enjoy higher than average self-concept in primary school. However, as they transfer into junior high school, according to Marsh and Parker (1984), they might feel more depressed when derived from within-school comparisons that do not benefit from the “big fish little pond” effect. In other words, as they transferred into new junior high
school, they might no longer find themselves the “big fish” in a pond with fish of similar size. Plausible reasons for the decline in somatic aspect of depression may refer to discussions on the longitudinal changes in overall psychosomatic symptoms.

Nevertheless, despite the two-factor construct, it should be noted that some researchers reached different factor construct with different item loadings (e.g., Byrne, Stewart, & Lee, 2004; Wu & Huang, 2012). For example, some studies have suggested that the structure of BDI-II can be best described as three-dimensional, distributing the cognitive-affective dimension into two distinct factors (e.g., Wu & Huang, 2014; Byrne, et al., 2004). These conflicting findings posited that there are other alternative structural models of BDI-II.

In sum, Chinese adolescents in this study manifested an overall low level of global depression, compared with their age-mates in Western countries and evidence from previous local research. The Western depression literature often suggests life stress (Monroe, et al., 2009) and environmental risk factors (Ge, et al., 2001; Wu, 2009) as attributors to the onset and levels of depression in adolescents. However, this Western norm seems not adequate to explain the low levels of depression found in this study, given the fact that girls seemed to experience stress but do not feel depressed. Demographics and genetic assumptions were therefore introduced from recent literature. Longitudinally, the overall levels of depression showed no developmental change with age or grade. However, a two-factor construct was reached by further analysis. Based on this construct, Factor 1 cognitive-affective aspect of depression was found increased significantly over time, while Factor 2 somatic aspect declined significantly.

9.5.7 Coping

In this study, Emotional regulation (87.0%), Problem solving (85.3%) and Distraction (80.1%) were found to be the most commonly used coping strategies by Chinese adolescent girls. This finding is in line with Skinner and Zimmer-Gembeck (2007)’s study that showed that Support seeking, Problem solving and Distraction are the most often coping strategies in adolescence. However, in comparison, Chinese adolescents seem to utilise more Emotional regulation strategy, while their Western counterparts adopt more Support seeking. Given the high use of Emotional regulation and Problem solving, evidence
in this study questions previous literature on cross-cultural differences in coping strategies which suggests Chinese people may engage in more passive or avoidant coping (Liu, Tein, & Zhao, 2004). This could be explained by the argument that influence of the traditional philosophises on coping in Chinese communities depends on the extent to which the community has been modernised (Chun, Moos, & Cronkite, 2006). More efforts to summarize and synthesize findings based on cultural coping literature are still in need to move the field toward more unified and culturally informed theories of coping.

Consistent with existing literature (Compas et al., 2001; Seiffge-Krenke et al., 2009), longitudinally adolescents in this study reported to use a wider range of coping strategies to deal with stressors. When ratings of individual strategy were summed up over all types of strategies, the average index of use was found to be higher in Time 3 than in Time 1, with Time 2 in the middle. Such developmental changes may contribute to the fact that adolescents are more likely to try alternative strategies when the initial strategy is not effective (Skinner & Zimmer-Gembeck, 2007). Such developmental increase may also result from the changes in cognitive abilities or increased skills in using coping strategies through life experiences. This position is supported by the increase in use of Cognitive restructuring reported in this study. Furthermore, as suggested by Boekaerts (1995), younger adolescents may have less access to peer social support, with peers in this life stage often functioning as a source of stress rather than resource. On this account, it is understandable that in this study there was an increase in use of Social support as coping strategy.

Alongside the increasing use of coping strategies in general, longitudinal changes were also revealed in individual strategy. In specific, a significant decline was found in Distraction and Social withdrawal, and in contrast, increase was found in Cognitive restructuring, Self-criticism, Emotional regulation and Social support. Such developmental increases in the most commonly used strategies (e.g., Emotional regulation) suggest that longitudinally adolescents did not appear to replace these major coping strategies with different ones, but added other types of strategies to their battery of coping mechanism. On the other hand, the decline in strategies of Distraction and Social withdrawal suggests that strategies, which might be less effective or socially appraised, tend to be replaced by newly acquired or more sophisticated strategies. Taken
together, the development of coping strategies seems to be a dynamic process in which the coping abilities of the developing adolescent are also growing.

Nevertheless, it is difficult to make cross-cultural comparisons between findings in this study on longitudinal changes in use of coping strategies with previous literature. This is because studies examined consistency of coping strategies during adolescence indicates both consistency and inconsistency in adolescents’ coping response. Some findings show that coping change from context-to-context, and across phases of the same context (Crocker & Isaak, 1997; Gaudreau, Lapierre, & Blondin, 2001). Other researchers have examined the notion of coping as a dispositional variable, and assume that adolescents possess a stable coping style that predisposes them to cope in a similar manner across situations (e.g., Spirito, Stark, & Williams, 1988). However, data of coping strategy use in this study were based on general stressors at participants’ choice rather than a researcher identified stressor in specific context, which often are the case for other coping research. Therefore, attention should be made in results interpretation. Nevertheless, in spite of individual differences, findings in this study are in line with the general conclusion from previous literature on the account of increase in coping focused on managing emotions (Frydenberg & Lewis, 2000).

On coping efficacy, girls reported highest average overall scores in Cognitive restructuring, Problem solving, and Distraction. This ranking resonates the results from coping strategies, where the most commonly coping strategies were Emotional regulation, Problem solving and Distraction. This consistency might reflect Lazarus and Folkman (1984)’s stress adaptation model, where perceived efficacy should increase the use of strategies that are expected to be effective, and if successful, use of these coping strategies should further increase perceptions of coping efficacy.

Longitudinal changes in coping efficacy were also identified in various individual strategies between different time points. In specific, declines were found in Distraction; while Social withdrawal, Problem solving, Wishful thinking, Social support, and Resignation were reported with increasing efficacy. Increase of coping efficacy in multiple strategies was mostly reported between Time 2 and Time 1. Despite the differences in these strategies, the increasing trend could be explained through the perspective on coping efficacy derived from the motivational theory of stress and coping (Skinner & Wellborn, 1994, 1997).
From this perspective, outcomes of coping affect coping efficacy beliefs, and coping efficacy beliefs in turn affect future coping behaviours. People appraise stressful events as a challenge or a threat to their need for competence and engage in coping to restore or maintain their ability to meet this need. The transition time may put adolescents under stress, however, as reported earlier in Chapter 7, students in this study revealed an overall positive transition experience. Thus when taking positive transition experience as the outcome of adolescent girls’ coping efforts, it in turn affects and in this case enhances their coping efficacy. Furthermore, increases of coping efficacy in Social withdrawal, wishful thinking, and Resignation (strategies which are often grouped as negative coping behaviours, in contrary to Problem solving and social support) could be explained through Chinese cultural norms. As reviewed in Chapter 4, Chinese culture values harmony with and interdependence in the family and with friends (e.g., Oyserman, Coon, & Kemmelmeier, 2002), withdrawal coping strategies may be more efficient (Nelson & Chen, 2007). Therefore, although the use of active, approach-oriented coping strategies is often related to higher coping efficacy in Western countries (Seiffge-Krenke, et al., 2009; Skinner & Zimmer-Gembeck, 2007), this might not be true in China.

To sum up, research statistics suggest exposure to stress is a normative aspect of childhood and adolescence. However, findings in this study suggest that most adolescents display several strategies for adapting to these stressors, but that there are significant developmental differences in coping during adolescence. These findings address the issue of which types of coping behaviours increase and decrease in relative frequency and the timing of such changes in the primary to junior high school transition process. Findings suggest that adolescents develop new coping strategies that increase the flexibility and range of responses to stress. This is significant because such change is likely to enhance resilience and lead to adaptive outcomes as adolescents experience varied sources of stress during this period.

9.6 Conclusions and implications for thesis

A few conclusions can be drawn from results in this study on Chinese adolescents’ mental health and wellbeing. Generally speaking, sample in this study report lower scores in Global life satisfaction, Psychosomatic symptoms, and Depression. Thus they seem to appraise certain aspects of their lives in a
negative way, and yet do not seem to suffer in terms of mental health difficulties. However, Loneliness and Anxiety levels were found higher in this study. Rates on other constructs were compatible to Western literature and previous research in local studies. Both universalities and differences were identified in the developmental changes of these constructs. In specific, Psychosomatic symptoms, Loneliness, and Anxiety improved over time. Global life satisfaction and Depression maintained stable. Increases in Coping strategy utilizations and coping efficacy were also reported longitudinally. Taken together, based on the evidence in this study, it is hard to apply the West norm of early adolescence and primary to junior high school transition difficulties to this sample. On the contrary, research attention on mental health during adolescence should be directed to students in final years of primary school, when girls seemed most stressful.

The final chapter of this thesis, Chapter 10, draws together the results of Chapter 6 on the interrelations of all the variables in this study together with three empirical chapters on longitudinal changes of these variables as reported in Chapter 7, 8, and 9, in an attempts to resolve three key research questions to examine longitudinal changes in Chinese adolescent girls’ physical growth, social contexts, and mental health. The practical implications of the findings reported in this thesis and suggestions for future research will also be considered.
CHAPTER 10 GENERAL DISCUSSION

10.1 Aims of this thesis

The aim of this study was to examine whether the prevailing Western hypothesis that early adolescence is difficult and stressful period of time applied to Chinese adolescent girls. The fundamental aim was therefore to investigate the timing and nature of key adolescent transitions among Chinese early adolescent girls. Therefore, three main research questions were formulated to examine the longitudinal changes in early adolescents’ physical growth, social contexts, and mental health (see Figure 10.1)

The purpose of this final chapter is to draw together findings from the results chapters (Chapter 6-9) based on separate analysis presented in this thesis to illustrate an overall picture of Chinese early adolescents’ development and their transitional experiences, and to respond to the “storm and stress” hypothesis (Hall, 1904).

Results of longitudinal changes in each domain from this study revealed both consistencies with those of other researchers, but also provide unique insights into developmental patterns of Chinese adolescent girls.

![Figure 10.1 Longitudinal changes in early adolescent girls’ physical, social, and psychological domains during the transition from primary to junior high school](image-url)

---

Time 1
Pre-transition
Physical growth
Social contexts
Mental health

Time 2
During transition
Physical growth
Social contexts
Mental health

Time 3
Post-transition
Physical growth
Social contexts
Mental health

The transition from primary to junior high school
10.2 Longitudinal changes in physical growth

In response to the first research question, longitudinal changes in adolescents’ physical domain revealed that throughout the transition sample in this study were experiencing progressive changes in multiple indicators of their physical growth, especially in the periods of time between primary and junior high school (T1-T2, T1-T3; see Table 10.1).

Table 10.1 An overview of longitudinal changes in key indicators of adolescents’ physical growth

<table>
<thead>
<tr>
<th>Physical growth</th>
<th>T1-T2(\textsuperscript{10})</th>
<th>T2-T3</th>
<th>T1-T3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pubertal development</td>
<td>↑</td>
<td>↑</td>
<td>↑</td>
</tr>
<tr>
<td>Body change</td>
<td>↑</td>
<td>↑</td>
<td>↑</td>
</tr>
<tr>
<td>Body size</td>
<td>↑</td>
<td>↓</td>
<td>→</td>
</tr>
<tr>
<td>Dieting behaviour</td>
<td>↑</td>
<td>↑</td>
<td>↑</td>
</tr>
<tr>
<td>Perceived looks</td>
<td>→</td>
<td>→</td>
<td>→</td>
</tr>
<tr>
<td>Care about height</td>
<td>↑</td>
<td></td>
<td>↑</td>
</tr>
<tr>
<td>Care about figure</td>
<td>↓</td>
<td>↓</td>
<td>↓</td>
</tr>
<tr>
<td><strong>PASTAS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td>↑</td>
<td>↑</td>
<td>↑</td>
</tr>
<tr>
<td>Legs</td>
<td>↑</td>
<td></td>
<td>↑</td>
</tr>
<tr>
<td>Eyes</td>
<td>↑</td>
<td>↑</td>
<td>↑</td>
</tr>
<tr>
<td><strong>PACS</strong></td>
<td>↑</td>
<td>↑</td>
<td>↑</td>
</tr>
<tr>
<td>Positive feelings about own gender</td>
<td>→</td>
<td>↓</td>
<td>↓</td>
</tr>
<tr>
<td>Act like opposite sex</td>
<td>→</td>
<td>↓</td>
<td>↓</td>
</tr>
</tbody>
</table>

Pubertal development was at height. Alongside, adolescents also expressed increase in dissatisfaction with their body (body change, “would like something about their body to change”); were more likely to perceive themselves fat (body size), have dieting behaviour, care more about their height and figure; they also showed growing concerns with separate body parts, especially their height, legs, and eyes; in social occasions, they were more prone to compare their physical appearance to others (Table 10.1). Taken together the evidence, adolescents in this study showed increasing self-consciousness about their body in the process of their physical maturation.

\(\textsuperscript{10}\) T1 (Time 1) refers to first phase of survey at the end of primary school in Grade 6, T2 (Time 2) refers to the second phase of the survey at the beginning of junior high school in Grade 1, and T3 (Time 3) refers to third phase of the survey at the end of junior high school Grade 1.

\(\textsuperscript{11}\) ↑ indicates increase; → indicates no change; ↓ indicates decline; relevant statistics in details were reported in empirical chapters 7-9.
This is in line with previous research in both Western and Chinese adolescent populations. However, in contrary to most previous research evidence in the West, which often suggests a developmental increase in prevalence of overweight and obesity, a significant decline was found in this sample at post transition time. Interestingly, no longitudinal change was found in adolescents’ perceived looks (good-looking or not good-looking), and it is the only indicator in their physical domain that stayed stable over time. Regarding gender issues, in junior high school (Time 3), adolescents in this study reported decreased positive feelings about own gender and less likely to act like opposite sex, which indicate potential pressure of gender roles.

10.3 Longitudinal changes in social contexts

Concerning Research question 2 on the longitudinal changes in adolescents’ social contexts, on the whole, empirical data indicated that adolescents’ family and peer contexts did not showed much longitudinal changes over time, while results suggested a positive transition experience following adolescents’ academic transfer from primary to junior high school (Table 10.2).

Longitudinal changes of individual indicator further revealed that quality of attachment relationship with parents was stable over time. This finding was in contrast to the frequently reported developmental decline of parents’ attachment in Western literature (e.g., Keijser et al., 2010). However, parents of adolescents seemed involved less and less in their children’ school work over time, with highest involvement reported at the end of primary school, and declined throughout the transition. Such developmental trend agreed with findings from previous research in both China (e.g., Chou, 2000) and the West (e.g., Hill & Tyson, 2009).

In peer context, no significant changes were found in adolescents’ quality of attachment relationship as well as peer norms (peer norms regarding academic excellence). Stability in attachment relationship during adolescence has also been reported in previous research among Chinese adolescents and their Western counterparts (Chen et al., 2007). However, due to the lack of evidence in longitudinal changes of peer norms, comparative data of results from this study and others’ were unclear. However, drawing evidence from peer socialization literature (e.g., Hartup, 2005) and interpersonal attraction theory (Huston, 2013), adolescents tend to affiliate with peers of similar
characteristics and best friends often share similarities. On this account, it seems logical that adolescents would expect their close friends share the same norms, especially for academics.

Table 10.2 An overview of longitudinal changes in key indicators of adolescents’ social contexts

<table>
<thead>
<tr>
<th>Social contexts</th>
<th>T1-T2</th>
<th>T2-T3</th>
<th>T1-T3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent attachment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trust</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alienation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parents involvement in school</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peer attachment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trust</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alienation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peer norms regarding academic excellence</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School satisfaction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Affect at school</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Academic achievement</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pressure from schoolwork</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classmate support</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School safety</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Being bullied</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bullying others</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher-student relationship</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School achievement goals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School emphasis on ego goals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School emphasis on task goals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal achievement goals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal ego goals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal task goals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School involvement</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absenteeism</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disruptive behaviours</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School adaptation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peers relationships</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conflicts with authorities or older students</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Academic pressure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Substance abuse</td>
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</tr>
</tbody>
</table>

Following the transition into junior high school, longitudinal changes in school settings revealed that adolescents perceived the school climate in junior high school was more positive than that in their primary school. Evidence was drawn from increasing affect at school, less pressure from schoolwork, less
being bullied, improved relationships with teachers, and less school emphasis on ego goals while task goals were more encouraged. Meanwhile, longitudinal changes in adolescents’ school achievement goals showed a decline in ego goals and an increase in task goals. Such pattern of changes in adolescents’ personal achievement goals resonated that in their perceived school emphasis on achievement goals, indicating possible correlational changes between these two constructs. In other words, the perceived school emphasis on achievement goals may influence their students’ personal achievement goals. In addition, the direction of change in both school emphasis and personal achievement was different from that in Western literature, which often reports changes of opposite direction. Adolescents’ behaviours at school showed an improvement by the end of junior high school in absenteeism, while self-reported disruptive behaviours maintained the same level over time. Again, results of developmental changes in these school behaviour indicators revealed both similarities and differences. The longitudinal decline in school involvement was consistent with Western research (Holas & Huston, 2012), while the decline in absenteeism and disruptive behaviours were in contrast to research evidence based on Western populations, whereas developmental increase in these two constructs are often the norm in middle school (e.g., Arens et al., 2013). Last, school transition adaptation problems regarding peers relationships, conflicts with authorities or older students, and academic pressure were reported to be smaller than expected before the transition. Although an increase in problems with substance abuse were found after the transition; it was perceived not to be a problem or a small problem. Overall, results of longitudinal changes in school contexts were in contrast to that in Western literature, whereas a reverse trend was often reported (e.g., Akos & Galassi, 2004) and the transition from primary to junior high school often considered as a mismatch for adolescents’ developmental needs (e.g., Baker, 2006).

10.4 Longitudinal changes in mental health

Following the investigation of longitudinal changes in adolescents’ physical and social domains, Research question 3 focused on adolescents’ psychological domain in transition time. Results showed that longitudinally global life satisfaction stayed stable, which was inconsistent with the general decline reported across many countries (e.g., Diener & Diener, 1995), including
China (e.g., Chang et al., 2003). Overall level of depression also failed to support the developmental decline reported in many Western studies among adolescents (e.g., Goldbeck et al., 2007). Apart from the stability in these two indicators, developmental declines were found in self-esteem, psychosomatic symptoms, loneliness, and anxiety. In specific, the decline in self-esteem found in this study was in line with previous research among both Chinese (e.g., Leung & Zhang, 2000) and Western adolescents (e.g., Goldbeck et al., 2007), within or without the co-occurrence of primary to junior high school transitions. On the other hand, declines in psychosomatic symptoms, loneliness, and anxiety indicated that these symptoms and difficulties improved over time. Again, declines in these constructs disagreed with the developmental increases reported in Western literature (e.g., Nangle, et al., 2003). Throughout the transition, emotional regulation, problem solving, and cognitive restructuring were the most frequently used coping strategies, with emotional regulation was used increasingly more often over time. Considering coping efficacy, cognitive restructuring, distraction, and problem solving ranked at the top. Although distraction was revealed as heavily used strategies with high efficacy, longitudinally, it was less used in the post transition time and with reduced efficacy. Despite the longitudinal changes in adolescents’ coping, the slight discrepancies between the usage of strategy and resulting efficacy (the most often used strategies differed from the ones which were perceived as most effective), indicated that adolescents may not opt for certain coping strategies based on their efficacy (e.g., Rice, Herman, & Petersen, 1993). To combine the evidence of longitudinal changes in multiple mental health indicators, adolescents in this study maintained an overall stable psychological wellbeing, if not improved.
Table 10.3 An overview of longitudinal changes in key indicators of adolescents’ mental health

<table>
<thead>
<tr>
<th>Mental health</th>
<th>T1-T2</th>
<th>T2-T3</th>
<th>T1-T3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Global life satisfaction</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency of happiness</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Self-esteem</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Global self-esteem</td>
<td>↓</td>
<td>↓</td>
<td>↓</td>
</tr>
<tr>
<td>Scholastic performance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social competence</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Athletic competence</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical appearance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Behavioural conduct</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Psychosomatic symptoms</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Difficulties in getting to sleep</td>
<td>↓</td>
<td>↓</td>
<td>↓</td>
</tr>
<tr>
<td>Tiredness</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Loneliness</strong></td>
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<td></td>
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<tr>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Anxiety</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generalize anxiety</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Panic attack and agoraphobia</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Separation anxiety</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Physical injury fears</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social phobia</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Obsessive compulsive</td>
<td>↑</td>
<td></td>
<td>↑</td>
</tr>
<tr>
<td><strong>Depression</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cognitive and affective</td>
<td>↑</td>
<td></td>
<td>↑</td>
</tr>
<tr>
<td>Somatic</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Coping strategy</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional regulation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Problem solving</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distraction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Coping efficacy</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cognitive restructuring</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distraction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Problem solving</td>
<td>↑</td>
<td></td>
<td>↑</td>
</tr>
</tbody>
</table>

10.5 Synthesis of results: “Storm and stress” reconsidered

The divisions of the above sessions (physical, social, psychological aspects) were guided by developmental theory as one way of understanding adolescent development. However, such division may lead to the consequence of being difficult to understand the adolescent as a whole and integrated being. It therefore should be cautioned that such division on adolescent development in different domains does not mean these areas to be seen as on equal and separate component of development, rather, hierarchical and as interacting.
More importantly, according to Gestalt theory, the whole is different from the sum of its parts (Koffka, 2013). With such recognition, results in this study would provide a more comprehensive understanding on the role of adolescent transitions in the developing child’s life course, than if either one of these domains would have been examined in isolation.

Nevertheless, taken together, results in adolescents’ physical growth, social contexts, and mental health provided little support to the idea of early adolescence as a difficult transition time (Table 10.1, 10.2, 10.3). As reviewed in Chapter 1, adolescence has long been portrayed as a time of ‘storm and stress’ (Hall, 1904). It has been widely referred to in the Western literature on adolescent development in supporting the notion of adolescence as a stressful and troubled period of time (e.g., Hines & Paulson, 2006). Much of the early research on adolescence focused on testing this commonly accepted premise (see Cote, 2013 for review). However, findings from this study challenge this view.

To reconsider the theory of “storm and stress”, much of the early research on adolescence was based on those adolescents whose behaviours were likely to cause attention, therefore confirming the view of a non-diverse population of adolescents engaged in stormy and stressful behaviours. More recently research has re-examined adolescent moods and behaviours and does not tend to support “storm and stress” as universal and inevitable (Laursen, Coy & Collins, 1998). Instead, studies on normative outcomes of adolescent transitions are becoming the research centrepiece.

10.6 Understanding the longitudinal changes in this study and their theoretical implications

Plausible reasons to the longitudinal changes within each domain have been discussed in details and presented in empirical chapters (Chapter 7-9). In this section, efforts are made to integrate research findings into a theoretical model and speculate implications in relation to previous research.

10.6.1 An integrated theoretical model

Transitions in adolescence are created over time and are critical in the adolescent’s development. It is based on such understanding that this study focused on examining the longitudinal changes in multiple domains of the
adolescent to reflect their development. In this line, theoretically this study was largely guided by the bioecological model and biopsychosocial approach (Bronfenbrenner & Morris, 2006; Magnusson & Stattin, 1998, 2007). In particular relevant to the chronosystem within the bioecological model by Bronfenbrenner (2005), which emphasizes factors in time, patterning of contextual events, and transitions over life course.

With physical and psychological domains together represent the adolescent, whereas social contexts represents the environment, the dynamic, interacting, and hierarchical relationships between this dyad can be interpreted and understood in the Taosim symbol of yin (the black part) and yang (the white part; Figure 10.2), to motivate the contemplation (see also Roeser, Eccles, & Sameroff, 2000). In so doing, the yin and yang symbol simultaneously places the adolescent and the environment on an equal footing and ranks them hierarchically, where yang occupies the higher position, yin the lower. The direction of flow is marked by changes, making it inevitable that yin and yang alternate and therefore crucial to seek harmonious balance between the two. It is therefore in the process of seeking the balance and harmonies that answers can be found to the question why some adolescents have difficulties during the transition, whereas other do not.

![Figure 10.2 Tao of adolescent development: the constitutive nature of the adolescent and the environment](image)

In relation to the original meanings and relations represented in the yin-yang symbol, findings in this study were further discussed and delivered four main messages in understanding Chinese adolescent development.
10.6.2 Change is universal: Developmental and normative principles

The nature of \textit{yin} and \textit{yang} flows and changes with time. In this study, longitudinal changes were identified in the majority of indicators within the physical, social, and psychological domains of adolescents. This overall pattern of change indicates a dynamic view of adolescent development during this time period with changes occur not only in the adolescent (physical growth, mental health) but also in the environment (social contexts).

Furthermore, as summarised above, results in this study suggested an overall positive transition for Chinese adolescents, although there were also wax and wane across indicators along the way (see Table 10.1, changes between each two time points were not always pointing to the same direction). This further supports the idea that adolescent development is not a linear; it grows, stagnates, moves downwards, develops, and eventually spiral upwards to maturation and development. Results in this study on the developmental changes in adolescents’ physical growth, stability and positive experiences in their social contexts, as well as improved mental health, together provide evidence to the fact that despite the differentiation and increasing complexity, adolescent development as a result of biological and cultural evolution proceeds in a direction of increasing adaptability towards survival or the desired outcome within the environment, and in this case, China.

As aforementioned, changes took place not only in the adolescents, but also in the environment. Apart from the evidence of adolescents’ positive perception and experiences of the transitions in their social contexts, further support can be speculated from changes in the contexts on their own account. In specific, as seen in Table 10.2, parents’ involvement in adolescents' schoolwork decreased over time and such trends is persistent. Along the same line, school achievement goals emphasise more on task goals (the goal to learn, to master, to develop and improve ability), and less on ego goals (the goal to demonstrate, to perform, and to prove ability). To set aside the real life pressure from transitioning into schools of chosen which confronted by all adolescents in the last year of primary school (see Chapter 1, 3; this will be discussed further later within this chapter), such changes in parents and school contexts reflected the age-graded expectations or “developmental timetables”. According to developmental theories most crystallized in Piaget’s work (but others also, see Beilin & Pufall, 2013), both everyday and professional conceptions of the
developing adolescent are dominated by their aged body. Their development is understood as a natural staged trajectory leads into adulthood. Although such understanding received challenges from others, the roots of this belief runs deep and integrate with the physiological demands of clinical and the logistical demands of a society based on hierarchical distribution of provision. In relation to the changes found in this study on parents of their school involvement decline and on schools of their increasing emphasis on task goals in junior high schools both serve as evidence which can be witnessed in the everyday interactions of the adolescents’ social contexts where stratification and disciplining of the adolescent is achieved through the marking out of levels and stages of competence, essentially measured in relation to the progress of chronological age and achievement of developmental tasks. Within each age-grade structure, there is a set of normative expectations on cognitive or behavioural development of the adolescent relating to their age, stage and phase, by which they will be judged and judge themselves. Therefore, apart from the age influence, the transition from primary to junior high school not only represents the academic institution change, but also cast influence on demands and competence of the adolescent, with higher level of school grade represents higher competences and skills in the adolescents. This is a powerful discourse in the Chinese child rearing and educational practice (see Chapter 1). The young persons were often classified as children when they were in primary school, with parents and teachers displaying strong authorities, high involvement, and clear demands. While in middle school, these young people started to be regarded as “grown-ups” who were expected to have and display higher cognitive and behavioural competence, with parenting practice shifting from being controlling and close monitoring to being more authoritative, and middle schools often begin to install the belief in students that learning is more important than performing (although this seems not beneficial in the exam-orientated system).

Taken together, longitudinal data in this study sent a clear message that adolescent development is a dynamic process, with changes in both the adolescent and the environment.

10.6.3 Adaptation is critical: The fit between adolescent and environment

When change is universal, it is inevitable that yin and yang alternate penetrate, and seek a harmonious balance between the two (Figure 10.2). Coming in
terms of results in this study, although adolescents were experiencing the same universal changes in their physical growth, re-establishing their relationships with parents and peers, adapting into new junior high schools as their Western counterparts do, these transitions did not seem to place the adolescents in this sample in a more vulnerable situation and cause negative outcomes, whereas the same transitions often made adolescence in the West a stormy and stressful period of time (see Chapter 1), and several international studies all refer to this transition as a time when students are particularly vulnerable and may easily become disengaged at school. With such controversial pictures in view, one may easily raise the question that, why?

In line with the original meaning of yin and yang as mentioned above, optimal development of adolescence involves the overall configuration of the adolescent’s characteristics and needs (the adolescent), as well as the contexts and social ethos of families, peers, schools, and wider communities (the environment) during a particular moment in history (time; chronosystem). With such understanding in mind, answers to the above question may lie in the quality of fit between the developmental needs of the adolescents and the nature of the environments where these transitions took place. Indeed, research in the Western context on adolescent transitions often suggests middle school environment mismatches the developmental needs for adolescents, thus leads to negative outcomes (e.g., Eccles & Midgley, 2002; Bronfenbrenner & Morris, 1998). In the same vein, the good fit in this study contributed to the positive transition outcomes. To recap findings in the longitudinal changes in school contexts, for example, junior high schools were perceived as having better school climate, in terms of adolescents’ increased affect at school, having less pressure from school work, less being bullied, and improved teacher-student relationships. Junior high schools were also reported to emphasize less on ego goals and instead focus on encouraging task goals, which in return will contribute to reduction of competition between students in the peer groups. Adaptation problems in junior high school were also reported to be smaller than expected prior to the transition. In a word, Chinese adolescents in this sample revealed a more positive image of the junior high school as their developmental context, compared with that in their primary school. Such better fit in turn will promote positive outcomes for their transitions in adolescence. Therefore, results in this study offered the other side the story to Eccles and Midgley’s (2002) mismatch found in Western middle schools, and indicated that good fit
between adolescents’ need and the opportunities provided by their environments produce positive outcomes. To sum up, it is not the transition during this life stage itself that matters, but the adaptive nature of the transition; in other words, the fit between the adolescent and their environment.

10.6.4 Timing is not everything

Timing mainly refers a timetable of when a specific transitional event occurs (Ge et al., 2011). Results from this study on pubertal timing revealed a different view towards early pubertal timing. In specific, early pubertal timing seems favourable among girls in this sample. Although early pubertal timing has been widely studied and implicated as a risk factor for multiple negative outcomes including mental health problems, delinquency, body dissatisfaction, and substance abuse (e.g., Caspi et al., 1993; Ge & Natsuaki, 2009), little is known about how the adolescent girls perceive early pubertal timing.

Results in this study therefore raise the question of reconsidering the role of early pubertal timing in adolescent girls’ development: is early pubertal timing harmful? It should be noted that early pubertal timing (also referred to as early puberty) in this text refers to pubertal development compared with peers of similar age, and is different form precocious puberty (the appearance of signs of pubertal development at an abnormally early age). In agreement with findings from this study, some researchers (e.g., Skoog, 2008) found that early developing girls who felt more mature than their classmates, and who were not particularly involved in romantic relationships at an early age, were characterized by having the least problematic parent relations and a low level of problem behaviour in adolescence. Thus, the psychosocial implications of early pubertal timing seem to differ depending on other conditions in adolescent girls’ lives. Whether these contribute to the reason that girls in this study seem to favour early pubertal timing needs further investigation.

In this line of reasoning, good evidence can be found that the potential adverse effects of early pubertal timing among girls are mediated and moderated by socialization. Mediators include not only peers, but also parents. For example, some researchers suggested that girls mature early associate with older and male peers who expose them to risky behaviours (e.g., Ge, Brody, Conger, Simons, & Murry, 2002); early developing girls’ external behaviours have been
linked to parents’ use of harsh inconsistent discipline (e.g., Mrug, Elliott, Gilliland, et al., 2008). Moderators include social context, for example, early developing girls living in disadvantaged neighbourhoods were more likely to affiliate with deviant peers (Ge, et al., 2002; Ge & Natsuaki, 2009).

Taken together, it seems logical to conclude that it is not the timing which poses the potentials for risk, but the failure to cope and effects of other mediators and moderators (e.g., previous problem behaviours before puberty, influence of social contexts). Results in this study hold the same position as argued by Skoog (2008), that, early pubertal timing is better to be viewed as a non-pathological process, rather than “being a result of a pathological process, the link between early puberty and problem behaviour is a consequence of normal process” (p. 79).

10.6.5 Adolescents as agent of their development

Although casual relations between variables were not examined in this study, given the number of indicators with directional changes, it is logical to speculate that these changes did not happen by chance, but directed by the adolescent as their own agent. Evidence can be drawn upon (might not limit to) body image alteration behaviours, improvement in mental health difficulties, and emphasis on school success.

First, results in this study on longitudinal changes in physical growth indicated increasing body dissatisfaction, and adolescents also reported an increase in dieting behaviour and clothing comparisons (see Chapter 7; see also Table 10.1). Dieting behaviour has often been linked with body image improvement worldwide (e.g., Paxton, et al., 1991). On the other hand, the growing interest in comparing their clothing with peers in social occasions can be understood with Rudd and Lennon’s model (2001; Chattaraman, Lennon, & Rudd, 2009), which posits that clothing not only creates the appearance as part of the image of the body, but also allows the individual to actively manage their physical appearance through tools such as clothing (to enhance the image). Research in the West also reports findings on clothing indicating that it is used as a form of physical adornment, with girls consider clothing to be of greater importance, as compared with boys (Chattaraman et al., 2009). Local research also supports this view (e.g., Fung, 2000), and some researchers also
extend the management of clothing to dressing for status (e.g., Lam, 1994, as cited in Fung, 2000).

Second, results in this study indicated improvement in psychosomatic symptoms, loneliness and anxiety at post transition time. Although the decline in some of the symptoms may result from adolescents’ gaining in chronological age and experience over time according to the developmental principle as described above (e.g., Masten, 2006), it is hard to exclude the possibilities that adolescents in this process also actively adapt themselves towards better wellbeing.

In addition, during school years, most of the Chinese adolescents’ priority as students is often set upon educational attainment (Leung, McBride-Chang, & Lai, 2004). According to focal theory, adjustment to one change at a time, rather than going through the various adolescent transitions simultaneously, will reduce the stresses caused by the transitional process (Coleman, 1974; 2011). It follows from this line of reasoning that when multiple transitions take place in adolescence, the outcomes therefore depends on the priority they order the problems and the resources and abilities they can use to cope with the problems. Therefore, given the strong emphasis that Chinese school adolescents are socialised to place on educational attainment, it seems logical to speculate that this will buffer the risks posed by other aspects of adolescents’ life.

Nevertheless, speculations based on results from this study and cultural factors are not sufficient to make conclusive statements of adolescents as the agent of their own development, however, such an attempt together with evidence from empirical data will certainly intrigue future research attention towards this topic.

10.6.6 Comments on results

Evidence from this study portrayed an alternate view of the early adolescence in China. However, just as there can be Western misperceptions, it should be cautioned against moving from one extreme to another. Comparing cultural scripts and being aware of one’s own mind set can help to enlighten understanding. While cultural patterns influence behaviours, there are also general principles that underlie the development process, even though their manifestation are different. Furthermore, although this study focuses solely
on Chinese adolescents, it is certainly not the intention of this study to emphasise homogenous ethnic groupings; the focus is not on same inherent characteristics of the adolescent (e.g., Chinese immigrants), but on the adolescent in the context and development in situ.

As a factor of the macrosystem within Bronfenbrenner and Morris (2006)’s bioecological model, culture itself also subjects to changes, and its changing characteristics need to be investigated further. In the light of results in this study, teachers and educators may consider distinctive patterns and common principles, as well as cultural and situational influences, and reflect on their beliefs and practices, rather than assuming such influences, or simply grafting new approaches onto old ones.

Although the concept of adolescence seems to describe in a straightforward way as the period between childhood and adulthood, there is no necessary reason why adolescence should be experienced as an in between moment in life, or as a stage towards something else.

To understand youth as a period of transition, or a series of transitions, does help to understand the reality of the lives of some young people. However ideas about youth associated with transition or even with youth as a special period of freedom, refer to a distinctly modern experience which derived from industrialisation in the West. They do not adequately deal with the different conditions in different types of society. Nor do they distinguish between the different social worlds of young people living in the same geographical and historical space but experiencing very different circumstances. The here and now in which young people live is not just about being young, but about a whole range of personal and social circumstances and issues which can be equally, if not more important than age.

10.7 Research implications

The findings in this study have several implications for schools, parents, and health in relation to policy-making and practice of working with adolescent girls in China.
10.7.1 Implications for schools

Findings in this study have a particular bearing on school policies and reforms, as well as school counselling. The reversed pattern of school transition experience in this study compared with that in the West, highlights that Chinese adolescents experience a poor fit between their developmental needs and primary school environment. Based on results of individual school indicators, it is urgent for education policy and practice to build improved school climate to boost students’ affect at school. There is also a need for primary school to optimise achievement goals emphasis to encourage students develop task goals than focus on ego goals. In particular to better prepare them for the transition into junior high schools, efforts should be made to acknowledge students with information of future junior high schools to reduce their pre-transition worries.

Adolescents’ mental health and wellbeing in school have been drawing increasing attention in China where school counselling has been made available only in recent years. School counsellors should have a good understanding of the multifactorial nature of educational stress and its links to common mental and behavioural problems among students to inform best practice in counselling.

Apart from individual-oriented counselling, school health programs can also help facilitate students’ health in school. However, school programs are less available in China, compared with many other countries. Where offered, programs include direct services, but in most situations they are disease prevention and health promotion entities. With the recognition that results in this study revealed positive transitions in adolescence, this does not mean there is no need for health programs. On the other hand, an approach that is less crisis-driven and more developmentally appropriate is in need. Focus should be given on asset building, promoting resiliency, and offering programs that are less problem focused and offer a better balance between risk and protection.

Adolescents should not be viewed as a universal, decontextualized process of development towards a taken for granted state of maturity, but that which draws attention to adolescents’ engagement with a range of settings, relationships, activities, and skills through which they acquire culturally locate competencies and identities. Initiatives such as these emphasize that
early adolescence policies, services, curricula, and practices take into account circumstances of adolescents’ lives, the material and cultural resources available to parents and communities, as well as their expectations and aspirations for their children.

Based on empirical data from this study, recognizing development as a sociocultural process has important implications for policy, curriculum, and pedagogy (Naughton, 2003). “Developmental niche” has emerged as a key concept, by drawing attention to three components of children’s environment: the physical and social settings they inhabit; the culturally regulated customs and child-rearing practices; and the beliefs or “ethno theories” of parents, teachers and others responsible for their care and development (Super & Harkness, 1986). Therefore, transformations in adolescence education in China too should call for changes in the curriculum, teaching practices, assessment, environment, and teacher training, taking into account a fusion of developmental theories, societal needs, and cultural heritage, so as to create an environment that would enable children to progress and learn at their own level and value the joy of learning.

Last, research findings in Western cultures indicate that the transition in early adolescence has negative consequence for the adolescent’s self-esteem (especially girls), and the later they make the first school transition, the better they are able to cope (Blyth, et al., 1983). Although, the main educational system has adopted the 6-3-3 structure, there are still a small number of schools which are under the K-12 systems. Taken in consideration that China adopts 9 years compulsory education for school-aged children, whether a K-9 structure will reduce the pre-transition pressure for primary school children worth considering, yet needs empirical support.

10.7.2 Implications for parents

Bronfenbrenner’s bioecological system theory holds that the adolescent’s development can be understood within the context of relationships in their environment (Bronfenbrenner, 2005). Parents are significant figures in adolescents’ microsystem (Bronfenbrenner & Morris, 2006) playing an important role in enhancing their children’s competence to face challenges.

Results in this study, as well as previous research findings both reported that parental involvement in their children’s schoolwork decrease as children
become older (e.g., Jeynes, 2014). Early educational involvement is essential, however, it is also important for the adolescents to feel supported throughout their academic career.

Parental sensitivity to children’s manifested emotional or behavioural states should be enhanced. Previous studies found that, when children are overwhelmed by academic stress, informational support is inappropriate, whereas emotional support will be more conductive and helpful. Therefore, parents should be encouraged to express their care and concern.

Competition and social comparison in school is inevitable, and especially in Chinese culture. Therefore, parents should be encouraged to use social comparison in a more constructive way. Special attention should be paid to choosing the model and area for comparison. Comparison with classmates who are academically outstanding may give rise to a sense of self-deprecation. However, observing classmates of similar talent who perform successfully comparable ability may give rise to efficacy belief.

Although results in this study showed no quality changes in parent attachment, on the other hand, at the post transition time, alienation increased and trust dropped down. Changes in these indicators should alarm parents to improve in these aspects. Parents should provide an equal and open communication platform, to build mutual understanding and trust. Only on this ground that adolescents will be willing to disclose their feelings and problems to parents. Previous literature indicates feelings of family obligation in Chinese families (Fuligni, Yip & Tseng, 2002) may lead adolescents to use more indirect forms of information management, such as telling only when asked or avoiding the issue, than do European American youth.

As aforementioned in Chapter 1, the collectivist orientation of Chinese culture means that academic success is not only linked to having more opportunities and social advancement but also relate to family shame and pride (Stevenson & Lee, 1996). Parents are recommended to learn the level demands that their children can tolerant and reflect on positive ways to convey their expectations.

10.7.3 Implications for adolescent health policy and practice

Besides implications for schools and parents, results in this study also generate several implications for health policy and practice.
First, this study provides insights for enriching current psychological theories developed primarily within the English-speaking world. Results may extend understanding and broaden inquiry of human development and behaviour. Most of the research in China has been using the Western theories with the assumption that those theories can be equally applied to Chinese adolescents.

Results in this study should also be considered in light of how Western adolescent development theories have been used. They were formulated in a time of comparative cultural stability. They were primarily psychological theories of the individual adolescent. They did not include information from sociology, anthropology, or economics. They did not include many of the external realities that impinge upon a given individual. But times are changing. Health practitioners in developing countries like China need theories to guide their practices. Sometimes it makes sense for them to borrow theories already developed and used in the West; these have proven useful over time. But it is also important to remember that the situations in which adolescents today finds themselves are quite different from those of adolescents upon whom the original theories were based. Psychological features are important and intra-psychic factors may not change much over time. But the influence of external factors, such as sociology, economic, and cultural change dramatically and interacts with the psychological features of interest.

It is equally important for health practitioners in the West to be aware that the environment of today’s adolescents is different from that of the adolescents in the mid-1900s. They need to be aware of how the adolescents’ intra-psychic structure interacts with the sociological, economic, and cultural changes of Western countries. It is important to remember that with increased globalization, Western countries now include adolescents with a vast array of cultural histories. Current theories may need to be adapted for them as well. As such, theories need to be re-evaluated carefully, both against the experience of adolescents in non-Western countries and against the current experience of adolescents in Western countries.

Health service and programs targeted at adolescents are in needed in China, especially in the Mainland. According to Shek and Yu (2011), validated adolescent prevention and positive development programs are almost nonexistence in different Chinese contexts, with an exception of the Project of P.A.T.H.S. in Hong Kong. In a similar vein as mentioned in the session of implications for school health programs, prevention programs provided by
health sectors should also expand to include not only prevention, but also intervention and promotion. The traditional prevention context, identification of the needs and problems of adolescents forms the basis of prevention programs where such programs are usually developed with reference to the “problems” and “pathologies” of adolescents. Alternatively, positive youth development approach is primarily placed on adolescent developmental assets rather than adolescent problems. According to Shek & Yu (2011), there are several attributes of the positive youth development approach, including but not limited to, 1) emphasis on integrated youth development (e.g., focusing on a range of youth developmental possibilities and problems) rather than dealing with a single youth problem; 2) emphasis of person-in-environment perspective; and, 3) focus on developmental models on how adolescent change, grow, learn and mature. The underlying assumption of positive youth development programs is that, through strengthening of psychosocial competencies in adolescents, adolescent risk behaviour will not be easily developed.

Items relating to the social domains of families, friends, and schools were included as were an array of relevant health promoting and health risk behaviours of contemporary public health concern. The survey design and content acknowledged that how adolescents feel is a valid aspect of their health, and in this respect this study paid attention to adolescents’ everyday symptoms and health complaints, as well as their reflections on their health and wellbeing. Apart from implications based on the overall results in this study, a few specific findings also provide insight into health practice. For example, misperceptions of weight status were identified in this sample, and overweight perception and misperception have important implications for the future development of interventions to treat and prevent obesity to ensure the physical and psychological wellbeing of adolescents. In addition, as suggested in Egan & Perry (2001)’s work, adolescents’ perceptions and attitudes of gender issues should carry implications for their mental health. Adolescents who feel strong pressure for gender typing will be less likely than other children to explore a wide range of options when deciding what interests to pursue to talents to cultivate and therefore will be less likely to settle on options that are maximally fulfilling; this self-limitation should be reflected in a lesser sense of satisfaction with the self (though perhaps not in a lesser acceptance by peers). In addition, children who feel strong pressure for gender
typing may be said to be experiencing conditionality of support – the sense that one must tailor the self in order to receive the love and acceptance of significant others. Conditional support and the false self it fosters are conductive to low self-esteem and depression (e.g., Harter, 1999).

Last, statistical significance has been examined in each studied variable; however, such statistical significance does not necessarily to be considered of clinical relevance. These are two different things. Even though an association is statistically significant, it might only be of modest clinical relevance. Overall, most girls in this study thrive in adolescence, despite multiple transitions. The findings should be interpreted with this in mind.

10.8 Limitations and strengths of this study

This study has several methodological limitations that can be improved in future research to draw more confidant conclusions.

First, sample in this study were recruited from schools within four main districts in Beijing, China. Schools were reached with help from schoolteachers within the researcher’s interpersonal resource rather than random choice. Therefore, there was little educational diversity in this study and might not represent the full ability spectrum of Chinese schools and their students. Also, students in this study should be considered above average regarding their academic performance in general. Including school stratification in future research will enable more detailed analyses. Furthermore, adolescents who do not attend mainstream schools or who are absent form school are suggested not as healthy as their peers who are well engaged in mainstream schooling (Clark, Ringwalt, Hanley, et al., 2010), or at least tend to differ from their peers who attend school. Given the limited access and inequalities in educational resources across the country, there is reason to believe the difference may be even greater between students and nonstudents in China. Moreover, large percentages of Chinese children and adolescents live in rural areas of China, in contrast to big cities such as Beijing, their life conditions, health service, and educational resource are all significantly different (see Chapter 1). Related to the urban-rural difference in adolescent population, migrant children also hold a special place. As described in Chapter 1, the internal migration within China results in more and more migrant children coming to urban cities from their rural home, and under the hukou system of household registration, migrant
children do not have the same benefits as urban children and face many obstacles in their educational and work paths. Taken together, sample in this study may only represent a small percentage of adolescents in China, rather than representing all Chinese adolescent populations, but they may provide an important first look into the effects of culture on the beliefs and behaviours on adolescents in China. This findings from students in Beijing, combined with the potential differences as discussed above, point to the necessity of future work that could examine within culture differences in China, including education, socio-economic status, and geographical regions, and beyond.

Second, data in this study were solely derived from self-report survey. Questionnaires were administered on a number of occasions so as to avoid reliance on a one-off snapshot. However, the self-report nature of measures carries the common problems of potential demand characteristics with possible report and recall biases. Nevertheless, research has shown that self-reports about self-related constructs are usually in broad agreement with objective ratings made by others (Marsh, 1990), and self-report measures are satisfactory in the collection of information on children and adolescents’ internal and subjective processes (Essau et al., 2011). The measures used in this study were selected for their robust psychometric properties in other published works reviewed not only in Western literature but also in local Chinese publications. Self-report measures offer pragmatic tool for data collection from large numbers of participants within the constraints of school settings.

Third, this study represents a specific range of questions, measures, and topics. It is a collision of the interest in the topic, the resource limitations and the availability within the grasp of the researcher. The results should be regarded as illustrative of relevant topics, rather than an exhaustive account of all aspects of adolescent development.

Fourth, the development of the items in the questionnaire was mainly based on reviews of recent English and Chinese literature, and the survey content was therefore mainly based on Western measures developed in English language. No attempt was made to more comprehensively map the construct using grounded theory to explore an underlined model or integrating indigenous constructs. Caution should be given to the interpretation and understanding the results in this study especially when comparing with research based on Western population or local studies stemmed from Chinese
measures. This study should be viewed as a starting point of a continuous process of validation and revision the Western established measures to serve the purpose of Chinese adolescent study. With caution noted, it worth mentioning that efforts were made to find culturally appropriate measures, and subsequent modifications were made to suit sample and research objectiveness in this study (see Chapter 5).

Fifth, the use of single-item scales for capturing various mental health indicators (e.g., global life satisfaction) posed some challenges. Generally, multiple item measures are preferred as they are more reliable and this is important in statistical analyses when errors of variance need to be minimized. However, most of the single-item measures have long-standing use in HBSC and many have been subjected to validation studies.

Sixth, some of the cross-cultural interpretations in discussion of empirical results from this study have been made by implicit comparisons with the existing literature. Future studies that include samples from more than one culture can make direct comparisons in drawing cross-cultural inferences.

Last, due to the exploratory nature of the present study, although a longitudinal approach was adopted to examine the longitudinal changes across variables, causal inferences and interrelationships were outside the scope of this study. Hence future research is needed. This study tracked adolescents across a one-year time frame, tracking students into young adulthood and beyond would provide additional information regarding a fuller process of development during adolescence. Studies of the predictive developmental outcomes with younger age groups would also be beneficial. Discussions of plausible reasons to similarities and differences in empirical results compared with previous Western or local literature mainly based on careful speculations supported with research evidence and theoretical hypothesis, however, it might not be confident in drawing a clear conclusion about the directionalities among the variables examined.

In summary, despite the limitations noted, this study is the first to investigate longitudinal changes in multiple key domains of Chinese adolescent development within a school transition context. It provides evidence and insights for enriching current developmental and psychological theories developed primarily within the English-speaking world. To a larger extent, results in this study revealed an alternative of Chinese adolescents’
developmental account to that of their Western counterparts ("storm and stress", Hall, 1904), therefore, this study may extend understanding and discussion on the cultural influence on adolescent development (e.g., Tov & Diener, 2007), and further broaden inquiry of human development and behaviour. These results are promising as they not only increase the generality of many established models but also help to identify culturally relevant and more meaningful factors that could contribute to understanding, facilitating, and promoting Chinese adolescents in particular. The strength of this study also includes, but not limited to: first, questions of the questionnaire were carefully selected and adapted, written in child-friendly language, with structure and sequence of questions carefully considered, and was carefully piloted among target participants before commence of the survey. Second, the parameters investigated in this study range from the biology to the sociocultural. Adolescent development was studied in physical, social, and psychological areas. To these ends, this thesis demonstrates breadth of coverage. Third, this study adopted a three phase longitudinal design, and obtained 425 matching empirical data from Chinese early adolescents. With help from participating schools and teachers, the attrition rates were very low and the participating girls were committed and engaged in the research. Fourth, this thesis provides a culturally specific account of adolescent development in China. Fifth, the attempt of integrating Western developmental models into Chinese philosophical symbolism motives better understanding, especially appealing to Chinese audience.

10.9 Future research directions

Despite the efforts in this study and for all the interesting work that has been done to date, there remain many new and exciting avenues and theories to explore in regard to development and transitions during adolescence. At this point, a few suggestions for future research can be formulated following this study.

First, this study takes up the debates and controversies on the “storm and stress” hypothesis that have engaged developmental researchers over the last century. Future research that builds on and tests this idea is still needed and encouraged. To do so, assumptions and extrapolations were needed because of gaps in knowledge particularly in developing countries. Equally important are detailed data that have traditionally studied in developed
countries, but have global importance and require more detailed data and quantification in developing regions (e.g., obesity, depression). Furthermore, this study tested three main developmental domains of adolescents, however, as suggested by Keating (1990), models that open the gate of typically closed-system models of thinking, learning, and instruction are still in need. Future research should take this route to integrate more developmental domains and contextual dimensions as well as their interrelations in the process of adolescent development.

Second, in view of the research limitations as discussed above, a few research suggestions would merit future attention. In specific, by using self-report questionnaire this study focused more on the voices of adolescents themselves about their development; however, the transferability of findings could be further strengthened by surveying and interviewing parents, teachers, and the wider community to gain a more comprehensive understanding of adolescent development and outcomes. Furthermore, this study focused on girls alone, and future research includes boys would provide an in-depth comprehension of adolescent development and gender differences in developmental outcomes. Additionally, this study followed participants for a year to capture the primary to junior high school transition, and future research that follows adolescents into their senior school years and beyond would provide information on whether certain developmental changes and transitional effects persist over time. Moreover, while this study built on good practice by using standardised measures with sound psychometric properties, there is a need to develop rigorous culturally specific assessment tools that are sensitive to the development of Chinese adolescents.

Third, in addition to the research models and design, findings in this study point to some interesting open questions and directions that could be explored in future studies. For example, in relation to empirical results of physical growth, there is little evidence of early pubertal timing puts girls at higher risk of poor mental health in this study, although early pubertal timing has been implicated with negative outcomes. Future research is in need to investigate whether cultural differences exist among Chinese girls and their Western counterparts in pubertal timing effects; and if so, what makes Chinese girls more resilient. Likewise, regarding social contexts, future research replicates this study and further investigation of reasons to the stability of parents and friends relationship quality reported in this study would be of benefit to
researchers. Moreover, based on empirical results on school transitions from this study, future research on the mismatch of student’s need and schools in China should direct their attention from following the Western norm on middle school transitions to focusing more on the primary school years, especially the final year. In line with this thinking, research should also broaden the view to investigate whether the pre-transition concerns also exist in other grade-level or school-level transitions (e.g., the transition from senior high to university). Furthermore, with regards to mental health, the absence of both developmental decline in global life satisfaction and increase in psychosomatic symptoms and mental health difficulties in this study, warrants future research on predictors of Chinese adolescents’ developmental outcomes and identifying potential mediating and moderating effects.

Apart from future research suggestions derived from findings in this study, contemporary societal, social, and environmental changes in China also provide more new ideas for doing research with Chinese population in particular. For example, in March, 2014 China started to relax the national policy of one child per family and opted for Two Children Policy in main cities (including Beijing), which will lead to profound changes in family context as the previous One Child Policy. Also in the same year, under the pressure of the inequality in educational opportunities resulted from the practice of parent-initiated school choice and in order to enhance education quality in China, the Chinese government has issued orders to end two practices in schools: school choice and exams. With these changes in view, it is important to interpret the results from this study within certain historical context, and in the meantime these findings are also embodied with more importance in providing potential comparative data for future research on Chinese adolescent development in particular. Furthermore, given the rural-urban difference in China, it offers an ideal context to study whether the levels of modernization will influence the experience of adolescent development. Another fact is that the male and female ratio are different, and there are more males in the society; it will be interesting to investigate whether this will influence girls’ perceptions of themselves (e.g., more self-conscious with their body through man’s gaze, body objectification theory, Fredrickson & Roberts, 1997) and their developmental experience of growing up as a girl (e.g., gender issues and relating societal problems). Additionally, pollutions has been linked to pubertal timing, thus whether climate change and water resource population in China will influence
adolescents’ physical development warrant further research. This list runs long when future research direct its attention to the Chinese population.

10.10 Conclusion

This thesis endeavoured to deliver a comprehensive reference text arguing for a cultural specific account for Chinese adolescent development. The aim of this study is ambitious: it seeks to offer an inclusive overview of adolescent development in China using a multidimensional angle through longitudinal investigation. It takes up the debates and controversies that have engaged developmental and clinical researchers over the past decades (“storm and stress”). The parameters of this study range from the biological to the sociocultural. It is believed that the implications of the information generated via this research will make impact on the study of adolescent health and development.

Although understanding the developing adolescent is important, it should also be noted that the complex process that transcend embedded systems are not isolated or static events, but initiate, sustain, mediate, and terminate dynamic processes in relation to development, health, and wellbeing. Henceforth, the completion of this thesis is rather an end to begin with.


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McCabe, M., & Ricciardelli, L. (2001). Parent, peer and media influences on body image and strategies to both increase and decrease body size among adolescent boys and girls. Adolescence, 36(142), 225-240.


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APPENDIX

Questionnaire
About me

Name:
Class:
School:
Date of birth (month/year):
Height (metre):
Weight (kilogram):

Instructions

There is no right or wrong answer for each question. Please pick the one which describes yourself the best. Please try to answer all the questions according to your real situation. ‘√’ in the box, and please choose only one choice for each single question. Please put the completed questionnaire into the envelope provided and hand it in sealed.
MY BODY

1. According to your physical growth, tick the option which describes your body the best.

<table>
<thead>
<tr>
<th>Would you say that your growth spurt in height ('growth spurt' means more growth than usual):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not yet started to develop</td>
</tr>
<tr>
<td>And how about the growth of your body hair (meaning underarm and pubic hair)? Would you say that your body hair growth:</td>
</tr>
<tr>
<td>Have you noticed any skin changes, especially pimples?</td>
</tr>
<tr>
<td>Have you noticed that your breasts have begun to grow?</td>
</tr>
</tbody>
</table>

2. Have you began to menstruate (started your period)?
   - Yes
   - No

3. Do you think your physical development is any earlier or later than most other girls your age?
   - Much earlier
   - A bit earlier
   - About the same
   - A bit later
   - Much later

4. Is there anything about your body you would like to change?
   - Yes
   - No

5. How much do you care how tall you are?
   - Very much
   - Pretty much
   - Not much
   - Not at all

6. How much do you care about your figure?
   - Very much
   - Pretty much
   - Not much
   - Not at all

7. Do you think your body is
   - Much too thin
   - A bit too thin
   - About the right size
   - A bit too fat
   - Much too fat
   - I don’t think about it

8. Are you on a diet to lose weight?
   - No, because my weight is fine
   - No, but I do need to lose weight
   - Yes

9. Do you think you are...
   - Very good looking
   - Quite good looking
   - About average
   - Not very good looking
   - Not at all good looking
   - I don’t think about my looks
10. The statements below are used to describe how anxious, tense, or nervous you feel right now about your body.

Right now, I feel anxious, tense, or nervous about:

<table>
<thead>
<tr>
<th></th>
<th>Not at all</th>
<th>Slightly</th>
<th>Moderately</th>
<th>Very much so</th>
<th>Exceptionally so</th>
</tr>
</thead>
<tbody>
<tr>
<td>The extent to which I look overweight</td>
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<tr>
<td>Whether I am shorter than others</td>
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<tr>
<td>My thighs</td>
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</tr>
<tr>
<td>My hips and buttocks</td>
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<tr>
<td>My stomach and abdomen</td>
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<td></td>
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<tr>
<td>My legs</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>My waist</td>
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<tr>
<td>My ears</td>
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<tr>
<td>My lips</td>
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<td></td>
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<tr>
<td>My wrists</td>
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<td>My hands</td>
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<td>My forehead</td>
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<td>My neck</td>
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<td>My chin</td>
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<tr>
<td>My feet</td>
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<td></td>
</tr>
<tr>
<td>My eyes</td>
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</tr>
</tbody>
</table>

11. Using the scale please select the option which is closest to how you feel:

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Seldom</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>At parties or other social events, I compare my physical appearance to the physical appearance of others</td>
<td></td>
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<tr>
<td>The best way for a person to know if they are overweight or underweight is to compare their figure to the figure of others</td>
<td></td>
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<tr>
<td>At parties or other social events, I compare how I am dressed to how other people are dressed</td>
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</tr>
<tr>
<td>Comparing your ‘looks’ to the ‘looks’ of others is a bad way to determine if you are attractive or unattractive (reverse-scored)</td>
<td></td>
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<tr>
<td>In social situations, I sometimes compare my figure to the figures of other people</td>
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</tbody>
</table>

12. How do you feel about being a girl?
□ Great
□ Good
□ Fair
□ Bad

13. Would you say you act like a boy?
□ Very often
□ Sometimes
□ Not very often
□ Never

This is the end of Part One of the Survey
MY FAMILY AND FRIENDS

1. What are your parents’ jobs? Please describe exactly what they do.12
   My Father: ____________________________ □ I don’t know □ Unemployed
   My Mother: ____________________________ □ I don’t know □ Unemployed

2. How well-off do you think your family is:
   □ Very well-off
   □ Quite well-off
   □ Average
   □ Not very well-off
   □ Not at all well-off

3. Please indicate which statement describes your real situation with your parents

<table>
<thead>
<tr>
<th>Statement</th>
<th>always true</th>
<th>Often true</th>
<th>Sometimes true</th>
<th>Seldom true</th>
<th>never true</th>
</tr>
</thead>
<tbody>
<tr>
<td>If I have problems at school, my parents are ready to help</td>
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<tr>
<td>My parents are willing to go to school to talk to my teachers</td>
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<tr>
<td>My parents encourage me to do well at school</td>
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<tr>
<td>My parents are interested in what happens to me at school</td>
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<tr>
<td>My parents are willing to help me with my homework</td>
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</tbody>
</table>

4. Please indicate to what extent the following statements are true to you.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Always true</th>
<th>Often true</th>
<th>Sometimes true</th>
<th>Seldom true</th>
<th>Never true</th>
</tr>
</thead>
<tbody>
<tr>
<td>My parents respect my feelings.</td>
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<tr>
<td>I feel my parents are successful as parents.</td>
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<tr>
<td>I wish I had different parents.</td>
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<tr>
<td>My parents accept me as I am.</td>
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<tr>
<td>I have to rely on myself when I have a problem to solve.</td>
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<tr>
<td>I like to get my parents’ point of view on things I’m concerned about.</td>
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<tr>
<td>I feel it’s no use letting my feelings show.</td>
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<tr>
<td>My parents sense when I’m upset about something.</td>
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<tr>
<td>Talking over my problems with my parents makes me feel ashamed or foolish.</td>
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<tr>
<td>My parents expect too much from me.</td>
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<tr>
<td>I get upset easily at home.</td>
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<tr>
<td>I get upset a lot more than my parents know about.</td>
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<tr>
<td>When we discuss things, my parents consider my point of view.</td>
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<tr>
<td>My parents trust my judgment.</td>
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<tr>
<td>My parents have their own problems, so I don’t bother them with mine.</td>
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<tr>
<td>My parents help me to understand myself better.</td>
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<tr>
<td>I tell my parents about my problems and troubles.</td>
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<tr>
<td>I feel angry with my parents.</td>
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<tr>
<td>I don’t get much attention at home.</td>
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<tr>
<td>My parents encourage me to talk about my difficulties.</td>
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<tr>
<td>My parents understand me.</td>
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<tr>
<td>I don’t know whom I can depend on these days.</td>
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<tr>
<td>When I am angry about something, my parents try to be understanding.</td>
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<tr>
<td>I trust my parents.</td>
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<tr>
<td>My parents don’t understand what I’m going through these days.</td>
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<tr>
<td>I can count on my parents when I need to get something off my chest.</td>
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<tr>
<td>I feel that no one understands me.</td>
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<tr>
<td>If my parents know something is bothering me, they ask me about it.</td>
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</tbody>
</table>

12 Question 1 and 2 were excluded from the questionnaire at Time 2 and Time 3.
5. Please indicate to what extent the following statements are true to you.

<table>
<thead>
<tr>
<th>Statement</th>
<th>always true</th>
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<th>Seldom true</th>
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<tr>
<td>I like to get my friends’ point of view on things I’m concerned about.</td>
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<tr>
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<td>My friends understand me.</td>
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<td></td>
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<td></td>
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</tr>
<tr>
<td>My friends accept me as I am.</td>
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<tr>
<td>I feel the need to be in touch with my friends more often.</td>
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<tr>
<td>My friends don’t understand what I’m going through these days.</td>
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<tr>
<td>I feel alone or apart when I am with my friends.</td>
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<tr>
<td>My friends listen to what I have to say.</td>
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<tr>
<td>I feel my friends are good friends.</td>
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<tr>
<td>My friends are fairly easy to talk to.</td>
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<tr>
<td>When I am angry about something, my friends try to be understanding.</td>
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<tr>
<td>My friends help me to understand myself better.</td>
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<tr>
<td>My friends are concerned about my well-being.</td>
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<tr>
<td>I feel angry with my friends.</td>
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<td>I can count on my friends when I need to get something off my chest.</td>
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<tr>
<td>I trust my friends.</td>
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</tr>
<tr>
<td>My friends respect my feelings.</td>
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<td></td>
</tr>
<tr>
<td>I get upset a lot more than my friends know about.</td>
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<tr>
<td>It seems as if my friends are irritated with me for no reason.</td>
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<tr>
<td>I tell my friends about my problems and troubles.</td>
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</tr>
<tr>
<td>If my friends know something is bothering me, they ask me about it.</td>
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</tr>
</tbody>
</table>

6. Thinking about your friends and please choose from the scale of “strongly disagree” 1– “strongly agree” 7 to indicate to what extent you agree with the following statements.

<table>
<thead>
<tr>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is important for my friends to get good grades.</td>
<td></td>
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</tr>
<tr>
<td>I do homework with my friends.</td>
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<td></td>
</tr>
<tr>
<td>I talk about school subjects with my friends.</td>
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<td></td>
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<tr>
<td>My friends and I have common interests in school subjects.</td>
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<tr>
<td>My friends work hard at their school work.</td>
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<tr>
<td>I hang around with kids who like school.</td>
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<tr>
<td>I fit in with kids who like school</td>
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<tr>
<td>One thing my friends and I have in common is wanting to do well at school.</td>
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</tbody>
</table>

This is the end of Part Two of the Survey

********************************************************************************************
My School

1. How do you feel about school at present?
   - I like it a lot
   - I like it a bit
   - I don’t like it very much
   - I don’t like it at all

2. In your opinion, what does your class teacher(s) think about your school performance compared to your classmates?
   - Very good
   - Good
   - Average
   - Below average

3. How pressured do you feel by the schoolwork you have to do?
   - Not at all
   - A little
   - Some
   - A lot

4. Do you sometimes stay away from school, not because you are ill, but because you want to do something else?
   - Yes, at least once a month
   - No, never

5. What do you think you will be doing when you are 16 (after high school)?
   - College or university
   - Vocational or technical school
   - Apprenticeship/trade
   - Working
   - Unemployed
   - Don’t know

6. Please tick one option about students in your class.

<table>
<thead>
<tr>
<th></th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neither agree nor disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>The students in my class enjoy being together.</td>
<td></td>
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<tr>
<td>Most of the students in my class are kind and helpful.</td>
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<tr>
<td>Other students accept me as I am.</td>
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</tr>
</tbody>
</table>

7. Think about the following statements, and tick the frequency of them which happened during the past couple of months

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Once or twice</th>
<th>Sometimes</th>
<th>About once a week</th>
<th>Several times a week</th>
</tr>
</thead>
<tbody>
<tr>
<td>How often have you been bullied in school this term?</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>How often have you taken part in bullying other students in school this term?</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

8. Please read these statements about your classes carefully. For each statement tick one option.

<table>
<thead>
<tr>
<th></th>
<th>Very often</th>
<th>Often</th>
<th>Sometimes</th>
<th>Seldom</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>How often do you have a say in what is done in class (i.e. what you are going to learn or how you are going to work)?</td>
<td></td>
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<tr>
<td>How often do you have a say in making class rules?</td>
<td></td>
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<tr>
<td>How often do you have a say in how much you are going to do for your homework?</td>
<td></td>
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</tr>
</tbody>
</table>
9. Please read these statements about your school experience. For each statement tick one option.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Very true</th>
<th>Sort of true</th>
<th>Somewhat true</th>
<th>Not very true</th>
<th>Not true at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>How often do you yourself ask questions, give suggestions or make comments in class?</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>How often do you put up your hand to answer questions which the teacher asks in class?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Statement</th>
<th>Very true</th>
<th>Sort of true</th>
<th>Somewhat true</th>
<th>Not very true</th>
<th>Not true at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most of the time, being in school puts me in a good mood.</td>
<td></td>
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<tr>
<td>I like being in school</td>
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<tr>
<td>I’m happier when I am at school than when I am not at school</td>
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<tr>
<td>I am often angry when I am at school</td>
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<tr>
<td>I often feel frustrated when I am doing school</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>School often makes me feel bad</td>
<td></td>
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<tr>
<td>I often feel bored in school</td>
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<tr>
<td>Teachers often get upset with me</td>
<td></td>
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<tr>
<td>I don’t make friends with people that always behave nice in class</td>
<td></td>
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<tr>
<td>I think that people who annoy the teachers are cool</td>
<td></td>
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<tr>
<td>I get into trouble at school more than most kids</td>
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<tr>
<td>I sometimes make fun of students who very well</td>
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<tr>
<td>I would feel good if I was the only one who could answer the teacher’s question in class</td>
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</tr>
<tr>
<td>I would like to show my teacher that I’m smarter than the other kids</td>
<td></td>
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<tr>
<td>I would feel successful in school if I did better than the other kids in my class</td>
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</tr>
<tr>
<td>I’d like to show my parents that I’m smarter than the other kids in my classes</td>
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<tr>
<td>Doing better than other kids in my classes is important to me</td>
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<tr>
<td>I worry about doing worse than other kids in school</td>
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<tr>
<td>Understanding the work in school is more important to me than the grade I get</td>
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<tr>
<td>I like school work I’ll learn from even if I make a lot of mistakes</td>
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<tr>
<td>The main reason I do my work in school is because I like to learn</td>
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<tr>
<td>I feel most successful in school when I learn something I didn’t know before</td>
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<tr>
<td>It doesn’t matter to me if other students do better than I do, as long as I am learning</td>
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<tr>
<td>I often choose projects that I will learn from, even if I know I will need to work harder</td>
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</tr>
</tbody>
</table>

10. Please read these statements about your school. For each statement tick one option.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Very true</th>
<th>Sort of true</th>
<th>Somewhat true</th>
<th>Not very true</th>
<th>Not true at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>In this school, students’ ideas are listened to and valued</td>
<td></td>
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<tr>
<td>In this school, teachers and students really trust one another</td>
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<tr>
<td>In this school, teachers treat students with respect</td>
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<tr>
<td>In this school, students feel like they belong</td>
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<tr>
<td>This school really cares about students as individuals</td>
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<tr>
<td>In this school, teachers are always talking about the honour roll and the honour society</td>
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<tr>
<td>In this school, teachers treat kids who get good grades better than other kids</td>
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<tr>
<td>In this school, only a few kids get praised for their school work</td>
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<tr>
<td>In this school, teachers only care about smart kids</td>
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</tr>
</tbody>
</table>
In this school, we are encouraged to compete against each other for grades
This school has given up on some of its students
In this school, special privileges are given to students who get the highest grades
In this school, teachers believe all student can learn
In this school, every student can be successful
In this school, understanding the work is more important than getting the right answers
In this school, mistakes are okay as long as we are learning
In this school, teachers think how much you learn is more important than tests scores or grades
Teachers in this school want student to really understand their work, not just memorize it
Trying hard counts a lot in this school
In this school, we are given a chance to do interesting and creative work

11. Imagine when you enter junior high school, to what extent do you think these statements will be problems to you?

<table>
<thead>
<tr>
<th>陈述</th>
<th>Not a problem</th>
<th>Small problem</th>
<th>Medium problem</th>
<th>Big problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Being treated more like a child</td>
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<tr>
<td>Having a tough teacher</td>
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<tr>
<td>Having to do harder school work</td>
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<tr>
<td>Having an argument with a teacher</td>
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<tr>
<td>Being sent to the vice principal</td>
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<tr>
<td>Leaving the wrong books and supplies at home and forgetting to bring the right books and supplies to class</td>
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<tr>
<td>Getting too much homework</td>
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<tr>
<td>Getting into fights</td>
<td></td>
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</tr>
<tr>
<td>Having trouble making new friends</td>
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<tr>
<td>Kids trying to talk you into things you don’t want to do</td>
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<tr>
<td>Getting things stolen from you</td>
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<tr>
<td>Being bothered by the older kids</td>
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<tr>
<td>Not getting along with all your different teachers</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Other kids teasing you</td>
<td></td>
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<tr>
<td>Not being in the “in” group, like not being able to go around with the group of kids you’d like to hang around with</td>
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<tr>
<td>Drinking beer, wine or liquor</td>
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<tr>
<td>Taking drugs</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Smoking cigarettes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dating</td>
<td></td>
<td></td>
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</tbody>
</table>

This is the end of Part Three of the Survey

[13] At Time 2 and Time 3, the instruction of this measure was: Please choose to what extent these statements have been problems to you.
MY FEELINGS

1. In general, how do you feel about your life?
   - I feel very happy
   - I feel quite happy
   - I don’t feel very happy
   - I am not happy at all

2. How often do you feel happy?
   - Never
   - Hardly ever
   - Sometimes
   - Often
   - Always

3. These sentences describe two kinds of kids, first choose which kind of kid you are and then choose to what extent it is true for you. Tick ‘√’ only one option.

<table>
<thead>
<tr>
<th>Really true for me</th>
<th>Sort of true for me</th>
<th>Really true for me</th>
</tr>
</thead>
<tbody>
<tr>
<td>Some kids feel they are very good at their school work</td>
<td>BUT Other kids worry about whether they can do their school work</td>
<td></td>
</tr>
<tr>
<td>Some kids find it hard to make friends</td>
<td>BUT Other kids find it’s pretty easy to make friends</td>
<td></td>
</tr>
<tr>
<td>Some kids do very well at all kinds of sports</td>
<td>BUT Other kids don’t feel they are good when it comes to sports</td>
<td></td>
</tr>
<tr>
<td>Some kids are happy with the way they look</td>
<td>BUT Other kids are not happy with the way they look</td>
<td></td>
</tr>
<tr>
<td>Some kids often do not like the way they behave</td>
<td>BUT Other kids usually like the way they behave</td>
<td></td>
</tr>
<tr>
<td>Some kids are often unhappy with themselves</td>
<td>BUT Other kids are pretty pleased with themselves</td>
<td></td>
</tr>
<tr>
<td>Some kids feel they are just as clever as other kids</td>
<td>BUT Other kids aren’t so sure and wonder if they are as clever</td>
<td></td>
</tr>
<tr>
<td>Some kids have a lot of friends</td>
<td>BUT Other kids don’t have very many friends</td>
<td></td>
</tr>
<tr>
<td>Some kids wish they could be a lot better at sports</td>
<td>BUT Other kids feel they are good enough at sports</td>
<td></td>
</tr>
<tr>
<td>Some kids are happy with their height and weight</td>
<td>BUT Other kids wish their height or weight was different</td>
<td></td>
</tr>
<tr>
<td>Some kids usually do the right thing</td>
<td>BUT Other kids often don’t do the right thing</td>
<td></td>
</tr>
<tr>
<td>Some kids don’t like the way they are leading their life</td>
<td>BUT Other kids do like the way they are leading their life</td>
<td></td>
</tr>
<tr>
<td>Some kids are pretty slow in finishing their school work</td>
<td>BUT Other kids can do their school work quickly</td>
<td></td>
</tr>
<tr>
<td>Some kids would like to have a lot more friends</td>
<td>BUT Other kids have as many friends as they want</td>
<td></td>
</tr>
<tr>
<td>Some kids think they could do well at any new sport</td>
<td>BUT Other kids are afraid they do not do well at new sports</td>
<td></td>
</tr>
<tr>
<td>Some kids wish their body was different</td>
<td>BUT Other kids like their body the way it is</td>
<td></td>
</tr>
<tr>
<td>Some kids usually behave the way they know they are supposed to</td>
<td>BUT Other kids often don’t behave the way they are supposed to</td>
<td></td>
</tr>
<tr>
<td>Some kids are happy with themselves as a person</td>
<td>BUT Other kids are often not happy with themselves</td>
<td></td>
</tr>
<tr>
<td>Some kids often forget what they learn</td>
<td>BUT Other kids can remember things easily</td>
<td></td>
</tr>
<tr>
<td>Really true for me</td>
<td>Sort of true for me</td>
<td>Really true for me</td>
</tr>
<tr>
<td>--------------------</td>
<td>--------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Really true for me</td>
<td>Sort of true for me</td>
<td>Really true for me</td>
</tr>
<tr>
<td>Some kids are always doing things with a lot of kids</td>
<td>BUT</td>
<td>Other kids usually do things by themselves</td>
</tr>
<tr>
<td>Some kids feel they are better at sports than their friends</td>
<td>BUT</td>
<td>Other kids don’t feel they can play as well</td>
</tr>
<tr>
<td>Some kids wish they looked different</td>
<td>BUT</td>
<td>Other kids like the way they look</td>
</tr>
<tr>
<td>Some kids usually get in trouble because of things they do</td>
<td>BUT</td>
<td>Other kids don’t do things that get them into trouble</td>
</tr>
<tr>
<td>Some kids like the kind of person they are</td>
<td>BUT</td>
<td>Other kids often wish they were someone else</td>
</tr>
<tr>
<td>Some kids do very well at their classwork</td>
<td>BUT</td>
<td>Other kids don’t do very well at their classwork</td>
</tr>
<tr>
<td>Some kids wish more people their own age like them</td>
<td>BUT</td>
<td>Other kids feel that most people their own age do like them</td>
</tr>
<tr>
<td>In games and sports some kids usually watch instead of play</td>
<td>BUT</td>
<td>Other kids usually play rather than just watch</td>
</tr>
<tr>
<td>Some kids wish something about their face or hair was different</td>
<td>BUT</td>
<td>Other kids like their face and hair the way they are</td>
</tr>
<tr>
<td>Some kids do things they know they shouldn’t do</td>
<td>BUT</td>
<td>Other kids hardly ever do things they know they shouldn’t do</td>
</tr>
<tr>
<td>Some kids are very happy being the way they are</td>
<td>BUT</td>
<td>Other kids wish they were different</td>
</tr>
<tr>
<td>Some kids have trouble working out the answers in school</td>
<td>BUT</td>
<td>Other kids almost always can work out the answers</td>
</tr>
<tr>
<td>Some kids are popular with others their own age</td>
<td>BUT</td>
<td>Other kids are not very popular</td>
</tr>
<tr>
<td>Some kids don’t do well at new outdoor games</td>
<td>BUT</td>
<td>Other kids are good at new games right away</td>
</tr>
<tr>
<td>Some kids think that they are good looking</td>
<td>BUT</td>
<td>Other kids think that they are not very good looking</td>
</tr>
<tr>
<td>Some kids behave themselves very well</td>
<td>BUT</td>
<td>Other kids often find it hard to behave themselves</td>
</tr>
<tr>
<td>Some kids are not happy with the way they do a lot of things</td>
<td>BUT</td>
<td>Other kids think the way they do things is fine</td>
</tr>
</tbody>
</table>

4. In the past 6 months: how often have you had the following…?  

<table>
<thead>
<tr>
<th></th>
<th>About every day</th>
<th>More than once a week</th>
<th>About every week</th>
<th>About every month</th>
<th>Rarely or never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headache</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Stomach-ache</td>
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</tr>
<tr>
<td>Backache</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Feeling low</td>
<td></td>
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<tr>
<td>Bad temper</td>
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<tr>
<td>Feeling nervous</td>
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<tr>
<td>Difficulties in getting to sleep</td>
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<tr>
<td>Feeling dizzy</td>
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<tr>
<td>Neck pain</td>
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<tr>
<td>Tiredness</td>
<td></td>
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</tbody>
</table>
5. **To what extent are these statements true to you?**

<table>
<thead>
<tr>
<th>Statement</th>
<th>Always true</th>
<th>True most of the time</th>
<th>Sometimes true</th>
<th>Hardly ever true</th>
<th>Not true at all</th>
<th>Always true</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is easy for me to make new friends at school</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>I have nobody to talk to</td>
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<tr>
<td>I am good at working with other kids</td>
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<tr>
<td>It’s hard for me to make friends</td>
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<tr>
<td>I have lots of friends</td>
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<tr>
<td>I feel alone</td>
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<tr>
<td>I can find a friend when I need one</td>
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<tr>
<td>It’s hard to get other kids to like me</td>
<td></td>
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<tr>
<td>I don’t have anyone to play with</td>
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<tr>
<td>I get along with other kids</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>I feel left out of things</td>
<td></td>
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<tr>
<td>There is nobody I can go to when I need help</td>
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<tr>
<td>It’s hard for me to get along with other kids</td>
<td></td>
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<tr>
<td>I am lonely</td>
<td></td>
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<tr>
<td>I am well-liked by the kids in my class</td>
<td></td>
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<tr>
<td>I don’t have any friends at school</td>
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</tr>
</tbody>
</table>

6. **Please choose how often each of these things happen to you.**

<table>
<thead>
<tr>
<th>Statement</th>
<th>Never</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>I worry about things</td>
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<tr>
<td>I am scared of the dark</td>
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<tr>
<td>When I have a problem, I get a funny feeling in my stomach</td>
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<tr>
<td>I feel afraid</td>
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<tr>
<td>I would feel afraid of being on my own at home</td>
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<tr>
<td>I feel scared when I have to take a test</td>
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<tr>
<td>I feel afraid if I have to use public toilets or bathrooms</td>
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<tr>
<td>I worry about being away from my parents</td>
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<tr>
<td>I feel afraid that a will make a fool of myself in front of people</td>
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<tr>
<td>I worry that I will do badly at my school work</td>
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<tr>
<td>I worry that something awful will happen to someone in my family</td>
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<tr>
<td>I suddenly feel as if I can’t breathe when there is no reason for this</td>
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<tr>
<td>I have to keep checking that I have done things right (like the switch is off, or the door is locked)</td>
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<tr>
<td>I feel scared if I have to sleep on my own</td>
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<tr>
<td>I have trouble going to school in the mornings because I feel nervous or afraid</td>
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<tr>
<td>I am scared of dogs</td>
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<tr>
<td>I can’t seem to get bad or thoughts out of my head</td>
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<tr>
<td>When I have a problem, my heart beats really fast</td>
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<tr>
<td>I suddenly start to tremble or shake when there is no reason for this</td>
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<td></td>
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<tr>
<td>I worry that something bad will happen to me</td>
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<tr>
<td>I am scared of going to the doctor or dentist</td>
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<tr>
<td>When I have a problem, I feel shaky</td>
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<tr>
<td>I am scared of being in high places or lifts (elevators)</td>
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<tr>
<td>I have to think of special thoughts (like numbers or words) to stop bad things from happening</td>
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<tr>
<td>I feel scared if I have to travel in the car, or on a bus or train</td>
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<tr>
<td>I worry what other people think of me</td>
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<tr>
<td>I am afraid of being in crowded places (like shopping centres, the movies, buses, busy playgrounds)</td>
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<tr>
<td>All of a sudden I feel really scared for no reason at all</td>
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<tr>
<td>I am scared of insects or spiders</td>
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<tr>
<td>I suddenly become dizzy or faint when there is no reason for this</td>
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<tr>
<td>I feel afraid if I have to walk in from of my class</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>My heart suddenly starts to beat too quickly for no reason</th>
<th>Never</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>I worry that I will suddenly get a scared feeling when there is nothing to be afraid of</td>
<td></td>
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<tr>
<td>I am afraid of being in small closed places, like tunnels or small rooms</td>
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<tr>
<td>I have to do something over and over again (like washing my hands, cleaning or putting things in a certain order)</td>
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<tr>
<td>I get bothered by bad or silly thoughts or pictures in my mind</td>
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<tr>
<td>I have to do some things in just the right way to stop bad things happening</td>
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<tr>
<td>I would feel scared if I had to stay away from home overnight</td>
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</tbody>
</table>

7. Please read each group of statements carefully and pick up one statement in each group that best describe the way you have been feeling in the past two weeks including today. Be sure that you do NOT choose more than one statement for any group including item 16 and 18.

1. □ I do not feel sad.
   □ I feel sad much of the time
   □ I am sad all the time
   □ I am so sad or unhappy that I can't stand it.

2. □ I am not discouraged about my future.
   □ I feel more discouraged about my future.
   □ I don’t expect things to work out for me
   □ I feel my future is hopeless and will only get worse

3. □ I do not feel like a failure.
   □ I have failed more than I should have
   □ As I look back I see many failures.
   □ I feel I am a total failure as a person.

4. □ I get as much pleasure as I ever did from the things I enjoy.
   □ I do not enjoy things as much as I used to.
   □ I get very little pleasure from the things I used to enjoy.
   □ I cannot get any pleasure from the things I used to enjoy.

5. □ I do not particularly feel guilty
   □ I feel guilty over many things I have done or should have done.
   □ I feel quite guilty most of the time.
   □ I feel guilty all of the time.

6. □ I do not feel I am being punished.
   □ I feel I may be punished.
   □ I expect to be punished.
   □ I feel I am being punished.

7. □ I feel the same about myself as ever.
   □ I have lost confidence in myself.
   □ I am disappointed in myself.
   □ I dislike myself.

8. □ I do not criticize or blame myself more than usual.
   □ I am more critical of myself than I used to be.
   □ I criticize myself for all of my faults.
   □ I blame myself for everything bad that happens.

9. □ I do not have any thoughts of killing myself.
   □ I have thoughts of killing myself, but I would not carry them out.
   □ I would like to kill myself.
   □ I would kill myself if I had the chance.
10.  
- I do not cry any more than I used to.
- I cry more than I used to.
- I cry over every little thing.
- I feel like crying but I cannot.
11.  
- I am no more restless or wound up than usual.
- I feel more restless or wound up than usual.
- I am so restless or agitated that it is hard to stay still.
- I am so restless or agitated that I have to keep moving or doing something.
12.  
- I have not lost interest in other people or activities.
- I am less interested in other people or things than before.
- I have lost most of my interest in other people or things.
- It is hard to get interest in anything.
13.  
- I make decisions about as well as ever.
- I find it more difficult to make decisions than usual.
- I have much greater difficulty making decisions than I used to.
- I have trouble making any decisions.
14.  
- I do not feel I am worthless.
- I don’t think that I’m as worthwhile and useful as I used to.
- I feel more worthless as compared to other people.
- I feel utterly worthless.
15.  
- I have as much energy as ever.
- I have less energy in the past two weeks.
- I don’t have enough energy to do very much.
- I don’t have enough energy to do anything.
16.  
- I have not experienced any change in my sleeping pattern.
- I sleep more or less than usual.
- I sleep a lot more than usual.
- I sleep most of the day OR I wake up 1-2 hours earlier and cannot get back to sleep.
17.  
- I am no more irritable than usual.
- I am more irritable than usual.
- I am much more irritable than usual.
- I am irritable all the time.
18.  
- I have not experienced any change in my appetite.
- My appetite is somewhat less than usual OR My appetite is somewhat greater than usual.
- My appetite is much less than usual OR My appetite is much greater than usual.
- I have no appetite at all OR I crave food all the time.
19.  
- I can concentrate as well as ever.
- I can’t concentrate as well as ever.
- It’s hard to keep my mind on anything for long.
- I find I can’t concentrate on anything.
20.  
- I am no more tired or fatigued than usual.
- I am more tired or fatigued than usual.
- I am too tired or fatigued to do a lot of things I used to do.
- I am too tired or fatigued to do most of the things I used to do.
8. Think of a time when you had a problem that bothered you... then select whether you reacted in the following ways, if “YES”, please continue to rate how much it helped; if “No”, please leave the second part of question blank.

<table>
<thead>
<tr>
<th>Did you...?</th>
<th>How much did it help?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Try to forget it</td>
<td></td>
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<tr>
<td>Do something like watch telly or play a game to forget it</td>
<td></td>
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<tr>
<td>Stay on your own</td>
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<tr>
<td>Keep quiet about the problem</td>
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<tr>
<td>Try to see the good side of things</td>
<td></td>
</tr>
<tr>
<td>Blame yourself for causing the problem</td>
<td></td>
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<tr>
<td>Blame someone else for causing the problem</td>
<td></td>
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<tr>
<td>Try to sort out the problem</td>
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<tr>
<td>Try to sort out the problem by doing something or talking to someone about it</td>
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<tr>
<td>Shout, scream or get angry</td>
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<tr>
<td>Try to calm yourself down</td>
<td></td>
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<tr>
<td>Wish the problem had never happened</td>
<td></td>
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<tr>
<td>Wish you could make things different</td>
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<tr>
<td>Try to feel better by spending time with others like family, grown-ups or friends</td>
<td></td>
</tr>
<tr>
<td>Do nothing because the problem couldn’t be solved</td>
<td></td>
</tr>
</tbody>
</table>

This is the end of the Survey
Thank you for your participation
Correlation tables
Ethics approval letter

Jia Guo
SPEHS
St Leonard's Land

24 March 2010

Dear Jia

A cross-cultural study of early adolescent girls undergoing the onset of puberty and primary to secondary school transition

The School of Education Ethics Sub-Committee has now considered your request for ethical approval for the studies detailed in the above application.

This is to confirm that the Sub-Committee is happy to approve the application and that the research meets the School Ethics Level 1 criterion. This is defined as “straightforward non-intervention, observational research (e.g. analysis of archived data, classroom observation, use of standardised questionnaires)”. 

A standard condition of this ethical approval is that you are required to notify the Committee, of any significant proposed deviation from the original protocol. The Committee also needs to be notified if there are any unexpected results or events once the research is underway that raise questions about the safety of the research.

Yours sincerely

[Signature]

Dr S Bayne
Convener, School Ethics Sub-Committee
PARTICIPANT INFORMATION SHEET AND CONSENT FORM

A cross-cultural study of early adolescent girls undergoing the onset of puberty and primary to secondary school transition

Jia Guo
PhD student of Moray House College of Education, University of Edinburgh
Rm 2.23, St Leonard’s Land, Holyrood Road, Edinburgh, EH8 8DD
0131 651 4109, 07748851765, s0894421@sms.ed.ac.uk

Why do this study?
Early adolescence is an important period of time in life. Multiple changes are taking place in the developing adolescent and many are happening at the same time. How well the adolescent adepts to these changes have crucial implications for their wellbeing during this life stage and beyond.
I’m interested in transitions during adolescence and adolescents’ psychological wellbeing. In this study I am going to collect data from girls at 11 -12 years old and follow them for one year to find out how they think about puberty, school transition, and psychological wellbeing, how these change over time, and whether the timing of puberty and the experience of school transition experience affect the wellbeing of early adolescent girls.

What will participation involve?
This study involves completing a questionnaire at three time points, including questions on puberty (Have you noticed any changes in the growth of your height, body hair, skin, breast, and whether you start your period), school transition experience (e.g., How do you perceive your school environment, academic achievement, motivation, peer relations in school), and psychological wellbeing (e.g., How do you perceive the levels of your self-esteem and anxiety). There will also be a small informal group discussion at the end of each session, where you can give feedback of the questionnaire content and your experience during the survey. All together the participation will take about 45 minutes.

What will happen next?
Questionnaire and audio recordings will be kept confidentially. Results will contribute to empirical findings in a PhD thesis and it is also anticipated that journal articles or reports will be produced aiming to help adolescents with developmental transitions and enhance their wellbeing during this period of life. A short report will be sent to you and longer writings will also be available if you want it. Therefore, you too, may find these writings useful.

As an informed participant of this study, I understand that:

- I confirm that I have read and understand the information sheet for the above study and have had the opportunity to ask questions.
- I understand that my participation is voluntary and I am free to withdraw at any time, without punishment.
- I am aware of what my participation involves.
- There are no risks involved in the participation of this study.
- All my questions about the study have been satisfactorily answered.

Please tick box
Yes  No
☐  ☐ I agree to participate in this study.
☐  ☐ I agree to the group discussion being audio recorded.
☐  ☐ I agree to the use of anonymised quotes in publications.

Participant’s Signature ___________________________  Date _______________

I have explained and defined the research procedure, and answered all questions asked by the participant.

Researcher’s Signature ___________________________  Date _______________
INFORMATION SHEET AND PARENTAL/GUARDIAN CONSENT FORM

Anything written on this form will be held in confidence

A cross-cultural study of early adolescent girls undergoing the onset of puberty and primary to secondary school transition

Jia Guo
PhD student of Moray House College of Education, University of Edinburgh
0131 651 4109, 07748851765, s0894421@sms.ed.ac.uk

Why do this study?
Early adolescence accommodates multiple rapid, and sometimes simultaneous changes with substantial implications for the wellbeing of early adolescents and even into their adulthood. I'm interested in transitions during adolescence and adolescents' psychological wellbeing. In this study I am going to collect data from girls at 11-12 years old and follow them for one year to find out how their perceptions of puberty, school transition, and psychological wellbeing change over time, and whether there are any effects of pubertal timing and school transition experience on the psychological wellbeing of early adolescent girls.

What will participation involve?
This study involves completing a questionnaire at three time points, including questions on puberty (How do girls perceive their pubertal development in relation to changes in their growth spurt, body hair, skin, breast, and whether they begin menstruate), school transition experience (e.g., How do girls perceive their school environment, academic achievement, motivation, peer relations in school), and psychological wellbeing (e.g., How do girls perceive the levels of their self-esteem and anxiety). There will also be a focus group discussion at the end of each session on an informal basis, where participants will give feedback of the questionnaire content and their experience during the survey. The entire procedure will last approximately 45 minutes. Participation will be voluntary, and girls are free to withdraw from the research at any point without penalty.

What will happen next?
Data will be kept confidentially. Results will contribute to empirical findings in a PhD thesis and it is also anticipated that journal articles or reports will be produced aiming to help adolescents navigate multiple developmental transitions and enhance their wellbeing during this period of life. A short report will be sent to participants and longer writings will also be available if requested. Participants themselves too, may find these writings useful.

**************************************************************
Name of child: ___________________________ Date of birth: ________________________________
I, being the parent or guardian of the child named above, confirm that I:

• have read and understand the information sheet for the above study and have had the opportunity to contact the researcher for queries

• give consent for the child named above to participate in the study

Contact information
Relationship to child: ___________________________
Telephone number: ___________________________ Mobile number: ___________________________
Home address: ___________________________ Post Code: ___________________________

Alternative guardian contact
Relationship to child: ___________________________
Telephone number: ___________________________ Mobile number: ___________________________
Address: ___________________________ Post Code: ___________________________

Signature: ___________________________ Date: ___________________________

Please return the completed form to:
Rm 2.23, St Leonard’s Land, Holyrood Road, Edinburgh, EH8 8DD