EPIDEMIOLOGICAL FACTORS IN MENTAL ILLNESS; PSYCHIATRIC MORBIDITY AMONG STUDENTS

by

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"Information and statistics are the bricks and mortar of prevention of mental disease in university students."

SIR ALAN ROOK, 1959
FOREWORD

This thesis reports a study on psychiatric morbidity among university students.

It is an epidemiological inquiry into the factors that influence the prevalence of psychiatric disorders among students of the University of Edinburgh. It is a prospective inquiry: a total cohort of first year students were identified on university entry, classified according to the presence or absence in each of factors reported to have a bearing on the mental health of students, and followed for a complete academic year. Illness that presented during this period was related back to the results of the initial classification, and in this way the factors that significantly influenced the prevalence of psychiatric disorders among the cohort were determined.

The aim of this investigation was to determine the factors that most influence the prevalence of psychiatric disorders among a total new entry of university students. It was also an object of the study to determine the prevalence of psychiatric disorders of defined severity among a student population 'at risk'. As well as this, but secondary to the main intentions, the results have demonstrated the characteristics of individuals who comprised a total student intake, and of students who have psychiatric disorders.

This thesis is presented as a work of original research in the fields
of psychiatric epidemiology and student health. The procedures were individually developed and carried out. The study was done while the author was a member of scientific staff of the Medical Research Council Unit for Research on the Epidemiology of Psychiatric Illness in the Department of Psychological Medicine of the University of Edinburgh, and honorary Lecturer in Psychological Medicine at the University of Edinburgh.

This work was made possible by the co-operation of 1,555 students, the 262 general practitioners with whom they were registered and the medical staffs of every psychiatric service in Edinburgh and the South East region of Scotland. I am indebted to them, and to the members of the teaching and administrative staff of the University of Edinburgh who permitted access to the academic records of the students.

Thanks are particularly due to Dr. R. E. Verney and his colleagues of the University Health Service, to Miss D. C. Matchett and her colleagues of the Department of Student Accommodation and Welfare, and to the Rev. James C. Blackie, Chaplain to the University of Edinburgh. Their help and advice was most valuable in this inquiry.

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INTRODUCTION
Students whose academic progress is erratic and puzzling, whose behaviour is perplexing, or whose personalities manifest traits that give cause for concern, are to be found in every university. Mental illness and emotional distress are undoubtedly responsible for many casualties among students during their academic training. One of the most striking findings in recent years, during which much has been learnt about the health of students, is the comparatively high prevalence of psychiatric disorders: though much of it is of a trivial nature, it sometimes interferes with study, sometimes wrecks a university career, and even, on occasion, results in suicide (Rook, 1959). Davy (1960) observed that many authorities feel that the problems of youth are a necessary, healthy part of acquiring maturity, and that those who are unable to deal with them unaided do no more than reveal their own lack of fibre. Those who work among students, however, have the experience that some of them are handicapped, some seriously, by psychological difficulties which make it hard, or even impossible, for them to profit from the educational, social and athletic opportunities which the university offers.

The importance of student mental health

Psychiatric disorders among young people at university give rise to especially grave concern. The student population in the United Kingdom is a highly selected body on whose abilities and success national aspirations largely depend. J. R. Rees, the Director of the World Federation for Mental Health, addressed the delegates attending the First International Conference on Student
Mental Health (1956) in these words: "Work for student mental health is not only an essential part of the care of the general health of students, it is in itself something of the highest importance for the future of the societies of our countries and of the family of nations." (Rees, 1956). University students are intelligent, their mean I.Q. being around 130; there are not more than 2.5 per cent. of the general population with a mean I.Q. of this level (Vernon, 1961). Student wastage, therefore, is a national calamity, yet it is high, and one of its chief causes is said to be psychological breakdown.

**Student vulnerability**

Students carry out their work at an especially vulnerable time of life. They are older adolescents who meet largely age-determined problems in a situation of special demand and competition (Anthonisen, 1942). Davie and Rust (1962) viewed this vulnerable time as the period in which the individual is breaking away from his family and moving toward that imminent point when he is expected to function as an emotionally independent, self-supporting, productive and responsible member of society. The experience of coming to university taxes the resources of most individuals, since their university education usually coincides with the climax of adolescent changes in their physical, emotional and intellectual lives. They study under living and working conditions that they have not experienced in the past. In this more or less unfamiliar environment they are given a measure of personal freedom hitherto unknown, and they are allowed or required, perhaps for the first time, to make decisions without guidance. Sir Eric Ashby named four
elements with which students have to contend in the transition from school to university: he viewed these as the principal mental health hazards throughout university years (Ashby, 1958):

1. A diminution of personal responsibility and importance.
2. A relaxation of controls over discipline.
3. Unfamiliar methods of study.
4. A new set of loyalties which make greater demands than those at school.

For many students this change towards independence is a new and trying experience: as Fry (1942) observed, it presupposes a degree of development that does not always exist.

The opportunity for a university education normally presents only once in the lifetime of those who are schooled to matriculation standards. During these few years the social, intellectual and emotional demands on the student are heavy. His career, his ambitions and the aspirations of his family all depend on his ability persistently to apply himself to his training. Anything that detracts from this gravely threatens his future: psychiatric disorder may do this, bringing to the student who experiences it much unhappiness and the personal burden of mental distress as well as the possibility of threat to his career.

It is perhaps unavoidable that students, whose lives are burdened with physiological, psychological, social, educational and emotional stresses, should be prone to develop psychiatric disorders. The issues which appear to be associated with most of the psychological difficulties described by students are in the main common problems of adolescent growth and social
adjustment. But these problems are not easy to solve just because everyone must meet them. Different people meet common problems in different ways. The issues remain simple or become complicated according to the personality and experience of the individual facing them. However, it is widely held, rightly or wrongly, that the prevalence of psychiatric disorders is greater among students than among others of the same age in the general population. Bolton (1954) expressed the general view when he said "there seems to be little doubt that tension and maladjustment are more conspicuous in, and more disastrous for, students than for many others." Certainly the suicide rate is one criterion of mental illness which indicates that students are exposed to greater risk: it is many times greater for undergraduates than for the equivalent groups of the general population (Carpenter, 1959; Parnell, 1951; Parnell and Skottowe, 1957). The suicide of a student is regarded by everyone as a tragedy; Rook (1959) has rightly said "one suicide in a university is one too many." While the suicide rates are high, particularly among students at the older English universities, the numbers are small and suicide is fortunately only a very rare expression of psychological illness among students. Apart from this drastic result, much of the concern with which university authorities view the mental health of their students stems from the widely accepted relationship between psychological illness and poor academic performance. It is clear that being in a state of nervous tension cannot be conducive to study. Student life demands a continuously high standard of intellectual efficiency and it is
for this reason that even minor emotional disturbance may have disastrous consequences for students.

Examinations induce some degree of anxiety in every student, and of course it would be wrong to equate this natural reaction with mental illness. However, for some students a psychologically evoked barrier to academic success may be formidable and even prove insurmountable. Severe emotional distress always prevents fully effective study and markedly impairs the prospects of success. The proportion of British students who fail to complete the courses upon which they embark is believed to be about 15 per cent. (Ralph, 1959). Wastage among first-year students at Scottish universities is about 25 per cent. (Brever, 1961). Most universities have little data on why students leave before graduation and although some notation is made, the real reasons for drop-outs are not studied (Funkenstein, 1959). Students show that they have sufficient intelligence by passing the exacting matriculation examinations and it is unreasonable to suggest that intellectual inadequacy can account for more than a small proportion of the wastage. Henn (1951) stated that "there are three and only three causes of student failure": these are, incapacity to work effectively, insufficient work, and "breakdown". Concerning this last, it cannot be denied that emotional factors have an important influence on the student's ability to study, but the extent to which unexplained academic failure can be accounted for by psychological illness is not known. The high wastage figures and the growing accumulation of evidence as to the amount of handicapping psychiatric disorders among students does suggest that such a relationship may exist, and even that it is of a magnitude that
cannot be ignored. Whether this is true or not, all Student Health physicians agree that fear of failing to pass examinations is one of the main causes of emotional disturbance in students (Ralph, 1959). This is an occupational hazard particular to students: as Pemberton (1948) pointed out, their occupation is unique in so far as it is probably the only one in which those who follow it are repeatedly subjected to formal tests of their ability to continue the work. Because of the nature of his work and not so much because of the nature of his disorder, the distressed student need help when other young people can presumably get by without it. Malleson (1959c) stressed that this 'occupational disability' makes the treatment of minor psychiatric disorders among students a matter of prime importance.

The prevalence of psychiatric disorders among students

Estimates of the prevalence of psychiatric disorders among students vary widely. Much of the difficulty in arriving at a true estimate is due to the fact that by no means all students who have these conditions seek advice. Malleson (1954) summarised this problem very clearly: "How prevalent is student distress? What, in the unsatisfactory analogy of disease, is the morbidity rate? It is almost impossible to answer this for, except by objective and dramatic action, the student only registers his distress if he comes and tells you. By no means all distressed people tell their troubles to others. Even when they do it may not be to the university physicians, but to a friend or academic supervisor, or even a doctor outside. Their unhappiness is then statistically non-existent."

A second difficulty is due to lack of uniformity in criteria for illness.
Morbidity rates based on numbers of patients who have clearly defineable psychiatric disorders generally give an index only of the extent of severe illness among students: these figures rarely include those who consult with minor psychological complaints. It is argued by some that psychological complaints which do not amount to formal psychiatric illness should not be nosologically interpreted as psychiatric disorders. On the other hand the important role played by minor emotional disturbance in determining the happiness and the efficiency of students suggests that the numbers of those who have this cannot be ignored. These divergences of opinion give rise to estimates of the prevalence of psychiatric disorders which essentially vary in proportion to the stringency of the criteria used.

Prevalence studies that have already been done largely fall into four main categories.

1. Some have been concerned to obtain a prevalence figure for psychiatric disorders in relation to the number of students attending university health services during the academic year.

2. Some university health services have held questionnaire inquiries to assess the incidence of psychological complaints among students.

3. Some have given figures for psychiatric disorders presenting among students who attend for voluntary health examinations.

4. Some centres have provided details of the extent of usage of their psychiatric services by students.

These studies provide estimates of prevalence of psychiatric morbidity in university which vary from 1 per cent. to 20 per cent. of all at risk.

Over a quarter of a century ago Professor Angell, who was then President
of Yale University said "10 to 15 per cent. of our college students suffer from some emotional or personality difficulty sufficiently serious to diminish very much their effectiveness and happiness." (Angell, 1933). At that time there would have been few, if any, in the universities of this country who would have made a similar statement about British students. The first real light to be shed on the subject here came in 1951 when Parnell obtained information from some Oxford colleges about prolonged illness and mortality among their undergraduates. When the figures were analysed two significant facts emerged: the considerable amount of serious mental illness, and the high incidence of suicide. He showed (Parnell, 1951), that of the 145 students who, during a three year survey period, missed a term or more as a result of ill-health, 52.5 per cent. were suffering from some kind of psychological illness.

Prevalence studies based on attendances at university health services have been the commonest source of student morbidity data. Grant (1961) found that "serious psychological disorder" occurred in 2.8 per cent. of 2008 Welsh students during one academic year. Verney (1961a) reported that 4 per cent. of consultations at the Edinburgh University Health Service were for psychological illness. Similar rates have been reported for students at Oxford - 5.5 per cent. (Juel-Jensen, 1962), at Belfast - 5 per cent. (Johnston, 1962), at Aberdeen - 5 per cent. (Macklin, 1960) and at Cambridge - 4 per cent. (Davies, 1960). Still (1961a) reported that 5.3 per cent. of 11,605 consultations made at the Leeds University Health Service between 1949 and 1960 were for severe and moderately severe psychiatric disorders. However, Still's estimate for the prevalence of "any symptoms of ill-health,
disease or inability which could not be demonstrated, or reasonably assumed, to have a physical or organic basis" among all Leeds students at risk was 10.7 per cent., a higher rate entirely commensurate with his less stringent criteria. Similarly, Malleson (1954, 1959b, 1961) has shown that about 2 per cent. of London students have "psychosis and neurosis of sufficient severity seriously to impede happiness and efficiency" and that about 15-20 per cent. have psychiatric disorders of less handicapping severity.

In a questionnaire inquiry to assess the incidence of psychological handicap in third-year Cambridge students (Davy, 1957), 15.5 per cent. of the sample studied answered that in addition to being "frequently or constantly anxious" they commonly felt "depressed, apathetic, apprehensive and under a strain." A quarter of these men had consulted a doctor about their psychological problems and a further quarter said that they would have liked to have done so. Malleson's (1959a) questionnaire study among 2nd M.B. students at London showed that 23 per cent. reported "strain actually impairing efficiency." This percentage rose to 41 per cent. when the inquiry was repeated just before the start of the 2nd M.B. examinations. Grant (1954) sent a questionnaire to the family doctors of a total entry of new students at the University of Wales. He found, interestingly, that psychological disorders were the conditions most frequently cited by the doctors, noted in respect of 1.9 per cent. of the new students.

Estimates provided by the reports of voluntary health examinations of students must be regarded with caution, since individuals with psychological
difficulties might be assumed to be more keen to establish medical contact than their healthier colleagues. Malleson (1958c) reported that 328 of the 797 students who entered University College in 1950 attended for routine health examination; of these, 14 (4 per cent.) showed evidence of a psychiatric disorder. Parnell (1947) examined 155 students from two Oxford colleges and found "minor anxieties" in 20; this was 13 per cent. of all abnormalities found. At Sheffield, Pemberton (1948) examined an entry of 407 new students; minor anxiety was found in 20 per cent. and "severer illness" in 7 per cent.

Estimates based on the usage of psychiatric services also must be cautiously interpreted, since utilisation of such services depends on the facilities available, the frequency with which cases are wont to be referred and even on the attitude of the university physicians towards psychiatry. As Malleson (1961) pointed out; "when the word gets round that the student health service does not really cater for people in psychological trouble, unhappy students seldom come to it for advice." It must also be remembered that figures for self-referral have limited relevance to morbidity estimates. Many students are more inclined to seek advice for psychological problems than others. For example, in a questionnaire inquiry and investigation of the medical records of 614 men students at the University of Wisconsin, Mechanic (1961) found that the measure of inclination to seek advice was not general, but was significantly related to religion (Jews and Episcopalians most inclined, Catholics least) higher social status, degree of dependency on others and the amount of stress encountered by the patient. During the first 18 months of a self-referral psychiatric service at the London School of
Economics, 3.5 per cent. of all students attended for advice. (Read, 1954a). Here again it is difficult to draw an arbitrary line between a personal and a psychological problem; a service such as Dr. Read's offers both psychiatric treatment for serious disability and simple counsel for minor and temporary human predicaments. At Edinburgh, as at most centres with a special student psychiatric clinic, the students who present with minor emotional disturbance are treated by the general physicians. Only 1-2 per cent. of all registered with the University Health Service between 1956 and 1961 were referred to the attending psychiatrist (Verney, 1961b). This figure is minimal, since it does not include self-referrals or those who chose other paths of access to psychiatric clinics. A truer estimate has been provided at Aberdeen; the overall incidence of psychiatric referral from all sources (University Health Service, university teachers, general practitioners, etc.) between the years 1954 and 1960 was 9 to 11 per cent. of all students at risk during this period (Sinclair-Gieben, 1961).

There is much data on the usage of psychiatric services by students in America. It is unlikely that these figures are comparable with those for British students. In America, where 'college psychiatry' has been long accepted, students are less hesitant to go to a psychiatrist. The rates for consultation at the psychiatric services of the Universities of California, Harvard, Michigan, Wellesley, Wisconsin and Yale vary from 7 per cent. to a maximal figure of 20 per cent. (Snyder, 1962). At the Massachusetts Institute of Technology in 1961, 7.1 per cent. of the students consulted the
psychiatric service (Snyder, 1962); at Michigan, 10 per cent. consulted (Raphael, 1951); and at New Hampshire, 7 per cent. consulted (Carroll and Jones, 1944). Carstairs (1961) has pointed out that the merit of a "catch-all" service of the kind provided in American colleges is that it can include, along with much that is trivial or of purely transient importance, the earlier stages of more serious disturbances. Snyder found that only 0.5 per cent. of all at risk at M.I.T. had formal psychiatric illness, yet 7.1 per cent. had consulted the psychiatric service. In the light of this data it may well be that the high incidence of psychiatric disorders commonly reported by American universities is the result of a greater readiness to ask for psychiatric treatment and not an indication of a larger amount of mental suffering.

The particular proneness to psychiatric disorders of first year students

Psychiatric disorders are not distributed evenly among students at different stages of university training. Proportionately more first year students attend the university health service with psychiatric illness than do students of any subsequent year. Gifford (1961) has reported high consultation rates for first year students at Sheffield. Sinclair-Gieben (1961) found that 37 per cent. of all students referred to the psychiatric service at Aberdeen were freshmen. At Edinburgh, Verney and Robertson (1948) found anxiety states present in 7 per cent. of first year students at routine medical examination on entry, a rate which is higher than that (4 per cent.) for all psychiatric disorders among all students attending the
service. Fry (1942) reported that 45 per cent of his series of emotionally disturbed Yale undergraduate students were freshmen, and also that the proportion of undergraduate to postgraduate patients was in excess of the proportion of undergraduates to postgraduates in the university. At Paris, the prevalence of psychiatric disorders is greater among first-year students than among their fellows (Pulse, 1962). Carroll and Jones (1944) reported that a strikingly high proportion of New Hampshire students who attended the psychiatric service there were first-year students.

Malleson (1961) has shown by content analysis of the records of patients attending the student health service at University College that a very high proportion of first-year students who consulted during their first two months had severe mental illness, while most who consulted during the second six months of their freshman year had problems related to study difficulty and pre-examination strain. Similar findings were reported by Fry (1942) who found that 43 per cent of the freshman psychiatric patients at Yale had scholastic difficulties, the remainder either being frankly ill or having general adaptational difficulties.

It is perhaps understandable that first-year students should be particularly vulnerable to psychological pressures. They are in a new life situation; they have to cope for themselves perhaps for the first time in their lives; they are now theoretically adult, they are newly confronted with the need for individual thought, decision-making, action and study; they have to develop their own approach to living in society and adjusting to the freedom and
Formulation of the need for a study

Harris (1962) has said: "For a student, the university is not so much an institution as three or four years of his life." The time spent at university is, however, not just any three or four years of an individual's life - it is a vital period of opportunity, of transition from adolescence to adulthood, of vulnerability that accompanies this transition, where the foundations are laid for a life-time career in which the student of today will add to the highly skilled and intellectual resources of the nation.

It has already been pointed out that students are a highly selected, intelligent and important group of individuals. It is argued that among them there is a high proportion who develop psychiatric disorders or emotional distress, and that these conditions, because they occur at this vital time, constitute a major threat to the student's personal happiness, his ability to study and his chances of success. This proportion is believed to be highest among the youngest students - those in their first year at the university. For some of those who develop psychiatric disorders, their first year is their last as a student. What is most important is that this wastage continues to occur despite the stringency of student selection methods which are now everywhere employed. From the 'eleven-plus' stage to university entry, attempts are made to ensure that the students chosen for further education are those who would most likely benefit from it. Modern screening methods are as much concerned with the psychological attributes of applicants for university places as with their academic potential, but
case rates reported for psychiatric disorders among first year students are high nonetheless. Psychiatric disorders certainly occur among all groups of the general population, but it would be difficult to suggest a group of young people in whom the consequences are more drastic than that of university students. So much is at stake during the short time spent at university that students cannot afford to be ill for any reason, least of all from psychiatric disorders where the ability to study - the first requirement of all students - is especially impaired. Millar (1948), from his experience of the psychological difficulties revealed by students, was convinced that: "it can be inferred from the scanty information available that a problem of great magnitude exists of which we are hardly aware."

Why these problems should be studied epidemiologically

Information regarding the frequency and concomitants of mental ill-health among students is accumulating slowly but the great need is for a better understanding of the factors involved and the relative importance of each. Prevalence studies indicate the extent to which psychiatric disorders occur among student populations but effective action to prevent mental distress in the universities requires as its basis more knowledge than is at present available.

University authorities are everywhere concerned to learn the answers to two broad questions:

1. Why is the prevalence of psychiatric disorders seemingly greater for students than for others?
2. Can students who are likely to develop psychiatric disorders be identified, so that those who are concerned with student selection may be aware of those in whom the risk is greater, and that those who are concerned with student health and welfare may be in a position to modify or prevent this?

To try to answer these questions many authors have determined the characteristics of ill students and these social and clinical studies have provided a considerable amount of valuable information. Possible indicators towards proneness to psychiatric disorders have been cited among social and demographic, economic, medical, psychological and educational factors in the students' backgrounds as well as provocative factors experienced in adjusting to university life, particularly during their early terms. The chief drawback is that most work in this field has consisted of retrospective studies and have considered only those who have been ill. Some investigators have examined certain characteristics of ill students and compared them with the same features in a control group of healthy students. These useful reports are few, and when this has been done the numbers in the samples have been small and the conclusions have not been striking. The second drawback is that little is known about the mental health of students who live locally and do not come to the notice of the university health physicians. They are few in number at the predominantly residential universities but they account for about one-third of all students at the provincial universities and the Scottish universities (with the possible exception of St. Andrews where a high proportion of students are in residence). Thus, the available data describe
the characteristics of only a proportion of those who are at risk, and concentrate only on those who have been ill.

Clinical studies can merely suggest factors that influence the prevalence of psychiatric disorders among students although they do provide indications about where to expect high rates of illness among the student population. To identify those who are prone to illness it is necessary to carry out an epidemiological study. The epidemiological method aims, by prospective study, to examine the distribution of psychiatric disorders within a total student population and the factors governing them. By this approach alone, as Carstairs (1961) pointed out, "we will be able to identify the significant attributes of the neurosis-prone student." This knowledge is an essential step in designing a rational service for prevention of student breakdown.

This thesis reports an epidemiological inquiry into the factors that influence the prevalence of psychiatric disorders among students of the University of Edinburgh. It is a prospective inquiry. A total cohort of presumably healthy first year students are identified on university entry, classified according to the presence or absence in each of factors reported to have a bearing on the mental health of students, and followed for a complete academic year. Illness that has presented during this period is related back to the results of the initial classification, and in this way the factors that most influence the prevalence of psychiatric disorders
among the cohort are determined.

Aim of the study

The aim of this investigation was to determine the factors that most influence the prevalence of psychiatric disorders among a total new entry of university students. The presence or absence of all pertinent factors has been determined in each member of a new student intake and the epidemiological method has been used to determine the frequency of each factor in those students who have and have not manifested psychiatric disorders of defined severity. It has, therefore, also been an object of the study to determine the prevalence of psychiatric disorders among this student population.

* * *

PART II
General method

Preparatory planning

Before the investigation was embarked upon, much time was spent on preliminary study to find out the best approach, the advantages and possible
difficulties in carrying out an epidemiological inquiry among Edinburgh students. Considerable impetus was lent to this by the interest and active co-operation of all university members who were concerned with the health and welfare of students. Discussions were held with the physicians of the University Health Service, the staff of the Department of Student Accommodation and Welfare, the chaplains, wardens of halls of residence, the director of the Department of Physical Education, and members of university graduate and administrative staff. Much was gained by this, that was both practical for planning the research and informative in respect of the usage of counselling and medical facilities available for students with psychiatric disorders.

Medical and psychiatric services for students at Edinburgh

There is a long tradition of medical care for students at the University of Edinburgh. Since 1879 there has been a special unit at the Royal Infirmary for the treatment of students. In 1926, a committee under the chairmanship of Lord Constable was convened at Edinburgh which recommended that facilities should be provided for student athletic activities and a supervisory medical service. This resulted, in 1930, in the establishment of the University Department of Physical Education which included a scheme for a medical service (Verney, 1954). The university health service thus formed was among the first to be opened in Britain, and from its inception emphasis has always been placed on providing a comprehensive treatment service to meet the medical needs of students. The earliest publications on the health of students in this country came from the Edinburgh centre (Slater, 1936, 1940). It is appropriate that
the present study has been carried out at this university - for so long
a pioneer in the development of medical services for students.

Since 1948 the University Health Service has operated as a general
practice within the framework of the National Health Service. There are
five physicians on the staff (two full-time, three part-time), two dental
surgeons, a nursing sister and a dispensing chemist. Every student is
encouraged, on university entry, to ensure that he is on a doctor's list.
Those whose homes are in the Edinburgh area normally remain on their family
doctor's list while attending the university. Those whose homes are outwith
the Edinburgh area may seek registration with any doctor of their choice in
Edinburgh, but provision is made on matriculation for students to apply for
registration with the University Health Service. Normally the majority
of students from elsewhere in Scotland, the United Kingdom and abroad
(two-thirds of all students) register with the physicians of the University
Health Service.

From the earliest days facilities for psychiatric care of students
have been provided by the University Department of Psychological Medicine.
Students were referred to this department, usually by arrangement, until
1956 when a special student psychiatric clinic was started at the University
Health Service, a psychiatrist from the Department of Psychological Medicine
attending for one session per week. The traditional practice has been that
students who manifest minor psychiatric disorders, emotional distress or
problems in adjusting to university life are dealt with by the university
physicians themselves. Normally, only students with more serious or
FIGURE 1

Students referred to psychiatric clinic, the University Health Service 1956-1962.
persistent psychological conditions are referred to the attending psychiatrist. The number of referrals has varied little since the clinic first opened (see Figure 1), and the number of students registered with the University Health Service has been constant during the same period. During the last ten years the proportion of students who consulted the university physicians for a psychiatric disorder has also been constant, around 4 per cent. of all illnesses for which a consultation was made.

These figures indicated a uniformity in both practice and nosology, ideal for reliability of case finding.

Choice of the student population for study

Lin and Standley (1962) pointed out that the use of a student population for the study of factors in the etiology of psychiatric disorders among its members has much to recommend it since it is possible to eliminate some of the usual variables that may bias an epidemiological investigation. The population at Edinburgh University is broadly homogeneous in age, education and living conditions. The personal liability to illness of individuals in whom certain predisposing factors are operative can be more confidently studied knowing that all are subject to much the same environmental hazards over the same period of time.

The choice of the student population for study was not made arbitrarily, but was largely determined by two of the outstanding needs that lent impetus to the carrying out of this investigation. First, the particular proneness to psychiatric disorders reported for first year students indicated that they might be a high risk group among the student population, for whom the
need for study was greatest and among whom operationally rewarding high case rates might be expected. Second, little is known about the mental health of the sizeable proportion of students who are registered with local general practitioners and do not attend university health services. No meaningful study of the distribution of psychiatric disorders would be worthwhile unless the population comprised all at risk. A poorly documented section of the student population could especially not be ignored.

For these reasons the student population chosen for study was made up of all first year entrants to the University of Edinburgh at the beginning of one academic year, 1961 - 1962.

Review of the literature an essential preliminary for this study

Much that has been written from clinical and social observations of students with psychiatric disorders provides hints of possible associations between illness and factors that are operative in the student's background and experience. After the first hint of an association between two factors, the search for clues to causation becomes more systematic (Reid, 1960). The evidence accruing from field observations is circumstantial, in that it may be enough to suggest a causal relationship but cannot give final proof of it. Yet the accumulation of such evidence is the first vital step in uncovering factors that significantly influence the prevalence of psychiatric disorders. The basic essential for a prospective study is, therefore, to have an informed preconception of the factors likely to be relevant. Further, as there is good evidence for the multiple causation of psychiatric disorders the need for a broad approach to the problem is clear.
In planning this investigation the first stage was to make a detailed and systematic study of the literature on student mental illness and student wastage. The purpose of reviewing was to identify, from the observations of others working in this field, factors in the student's background and experience that have been shown or suggested to have a bearing on his mental health at university.

The factors thus derived from the literature provided data from which hypotheses were constructed that this study was specifically designed to test.

**Period of time of the study**

The period of scrutiny comprised one academic year. For the purposes of this investigation the defined population was 'at risk' from the time of matriculation (1st October) to the time of the end of degree examinations in the following summer (30th June). The survey year, therefore, comprised the first three terms that the new entry of students spent at the University of Edinburgh.

**Operational procedures**

The study fell naturally into five stages. Each stage of inquiry provided, in logical sequence, information that was pertinent to each succeeding stage. The methods used were directly relevant to the objectives of each stage; they have been fully described in the appropriate sections and need no detailed mention here. Broadly, the procedure of this study has fulfilled the need for investigation stressed by Sinclair-Gieben (1961); "we should study a whole academic year, keep tabs on them, assess them when
they come in to university, see what happens to them, and attempt to predict breakdown by 'vulnerable' students."

The first stage consisted of the review of the literature of student mental illness and student wastage. For each factor cited as having a bearing on the mental health of students, a hypothesis was constructed, apt for epidemiological testing. These hypotheses were the matrix within which this study was developed.

The second stage describes the methods used to identify the total cohort of first year students. This was carried out at the beginning of the survey year. All new students were asked to complete a questionnaire that was used as an instrument to ascertain in each student the presence or absence of the factors of his experience putatively related to his subsequent mental health. The final composition of the cohort was 1,555 students, of whom 981 were men and 574 were women. There was only one refusal. With this exception the cohort was made up of a 100 per cent, total entry of first-year students to the University of Edinburgh at the beginning of the survey year.

The third stage was concerned with a "mid-survey" inquiry, directed towards both students and their doctors, which was carried out at the end of the first three months of the period of scrutiny. It determined the extent to which students had consulted doctors other than those with whom they were registered. Next, it showed to what extent doctors were likely to co-operate in providing data (judged by their responses to this "mid-survey" study), and finally it demonstrated the amount of agreement between students and doctors about consultations made by the one with the other. This inquiry made it
possible to decide the best method for detecting those who developed psychiatric disorders and on suitable criteria to be used for case identification. At the same time criteria were defined for inadequate academic performance made by members of the cohort and satisfactory methods for finding this out were ascertained.

The fourth stage, that of case identification, was reached at the end of the survey year. First, a questionnaire study was carried out to enquire of each member of the cohort whether, during the academic year, they had been emotionally or nervously unwell." This provided a measure of self-declaration of illness among the cohort. Second, the prevalence of psychiatric disorders among the cohort was determined. This was done by (a) making detailed inquiries at all psychiatric services within the city of Edinburgh and the South East region of Scotland to determine whether any member of the cohort had been seen by a psychiatrist as an inpatient or as an outpatient between 1st October and 30th June of the survey year, and (b), using the methods described by Kessel (1962), to determine whether any member of the cohort had consulted his own doctor (whether at the University Health Service or one of 257 general practitioners with whom those not attending the Service were registered) for a psychiatric disorder of defined severity. This investigation provided a period prevalence rate for psychiatric disorders of defined severity among the total cohort of all first year students at risk during one academic year.

Third, the academic record of each member of the cohort was scrutinized
to identify, within a framework of criteria, those who had made an 'inadequate academic performance.'

The fifth stage was concerned with the questions that the study was specifically designed to answer. The hypotheses derived from the factors cited in the review of the literature were now tested. They were examined separately in respect of (a) medically diagnosed psychiatric morbidity in the cohort and (b) self-declaration of emotional or nervous illness by the cohort. This demonstrated the influence of each factor concerned on the prevalence of psychiatric disorders among the cohort. As well as this, but secondary to the main intention, the results have demonstrated the characteristics of students who have psychiatric disorders. This section concludes with a summary of the results indicating, as the experiment was designed to do, the significant attributes of the illness-prone student.
STAGE ONE

LIKELY CONCOMITANTS OF PSYCHIATRIC ILLNESS IN STUDENTS

A review of the literature
The factors influencing the prevalence of psychiatric disorders among students - as among any section of the general population - are many, various and interacting. In the individual case no single cause operates in vacuo to produce psychological illness. Acceptance of the idea of multiple causation does not, however, rule out the possibility that in a proportion of cases mental health may be mainly influenced by a given cause. Thus, the main aim of this investigation is to study the influence of a wide variety of factors on the prevalence of psychiatric disorders among a total new entry of university students. In this way the factors that most influence the prevalence of illness among students can be determined.

The first stage of this work, therefore, is concerned with a systematic review of the literature on mental illness and academic failure among university students. The purpose of reviewing was to identify, from the reports of others working in this field, factors in the new student's background and experience that have been shown or suggested to have a bearing on his mental health at university.

For each factor thus found, a hypothesis was constructed.

For example:

One author may have reported that factor X was conspicuous in the background of students who consulted with psychiatric disorders; another may have demonstrated that factor X was operative significantly more often among mentally disturbed students than among a matched sample of healthy students; and another may have noted that academic revoke occurred prominently among those in whom factor X was operative. In contrast, however, an author may have shown that there was no demonstrable association between psychiatric disorders and being in the factor X group in his study; or another may have pointed out that, in his experience, it was rare for factor X students to develop emotional disturbance.
For information of this sort, the present study would be concerned to identify among all students on university entry those in whom factor X was operative, ascertain at the end of a period of scrutiny which of all students had had a psychiatric disorder during this time, and examine to what extent illness occurred in the 'factor X group' as compared with those in whom the factor was not operative. This procedure tests the hypothesis that review of the literature provides: "in relation to factor X, the prevalence of psychiatric disorders is greater among students in whom the factor is operative than among those in whom the factor is not operative." All factors selected for investigation are treated in this way.

Parameters of inquiry

The factors for investigation were those which could be readily identified at the point of entry of each student to the university. Where possible, every factor that has been cited as a likely concomitant of student mental illness was included for investigation.

There were two main exceptions.

First, while a considerable number of environmental stresses while at university could be anticipated by reference to the pre-university characteristics of students, in certain instances this was not possible. For example, it could not be predicted on university entry that a student would be likely to develop an emotional disturbance from, say, the experience of an unhappy love affair or sexual encounter. nor could it be
anticipated that a student's lodgings would be uncongenial and likely to provoke loneliness and homesickness. The prospective nature of this inquiry made it necessary to exclude such factors that may fortuitously arise.

Second, it was necessary to exclude two factors from the study. These were physique (somatotype), and personality profiles, both of which provide indices that are relevant to predisposition to psychiatric disorders. Their measurement among an expected entry of 1600 students would have been impracticable.

In preparation for this study, the literature on student mental illness from many countries was examined. Particular emphasis has been, however, placed on British publications as it was felt that more valid comparisons might be made between Edinburgh students and students of other British universities, whose experience is enacted in similar environmental and cultural circumstances. Many factors in psychological illness are, of course, common to all students whatever and wherever they may be but care must be exercised in any generalisation.

Details of coverage

Preliminary review showed that the likely concomitants of psychiatric illness among students could be broadly classified as follows;

1. **SOCIAL AND DEMOGRAPHIC FACTORS**

   Personal factors: Sex - age - social class - marital status - religious affiliation.
Domiciliary and ethnic factors: Domiciliary distribution - ethnic differences - cultural differences - the overseas student - national differences.

Parental and family factors: the broken home (parents) - the broken home (marriage) - happiness in the home - influences of following parent's profession - student's attitudes to entrance to university - parental pressures.

2. ECONOMIC FACTORS


3. MEDICAL FACTORS

Previous health: Self-rating of health - loss of school time from illness - frequency of consultation - number of past illnesses declared - nature of past ill-health among students.

4. EDUCATIONAL FACTORS

Pre-University: Category of schooling by type of educational establishment - entrance qualifications - self-ratings on achievement in spheres of school activity - influence of being an "all-rounder".

University: Faculty in which entered for study - type of degree course - academic performance - its relationship to degree of psychiatric illness.

5. LIVING AT THE UNIVERSITY

Living arrangements: Students at home - students in halls of residence, flats, lodgings - previous experience of independence - the student commuter - living with relations.

The factors which arise in these main areas are considered in turn.
Social and demographic factors

SEX

It is widely recognised that in the general population psychiatric disorders occur more frequently among women than among men. Mental hospital admission rates are higher for women than for men in respect of all psychiatric disorders (Registrar General, 1959) and in respect of neuroses (Kessel and Shepherd, 1962). A greater proportion of women than men attend psychiatric outpatient departments (Kessel and Shepherd, 1962). The same sex difference has been demonstrated in studies on the prevalence of psychiatric disorders in general practice (Cooper et al., 1962; Fry, 1957; Kessel, 1960; Kessel and Shepherd, 1962; Shepherd et al., 1959; Watts, 1962), among factory workers (Collier, 1943; Fraser, 1947) and in the population of a new housing estate (Martin, Brotherston and Chave, 1957).

Among university students, Parnell (1947), reporting the findings on voluntary health examination of 155 students from two Oxford colleges, showed that a higher proportion of women than men had "minor anxieties". Davy (1960) observed among Cambridge students who were referred for psychiatric treatment that the proportion of women to men patients was greater than the proportion of women to men in the university. Over a ten year period at Leeds, Still (1954, 1961a) has shown that the prevalence of psychiatric disorders was significantly higher among women than among men attending the University Health Service there.

Differences in sex-specific rates for psychiatric disorders among students
have not been uniformly reported. Pemberton (1948) observed that anxiety features were present in equal proportions of men and women students at Sheffield who attended for voluntary health examination. Grant (1961) reported that "serious psychological disorder" occurred among equal proportions of men and women attending a Welsh college during a single academic year, and Malleson (1958c) who studied a total new entry of students at University College, London found no sex differences in case rates for minor psychological disorders. Furneaux (1961) reported that boys and girls at co-educational schools were "judged to display excessive nervousness" with similar frequency. Suicide, as a measure of acute psychiatric disorder, has been shown to be rarely committed by women university students (Rook, 1959).

The hypothesis was constructed: "the prevalence of psychiatric disorders is greater among men than among women."

**AGE**

Surveys of psychiatric morbidity in general practice have shown that prevalence rates are not affected by age, except for a high incidence among middle-aged women (Cooper et al., 1962; Fry, 1957; Kessel, 1960; Shepherd et al., 1959). Kessel and Shepherd (1962) have demonstrated that the traditional association of neurosis with young adult life is not supported by data derived from general practice. Their figures, however, did show a slight trend of increasing prevalence among the 15-25 age group.

Among university students, therefore, one might expect a higher prevalence
of psychiatric disorders in older students. Davy (1957) reported that 42 per cent. of a group of 500 students in their final term at Cambridge stated that they were constantly or frequently anxious. Mechanic (1962) stated that older students are more prone to be anxious than younger students, particularly before examinations.

In contrast, however, it has been reported that younger students seek psychiatric advice in greater numbers than older students (Carroll and Jones, 1944). McKinney (1937) showed that younger students rated worse on an adjustment/maladjustment scale than older students, in whom maladjustment was less marked. Yerney (1951) in a study of the influence of national service on the Edinburgh undergraduate showed that older (ex-service) students were more stable and better integrated than their younger fellows, although this has not been borne out in respect of student wastage among this age group (University of Edinburgh, 1957; Thomson, 1951).

In a detailed study at Oxford, Davidson et al. (1955) found no significant difference in respect of age between student patients attending a psychiatric clinic and a control group of healthy students. Similarly, age was not a differentiating factor between successful students and those who quit their studies at University College, London (Hopkins et al., 1957).

The hypothesis was constructed: "the prevalence of psychiatric disorders is affected by age."

**SOCIAL CLASS**

Social class and occupational grade of parents were not considered
significant correlates of psychiatric disorders among students by Davidson et al. (1955) and Hunter et al. (1961). Rook (1959) pointed out that social class was not a factor influencing suicide among Cambridge students. Thomson (1951) showed that progress at Edinburgh University was not influenced by social class differences. These findings are not confined to university students: Collier (1943) demonstrated that psychiatric disability among industrial personnel occurred equally among patients from all social classes.

Malleson (1954) and Read (1954) held an opposing view, pointing out that any discrepancy between the socio-cultural backgrounds of home and university is a potent source of strain among students. Smith (1942) observed that American students from professional homes are more stable and in fact do better at university than their colleagues from skilled and unskilled backgrounds. Fry (1942) observed, "For a number of students, an obstacle to successful social adjustment was the feeling of inferiority experienced by those who came from poor homes.... many found it difficult to withstand the pressure...without experiencing emotional distress." In contrast, Grinker (1962) stressed that a relatively low socio-economic origin is conducive to stability among students.

The hypothesis was constructed: "the prevalence of psychiatric disorders is greater for those from the lower social classes than for those whose background is of higher socio-cultural status."

**MARITAL STATUS**

It has been argued that married students are subject to greater stresses
and responsibilities than single students which make them more prone to develop psychiatric disorders (Read, 1954b), although from the academic standpoint it has been shown that married students are mostly successful in their studies (Hopkins et al., 1957). Pemberton (1948) cited as sources of strain the difficulties that married students meet in finding suitable lodgings and providing for their families. Mechanic (1962) has stressed that while emotional difficulties among married students are quite commonly provoked by economic hardship, more often the principal difficulty stems from the aspirations and tensions set up within the family. Fry (1942) has warned that married students as a group may be prone to develop psychiatric disorders because many of student age precipitately enter marriage as an escape from emotional or personality problems.

The hypothesis was constructed: "the prevalence of psychiatric disorders is greater for married students than for single students."

RELIGIOUS DENOMINATION

It is difficult to assess the relevance of the influence of religious factors on the prevalence of psychiatric disorders since, as Morgan (1963) has stated, "in this Christian nation, only one person in ten goes to church." Grinker (1962), however, stressed that a sound early religious training is one of the valuable prerequisites for good mental health among students. Rettig and Pasamanick (1960) presented an interesting factorial analysis of changes in judgements in relation to age. They found that religious faith was less
important to younger students than to the older alumni. Herford (1959) was not convinced that religious feeling is in any way lacking in late adolescence, but rather that the young people of his experience were really and sincerely interested in spiritual problems: "They do not have time for any particular dogmata or systems of religion, but the spirit behind it has considerable attraction for them."

Niblett (1961) warned that stability of mind and instability of conviction do not go well together. Brown and Lowe (1951) studied the religious beliefs and personality characteristics of American college students and reported that non-believers were superior in intelligence but had a greater tendency than believers towards pessimism and worry. Malleson (1954) at University College observed that many students who sought advice on emotional problems had recently undergone a diminution of religious interest. This same feature has been reported by Fry (1942) at Yale and Davy (1957) at Cambridge.

In contrast, membership of a particular religious denomination, or change in religious interest was not significantly associated with psychiatric disorders among Oxford students (Davidson et al., 1955) or with academic revokes among London students (Hopkins et al., 1957).

Two hypotheses were constructed: (1) "the prevalence of psychiatric disorders is greater for those who declare that they have no religious affiliation than for those who declare otherwise" and (2) "in relation to religious groups, the prevalence of psychiatric disorders is greater among minority groups."
ETHNIC AND DOMICILIARY CONSIDERATIONS

Less than 10 per cent. of men and 5 per cent. of women admitted to all British universities are from overseas. Of these, two-thirds come from British Commonwealth countries (Kelsall, 1957). It has often been stressed that overseas students are particularly prone to develop psychiatric disorders. This is held to be especially true for those who are subject to the stresses set up by differences in language, race and culture. Murphy (1959) has argued that overseas students are under a particular strain because failure represents disgrace to themselves, to their families, and even to their entire community.

A high prevalence of psychiatric disorders has been shown among overseas students at Edinburgh (Laverty, 1958), at Leeds (Still, 1954, 1961a, 1961b), at the London School of Economics (Read 1954b), and at Sheffield (Gifford, 1961), to name but a few. Miss Mary Trevelyan, Adviser to Overseas Students at London University, has pointed out that while a large proportion of overseas students have emotional illness, these are rarely serious mental disorders but more commonly are simple maladjustments resulting from "natural causes in facing an alien world" (Trevelyan, 1961). She has cited the following factors in the causation of psychological illness in overseas students - uprooting from home, change of climate, change of culture, change of food, and the strangeness of excessive speed and noise. In addition, money worries may often be prominent, a matter which reaches acute proportions for students from abroad who have no local access to financial support in times of hardship.
Margaret Mead (1959) has suggested that about 75 per cent of university students in the world today are making radical changes in patterns of some sort. Querido (1954) has mentioned how much more difficult adaptation is for students who have to bridge gaps set up by cultural and language differences. Still (1961b) has shown that the prevalence of psychiatric disorders is particularly high among non-European students, and cited high case rates for Leeds students from Egypt, Nigeria, Turkey, Iraq, India and Pakistan.

A psychiatric disorder thought peculiar to West African students has been reported by Prince (1960). He described the "brain-fag" syndrome, a form of neurosis especially characterised by difficulty in mentation, sensory disturbance and prominent somatic complaints. This condition markedly interferes with work and, he observed, may be in part due to the "imposition of European learning techniques upon the Nigerian personality." Gifford (1961) and Still (1961b) have also noted the prominent occurrence of somatic complaints among emotionally disturbed overseas students.

Problems of racial prejudice often affect overseas students. A PEP publication (1961) gave details of difficulties arising from colour discrimination against Indian students in Britain. Seventy per cent. of a sample interviewed declared that they had felt this prejudice, and 49 per cent. stated that they had definitely experienced its results. In this respect difficulties in obtaining satisfactory lodgings were quoted, and the particular problems relating to food taboos, having few friends, and loneliness. Many overseas students are married but cannot bring their wives with them; in
the PEP investigation, 73 per cent. of the married students in this situation reported that this caused "a great strain." A measure of the subjective experience of Indians studying abroad has been provided by Kiell (1951) who recorded the attitudes of a group of 100 Indian students at American colleges. Soon after arrival 90 per cent. expressed a favourable opinion of their experience; four months later this percentage had dropped to 43 per cent.

Onuigbo (1958) has stressed, however, that negro students may easily overestimate the incidence of racial prejudice. In an interesting study of the attitudes of Glasgow tram conductors to him as an African as compared with his Scottish fellow passengers, he observed that he was in no way specifically discriminated against, in contrast to his earlier subjective impressions of colour prejudice. Hypersensitivity in a situation of cultural change is not unique to coloured students. Kino (1951) has observed that hypersensitivity among Polish nationals in Britain can provoke paranoid reactions at times amounting virtually to a "genuine psychogenic psychotic reaction".

While much has been published about overseas students, certain areas are as yet undefined. It has been shown that success and failure at University College is not affected by nationality (Hopkins et al., 1957), but in general the extent to which emotional difficulties interfere with the academic progress of overseas students is poorly documented. It is not known whether the prevalence of psychiatric disorders is higher among coloured students than among other foreign students (Prince, 1960). It is appreciated that both cultural and language barriers present a formidable
obstacle to overseas students which may influence their mental health. However, it is not clear whether such an influence affects all from overseas, or only those of particular racial groups. Further, if overseas students experience anxiety that is evoked in adapting to a situation of cultural change, to a lesser extent the same factors might be operative for English students at a Scottish University.

The following hypotheses were constructed:

1. "the prevalence of psychiatric disorders is greater for overseas students than for British nationals."

2. "in relation to overseas students, the prevalence of psychiatric disorders is greater among those who are experiencing marked cultural transition."

3. "in relation to overseas students, the prevalence of psychiatric disorders is greater among those whose mother tongue is not English."

4. "in relation to overseas students, the prevalence of psychiatric disorders is greater among coloured students."

5. "in relation to British students, the prevalence of psychiatric disorders is greater among those at this university who are not Scots."

BACKGROUND OF A BROKEN HOME

It has been reported that a conspicuous proportion of students who are maladjusted at university come from homes that have been disrupted by death or by separation of the parents (McKinney, 1937). Since Bowlby (1952) the effects of parental deprivation on the child have been the subject of
extensive reports, but these need no special mention here. It is now generally held that maternal deprivation is only one of a whole range of adverse influences that may alter a child's potentialities (Lin and Standley, 1962).

Fry (1942) pointed out that it was rare in his experience to be consulted with psychological problems by students in whom there was not some family history of parental death, separation or disharmony. Henn (1951) listed divorce or death of a parent high among the concomitants of student breakdown, although in contrast, Davidson et al. (1955) did not find that a history of a broken home was a significant factor that contributed to psychological vulnerability among Oxford students.

The hypothesis was constructed: "the prevalence of psychiatric disorders is greater for students from broken homes than for those whose family composition has not been severed by separation or death of one or both parents."

**BROKEN MARRIAGE**

Fry (1942) observed that married students as a group may be prone to develop psychiatric disorders because many of student age precipitately enter marriage as an escape from emotional or personality problems. He added: "Even when these individuals succeed in getting married, the problem is not solved, but often aggravated... the marital adjustment suffers and the marriage itself is jeopardised." Thus in many cases those who are students, and have been married but are now divorced, may be prone to develop psychiatric disorders since they have already shown emotional difficulties by evidence of dissatisfaction in marriage.
Separation from spouse that has come about in order that an individual might enter university has been cited as a particular source of strain for overseas students, among whom this situation is not uncommon (PEP, 1961).

The hypothesis was constructed: "the prevalence of psychiatric disorders among married students is greater for those whose marriage has been broken than for those in whom this factor is not operative."

**DISHARMONY IN THE HOME**

Disturbed family relationships are often stressed as a potent source of emotional instability among students (Fry, 1942; Read, 1961; Still, 1954). Grinker (1962) stated that parental disagreement and an unsatisfactory affectionate relationship with both parents militates against good mental health among students.

Hopkins, Malleson and Sarnoff (1957) in a questionnaire to University College students who had failed to graduate found no correlation with academic performance and questions related to childhood happiness, parental harmony/discord or childhood discipline. However, at the same university, Malleson (1958c) found that difficulties in family relationships ranked high among the principal problems for which he was consulted by emotionally disturbed students. At Cambridge, Henn (1951) found that breakdown before or during examinations was significantly associated with a history of family insecurity and unsatisfactory parent-child relationships. Davidson et al. (1955) at Oxford found that a history of parental disharmony and disturbed student-family relationships presented significantly more often among those who were patients attending a psychiatric clinic than among a control group of healthy students. A correlation between a history of a disturbed home background and "anxiety",...
declared by Cambridge students in a questionnaire survey, was demonstrated by Davy (1957).

Ingham (1949) demonstrated a correlation between psychoneurotic disorders in parents and psychoneurotic disorders in their children, who were students attending an American university. The prevalence of psychiatric disorders in the families of emotionally disturbed students was 50 per cent, in contrast to only 3 per cent, in the families of healthy controls at the same university. Similar findings have been reported at Oxford (Davidson et al., 1955). Ingham showed also that family conflicts were reported by 81 per cent of emotionally disturbed students and by less than 40 per cent of controls.

The hypothesis was constructed: "in relation to happiness in the home, the prevalence of psychiatric disorders is greater among those whose home life is unhappy."

**WHEN PARENT IS A UNIVERSITY GRADUATE, OR WHEN STUDENT IS STUDYING TO ENTER SAME PROFESSION AS PARENT**

Grinker (1962) stated that the well-integrated, stable university student has a "strong identification with his father." There is, however, some evidence that stresses may be evoked among students by the particular aspirations and awareness of parents who are graduates.

Hopkins et al. (1957) at University College showed a significant association between failure to graduate and having a parent who was a university graduate. Querido (1954) observed that in Holland emotionally disturbed students often came from homes in which there was a strong educational tradition. Furneaux (1961) has shown among British school children that there
was an association between a "cultivated" background and a desire for university education, but the extent to which this desire stemmed from the child or from an ambitious parent is open to speculation. Figures for the Edinburgh University Medical School (University of Edinburgh Report, 1957) show a particular instance of this tendency in that a negative correlation with success in the Medical School and father's membership of the medical profession was established. Here parental pressure to pursue studies rather than ability to do so had unfortunate consequences (Montgomery and Ross, 1960). Similar findings have been reported in a psychodynamic study of medical students at Tulane University by Lief et al. (1960). They found that doctors' sons have a special difficulty in achieving both general adjustment and academic success; they were less motivated and less flexible in outlook than their colleagues who were not doctors' sons.

The following hypotheses were constructed: "in respect of parental pressures imposed on the student, (1) the prevalence of psychiatric disorders is greater among those who are the sons and daughters of university graduates; and (2) the prevalence of psychiatric disorders is greater among those whose future university degrees are likely to lead them to enter the same profession as their parents."

ATTITUDES TO ENTERING UNIVERSITY

The transition from school to university involves changes for which few students are adequately prepared (Ralph, 1959). Moreover, it is a frequent
finding that students experiencing mental distress are poorly motivated. Those with no real interest in their studies, who have come to the university for the wrong reasons, to study the wrong subject, and who feel that they are heading for the wrong career are said to be especially prone to neurotic disorders. Hopkins et al. (1957) found a significant positive correlation between academic success and a decision to matriculate because of one's own interest rather than parental pressure. Davy (1960) stressed that students who have no genuine wish to enter university, but who have been persuaded to do so by ambitious parents are a mental health risk. Parental aspirations have also been cited in this respect by Henn (1951), Malleson (1956) and Still (1954). Fry (1942) described the dire consequences on the emotional health of poorly motivated students at Yale University who came from families well rooted in the "Yale tradition".

Furneaux (1961) has shown that parental pressures of this nature present long before the child is of university age. He noted that there was little difference in attitudes towards the desire for a university education between school-children of different occupational groups but cautioned that sixth form pupils from low socio-economic backgrounds mostly are already having 'further' education because their parents wish it. He stated; "There seems to be some possibility that pupils whose fathers are in clerical occupations are subjected to unusually strong external pressures which lead them to continue their education beyond the point which they themselves really desire."

An index of the extent to which new students are not themselves keen on
entering university has been provided by Malleson (1959a). Of 306 students entering University College, only 216 (71 per cent.) were 'keen', while 9 were 'against' and 81 were 'uncertain'.

Fry (1942) has also shown that parental indifference and discouragement is a source of emotional strain to ambitious students. In this instance the relationship is reversed. This has been shown to have bearing on wastage among student nurses in Scotland (Wright, 1962), where significant correlations were demonstrated between nurse-wastage and negative attitudes on the part of the parents.

The following hypotheses were constructed: "in respect of attitudes to entering university, (1) the prevalence of psychiatric disorders is greater among students whose attitudes are unfavourable, and (2) the prevalence of psychiatric disorders is greater among students who are aware that their parents are not in favour of their entering university."

Economic factors

INFLUENCE OF GRANTS, BURSARIES AND SCHOLARSHIPS

Fry (1942) has shown that those whose university education is pursued with only a minimum of private funds are prone to experience emotional disturbance. Hopkins et al. (1957) found a significant correlation between failure to graduate and "not being grant-aided"; in this survey at University College 30 per cent. of those without grants failed but only 14 per cent. of
the grant-aided. Pemberton (1948) observed that the fear of losing their grants was a source of much anxiety cited by students in an inquiry at Sheffield University. Trevelyan (1961) has reported the particular burden of money worries among overseas students who are not grant-aided.

The hypothesis was constructed: "the prevalence of psychiatric disorders is greater for students whose education is not financially assisted than for those who hold grants, bursaries or scholarships."

**FINANCIAL STRAIN ON THE FAMILY**

Financial strain and hardship have been widely cited as stress factors which contribute towards emotional difficulties among students. Read (1954) has observed that this factor was prominent among emotionally disturbed students who consulted the psychiatric service at the London School of Economics. The same has been reported at Aberdeen (Macklin, 1947) and at Belfast (Johnston, 1955).

In contrast, Montgomery and Ross (1960) suggested that a certain amount of financial hardship may not be bad for study, limiting as it does, time spent on other activities. Sir Alan Rock (1959) took the view that most observers believe that financial troubles only rarely induce nervous symptoms, and Davison et al. (1955) were unable to demonstrate any greater amount of financial insecurity among patients attending a psychiatric clinic than among their healthy fellow students.

Two hypotheses were constructed: "in respect of financial strain imposed by the student being at university, (1) the prevalence of psychiatric disorders
is greater among those who report this, and (2) the prevalence of psychiatric disorders is greater among those who report severe financial strain."

NEED FOR VACATION EARNINGS

Vacation employment among students has become so commonplace today that it is widely recognised that income from this source is more often sought for supplementing holiday money than for the basic needs of living. Thoday (1955) observed that there was little evidence to show that sheer financial necessity was a major 'cause' of vacation employment. She showed that 87 per cent. of Birmingham students took vacation work, more often Arts and Science students than Engineering and Commerce students. Thoday's estimate was that "probably only 6 per cent. had to", as a financial necessity.

Nonetheless it was felt likely that those who had to, however few, would declare this, so the following hypothesis was constructed: "in respect of financial strain imposed by the student being at university, the prevalence of psychiatric disorders is greater among those who declare the necessity for vacation earnings."

ECONOMIC DIFFICULTIES OF MARRIED STUDENTS

The economic difficulties of married students have already been mentioned in this review. To summarise, it has been often suggested that

* The second hypothesis was added since it is likely that among students who are aware that their being at university imposes a financial strain on their parents, the resultant emotional strain might be greater among those who felt this most keenly.
married students are faced with excessive economic hardship since their resources must meet their own educational expenses as well as adequate support for their spouse and family. For this reason it is plausible to assume that the strain imposed by financial struggle would render married students particularly prone to emotional reactions.

The hypothesis was constructed: "in respect of financial strain imposed by the student being at university, the prevalence of psychiatric disorders is greater among those who are married."

**Medical factors**

**SELF-RATING OF HEALTH**

It has been argued that a morbid self-perception of standard of health is conspicuous among those who are prone to psychiatric disorders. McKinney (1937) found that students who viewed their physical health with undue concern were more "poorly adjusted" than those who did not declare this attitude. Rust (1960) carried out a mental health questionnaire study among 833 students at Yale and reported a significant association between a student's rating of physical health as below average and "poor mental health".

The hypothesis was constructed: "in respect of self-rating of health, the prevalence of psychiatric disorders is greater among those who rate their
health as 'below average'.'

FREQUENCY OF CONSULTATION

It has been reported in general practice studies that the average number of consultations made per year is conspicuously higher for patients with psychoneurotic disorders than for other attenders. Kessel (1960) showed that both men and women with 'conspicuous psychiatric morbidity' had higher than average consultation rates, and that women consulted more often than men, a sex difference that did not obtain for the other attenders at this practice. Forty per cent. of patients with 'conspicuous psychiatric morbidity' visited their doctor ten or more times in the year, compared with less than 20 per cent. of the other patients. Shepherd et al., (1959) pointed out that although patients with 'conspicuous psychiatric morbidity' attended more often than other patients, they presented a similar pattern of consultations for physical disease.

The hypothesis was constructed: "there is a relationship between case rates for psychiatric disorders and the number of consultations made by students with their doctors during the 12 months prior to university entry."

ILLNESS WHILE AT SCHOOL

Furneaux (1961) observed that school children react to their emotional difficulties by showing symptoms of ill-health and absence from school. The emotionally induced 'school phobia' is an extreme instance of this that
is well known to be a cause of prolonged absence from school.

Illness while at school has been shown by Henn (1951) to play a dominant role in influencing the subsequent mental state of university students. He showed a significant correlation between a history of a long succession of minor ailments and invalidism in adolescence with breakdown before or during examinations among Cambridge undergraduates.

The hypothesis was constructed: "in respect of illness while at school, the prevalence of psychiatric disorders is greater among those who were absent from school for one term or more on account of ill-health."

**REPORTING PAST ILLNESSES**

McKinney (1937) demonstrated a relationship between the number of past illnesses reported in a questionnaire inquiry and "maladjustment" among Missouri students. Thomson (1951) assumed that major illness took its toll of failures among Edinburgh medical students but found no statistical evidence that the number of minor ailments reported was significantly related to achievement. This was not the case with University College students (Hopkins et al., 1957) whose pattern of minor ailments showed significant differences between those who quit their studies and graduates, the failures showing hypochondriacal attitudes in a considerable number of cases;

(After Hopkins, Malleson and Sarnoff, 1957)
Failures  Graduating students

Reported:

More than 10 ailments  18%  14%
0-10 ailments  82%  86%

Similarly, Douady (1959) observed that students in Paris for the most part reached the attention of psychiatrists when they had already consulted general physicians for a series of minor ailments. He pointed out that a history of frequent somatic complaints was conspicuously reported by students who presented with psychiatric disorders.

The hypothesis was constructed: "there is a relationship between case rates for psychiatric disorders and the number of past illnesses declared."

PAST ILLNESSES

Macklin (1947) found lethargy and poor physical health to be prognostic of failure at Aberdeen University. Still (1954) observed that past illnesses, particularly neurotic and psychosomatic conditions were prominent in the case histories of mentally ill students at Leeds. This has also been reported for Oxford students (Davidson et al., 1955), for Cambridge students (Davies, 1960; Henn, 1951) and for Montreal students (Hunter et al., 1961).

The role played by physical illness in the emotional health of students while at university is well known. Malleson (1957) observed that 20 per cent.
of students who consulted him with "pre-examination strain" had psychosomatic complaints. Macklin (1956) pointed out that academic success was often bought at the cost of ill-health due to severe stress. Mechanic (1962) showed that students under stress have a distinct tendency to develop physical illness of a psychosomatic nature. Some have viewed this as more common among overseas students. Gifford (1961) reported that a sample of British students with psychoneurotic disorders displayed predominantly mental complaints in contrast to a sample of overseas students with psychoneurotic disorders who displayed predominantly physical complaints. He commented: "Overseas students prefer to offer an organ for examination rather than a problem for discussion." Similar findings among overseas students have been reported by Still (1961b) and Prince (1960).

It is plausible to assume that patterns of illness among students do not radically change merely because they have become students. Conditions that are known to occur conspicuously among those who have emotional difficulties may conceivably have occurred before they came to university. The findings reported by Davidson et al. (1955), Davy (1960), Henn (1951), Hunter et al. (1961) and Still (1954) suggest that this would be the case.

For the purposes of this study, physical and psychosomatic disorders, that have been prominently reported to occur in association with stress or emotional illness among students, were identified in order that the presence or absence of these disorders in the student's history would provide a medical indicator of his proneness to psychiatric disorders.
Certain past illnesses among students have recently been cited as concomitants of emotional disorders. These are: previous nervous complaints (Davidson et al., 1955; Davy, 1960; Hunter et al., 1961), headaches, migraine (Malleson, 1957; Still 1961b), dyspepsia (Douady, 1959; Malleson, 1957), asthma (Still, 1954), pruritus and skin disorders (Hall and Burrows, 1957; Still, 1954), and obesity (Verney, 1961). Schuck (1951) analysed the medical histories at university of 800 New York women students he had previously questioned about menstrual pain and irregularities. He concluded that "psychoneurosis was no more frequent in those cases allied with essential dysmenorrhoea than in a control group with normal menses."

However, Kessel and Coppen (1963) have shown in a recent inquiry into the menstrual history and personality (as measured by the Maudsley Personality Inventory) of women that pre-menstrual tension correlated very highly with neuroticism, but dysmenorrhoea itself did not correlate with any personality attribute measured by this test. Still (1961b) has observed stammering, epilepsy and insomnia to occur among emotionally disturbed overseas students. Johnston (1955) reported a high incidence of acne vulgaris among students and stressed the emotional consequences of this disfigurement, particularly for young women. Linken (1958) demonstrated a multiplicity of psychological facets by detailed case analyses of acne sufferers among London students. In contrast, however, Lucas (1961) found no significant differences between the mean scores of acne-complainers, acne-non-complainers, and controls in the Maudsley Personality Inventory. Further, he showed that acne sufferers and controls reported psychological symptoms with the
same frequency.

An important contribution in this area was made by Sainsbury (1960). He carried out a detailed survey of some measurable aspects of the personality of patients to distinguish those with psychosomatic diseases from those in which a psychological component is not usually considered important. His sample comprised an unselected outpatient population attending a general hospital, and he examined the association between type of illness found and the personality attributes of neuroticism and extraversion measured by the Maudsley Personality Inventory. Sainsbury was able to demonstrate that patients with psychosomatic diseases had significantly higher scores on neuroticism than had the controls, and that they were significantly more introverted than the controls.

The individual diseases - whether in Sainsbury's psychosomatic, possibly psychosomatic or control groups - which occurred among patients whose M.P.I. scores were significantly higher (neuroticism) and significantly lower (extraversion) than the controls' mean scores provided for this study a list of past illnesses likely to have bearing on the predisposition of students to psychiatric disorders. Conditions thought to present rarely in persons of student age were not included, viz: hypertension, sterility, cervical erosion, and prolapse.

4 Neuroticism is defined as the general emotional lability of a person, his emotional over-responsiveness, and his liability to neurotic breakdown under stress. Extraversion refers to the outgoing, uninhibited, sociable proclivities of a person (Eysenck, 1959). Sainsbury was concerned to show that the level of neuroticism would be higher in patients with psychosomatic disease than in a control group without psychosomatic disease; further, if, as is commonly believed, psychosomatic diseases result from the prolonged physiological effects of an emotion such as anxiety, patients with these diseases would be less extraverted than a non-psychosomatic control group, since anxious and depressed patients are known to be introverted.
The illnesses selected were:

- Urticaria
- Fungus infections
- Alopecia
- Asthma
- Eczema, skin disorders
- Diabetes mellitus
- Pulmonary tuberculosis
- Chronic nasal infection
- Thyrotoxicosis
- Rheumatism
- Low back pain
- Fractures
- Warts
- Dysmenorrhoea, menorrhagia, leucorrhoea

To these were added complaints which are not included above but have been cited by doctors who work with students (vide supra) as concomitants of emotional disturbance:

- Pruritus
- Dyspepsia
- Acne vulgaris
- Obesity
- Migraine, headaches
- Insomnia
- Stammering
- Nervous complaints
- Epilepsy

A general hypothesis was constructed: "In relation to past illnesses experienced by students, the prevalence of psychiatric disorders is greater among those who declared complaints of a particular illness, than among those who did not declare complaints of the same illness."

This hypothesis was planned to be directed at each listed past illness in turn, since a student who declared that he had had complaints relating to any one of these 'stress' disorders might be thought, in the light of the findings reviewed here, to be more vulnerable to psychological pressures than
the student who did not declare this complaint.

Educational factors: pre-university

TYPE OF SCHOOL ATTENDED

Studies on progress and academic performance of students at the University of Edinburgh have shown an association between student wastage and type of school formerly attended by the students. In the 1948, 1949 and 1950 entrants to Edinburgh Medical School a significant correlation with wastage and type of school attended was reported as follows (University of Edinburgh Report, 1957):

<table>
<thead>
<tr>
<th>School type</th>
<th>Wastage within group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edinburgh independant fee paying</td>
<td>37%</td>
</tr>
<tr>
<td>Edinburgh L.E.A.</td>
<td>26%</td>
</tr>
<tr>
<td>Other Scottish L.E.A.</td>
<td>24%</td>
</tr>
<tr>
<td>English Public Schools</td>
<td>22%</td>
</tr>
<tr>
<td>Other Scottish state aided fee paying</td>
<td>17%</td>
</tr>
<tr>
<td>Edinburgh state aided fee paying</td>
<td>16%</td>
</tr>
<tr>
<td>Other Scottish Independant fee paying</td>
<td>15%</td>
</tr>
<tr>
<td>English Grammar Schools</td>
<td>15%</td>
</tr>
</tbody>
</table>

When the data of this Report are grouped, it is found that wastage was greater among students from Scottish schools (23.3 per cent.) than among students from English schools (only 17.3 per cent.).

Thomson (1951) studied the performances of 137 first year Edinburgh medical students and found that those who had been educated in England scored
59.3 per cent. of the available marks compared with those educated in Scotland who scored only 48.5 per cent. of the available marks.

More recently this has been shown also to obtain for students in other faculties: Craig and Duff (1961) reported that Edinburgh Pure Science students who were educated in Scotland did less well academically than those educated at English schools.

Since it is widely held that emotional difficulties are a potent cause of student wastage, it might be assumed that the prevalence of psychiatric disorders would be high among groups in which wastage is known to be high, namely, among Edinburgh students educated at Scottish schools. The hypothesis was constructed: "in relation to type of school attended, the prevalence of psychiatric disorders is greater among those who were educated at Scottish schools."

PUBLIC SCHOOLS

Kelsall (1957) has shown that 21 per cent. of all entrants to British universities have been educated at public schools. At Edinburgh Medical School the highest wastage was reported among students educated at Scottish public schools (University of Edinburgh Report, 1957).

<table>
<thead>
<tr>
<th>Scottish education</th>
<th>Wastage within group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scots (under English system public schools)</td>
<td>41%</td>
</tr>
<tr>
<td>Scots (under native education)</td>
<td>20%</td>
</tr>
</tbody>
</table>
A London investigation (Hopkins, Malleson and Sarnoff, 1957) found that students from English public schools quit their studies significantly more often than those from grammar schools, but pointed out a possible bias in these findings in that public schoolboys preferred to go to Oxford and Cambridge, and that those who were unable to gain places there might be less likely to succeed in other universities. However, this possible bias would not obtain to the same extent among Scottish students, and Thomson (1951) has shown that Edinburgh medical students with a public school education did worse academically than the others.

McArthur (1954) reported similar findings among Harvard students: he found that students educated at American private schools achieve lower college grades than those from state schools.

The hypothesis was constructed: "the prevalence of psychiatric disorders is greater among students educated at public schools than among those educated at state aided, grammar or Local Education Authority schools."

ENTRANCE QUALIFICATIONS

It has been shown at the University of Edinburgh that wastage is greater among students who qualify for matriculation with the Scottish Leaving Certificate than among those with the General Certificate of Education. This obtains for Arts students (Drever, 1961), Pure Science students (Craig and Duff, 1961) and medical students (Thomson, 1951; University of Edinburgh Report, 1957).
The hypothesis was constructed: "the prevalence of psychiatric disorders is greater among students who matriculate with the S.L.C. than among those with the G.C.E."

**ABILITIES AND ACTIVITIES AT SCHOOL**

It is argued that the allrounder at school is the well integrated and stable individual at university (Lancet, 1951). Lief and his colleagues (1960) have shown that successful general adjustment of a student is determined by three main factors, (a) total organisation of personality (ego strength), (b) flexibility in having wide interests and (c) motivation for becoming successful. Rust (1960) found that deficiencies in these 'allround' abilities made for "poor mental health", particularly among students who rated themselves as less healthy physically and less interested in things athletic.

Macklin (1951, 1956) pointed out that a great many students lack extra-curricular interests, their way of life being conducive neither to good health nor to balanced education. He warned that "positive inactivity" in student life is a cause of failure and may, in some instances, lead to incapacitating neuroses.

Malleson (1961) reported that a high proportion of emotionally disturbed London students admitted that they had felt unable to play games or join in the general extra-curricular activities at school. This supports Parnell's (1957) findings at Oxford that men and women whose physique was phenotypically endomorphic-ectomorphic (non-athletic linear build with
proportionately more fat than muscle) were particularly prone to mental breakdown. Observations among Cambridge students led Davy (1960) to suggest that university applicants who relate an unsatisfactory record in all non-work aspects of school life were a mental health risk and should be discouraged from university entry.

The leisure pattern of students is not, however, a clear indication of academic achievement (Montgomery and Ross, 1960). Thomson (1951) found that success among Edinburgh medical students was not influenced by height, physique or amount of exercise taken, and Hopkins et al. (1957) found in support of this view no connection between achievement and estimated time spent on games, sport and Union activities.

The hypothesis was constructed: "in relation to general performance at school, the prevalence of psychiatric disorders is greater among non-allrounders."

**Educational factors: at university**

**FACULTY AND TYPE OF COURSE IN WHICH STUDYING**

Davy (1960) pointed out that the incidence of psychological illness is "above expectation" among students studying academic subjects. He noted that neurotic illnesses, particularly those with somatic symptoms, hypochondriasis and phobias, occurred more frequently among Cambridge students studying the Arts than among those whose subjects would specifically lead
towards a career. Davy suggested; "It may be that the man who wants to be a doctor, lawyer, or engineer has the ambition first and then makes the best use he can of his academic ability. In the academic subjects, however, there will be a number of students who compensate for social or athletic ineptitude or frank neurotic difficulties by diverting all their energies to academic work and gain university places as a by-product of these displaced energies."

Sinclair-Gisien's (1961) experience among Aberdeen students supports this view. In an analysis of referrals to the psychiatric service over a three year period he found that the largest proportion of cases comprised students of the Faculty of Arts. The same has been reported among Yale students by Fry (1942) who observed a greater prevalence of emotional disturbance among students taking academic courses than among those taking scientific courses. Holm (1962) reported that the greatest proportions of psychiatric casualties among Leipzig students occurred in the larger faculties where students were taking a general subjects degree course compared with a lower casualty rate among those in scientific and medical schools.

It should be pointed out, however, that academic faculties in British universities commonly contain a higher proportion of women than men, compared with faculties of Science and Medicine where the reverse is true. As women are generally found to be more prone than men to develop psychiatric disorders, it is possible that inter-faculty differences in case rates may reflect a bias due to sex differences. Rook (1959) showed that suicide was rarely committed by women students at Cambridge; among these students suicide
rates were not affected by faculty.

Two hypotheses were constructed: (1) "the prevalence of psychiatric disorders is affected by faculty" and (2) "the prevalence of psychiatric disorders is greater among students taking academic courses than among those taking scientific courses."

ACADEMIC PERFORMANCE

Examinations induce some degree of anxiety in every student. Pemberton (1948) pointed out that the occupation of students is unique in so far as it is probably the only one in which those who follow it are repeatedly subject to formal tests of their ability to continue the work. All Student Health physicians agree that fear of failing to pass examinations is one of the main causes of psychological disturbance in students (Ralph, 1959). Malleson (1957) considered that 10 per cent. of students sitting major examinations suffer from 'pre-examination strain', which he defined as a "condition wherein nervous tension is of such a quality that it diminishes the efficiency of study and impairs the prospects of success."

Much of the concern with which university authorities view the mental health of their students stems from the widely accepted relationship between psychological illness and poor academic performance. This relationship is generally held to be prominent among students and at times catastrophic for them, but its exact nature and extent is, however, poorly documented. It is possible that it has been exaggerated. Malleson (1959c) pointed out that
emotional distress almost always prevents fully effective study, but emphasised that the numbers of students who seek psychiatric aid are no index of their likely success or failure in examinations: "It is because student life demands such a continuously high standard of intellectual efficiency, not because students are psychiatric weaklings, that the incidence of those attending for psychiatric help is high."

Twenty-five per cent. of students who enter Scottish universities fail to complete their first year of study (Edinburgh Evening News, 1962). At the University of Edinburgh, Craig and Duff (1961) have shown that 16 - 19 per cent. of Pure Science students over a recent five year period failed for 'academic' reasons which did not include drop-outs due to death, illness or transfer to another faculty. Drever (1961) showed that 10 - 12 per cent. of Edinburgh students quit their studies for reasons that are not primarily academic, although both Craig and Drever have pointed out that if a Scot survives the early stages of university education he normally does well. Nonetheless it is clear from these reports that there is a proportion of students who inexplicably fail to meet the academic requirements of the university. The extent to which unexplained academic failure can be accounted for by psychological illness is simply not known, although reports in the press of "mental collapse" necessitating the admission of students to mental hospitals before their examinations (Daily Express, 1962; Medical News, 1962) would suggest that psychiatric disorders indeed go hand in hand with academic revoke.

There is evidence to believe that this may be the case. Henn (1951)
stated that "there are three, and only three causes of failure at university". These were, effective incapacity to work, insufficient work, and breakdown. This conclusion was reached as a result of detailed inquiry into the causes of failure in examinations at Cambridge. Logan (1954) at Manchester considered the various aspects of medical care of students and emphasized that "emotional difficulties silently interfere with studies". Pemberton (1948) showed that fear of failure in examinations ranked highest among the causes of anxiety among first year students at Sheffield. This has been shown to be particularly true among overseas students (Prince, 1960).

In Fry's (1942) study of 354 freshman patients at Yale, he reported that 21.4 per cent. failed and had to leave college during or at the end of their freshman year. Unable to isolate marked differences in the pre-entry scholastic abilities of these students compared with their successful colleagues, he suggested that "the difficulty lies not only in a real lack of ability, but elsewhere in the personalities and experience of the individuals concerned."

Macklin (1951), addressing the Conference of Home Universities, gave emotional disturbance as one of the main causes of student failure at Aberdeen. In a later paper (Macklin, 1956) he pointed out that "academic success is often only bought at the cost of ill-health due to severe stress." In an analysis of some non-intellectual correlates of success and failure among London students, Hopkins and his colleagues (1957) reported a series of significant characteristics of failing students each of which has been often cited by other authors as a correlate of psychiatric disorders among students.
Malleson (1959a) reported an interesting finding of special relevance to the influence of emotional factors on academic performance. He found that 23 per cent of a sample of medical students reported 'strain' six months before the 2nd M.B. examination, a figure that was more than doubled when the inquiry was repeated just before the examination started. Relating this to subsequent performance in the 2nd M.B. examination he found that psychological strain significantly occurred among students who comprised the top and bottom quartiles of the class by performance. In other words, emotional disturbance did not occur randomly throughout the cohort, but mainly affected the 'honours' and 'borderline' groups while the middle quartiles who secured an average pass mark had rarely reported psychological strain.

Fry (1942) has argued that insufficient intellect is a potent source of stress among students faced with academic tests of ability. While this may be true for Yale, it is unlikely to obtain strongly among British students, for Vernon (1961) has observed that the mean I.Q. of British University students is around 130. Furneaux (1961) has shown that "in the opinion of those who teach them, some 17 per cent. of sixth form schoolchildren lack the ability to take a university course without experiencing difficulty", but most authorities in Britain agree that students who have sufficient intelligence to pass matriculation examinations are intellectually equipped to pass their subsequent degree examinations. Davidson, Parnell and Spencer (1955) in a controlled study of Oxford students found that neither high nor low I.Q. could be regarded as an important factor in producing psychological
breakdown. Similarly, Davy (1957) reported that "scholarship was not important" in significantly influencing the production of nervous symptoms in Cambridge students. Sinclair-Gieben (1961) found the same at Aberdeen; he commented that "insufficient ability is an extremely rare cause of student failure."

Students who are highly intelligent are often thought to be prone to develop emotional disorders. Malleson's (1959a) finding that the best students frequently reported psychological strain supports this view. Ralph (1959) cautioned that ability to score a high mark in an intelligence test does not guarantee mental or emotional stability; "on the contrary, great intellect is often housed in an unstable personality." In general, however, the available literature suggests that intelligence does not play a dominant role in deciding either the academic achievement or the mental equilibrium of British students.

There is some evidence to suggest that generalisations concerning the association between psychiatric disorders and inadequate academic performance may be invalid. Parnell (1951) reported that two-thirds of his series of Oxford students who lost at least one term's residence on account of illness (more than half had "mental illness and nervous breakdown") returned to continue successfully their course of studies. Grant (1961) claimed that entrants to a Welsh college who had "serious psychological disorder" acquitted themselves satisfactorily in the academic field. Malleson (1958c) showed a negative correlation between mild psychiatric disturbance and academic failure in a study of a total entry of students to University College. He had
previously observed (Malleson, 1957) that the academic pass rate of students consulting his service with pre-examination strain was much the same as the college average. He was able to confirm this from detailed study of the performance of students who entered in the four years 1948-51 (Malleson, 1958a): "those students who came to the Health Centre for help with minor personal and psychiatric trouble relating less directly to academic matters, i.e., sexual, personal or family problems, or who, having pre-exam. nerves, came and sought help rather than struggle alone, did in fact do better than the average." He observed (Malleson, 1958b) that the academic prognosis of emotionally disturbed students was poor only for those with serious psychiatric disturbances. A similar view has been reported by Snyder (1963) in respect of students at the Massachusetts Institute of Technology. He pointed out that psychological pressures certainly often play a decisive role in their ability to do well at M.I.T., but that many respond to these demands, their 'stress' aiding, and not necessarily acting against, their success. He declared that many students do very well academically "by using very disturbed coping mechanisms." (Snyder, 1962).

The relationship of academic performance to personality dimensions has recently attracted some attention, and this is very relevant to the view that stress is not always deleterious to successful performance. Montgomery and Ross (1960) pointed out that neuroticism has two conflicting effects on study, (1) a disorganising effect on attainment, and (2) a sustaining effect on motivation. Lynn (1959) examined the likely relationship between neuroticism and extraversion/introversion to academic achievement by studying
scores by Exeter students on the Maudsley Personality Inventory compared with those of the published norms, apprentices and occupational therapists. He found that the students' mean score on neuroticism was higher than those of the controls, and concluded that neuroticism was a dimension of personality that was related to better achievement. Furneaux (1962) has shown this to be so. He examined the findings on testing Sheffield students with the M.P.I. and found that introverts achieved better academic success than did extraverts, and that those who had high neuroticism scores did better than those who had low neuroticism scores. He observed: "it is not surprising that the introvert with his bookish interests ... should achieve better results than the extravert. It is not so obvious, however, why a certain lack of emotional stability should also be related to successful performance." He concluded from this that the mildly neurotic student derives from his unstable personality a certain compensatory high drive that leads him to succeed in his examinations rather than to fail them.

Two hypotheses were constructed in respect of the influence of psychological illness on academic performance:

(1) "in relation to academic performance, the prevalence of psychiatric disorders is greater among those whose performance is inadequate."

(2) "in respect of medically detected psychiatric illness among students, academic performance is especially poor among those with formal psychiatric illness, but not especially poor among those with minor psychiatric illness."
Living arrangements at the university

LIVING AT HOME

Fry (1942) regarded the achievement of detachment of a student from the family as a "necessary step in conforming to the mores of society and in helping to insure the emotional balance and well-being of his own personality." It is argued that living at home while at university is a source of emotional strain on students who, seeking for a more individual status in society, often find their loyalties split between the tradition of filial roles on the one hand and the desire for independence on the other. Read (1961) viewed living at home as economically and socially convenient, "if somewhat unenterprising." He argued that against this there are grave disadvantages - the continuance of a morbid dependence on home by immature students, the ill-effects of having to cope with the inharmonious marital relations of parents, and the pressures that arise when parents are neurotic, rigid in outlook or over-demanding. In an analysis of the histories of students referred to the psychiatric clinic of the University Health Service at Edinburgh, Laverty (1958) found that emotional difficulties were prominent among patients who were still living at home with their parents. Sir Eric Ashby (1958) observed that the same was true for Belfast students of whom nearly one half were living at home. Thomson (1951) showed that the academic performance of a sample of first year Edinburgh medical students was worse among those who lived at home than among those who lived away from home.

Rook (1959) took the contrasting view that home has a stabilising influence on students, but in the main most authors have been more concerned
to point out the obvious disadvantages that may spring from inharmonious student/parent relationships.

The hypothesis was constructed: "the prevalence of psychiatric disorders is affected by living arrangements whether at home or away from home.

PREVIOUS EXPERIENCE OF LIVING AWAY FROM HOME

The removal of an individual from home to university is an event of special importance in the process of learning to live independently (Fry, 1942). Logan (1954) has pointed out that the emotional needs of a student are largely those of the transition from the dependant child at home and in school to the freedom - both intellectual and social - of university, as he grows away from his family for the first time. Fry (1942) observed that student patients who were disturbed by their relation to the family had only rarely had previous experience of living away from home before entering university. Ralph (1959) cited the lack of earlier experience of independence as a special source of strain to students in whom coming to university brought them away from home for the first time.

The hypothesis was constructed: "in relation to living away from home, the prevalence of psychiatric disorders is greater among those to whom this is a new experience."

LIVING WITH RELATIVES

Matchett (1961) suggested that students who lodge with their relatives
during term are under particular stresses which make for emotional difficulties. They are, figuratively speaking, neither "at home nor away from it."

The hypothesis was constructed: "in respect of living arrangements while at university, the prevalence of psychiatric disorders is greater among those who lodge with their relatives."

COMMUTING

It has been argued that daily travel is a source of stress for students who live at home and at a distance from the university. Many students, particularly those at provincial and Scottish universities are confronted with this: Furneaux (1961) showed that 80 per cent. of Sheffield students had a home address in the "primary intake zone", within 80 miles of the university, many of whom were daily commuters. Dale (1952) reported that many students blamed overlong daily travel for their unsatisfactory academic performance at the University of Wales. Read (1961) viewed commuting as a source of emotional, academic and financial strain for students at the London School of Economics, many of whose homes were situated too far away from the School. Matchett (1961) observed that for Edinburgh students commuting adds a formidable difficulty to everyday stresses, particularly for those whose homes are in Fife, separated from Edinburgh by the Firth of Forth.

The hypothesis was constructed: "in relation to living at home, the
prevalence of psychiatric disorders is greater among those who live at a distance from the university."

**RESIDENCE DURING TERM**

Many views have been argued concerning the disadvantages to the student's mental health of each of the common choices of residence for those who are living away from home - halls of residence, flats and lodgings. Crew (1947) held the opinion that "living away from home fosters much minor illness."

Most authorities agree that halls of residence provide a favourable setting which is less likely to induce psychological illness than the less sheltered environment met by other students. Halls are thought to be "socially healthy" (Logan, 1954), but some have pointed out certain drawbacks. Davy (1960) stressed the insecurity which Cambridge students may feel living in college when faced with an unfamiliar freedom from the reassuringly ordered home life. Fry (1942) showed that emotional disorders were prominent among Yale students who felt ill-equipped to cope with the social demands of communal life in halls of residence. Thomson (1951) found that halls of residence in Edinburgh were not quite so conducive to successful study as approved lodgings, although Hopkins et al. (1957) reported that the place of residence was of no statistical significance as a correlate of student achievement. Read (1961) sought the opinions of students of the London School of Economics on life in halls or hostels. Those who were not in favour of halls of residence stated that they (a) preferred the attraction
of living with a family, (b) had no reason to be dissatisfied with life in lodgings and, (c) had a dislike of the restrictions imposed by living in university accommodation. The last was mainly a feminine response which Read viewed as unreasonable and immature. The main reasons given by those in favour of halls were (a) the attraction of the life therein, (b) saving of time in travel and, (c) the facilities provided by the hostel. Malleson (1954) suggested that a lack of hostels and halls is bad for student mental health. Read (1961) and Matchett (1961) both felt that halls of residence provide emotional security and prevent loneliness and isolation. Neil (1957) reported that the percentage of examination failures among Nottingham students was lowest among those who lived in halls, and that the percentage of honours among these students was considerably above the university average. This is the reverse of Thomson's (1951) findings in respect of Edinburgh medical students.

Read (1961) considered living in flats to be a threat to the mental and physical health of students. This view was strongly supported by Matchett (1961), and Dale (1952) stressed that such unsatisfactory living arrangements had a bad effect on studies and on the emotional equilibrium of students. These authors suggested that students who live in flats tend to neglect themselves, their health and their work. They are prone to loneliness, and their financial resources are rarely sufficient to enable them to maintain a satisfactory standard of living.

Unsatisfactory lodgings have been widely cited as a source of emotional strain on students (Dale, 1952; Logan, 1954; Matchett, 1961; Ralph, 1959).
Macklin (1947) pointed out that the fault need not only lie in the lack of material comforts but also in the unfavourable attitudes of some landladies. Read (1961) suggested that many students in lodgings suffer from loneliness, and mentioned particularly that the rigidity of 'digs regulations' often detracts from the student's participation in the extra-curricular aspects of university life. Those who have set meal times miss many of the evening activities at their college.

The hypothesis was constructed: "the prevalence of psychiatric disorders is affected by living arrangement while at university."
STAGE TWO

IDENTIFICATION OF THE COHORT
The approach to identification of the cohort - a questionnaire

The purpose of charting a total cohort of first-year students newly entering university was first to know who they were for the purposes of the research and, second to ascertain at this time the presence or absence of the factors in the background, health and attitudes of each with which this study was concerned.

Three possible approaches were considered:
1. Personal interview
2. Collection of data from university sources
3. A questionnaire

Of these, only the last was feasible. Personal interview, while ideal from the points of view of accuracy and detailed inquiry, was operationally impractical since an entry of some 1,600 students was expected. Much data could have been collected from the application forms filled in by each entrant, but many facets of this inquiry, particularly medical and personal details, would have had to be left out in relying on other university sources for information.

The questionnaire approach had the advantages that data could be collected speedily over a given period of time and that material collected in a uniform way structured to the requirements of the research project.

In planning the questionnaire, certain provisions particularly had to be fulfilled;
a. It should be brief. Co-operation depends much on brevity. A volunteer fills in a questionnaire more willingly and more accurately when it is short.
b. **It should be clear and un-ambiguous.** Much thought was given to minimizing ambiguity in questions.

c. **It should be "inoffensive".** To maintain the co-operation of the students, care was taken to pose the questions in such a way that few could view them as an impertinence or an infringement on what the student might view as a personal matter. This was done in two ways, by toning down the emotional quality of questions and by 'hiding' the question behind overtly innocuous factual data. An example of the former was the substitution for "Is your home life unhappy?" - which understandably might evoke antagonism, particularly amongst those in which this was the case - by "Would you describe your home before coming to university as (a) very happy, (b) averagely happy, or (c) less than happy?" Only two students took offence at this 'toned down' question. An example of 'hiding the question' was where information was required on whether the student's home had been broken by death, divorce or separation of his parents. This was not specifically asked, but a list of possible members of a family was provided for marking under the question "Who else usually lives at your home?", reasonably placed after questions on where the student's home is and if he has been away from his family before. If either father or mother, or both, were not marked as living at home, it was possible to distinguish death from separation by consulting a later question concerning each parent's attitude to the student's entering university: separated parents each had an attitude, a deceased parent's attitude was recorded as "not applicable". The numbers concerned were small enough to check from other sources.

d. **It should not be an obvious psychiatric questionnaire.** To avoid
any anxieties that might arise in a student from apprehension of being 'psychologically screened' all reference in the questionnaire to the actual nature of the survey was omitted and no mention was made of the field of interest of those responsible for its administration. Thus questions relating to psychiatric symptoms were included among a variety of ostensibly non-psychiatric symptoms, and it was planned to refer to the questionnaire as the 'Health and Welfare Questionnaire' and to the project as 'Student Health Research'.

With these provisions, following such scrutiny and revision in the drafting stages, a questionnaire was designed.

Design of the questionnaire

The questionnaire is set out in Appendix I (a).

The purpose of the questionnaire in identifying the cohort was to use it as an instrument to ascertain in each new entry student the presence or absence of the factors of his experience putatively related to his subsequent mental health.

The questions, either singly or in combination provided direct or readily calculable information for classifying the cohort in terms of each of the items on which the pre-constructed hypotheses were based. Broadly they comprised two main groups;

a. Objective factual data about the student's life, background and experience.
b. His subjective opinions and attitudes recorded within a structured questionnaire framework.

*The only and obvious exceptions to this at this stage are the mental health record and academic achievement of each student during his freshman year.
The questionnaire follows a general order. General personal data are considered first, then medical questions, followed by details of home, ethnic and cultural considerations, family composition, parental background and attitudes, stability in the home, details of schooling in academic, extracurricular and health terms, university entry and planned course of study, financial assistance and likely economic difficulties and, finally, living arrangements while at university.

Questions 1 - 6 provided factual basic social and demographic data. Questions 7 - 8 enquired the name and address of the doctor with whom the student was already registered or, if different, the doctor with whom the student intended to register while in Edinburgh. Both were included to prevent confusion arising in the minds of students who did live at home, but not in Edinburgh while at university, or who did not live at home yet chose to remain registered with the same doctor if his practice was within a reasonable distance from Edinburgh. Question 9 provided data on frequency of medical consultation. Question 10 is a check-list of medical conditions and complaints compiled from the list of general medical, psychosomatic and psychiatric symptoms and disorders felt to be relevant in the student's previous history as pointers to possible risk to mental ill-health (see p.57). The names of the disorders cited were changed to approximate as closely as possible to an accurate lay interpretation, without its relevance being lost. Thus, for example, thyrotoxicosis became 'goitre', pruritus became 'persistent itching', and dysmenorrhoea became 'painful or irregular periods, women's complaints'. 
It should be made clear that in so doing findings by authors in relation
to specific disorders cannot be truly compared to findings in this study
in relation to complaints posed in lay symptom terms. However this check-list
does provide for the cohort a measure of previous morbidity. Comparisons
between those in the cohort who declared and did not declare certain previous
complaints are valid. No claim is made that a complaint is synonymous with
a clearly definable illness. Question 11 identified those who rated their
health below average.

Questions 12 - 14 were primarily aimed at overseas students to elicit
differences in and particulars of ethnic groups as determined by reference to
language, religion, and country of birth. Question 13 provided details
of national and overseas domicile, of no direct relevance to a particular
hypothesis but contributing information to several. Question 16 identified
students who had not had previous experience of independance in living away
from home.

Questions 17 - 21 gave data on many aspects of home background, both
factual and opined. The broken home, social class differences, possible
motivations and parental pressures, and disharmony in the home are here
considered.

Questions 22 - 25 gave factual data on schooling on which comparisons
could be made of the experiences of students with different types of
schooling and education, opinionated estimates of prowess in all facets
of school life to identify the 'all-rounder' as distinct from a student who
declared that he was below average in one or more aspects of school activity,
and to identify those whose schooling had been interrupted by ill-health.
The remaining questions were concerned with the student's future university career. Question 26 identified students by faculty and course of study, Questions 27-28 sought to identify those most likely to suffer financial hardship, and Questions 29-30 provided a means of identifying the main residential groups - home, halls of residence, flats and lodgings. Further information could be derived from responses to these two questions concerning married students if separated from their spouse and dependant students if separated from their parents or family.

Pilot study

Before the main investigation was embarked upon, a pilot test of the questionnaire schedule was carried out. This was designed particularly to iron out difficulties in correct interpretation or ambiguity of the questionnaire items; where necessary, revision was made. Further, this pilot study was useful in estimating the time required for data collection per person and arrangements were made in the light of this experience.

Testing was carried out during university vacation: since students were not readily available then, members of graduate staff and secretaries acted as volunteers. Non-students were acceptable as participants because of the prospective nature of the main investigation where the cohort is presumed healthy at the outset of the period of scrutiny. The responses of healthy volunteers could not, therefore, be considered prejudiced.

The composition of the cohort - criteria for inclusion

The intention was that the cohort should comprise only first-year students, those entering on the new experience of university life for the
New entrants to the university fall into one of the following categories:

1. Students entering university for the first time who will be candidates for a primary degree.

2. Students entering university who will be candidates for a primary degree but who incidentally are university graduates in a dissimilar faculty (e.g. a Master of Arts entering first-year Medicine).

3. Students entering university for the first time who will be candidates for a certificate for which previous training or experience is not a normal prerequisite to admission to the course (e.g. Certificate in Social Studies).

4. Students entering university for the first time who will be candidates for a diploma or certificate for which previous training or experience is a normal prerequisite to admission to the course (e.g. Diploma in Medical Services Administration).

5. Students entering university who will be candidates for a degree or diploma for which a primary degree is a normal prerequisite to admission to the course (e.g. Bachelor of Divinity, Diploma in Psychiatry).

6. Postgraduate students who will be candidates for a higher degree.

7. Non-graduating students who will not be candidates for a degree at this university but may enrol for courses of study for which credit may be given at another (usually foreign) university or college.

8. Students articled to the Institute of Chartered Accountants entering university for the first time to pursue a course of study as required by the Institute.

9. Non-matriculated students attending certain courses of study. Such attendance does not qualify for graduation, or entitle a student to a class certificate or confer any other university privilege.

The vast majority of the cohort fell into category 1. Categories 2, 3, 7, and 8 were also included; category 2 (which comprised only 3
students) had had previous experience of university life but were in most other respects on equal footing with entirely new students; students in category 3 were included as they comprised entirely new students; category 7, the non-graduating students, were included because they were new to this (or any British) university and were felt to be of interest for this survey as most of them come from overseas; category 8, the C.A. students, were older and perhaps more experienced in life, but were included as they comprised entirely new students.

The remaining categories were not included since they did not meet the aim of composing the cohort of new first-year students.

This led to the following definition of the cohort:

"The cohort is made up of a total entry of first-year students. For the purposes of this inquiry a 'first-year' student is defined as a matriculated undergraduate student of the University of Edinburgh undertaking here for the first time his or her first year of study for which (a) a primary degree or (b) particular previous training or experience - other than that basically recognised as, or equivalent to, Attestation of Fitness - is not a normal prerequisite to admission to the course."

In practical terms, this represents all new students entering courses of study for the M.A., B.A., B.Com., and Certificate in Social Studies in the Faculty of Arts; LL.B. in the Faculty of Law; B.Mus. in the Faculty of Music; M.B., B.D.S., and B.V.M. & S. in the Faculty of Medicine; and B.Sc. in the Faculty of Science; together with Non-graduating first year students irrespective of Faculty, and C.A. students enrolled in the Faculty of Arts.
Choice of site for the operation

It seemed appropriate and desirable that students could be best approached for the purposes of this research in a medical setting rather than in an administrative setting. At the University of Edinburgh all students, unless they have prior permission not to, are expected to attend at the Mass Miniature Radiography Unit for chest x-ray before matriculating. No student may matriculate for the academic year without presenting a card to indicate that he has been x-rayed by the M.M.R., or a letter of exemption from the Secretary to the University. In practice, students attend the M.M.R. unit (set up within the university precinct), then go directly to matriculate. Both must, unless for exceptional reasons, be done during the first four weeks of the Autumn term.

The senior physician of the University Health Service (Dr. R. E. Verney) kindly gave permission for the questionnaire operation to be carried out in the waiting hall of the premises used for annual x-ray during the month of October at the start of the survey year.

This site had the special advantage that students would be 'health-oriented' on attending for chest x-ray and therefore be the more readily inclined to complete a Health and Welfare Questionnaire.

Operational procedure

The waiting hall seats several hundred people and students queued here for their x-ray between 9.15 a.m. and 4.30 p.m. daily during the first four weeks of the Autumn term. Two placards were set up, one in the entrance corridor and one in the hall itself requesting that
"All first-year students report here" with arrows pointing to the place. A table was positioned at the door of the hall where each student who came in was asked "Are you a first-year student?" and if yes, "Will you please complete the Health and Welfare Questionnaire." Each student was assured of the confidential nature of his responses. Students were invited to seek advice on any problems or queries in completing the form and several, particularly overseas students with some language difficulty, did so. The completed questionnaires were handed in on the spot. A log book was kept of the daily returns of questionnaires and difficulties that arose were recorded here.

By the end of this four week period, 1660 questionnaires had been completed.

Refusals, and misuse of the questionnaire

Only one student refused to complete the questionnaire. She stated that she was "tired of filling in forms" and preferred to decline. *

One student declined to fill in the questionnaire item concerning happiness in the home explaining that he could not appreciate the pertinence of such a private matter.

The questionnaire was treated seriously by almost all participants. No forms were spoiled. 

*It was interesting later to learn that this student during her second term quit her studies precipitately after an emotional upheaval.

† But one student did list his dog among the members of his family.
Adjustment of the cohort

To adjust the cohort to its final composition it was necessary first to reject from the 1660 those who did not satisfy the criteria for inclusion and, second, to identify those who should be included but who had not filled in the questionnaire on entry. This was done in four ways. The numerical totals of the questionnaires were broken down by sex and faculty and compared against a provisional list of matriculated first-year students provided by the Matriculation Office of the University. While the operational 'first-year' criteria were of course narrower than those of the official university lists, this did usefully serve to indicate areas of discrepancy and excesses in the provisional structure of the cohort. This led to the next step which was to obtain from certain Faculty offices their detailed lists of first-year students registered with them. This enabled many of those who were repeating the year to be discarded and identified, for example, that several 'first-year' students in the Faculty of Medicine had achieved direct entry from school to second year courses (many of these had not filled in the questionnaire) and that several students in the Faculty of Music were part-time, had filled in the questionnaire, but did not satisfy the criteria for inclusion in the cohort. Next, the University Health Service office provided a list of new students who had been exempted from x-ray and consequently had not been given questionnaires. Finally, each questionnaire form was individually checked against the index card detailing each new student which was compiled from official sources by the Student Accommodation and Welfare office (this was made possible by the kind invitation of Miss Diana C. Matchett).
By these methods 147 students were not eligible for inclusion in the cohort because they did not satisfy the criteria. Forty-two students* were eligible for inclusion and had not yet been identified. They were made up of the one refusal, those exempted from x-ray, those absent from x-ray through circumstances or illness, those direct entries into second year medicine, dentistry and veterinary medicine, and those who had been simply missed.

These students were contacted by post. They were sent the questionnaire and a covering letter which is set out in Appendix I (b). In respect of the student who refused, an abridged questionnaire was completed by reference to other university documents. Where necessary, reminders were sent, and if still no response was evoked a personal letter was written. Finally, all returned completed questionnaires.

The final composition of the cohort was 1,555 students, of whom 981 were men and 574 were women. It was assumed with fair certainty that every new student eligible for inclusion in the cohort was included, and that, apart from the one who refused, the cohort was made up of a 100 per cent. total entry of 'first-year' students to the University of Edinburgh at the beginning of the survey year.

The distribution of the cohort by sex and faculty is set out in Table 1.

*Of these, 2 were inexplicably missed at this time but identified and included at the next stage of the survey.
<table>
<thead>
<tr>
<th>FACULTY</th>
<th>MEN</th>
<th>WOMEN</th>
<th>ALL STUDENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTS</td>
<td>223</td>
<td>339</td>
<td>562</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>13</td>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>12</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>53</td>
<td>3</td>
<td>56</td>
</tr>
<tr>
<td>MUSIC</td>
<td>1</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>LAW</td>
<td>59</td>
<td>11</td>
<td>70</td>
</tr>
<tr>
<td>MEDICINE</td>
<td>127</td>
<td>31</td>
<td>158</td>
</tr>
<tr>
<td></td>
<td>40</td>
<td>13</td>
<td>53</td>
</tr>
<tr>
<td></td>
<td>47</td>
<td>6</td>
<td>53</td>
</tr>
<tr>
<td>SCIENCE</td>
<td>369</td>
<td>88</td>
<td>457</td>
</tr>
<tr>
<td>NON-GRADUATING</td>
<td>39</td>
<td>57</td>
<td>96</td>
</tr>
<tr>
<td>(irrespective of faculty)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>981</td>
<td>574</td>
<td>1555</td>
</tr>
</tbody>
</table>

Table 1: Distribution of the cohort by sex and faculty.
Processing the data

A sex and faculty register of the names and addresses of all students in the cohort was compiled. The questionnaires were given an identification number and filed in numerical order.

A design was prepared for the Paramount Punched Card Sorting System (Copeland-Chatterson). The data were transferred from the questionnaires by hand-punching a card for each. Items punched related specifically to the presence or absence of factors for investigation as shown by the questionnaire responses: the 'raw' information on the questionnaire was not recorded as such.

Certain preliminary manipulative measures were required. From the stated occupation of the student's father the Registrar General's social class grading was determined and this was recorded on the punch-card. The name and location of the student's last school was referred to a categorised list of British Schools provided by the Usher Institute, and only the category of the school was recorded. The number of previous illnesses declared by each student was counted and recorded.

Space was reserved on the cards for subsequent data collection. The cards were filed by sex and faculty.
STAGE THREE

PREPARATION FOR DATA COLLECTION

1. The "Mid-Survey" Inquiry.

ii. Criteria for a "Case".

iii. Preliminary arrangements.
THE "MID-SURVEY" INQUIRY

Consulting habits of students

It is well known to student health physicians and to psychiatrists who work in universities that ill students do not necessarily seek advice or treatment from them but often attend other doctors. Some go to doctors or psychiatrists in their own home town (Davy, 1960), some attend other general practitioners (Still, 1961a) and, of course, some who need help never seek it or, if they do, bring their problems at a non-medical level to a chaplain, tutor, warden, or a friend. Lucas (1960) pointed out that it is not known how many students go for treatment elsewhere, or how many do not seek treatment for their symptoms. Sinclair-Gieben (1961) has suggested that only about one half of the students in Aberdeen actually suffering from mental ill-health is seen by doctors at the service there.

As a preliminary to collecting data on mental ill-health among the Edinburgh cohort it was thought necessary to find the extent to which students attended doctors with whom they were not registered. With this information, data collection could be planned to cover where necessary alternative sources of student consultation.

Questionnaire to the cohort

A brief inquiry form was designed to be completed by all members of the cohort. This is set out in Appendix I (c). This identified
the student by name and faculty and enquired if he had consulted a doctor during his or her first three months as a student. If 'yes', the student was asked to indicate if the doctor was (a) a University Health Service doctor, (b) usual general practitioner, (c) another general practitioner, or (d) any other doctor.

Procedure

It was ascertained from each faculty at which lectures the greatest concentration of first-year students would be found. While this presented little difficulty as regards students of Medicine, Law, Music and Science, the wide variety of courses open to students in the Faculty of Arts made it hard to know where best to locate first-year students. Arrangements were made with the Deans of each Faculty and with the lecturers concerned that the author and/or the Professor of Psychological Medicine (supervisor of this research) would use some of their lecture time to carry out this part of the Mid-Survey inquiry.

At the chosen lecture theatres, either at the beginning or end of a lecture, the team requested that each first-year student would complete the inquiry form as part of the student health research. This was done by going from lecture to lecture over a two-week period at the beginning of the second (Spring) term of the survey year. There was occasional ribaldry but no known refusals. The questionnaire forms were handed in on the spot. The operation took no more than ten minutes at any lecture.
As before, care was taken to avoid undue mention of the psychiatric nature of this enquiry and lecturers were asked to introduce the team as "Professor Carstairs of the Faculty of Medicine" and "Dr. Kidd of the Medical Research Council" respectively.

Response and results

In this way questionnaire forms were completed at lectures by 1166 (75 per cent.) members of the cohort. The remaining 389 students were sent questionnaires by post. The accompanying letter is set out in Appendix I (d).

From this combined 'lecture theatre' and postal method there was a 92 per cent. response. Forms were not returned from 93 students and 37 were returned by the postal authorities indicating that the addressee had left that address.

The results are set out in Table 2.
Total number in cohort | 1,555
---|---
Stated did consult doctor | 399
Stated did not consult doctor | 1,026
No information | 130
---|---
1,555

399 students consulted:

Registered with University Health Service | 244
---|---
- consulted there only | 210
- consulted G.P. at home | 7
- consulted another G.P. | 8
- consulted another doctor | 16
- combinations of above | 31

Registered with general practitioners | 155
---|---
- consulted there only | 141
- consulted U.S.H.S. | 2
- consulted another G.P. | 4
- consulted another doctor | 4
- combinations of above | 4

* Figure does not include students seen by their doctor and referred to another.

Table 2: Mid-Survey inquiry - consulting habits of cohort during first 3 months at university

The proportion of those who consulted a doctor with whom they were not registered is very small. The largest number of those who did consult 'any other doctor', and although not asked to, many stated whom they attended. The large majority were attendances for medical examinations in the Territorial Army, and the remainder were mostly
referred to another doctor by their practitioner. A few stated winter sports injuries. Discounting these, it is clear that during the period very few students consulted other doctors.

**Reporting by doctors - doctor/student agreement**

The next part of the Mid-Survey inquiry was directed towards the doctors with whom the students of the cohort were registered. Again as a preliminary to collecting data on mental ill-health among the cohort it was desirable to find out the extent to which doctors were likely to co-operate in providing data, and, particularly, the amount of agreement between students and doctors about consultations made by the one with the other. This was to provide an indicator on whether subsequently to seek data from the doctors, from the students, or from both, or indeed from other sources as well. It was known already that an accurate record of each attendance and illness is kept by the physicians of the University Health Service, so that the most detailed and accurate source of morbidity data on students registered there would be the medical records. However, record-keeping methods vary widely from practice to practice and no such similar assumption could be made in respect of students registered with general practitioners in the area. This part of the inquiry was, therefore, primarily directed towards the general practitioners of students not registered with the University Health Service.

Five hundred and twenty eight students (about one third of the cohort) were registered with 257 doctors in 203 general practices in Edinburgh and
the South-East region of Scotland. The letter and questionnaire set out in Appendix I (e) was sent to each doctor named by the student as his registered medical practitioner. This sought to identify solely whether the student had consulted at the practice during the same period enquired of to the students themselves.

Response and results

Of the 257 doctors contacted, 235 (91 per cent.) replied. Returns came in gradually over a period of several weeks. No reminders were sent. Of those who replied, only 3 who did so stated that, for ethical reasons, they preferred not to divulge any details without their patients' prior consent.

Thus reports of whether a consultation had taken place or not during the stated period were provided on 471 (90 per cent.) of the 528 students registered with general practitioners. The doctors reported that 134 students had consulted and 337 had not.

The doctors' replies were individually checked against the students' replies and the percentage agreement between the two sources was calculated (Table 3).
<table>
<thead>
<tr>
<th>DOCTORS REPORTED CONSULTATION</th>
<th>STUDENTS REPORTED CONSULTATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
</tr>
<tr>
<td>No</td>
<td>219</td>
</tr>
<tr>
<td>Yes</td>
<td>57</td>
</tr>
<tr>
<td>n.k.</td>
<td>72</td>
</tr>
<tr>
<td>ALL</td>
<td>348</td>
</tr>
</tbody>
</table>

*includes 32 students whose medical attendant was not known

Table 3: Doctor/student agreement in reporting consultations

\[
\text{percentage agreement} = \frac{(219+68)}{(348-72) + (145-14)} \times 100 = 70.52\%
\]

From Table 3 it can be seen that 188 students most probably did consult (145+57 - 14 = 188). Thus to rely on students alone for reporting consultations one could expect defective reporting on 30.3 per cent. (57/188 all times 100); and to rely on general practitioners alone defective reporting could be expected on 33.5 per cent. (63/188 all times 100) of
the cohort. 4

Conclusions from the Mid-Survey Inquiry

(i) Over a three month period very few members of the cohort had consulted doctors other than those with whom they were registered on the N.H.S. Whatever the proportion of those who may have done so for consultation on a psychological disorder (from the students' statements reasonably thought to be low), it would be unlikely that the figures would significantly influence the total picture. This evidence suggested that no special effort need be made to include various other (non-psychiatric) medical sources in subsequent data collection.

(ii) The 90 per cent. response from students' general practitioners, without either reminders or personal contact, gave ample heartening reassurance of their likely cooperation in subsequent data collection.

(iii) Two thirds of the cohort were registered with the University Health Service, and one third with general practitioners in Edinburgh and the South-East region of Scotland. Morbidity data collected from the former source could be expected to be very accurate, but reliance on general practitioner reporting would mean a sizable loophole (33.5 per cent.) as far as case identification was concerned.

To overcome the objection that part of the information gained in data

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4 It was interesting to learn at a later stage, when opportunity was taken during data collection to draw up similar data for students registered with the University Student Health Service, that the percentage agreement for this group was 94 per cent., showing expected defective reporting on 16.3 per cent. by students and only 0.45 per cent. by the Service physicians. This suggests that the defective reporting indicated above most likely lies with the general practitioners, although to a lesser extent the students erred.
collection would come from known defective sources, two steps were planned.

First, doctors should be contacted personally at their surgeries and, where possible, actual records should be referred to for details of students registered with the practice.

Second, all members of the cohort should also be contacted, by questionnaire, to rate themselves in respect of their mental health during the survey year. This self-rating was intended to offset the deficiencies in general practitioner reporting. In addition, declaration of mental ill-health by students themselves would provide a parallel, though separate, index against which characteristics of the students could be examined. It must be stressed, however, that self-declaration of illness would not be interpreted as a measure of illness; it was planned to treat illness found by doctors and ill-health declared by students as entirely separate items.

Choice of sources of data for collection

The feasibility of further widening the sources of data about ill-health in the cohort was here considered. Discussions were held with representatives of the student welfare office, faculty offices, tutors and advisors of studies, the chaplains and wardens of halls of residence. Two points proved insurmountable; the difficulty in achieving uniformity in recognition of mental ill-health by different lay persons, and the fact that information from any of these sources would not have been uniform in relation to the cohort composition. For example, only a proportion of the cohort lived in halls of residence; an observant warden would have opportunity to report on psychological disturbance among his students which was not
available in respect of students not in halls. Not every student has a chaplain, but every student has a doctor.

To ensure uniformity of data it was planned to consider collection only from medical sources and student self-rating.

**CRITERIA FOR A "CASE"**

A "case" in a medical study refers to a particular instance of disease to be included in the field of investigation, the selection being made in accordance with the specific aspect of the pathological phenomenon - symptom, syndrome, disease or group of diseases - which is to be examined, and with the degree of impairment (Lin and Standley, 1962). The identification of a case is a difficult problem in psychiatric epidemiology, not least because of the wide divergence that may exist in definition of the criteria. One example will suffice to illustrate the diversities that are often found in reporting student psychiatric morbidity: Dr. Ronald Still's analysis of student consultations at Leeds University over a ten year period employed symptoms of psychological ill-health as criteria. He defined his criteria as "any symptoms of ill-health, disease, or inability which could not be demonstrated, or reasonably assumed, to have a physical or organic basis." (Still, 1961a): in contrast, the morbidity rates for student psychological illness at Edinburgh University are determined from criteria of illness suitable for inclusion in Section V of the International
Classification of Disease (Verney, 1961). Naturally the figures which these criteria yield (Leeds - 10.7 per cent. of all at risk, Edinburgh - 4.2 per cent. of spells of illness among attenders) are not comparable.

Gruenberg (1961) has stressed that case finding methods must always be related to the objectives of the particular study. Thus, as Blum (1962) points out, if one is seeking to find treatable cases in a community one will establish criteria quite different from those to be employed in a study which sought to identify the persons in a community for whom, by virtue of their diagnosis, psychiatric service have traditionally shouldered responsibility.

Lin and Standley (1962) give three reasons for the present day confusion in the classification of mental disorder: a disparity in concepts of mental illness, depending on whether the orientation is primarily medical, psychological or social; a diversity of aetiological theories; and a paucity of objective measurements. However, despite these problems, recognition of illness is facilitated in general practice studies in so far as the patient has identified himself by the very act of seeking a consultation (Cooper et al., 1962).

The objective in this particular study was not to identify students who were in need of specialist psychiatric care, but to identify and count those students who were found by their doctor to have manifested evidence of a psychological disorder. In this instance the doctors concerned were 5 general physicians of the University Health Service and 257 other general practitioners. The difficulties in comparing cases from different general
practices because of the varying criteria used have been fully reviewed by
and Shepherd
Kessel/(1962) and need no special mention here, other than to point out the
inescapable fact that the use of standard nomenclature of psychiatric
illness for general practice studies is unsatisfactory.

It was hoped that four aims could be realised in choosing criteria
of illness for this study:

i. The criteria should be clear and meaningful in the light of the
general practitioner's experience of major and minor psychiatric
disorders.

ii. The criteria should be brief, explicit, and able to be readily
applied in considering a patient.

iii. Subsequent workers should be in no doubt as to the nature and
variety of illnesses included within the framework of definition
of the criteria, both for interpretation of the present study
and as a basis for comparative studies to be carried out at other
centres.

iv. The criteria should realise the above aims, and should already have
been shown to do so satisfactorily.
Choice of criteria for a "case"

The classification adopted was as follows:

A 'psychological condition' is -

A. FORMAL PSYCHIATRIC ILLNESS

1. Psychosis - schizophrenia, manic-depressive psychosis, organic psychosis, paranoid psychosis.
2. Neurosis - anxiety neurosis, depressive reaction, hysteria, obsessional neurosis, phobic or asthenic reactions, others.
3. Character disorder - whether related to present illness or not.

B. PSYCHOLOGICAL SYMPTOMS OR ABNORMAL BEHAVIOUR (i.e. without a specific diagnosis)

4. Psychological symptoms complained of by patient but not viewed by doctor as formal psychiatric illness.
5. Abnormal features or behaviour noted by doctor as indicating psychological disturbance, but not viewed as formal psychiatric illness.

C. PHYSICAL ILLNESSES OR SYMPTOMS WITH PSYCHOLOGICAL COMPONENT

6. Physiological disturbance
7. Physical illness where psychological mechanisms have been important in the development of the condition.
8. Physical illness elaborated or prolonged thus indicating psychological component.
9. Somatic symptoms without an adequate physical basis.

D. OTHER PSYCHOLOGICAL PROBLEMS

10. Specify
This classification was derived from the modes of presenting psychiatric disability described by Kessel (1960) which had proved meaningful in a previous general practice survey. The only modification employed for this student survey was to exclude mental deficiency and the organic senile dementias since these would not be seen among members of the cohort.

This classification meets the four aims mentioned above. It was specifically designed by Kessel as a meaningful and handy device for use in general practice studies and these criteria are finding increasing application today; (Shepherd et al., 1959; Kessel, 1960; Kessel and Shepherd, 1962; Cooper et al.; 1962, Jayasundera, 1962; Kidd, 1962). In particular the use of these criteria for this study would provide a rare opportunity for comparing the morbidity data found against the age- and sex-specific data of these authors.

Criteria for self-declaration of psychological ill-health

The wording of the questionnaire to elicit a declaration of psychological ill-health from members of the cohort was cautiously designed. Obviously very few would admit to 'Have you been mentally ill', and conversely very few would deny that during the academic year there had been an instance when they had been 'emotionally upset'.

A questionnaire was designed to enquire in respect of the academic year -

"Have you been emotionally or nervously unwell?"

to which the answers 'yes' or 'no' pertained.
The word 'been', as opposed to 'felt' infers a more definite instance of psychological disturbance and, similarly, 'unwell' infers a disturbance of health rather than a temporary upset of emotion, yet it is less exclusive than the more severe interpretation of the word 'ill' to which students might be less likely to respond.

This questionnaire and its accompanying letter are set out in Appendix I (f). As well as the direct inquiry about emotional state, questions were included about physical health and whether consultations had been made for either physical or nervous illness.

**PRELIMINARY ARRANGEMENTS FOR DATA COLLECTION**

The data required

The data required covered three aspects;

1. **Self-declaration of illness**
   Identification by questionnaire responses of students who declared that during the period of scrutiny they had "been emotionally or nervously unwell."

2. **Medical**
   Identification of students who during the same period of scrutiny attended a doctor and were diagnosed to be suffering from a psychological condition within the framework of the criteria for a 'case' employed in this study. Cases would be identified at two levels;
(a) The University Health Service and general practitioner level of consultation and (b) the level of consultation with a psychiatrist, whether or not the patient thus seen had first attended the doctor with whom he was registered.

3. Academic

Identification of students who during the period of scrutiny had demonstrated 'inadequate academic performance'. Arrangements were made to obtain details of the academic record of each member of the cohort from the official university sources. These details, besides the mental health data, were the only factors for investigation not identified at the students' point of entry to university.

Criteria for "inadequate academic performance"

Criteria were based on the suggestion made by Horst (1941) that information on an activity can be simply divided in terms of "(a) those who have definitely achieved success in the activity and, (b) those who have been unable to succeed in the activity." Academic failure (i.e., failing or leaving the course) was not applicable to this study since the intention was to relate the mental health status of each student to his academic performance over the same period of time. Many students were likely to fail their examinations at the end of the period of scrutiny, but would not be 'failures' unless they again failed at the autumn re-sits. Since very few students remain for any length of time in Edinburgh during the
summer months it would be impossible to ascertain their mental status during this time, thus it was essential to reject academic failure as a measure and to consider only academic performance during the period of scrutiny.

Every first year student undertakes courses of study in which he is prepared for degree examination in these subjects at the end of the first academic year. By Horst's interpretation, each student is on an equal footing of chance to prepare for success in this activity. The university system is so geared that each student ought to be able to sit and pass all his examinations on the first occasion. For the purposes of this study this success in the activity indicated 'adequate academic performance'.

'Inadequate academic performance' was therefore defined as the performance of any student who ought to be able to sit and pass all the examinations for which his course of study prepared him, and did not do so on the first occasion.  

Arrangements for the 'self-declaration' questionnaire

In order that the questionnaire should relate to the entire period of scrutiny, it was desirable that it should not be completed by the students until the last possible moment before the end of this period. Several

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† In broad terms this means that students who precipitately quit their studies, or failed one or more first year degree examinations, or failed to sit one or more degree examinations by default were those who would register 'inadequate academic performance'. Those who failed to sit, or left because of physical illness would be discounted, as would those (some non-graduating students) who never intended to sit examinations, whether they left before the end of the period of scrutiny or not.
possibilities were examined in considerable detail.

1. At actual examinations.
2. At lectures before the end of term.
3. When D.P. (duly performed) class certificates are issued.
4. On registration for examinations at the Matriculation Office.
5. By post after term ends.
6. By post before term ends.

Only the last appeared feasible. To ask students to fill in a questionnaire for research purposes during their examinations was felt to be a misuse of the 'captive' situation, and would perhaps understandably be met with by an unfavourable reaction from the students. The Mid-Survey inquiry yielded only a 70 per cent. response from students at lectures, and the author was advised that not only do attendances at lectures fall steeply before examinations but also students are less receptive to extraneous matters at this crucial pre-examination time. It proved to be operationally impracticable to have questionnaires handed out at either class certificate issuing or at the Matriculation Office. To contact students after the end of term was unrealistic since there is a prompt and wide dispersal from Edinburgh as soon as vacation starts.

Preparations were therefore made for block postal delivery, to commence 21 days before the end of term. Reminders were prepared to be sent after one week and again after two weeks, before the students dispersed.
STAGE FOUR

CASE IDENTIFICATIONS

i. Self-declaration of illness

ii. Medically detected psychiatric morbidity

iii. Inadequate academic performance
SELF-DECLARATION OF ILLNESS BY THE COHORT

Questionnaire issue and response

The address of each student in the cohort was sought from the card register kept by the Department of Student Accommodation and Welfare. It was learnt that 31 students had left the university (mostly non-graduating students who had not intended to remain for a full academic year), 2 had died, and the addresses of 2 students could not be traced.

Three weeks before the end of term questionnaires were sent to 1,520 students. An explanatory letter (Appendix I (f)) and a stamped-addressed envelope were enclosed. If the questionnaire form had not been returned in 7 days another questionnaire and a reminder note (Appendix I (g)) were sent. Where necessary this procedure was repeated after a further 7 days, and, finally, students who had not replied by the end of term were sent a personal letter and a copy of the questionnaire to their home addresses.

Occasionally (28 instances) students returned questionnaires with answers to the first items concerning physical health but not the second items concerning their emotional state. A note was taken of this and the answer slip returned to the student with a request to complete both sets of items (Appendix I (h)). All these re-sent were returned completed.*

Of the 1520 questionnaires sent out, 1505 (99 per cent.) were returned completed. Only 13 were not returned after repeated requests and 2 replied

*Contrary to expectation, only 2 of the 28 incomplete answers stated that they had been emotionally or nervously unwell at the second opportunity. It had been speculated that avoidance of the question might have been an indication of the student's experience of emotional illness.
refusing information.

Results of the inquiry

One hundred and seventy eight students (99 men, 79 women) stated that during their first year at the university they "had been emotionally or nervously unwell". This figure is 11.4 per cent. of the total cohort of 1555 and 11.8 per cent. of those who replied to the questionnaire.

A higher proportion of women declared that they had been emotionally unwell than did men - 13.8 per cent. of the total number of 574 women as opposed to 10.1 per cent. of the total number of 981 men. Testing declared illness against non-illness by sex, it was found that women students declared emotional illness significantly more than did men students ($X^2 = 4.39, 1 \text{ d.f.}, p < 0.05$).

The distribution of declared illness by faculty is shown in Table 4.

Among men the highest proportion who declared illness were Arts students, and the lowest were non-graduating and Science students. These differences are not statistically significant. Among women again there was a high proportion in Arts who declared illness in contrast to the low figures for Science. The proportions were also low among women Law students. A strikingly high figure was found for women students of Music – 4 out of 9 having declared illness. This high proportion accounts for the calculated chi-square value of 11.071 which with 5 degrees of freedom is significant at the 5 per cent. level, indicating for women a significant association between declaral of illness and Faculty. However,
<table>
<thead>
<tr>
<th>FACULTY</th>
<th>MEN</th>
<th></th>
<th>WOMEN</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All in group</td>
<td>Declared illness n.</td>
<td>%</td>
<td>All in group</td>
</tr>
<tr>
<td>ARTS</td>
<td>299</td>
<td>37</td>
<td>12.4</td>
<td>359</td>
</tr>
<tr>
<td>MUSIC</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>9</td>
</tr>
<tr>
<td>LAW</td>
<td>59</td>
<td>6</td>
<td>10.2</td>
<td>11</td>
</tr>
<tr>
<td>MEDICINE</td>
<td>214</td>
<td>23</td>
<td>10.7</td>
<td>50</td>
</tr>
<tr>
<td>SCIENCE</td>
<td>369</td>
<td>30</td>
<td>8.1</td>
<td>88</td>
</tr>
<tr>
<td>NON-GRADUATING</td>
<td>39</td>
<td>3</td>
<td>7.7</td>
<td>57</td>
</tr>
<tr>
<td>TOTAL</td>
<td>981</td>
<td>99</td>
<td>10.1</td>
<td>574</td>
</tr>
<tr>
<td>p (5 d.f.)</td>
<td></td>
<td>n.s.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4: Distribution of the cohort by declared illness and Faculty.

The numbers considered for Music students are small and when the data is regrouped (Music and Law considered together) to satisfy basic statistical requirements the chi-square becomes 3.956 which with 4 degrees of freedom does not yield a significant probability value. The inter-faculty differences do not show significant departures from the expected.

Cautionary note

It should be emphasised that the measurement of emotional illness here
is solely on the basis of the student's statement. It is not true to say that 178 students were emotionally unwell, only that they declared they had been unwell. Thus it is not correct to conclude from these results that emotional illness is more common in women students than in men; what is correct is that women students declared emotional illness significantly more than men did.

Use and abuse of questionnaire forms

Misuse of the questionnaire forms again very rarely occurred. One student wrote "There's no such thing" beside the item on emotional illness, but marked the answer nonetheless. Another qualified his reason for emotional illness with the word "Women" accompanied by a graffiti illustration. No other misuse occurred.

A few late returns carried written apologies for their tardiness. Some students pointed out that they had consulted a doctor while on vacation, and two mentioned that they would not be returning to university for the next session.

Some who declared emotional illness were keen to qualify this. For example a women student later known to the author to have had anorexia nervosa wrote "Cessation of periods and very tired mentally, due to very severe dieting in the Spring term". Others remarked "I get depressed a lot", "Probably just exam. fever", and from one woman, "I can't take the ups and downs of life". Some were explicit in reasons: a student whose parents were divorced during this year wrote "Due to family affairs", another
stated briefly "Because an atheist", and one American non-graduating student, new to this country, remarked "This British examination system provokes the worst nervous tension I have ever encountered".

Three students voiced criticism of their doctors. One stated rudely "A fat lot of use he was", in contrast to the cri-de-coeur of another, "I would prefer it if my doctor were not consulted as I doubt if he would even admit that there was anything wrong. The only reason that I myself claim to have been emotionally unwell is that I have been totally unable to work and have hence abandoned going to classes." Finally, a medical student wrote "My being nervously unwell was, and is, something that at times has seemed rather vague and I have even doubted its existence and/or seriousness. One one occasion at university and once at home I visited a doctor, convinced then of its presence, but was terribly disheartened by the paternal 'It will pass - don't worry' attitude of both doctors. Hence I definitely have no objection to you visiting my doctor; maybe he needs it ..."
MEDICALLY DETECTED PSYCHIATRIC MORBIDITY

Consent from the student for this inquiry

The principle of consent for the disclosure of a doctor's knowledge of his patients was felt to be important, even though at each stage of this survey the students had been appraised of the strict medical confidence with which this research was being handled. While the majority of doctors concerned took it for granted that the author as a colleague would be scrupulous to treat all details of their patients with professional secrecy, a few had requested prior consent from the students for this inquiry. To meet this the final questionnaire to students (Appendix I (f)) added a note of the author's plan to visit their doctors, requesting that those who did not wish this would indicate so and give their reason. Space was left for such reasons and a place marked for signature.

Nearly all students wrote "No objection" and appended their signature. Two wrote that they had no objection if their doctor had none, and one that she "didn't really like the idea" but had no good reason to object. Only four students preferred to withhold their consent. Two of them had declared illness and two had not; both the former and one of the latter were patients of the University Health Service and their case histories were in fact already known to the author through his professional association with the service. Thus only one student registered with another general practitioner withheld consent, for the loyal reason that "My doctor is already too overworked." No inquiry was made in respect of this patient, although her doctor, unasked, cited her as a good example of a healthy student
when discussing illness amongst others on his list.

Medical coverage of the student cohort

Every person in this country is entitled to medical care under the National Health Service; this includes students who are not citizens of the United Kingdom while they are resident in this country. Every student is encouraged to ensure that he is on a doctor's list. Those whose homes are in the Edinburgh area normally remain on their family doctor's list when attending the university. Those whose homes are outwith the Edinburgh area may seek registration with any doctor of their choice in Edinburgh, but provision is made on matriculation with the University for students to apply for registration with the University Health Service. Normally the majority of students from elsewhere in Scotland, the United Kingdom or abroad (two-thirds of all students) register with the physicians of the University Health Service.

The distribution of the cohort by medical coverage is shown in Table 5.

Thus the medical attendant of 98 per cent. (all but 32) of the total student cohort was known.

Levels of case identification

It is well known to psychiatrists that patients occasionally seek a consultation without the prior knowledge of their general practitioner and without going through the normal referral channels. It was reasonably thought that university students living in close proximity to a large medical school might be particularly likely to do this. Hence, irrespective of
Table 5: Medical coverage of the cohort.

<table>
<thead>
<tr>
<th>MEDICAL COVERAGE</th>
<th>MEN</th>
<th>WOMEN</th>
<th>ALL STUDENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registered with University Health Service</td>
<td>584</td>
<td>372</td>
<td>956</td>
</tr>
<tr>
<td>Attending U.H.S., not formally registered*</td>
<td>24</td>
<td>15</td>
<td>39</td>
</tr>
<tr>
<td>Registered with general practitioner</td>
<td>353</td>
<td>175</td>
<td>528</td>
</tr>
<tr>
<td>Medical attendant not known†</td>
<td>20</td>
<td>12</td>
<td>32</td>
</tr>
<tr>
<td>All coverage</td>
<td>981</td>
<td>574</td>
<td>1,555</td>
</tr>
</tbody>
</table>

*These students were attending the University Student Health Service and were considered by the authorities there as those who wished to register yet had not so far brought in their medical cards.

† Medical attendant not known (32 students):

- Presumed to have intended registering with U.H.S. but did not do so; either non-attenders or registered elsewhere: 18
- General practitioner's name given inaccurately or incorrectly: 5
- General practitioner retired from practice during period of scrutiny; new details of registration not known: 5
- General practitioner's name withheld by student: 2
- Do not attend doctors for religious reasons: 2

Overall 32 students
details of such consultations to be subsequently learned from general practitioners, the first step in data collection from doctors was to discover who of the cohort had seen a psychiatrist.

This was the first level of case identification; the second was the University Health Service and general practitioner level.

**STUDENTS SEEN BY PSYCHIATRISTS**

Students could have consulted a psychiatrist at one of a wide variety of centres and by one of several sources of referral. With this in view, a wide coverage of sources of psychiatric care and advice was attempted. The likely possibilities for a student of the University of Edinburgh are:

<table>
<thead>
<tr>
<th>In-patient treatment</th>
<th>A student could receive inpatient treatment for mental disorder at a mental hospital or psychiatric unit in Edinburgh, elsewhere in the South-East region of Scotland, or at a centre outside the area entirely. Those who attempt suicide in Edinburgh are almost always admitted for emergency psychiatric treatment and resuscitative care to the 'poisons unit' observation ward of the Royal Infirmary of Edinburgh.*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Out-patient Consultation</td>
<td>A student could consult a psychiatrist:</td>
</tr>
<tr>
<td></td>
<td>a. At the University Health Service Psychiatric Clinic, or</td>
</tr>
<tr>
<td></td>
<td>b. The psychiatric out-patient clinics of the Regional mental hospitals, either at the mental hospital or at its clinic in a general hospital or health centre.</td>
</tr>
</tbody>
</table>

* Ward 3.
c. At the psychiatric clinics of general hospitals.
d. As a re-referral to the Department of Child Psychiatry, if treated there before.
e. As a direct referral by a university teacher to a member of staff of the University Department of Psychological Medicine.
f. By attending the psychoanalysts on the staff of the Davidson Clinic for Analytical Psychotherapy in Edinburgh.
g. By attending psychiatrists engaged full-time or part-time in private practice, or psychiatrists who might see a student by private arrangement with his family, his doctor or university staff members.
h. Through casual consultation by self-referral to any psychiatrists mentioned above or concerned with those services.

Operational procedure

Detailed inquiries were made at all these psychiatric services within the city of Edinburgh and the South-East region of Scotland to determine whether any university student had been seen by psychiatrists as an inpatient or as an outpatient between 1st October and 30th June of the survey year.

This entailed scrutiny of the admission registers and outpatient attendance lists of the mental hospitals serving the city of Edinburgh - the Royal Edinburgh Hospital (West House, Craig House, the professorial unit of Jordanburn Nerve Hospital, and associated psychiatric nursing homes), Bangour Village Hospital, Broxburn and Rosslynlee Hospital, Roslin. Similar inquiries were made at the other mental hospitals serving the South-East Region (Stratheden Hospital, Fife; Dingleton Hospital, Roxburghshire) and their outpatient services, whether held at the parent mental hospital or clinics throughout the area. In addition, inquiries were made at the Crichton Royal, Dumfries, which, although outwith the Region, receives private patients for hospital care irrespective of the area in which they live.
Outpatient attendance lists of psychiatric clinics held in Edinburgh general hospitals were similarly examined. Every member of staff of the University Department of Psychological Medicine was asked for names of students seen either at routine clinics or by direct referral from a member of staff of another department or faculty in the University. The Director of the Department of Child Psychiatry was asked whether any previous patients, now students, had been re-referred to her unit for advice. Every staff member of the Davidson Clinic for Analytical Psychotherapy was personally approached.

Inquiries were made personally from each physician engaged full-time or part-time in private psychiatric practice, (there was one exception) and from psychiatrists who might have seen students by private arrangement, including self-referral. Finally, the records of the University Health Service Psychiatric Clinic were examined. Each hospital, clinic and psychiatrist were visited personally where possible; those not seen personally were contacted by post. By this coverage it might be reasonably assumed that any student in the cohort who made a professional contact with a psychiatrist in the whole of S.E. Scotland during the period of scrutiny was known.

All names thus found were checked against the project cohort nominal roll and if they tallied, further clinical and referral details were sought.

Results of inquiry

Eighteen students (13 men, 5 women) were found to have consulted a psychiatrist during the survey year. They comprised 1.16 per cent. of the total cohort.

These students reached medical attention through the following channels;

Inpatient treatment

Mental hospitals and psychiatric units. Two students (one man, one woman) were admitted to the Royal Edinburgh Hospital. One, a 21 year old male overseas student was admitted on the recommendation of the Professor of Psychological Medicine to whom he was referred by
his Director of Studies. The other, an 18 year old Scottish woman student was admitted to the Royal Infirmary of Edinburgh following an attempted suicide, and was transferred to the Royal Edinburgh Hospital for psychiatric care. Both patients were suffering from schizophrenia.

Outpatient consultations

University Student Health Service psychiatric clinic. Seven students (5 men, 2 women) were referred by the physicians of the University Health Service to the attending psychiatrist.

General and mental hospital psychiatric clinics. Three students (2 men, 1 woman) were referred by their general practitioners to outpatient clinics in Edinburgh for psychiatric consultation.

Department of Psychological Medicine (University). Three students (2 men, 1 woman) were seen in the first instance by members of this department. One was referred by his general practitioner following an attempted suicide, one by the Chaplain to the University and one by her father by direct arrangement.

Davidson Clinic for Analytical Psychotherapy. One male student undertook psychoanalytic treatment during the survey year. He was self-referred.

Private consultation. Two male students sought medical advice from psychiatrists without going through normal referral channels.

Of those who sought psychiatric aid, 13 were British students from the United Kingdom, 1 was a Commonwealth student, 3 were American and 1 was German.
Table 6 shows the range of diagnoses for which these 18 students sought psychiatric aid.

<table>
<thead>
<tr>
<th></th>
<th>MEN</th>
<th>WOMEN</th>
<th>ALL STUDENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schizophrenia</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Paranoid psychosis</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Anxiety neurosis</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Reactive depression</td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Hysteria</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Adolescent crisis, immature personality</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Abnormal personality - schizoid</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Abnormal personality - homosexuality</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td><strong>All diagnoses</strong></td>
<td><strong>13</strong></td>
<td><strong>5</strong></td>
<td><strong>18</strong></td>
</tr>
</tbody>
</table>

Table 6: Students seen by psychiatrists - diagnoses

**Suicide and attempted suicide**

No student in the cohort committed suicide.

Three students (1 man, 2 women) were known to have attempted suicide.* Only one was treated as an inpatient.

*It was interesting to learn later that during the first 6 months following the survey year 3 women students who had been members of the cohort attempted suicide.
STUDENTS WHO CONSULTED THEIR OWN DOCTOR

The working definition of illness adopted was that proposed by Backett et al. (1953), namely "a disturbance of a patient's health that is reflected in at least one consultation."

A. AT THE UNIVERSITY HEALTH SERVICE

Of the 1555 students who comprised the cohort, 956 (584 men, 372 women) were formally registered with the University Health Service physicians. A further 39 students (24 men, 15 women) attended but were not formally registered.

Procedure in case identification

Clinical notes on every consultation that a student makes with any of the five physicians of this service are recorded on a case-sheet card. This card is kept, together with all correspondence and previous medical records in the E.C.S. envelope. These records are filed separately for men and women in alphabetical order and are kept in the secretary's reception office.

At the end of the survey year the author examined the case-sheet card of each student in the cohort who was registered with or had attended the physicians of this service. Where there had been no consultation, or simply an attendance for ear syringing, refractions, vaccination or immunisation procedures, certificates of fitness or routine health examination
in connection with university physical education, these students were recorded in the cohort register as 'not ill'. Where there had been consultation(s) for a clearly physical condition, these students were recorded as 'physical cases'. All other case-sheet cards (that is, those not 'not ill', and those not 'physical cases') were extracted. Broadly they fell into the following categories: the student had consulted for (a) a condition which the doctor had diagnosed as psychological in nature, (b) a condition generally recognised as a psychosomatic disorder, (c) a condition where irrespective of diagnosis the doctor had recorded the presence of psychological symptoms or features in the patient, (d) a condition not clearly recognisable as organic in nature. To these were added the case-sheet cards of students who had made frequent consultations, irrespective of the recorded diagnosis.

The case-sheet cards were sorted into groups depending on which of the physicians each student had consulted.

In consultation with the author the physician concerned was confronted with each of the students case-sheet cards. The operational criteria for identification of a "case" had first been discussed at length and the physician was now asked to give his opinion in respect of each case-sheet whether or not there had been a psychological condition present in terms of the defined criteria. In cases of doubt the case was discussed: such discussion was intended only to guide, and in each instance the final decision was made by the student's own doctor.

If the physician stated that there had been no psychological condition
present this was recorded. If the physician stated that there had been a psychological condition present, he was asked to classify it among the categories employed in the framework of the criteria, and the details of this were recorded.

This procedure was uniformly followed with each of the 5 attending physicians. In this way each "case" was diagnosed solely by the physician who had been consulted by the student.

Psychiatric morbidity data (U.H.S. only).

Of the registered 'first-year' population of the University Health Service of 956 students, 1064 were diagnosed by their doctors to have had a psychological condition for which they had consulted during the survey year.

All psychological conditions thus found had occurred in 11.1 per cent. of those registered with the service.

Fifty three (9.98 per cent.) were men and 53 (14.25 per cent.) were women. Testing diagnosed illness against non-illness by sex, it was found that women students who consulted the service were diagnosed to have a psychological condition significantly more than were men ($X^2 = 6.17, 1 \text{ d.f.}, p < 0.05$).

B. GENERAL PRACTITIONER SERVICES

Of the 1555 students who comprised the cohort, 528 (353 men, 175 women)

\* This figure includes students (6) registered with the Service who had been seen in the first instance by a psychiatrist. They were already known to be cases.
were known to be formally registered with general practitioners in the city of Edinburgh and the surrounding areas of South-East Scotland.

These students were registered with 257 doctors in 203 general practices, of which 102 practices were outwith the city of Edinburgh. There was an overall average of 2 students per practice. Thirty practices in Edinburgh had more than 5 students registered, and 4 had more than 10 students registered. Outwith Edinburgh only 7 practices each cared for more than 5 of the cohort, and none had more than 10 registered.

Despite the operational difficulties in contacting these doctors - if only in terms of distances involved - the results of the Mid-Survey inquiry had made it clear that deficiencies in general practitioner reporting would be marked and deleterious to the value of this research; personal interview and, where possible, scrutiny of the records would be the most likely ways to minimise the deficiencies of the questionnaire method. Sampling of the general practitioner cohort was considered but rejected on the grounds that for representative sampling too many variables would have to be held constant (i.e. distance from university, social class differences in practice population composition, orientation of doctor towards psychological disorders).

**Operational procedure**

The procedure of case identification used was identical to that employed in the University Health Service. Only the methods of contacting the doctors differed.
The first contact was made by telephone. The doctor was told that with his patients' permission the Medical Research Council Unit were carrying out an inquiry into illness among students in relation to their background and progress while at university. Where the doctor had only one or two students on his list, he was told their names and with few exceptions all volunteered to consult their records on the spot. A considerable proportion of practices was covered entirely satisfactorily by the telephone. When a doctor appeared to be busy or preoccupied arrangements were made to ring him back or to visit the surgery at a time more convenient to him. Some doctors pointed out that they knew the patient very well and could answer questions without recourse to their records.

Where the doctor had three or more students on his list, he was asked if the author might call at the surgery at a convenient time. Some suggested that they would be happy to go through the records on the spot and this again proved satisfactory for case identification. The remainder were visited at their surgeries, always within a few days of the initial contact by telephone.

For the purposes of this operation, the practices were divided into broad geographical groups; thus all doctors with students in West Edinburgh were contacted around the same time, those in South Edinburgh at another time, and each county town or rural area in turn. In this way several doctors already knew of the survey from their colleagues, and two had actually prepared details in advance.

At each surgery the doctors were given an information sheet describing
the purposes of the research. This is set out in Appendix I (i). Many had questions to ask about the work, and there was much interesting discussion about illness among students.

**Response**

This part of the field work took fully six months to complete. Every practice was contacted by telephone or visited. As a result the clinical details of all members of the cohort registered with these practitioners were reviewed and those that were diagnosed as cases within the employed framework of the criteria were identified. As before uniform procedure was followed and each "case" was diagnosed solely by the general practitioner who had been consulted by the student.

**Psychiatric morbidity data (G.P. only)**

Of the registered 'first year' population of 205 general practices made up of 528 students, $66^1$ were diagnosed by their doctors to have had a psychological condition for which they had consulted during the survey year.

This figure represents 12.5 per cent. of those registered with general practitioners.

Thirty five (9.9 per cent.) were men and 31 (17.7 per cent.) were women. Testing diagnosed illness against non-illness by sex, it was found that women

---

$^1$ This figure includes students (2) registered with general practitioners who had been seen in the first instance by a psychiatrist. They were already known to be cases.
students who consulted their general practitioners were diagnosed to have a psychological condition significantly more often than were men. 

\( \chi^2 = 6.51, 1 \text{ d.f.}, p < 0.05 \).

C. ATTENDERS, NOT REGISTERED, AT UNIVERSITY STUDENT HEALTH SERVICE

There were 39 students in this category, of whom 24 were men and 15 were women. It was probable that except for the actual formality of registration, these students were patients of the University Health Service. It was unlikely that they would have particularly sought medical advice elsewhere than at this Service.

No student in this group was found by his doctor to have a psychological condition.

Some students, registered elsewhere with general practitioners did attend the University Health Service, but these were mainly accident cases, emergency referrals from lectures, for physical examination in connection with University physical education, and for suspected pregnancy. None was found to have a psychological condition.

D. MEDICAL ATTENDANT NOT KNOWN

Thirty-two students (20 men, 12 women) came into this category. It is not known whether any of them consulted a doctor. Referring to Table 5 on page 116 two assumptions might be admissible. The 2 students who stated
that they did not attend doctors by reason of religious conviction would be unlikely to have made any consultation during the survey year. Second, it is possible that a proportion of the 16 students who originally stated their intention to register with the University Health Service yet did not do so, did not do so because they were healthy and during the year did not have occasion to seek medical advice. Assumptions are not evidence, and details of this small group could only be recorded as "not known".

**Illness declared by student/diagnosed by doctor**

Of the 178 students who declared that they had been emotionally or nervously unwell, 72 stated that they had consulted their doctor specifically for this. For 61 (85 per cent.) of these 72 students the doctor had diagnosed a psychological condition.

A further 70 students who declared that they had been emotionally unwell also stated that they had consulted their doctor, though not specifically for an emotional complaint. In 13 (19 per cent.) of these 70 the doctor had diagnosed a psychological condition.

The remaining 36 students who declared that they had been emotionally unwell denied making a consultation for any complaint. Six (19 per cent.) of these 36 in fact were recorded by their doctors as patients who had consulted during the period of scrutiny and were diagnosed to have a psychological condition.
Psychiatric morbidity data - all sources

A summary of the total numbers of cases of psychological conditions detected by doctors at all sources is shown in Table 7.

<table>
<thead>
<tr>
<th>SOURCE OF DATA</th>
<th>MEN</th>
<th></th>
<th>WOMEN</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>All in group</td>
<td>Diagnosed Illness n.</td>
<td>%</td>
<td>All in group</td>
</tr>
<tr>
<td>University Health Service</td>
<td>584</td>
<td>53</td>
<td>9.98</td>
<td>372</td>
</tr>
<tr>
<td>General Practitioners</td>
<td>353</td>
<td>35</td>
<td>9.9</td>
<td>175</td>
</tr>
<tr>
<td>Attending U.H.S. not registered</td>
<td>24</td>
<td>0</td>
<td>-</td>
<td>15</td>
</tr>
<tr>
<td>Medical attendant not known</td>
<td>20</td>
<td>n.k.</td>
<td>n.k.</td>
<td>12</td>
</tr>
<tr>
<td>All sources</td>
<td>981</td>
<td>88</td>
<td>9.0</td>
<td>574</td>
</tr>
</tbody>
</table>

Table 7: Psychiatric morbidity data - all sources

Rates from the University Health Service are very similar to those from the general practices. The rates for men students are identical from both these sources; the difference in rates between the two groups for women students (14.3 per cent. U.H.S. as opposed to 17.7 per cent. general practice) is not statistically significant ($x^2 = 1.07$, n.s.).
For data from all sources, as for each group, it is seen that psychological conditions were diagnosed significantly more often in women than in men students ($X^2 = 11.81, 1 \text{ d.f.}, p < 0.001$).

The distribution of medically detected cases by Faculty is set out in Table 8.

<table>
<thead>
<tr>
<th>FACULTY</th>
<th>MEN</th>
<th></th>
<th>WOMEN</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All in group</td>
<td>Diagnosed, Illness</td>
<td>All in group</td>
<td>Diagnosed, Illness</td>
</tr>
<tr>
<td></td>
<td>n.</td>
<td>%</td>
<td>n.</td>
<td>%</td>
</tr>
<tr>
<td>Arts</td>
<td>299</td>
<td>32</td>
<td>10.7</td>
<td>359</td>
</tr>
<tr>
<td>Music</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>9</td>
</tr>
<tr>
<td>Law</td>
<td>59</td>
<td>3</td>
<td>5.1</td>
<td>11</td>
</tr>
<tr>
<td>Medicine</td>
<td>214</td>
<td>19</td>
<td>8.9</td>
<td>50</td>
</tr>
<tr>
<td>Science</td>
<td>369</td>
<td>33</td>
<td>8.9</td>
<td>88</td>
</tr>
<tr>
<td>Non-graduating</td>
<td>39</td>
<td>1</td>
<td>2.6</td>
<td>57</td>
</tr>
<tr>
<td>TOTAL</td>
<td>981</td>
<td>88</td>
<td>9.0</td>
<td>574</td>
</tr>
</tbody>
</table>

Table 8: Distribution of medically detected psychological conditions by Faculty.

Among men the highest proportion diagnosed to be ill were Arts students, and the lowest were non-graduating and Law students. Amongst women high
figures were found for Music, Medicine and non-graduating students. The proportions were low among women Law students. These differences in rates by Faculty are not statistically significant.

The prevalence of psychiatric morbidity among the cohort

During a period of scrutiny of one academic year at university 88 men out of a population at risk of 981 were diagnosed by their doctors to have had a psychological condition within the framework of the criteria employed. This gives a period prevalence for men of 9.0 per cent. of all at risk.

The equivalent figures for women students were 84 diagnosed as ill out of a population at risk of 574; this gives a period prevalence for women of 14.6 per cent. of all at risk.

These rates are meaningful only within the context of the criteria used.

These rates were calculated by expressing the number of known cases of diagnosed illness as a percentage of the population at risk. However, 20 men and 12 women were undocumented as their medical attendants were not known. If the rates for these 32 undocumented students were the same as for the 1523 documented students, then 4 more cases would come to light, which only minimally would alter the prevalence for men and women from 9.0% and 14.6% to 9.2% and 14.9% respectively. The percentages shown in Table 7 are therefore the minimum; if the unlikely event were true that all the undocumented students were cases, then the maximum percentages for illness among the cohort would be 11.4 per cent. for men and 17.2 per cent. for women respectively.

The diagnostic categories into which the ill students were classified
by their doctors are shown in Table 9.

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>MEN</th>
<th>WOMEN</th>
<th>ALL STUDENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formal psychiatric illness</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychosis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schizophrenia</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Paranoid psychosis</td>
<td>2</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Epileptic psychotic episode</td>
<td>-</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Neurosis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety neurosis</td>
<td>14</td>
<td>18</td>
<td>32</td>
</tr>
<tr>
<td>Reactive depression</td>
<td>6</td>
<td>10</td>
<td>16</td>
</tr>
<tr>
<td>Hysteria</td>
<td>2</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Obsessional neurosis</td>
<td>2</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Anorexia nervosa</td>
<td>-</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Character disorder</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inadequate or immature personality</td>
<td>6</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Schizoid personality</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Homosexuality</td>
<td>2</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Psychological symptoms complained of by patient but not viewed by doctor as formal psychiatric illness</td>
<td>14</td>
<td>15</td>
<td>19</td>
</tr>
<tr>
<td>Abnormal features or behaviour noted by doctor as indicating psychological disturbance, but not viewed as formal psychiatric illness</td>
<td>12</td>
<td>10</td>
<td>22</td>
</tr>
<tr>
<td>Psycho-physiological reactions and psychosomatic illness</td>
<td>23</td>
<td>22</td>
<td>45</td>
</tr>
<tr>
<td>All medically detected psychological conditions</td>
<td>88</td>
<td>84</td>
<td>172</td>
</tr>
</tbody>
</table>

Table 9: Distribution of medically detected psychological conditions by the classification employed in this survey.
Formal psychiatric illness accounted for less than half of the cases. Most of these were neurotic disorders among which anxiety states figured most prominently: this was true for both sexes. Psychotic and neurotic disorders together accounted for 34 per cent. of all illnesses among men and 42 per cent. of all illnesses among women.

The ratio of men to women students who were diagnosed to have psychotic disorders (3:1) is in excess of the ratio (1.7:1) of men to women in the total cohort. The reverse is true in respect of neurotic disorders which were conspicuous among women students (male : female ratio = 0.7:1).

Analysis of the categories of illness reveals that the specific prevalence of formal psychiatric illness in the cohort was 3.9 per cent. for men and 6.4 per cent. for women. The remaining categories comprise Kessel's (1960) 'conspicuous psychiatric morbidity' group, bringing the total prevalence for all psychological conditions which occurred in the cohort to 9.0 per cent. for men and 14.6 per cent for women.
INADEQUATE ACADEMIC PERFORMANCE BY THE COHORT

At the end of the academic year steps were taken to identify among the cohort "any student who ought to have been able to sit and pass all the examinations for which his course of study prepared him, and had not done so on the first occasion." This criterion served to identify students whose academic performance during the survey year had been 'inadequate' (see page 107).

Procedure of inquiry

With the permission of the Deans of the Faculties and by arrangement with the administrative personnel concerned the academic records of all first year students were scrutinised to learn how they had done in their degree examinations. This enabled students to be identified in the following terms; (a) those who sat and passed all their degree examinations, (b) those who sat but did not pass all their degree examinations, (c) those who entered for, but did not sit all or any of their degree examinations, and (d) those who did not enter for their degree examinations.

The only exceptions to this were members of the cohort who in their first year at the university had embarked directly on second year courses in medicine, dentistry and veterinary medicine and were not required to take degree examinations at the end of this academic year. The progress of these direct entry students is, however, assessed by the staff and details of this were made available by the Office of the Faculty of Medicine for the present research purposes.
Further inquiries were made about students who were recorded as not having sat for or entered for a degree examination when it had been otherwise expected that they should have done so. This was in order to identify those who had, for example, quit their studies precipitately, or had fortuitously been ill and unable to attend examinations. In most cases the faculty offices were able to supply this information and where not, inquiries were later made from the students' doctors or the Department of Student Accommodation and Welfare.

Results

Seven hundred and twenty-one students (470 men, 251 women) had made an adequate academic performance and 750 (460 men, 290 women) had made an inadequate academic performance within the framework of definition of the stringent criteria employed. The remainder, 84 students (51 men, 33 women), had not taken their examinations.

Inquiry revealed a variety of reasons why 84 members of the cohort had not completed the academic obligations of their year. Seventeen men and 14 women were non-graduating students who had not intended to enter for examinations; some, mainly students from Germany, had left the university after two terms. Two students, both men, had died. Four men and one woman did not sit their examinations because they were physically ill. Nine men and three women withdrew from university during the year; of the men, five left because of psychiatric illness and four to earn a living to support either their family on death of a parent or to support a wife on previously unforeseen marriage; of the women, one left because of psychiatric illness, one because of chronic physical ill-health and one to marry. The
remainder, 19 men and 15 women, comprised a miscellaneous group where most failed to obtain 'duly performed' class certificates without which students are disbarred from entry for degree examinations; three were recorded as having "forgotten to enter" for their examinations, and for three no reason could be ascertained, though it was known that they had not been physically ill and that they had not left Edinburgh at the time of the degree examinations for which they had in fact entered.

In the light of this information the final figures for academic performance were adjusted. Those who were non-graduating students and had not intended to take examinations, those who had died, those who were physically ill and those who had left university to become breadwinners or for reasons of physical illness were discounted from the analysis. On the other hand, those who had withdrawn from university for reasons of psychiatric illness, those whose academic defection had precluded them from obtaining class certificates and those who 'forgot to enter' for their examinations were justifiably considered to have made an inadequate academic performance and were included in this category. Those about whom no details were known could not be justifiably discounted and were also included among the 'inadequate academic performance' category.

The standards of academic performance by the cohort are set out in Table 10.
Table 10: Standards of academic performance by the cohort.

For both men and women rather more than half had made an inadequate academic performance within the framework of definition of the criteria used.* The proportion was greater for women than for men, but not significantly so.

*Since this part of the study was concerned only with the individual performance of each member of the cohort for later investigation against mental status factors, no details of inter-faculty differences in academic performance were sought.
STAGE FIVE

CORRELATES OF STUDENT PSYCHIATRIC ILLNESS:
TESTING THE HYPOTHESIS
Introductory remarks

This section is concerned with the questions that the study was specifically designed to answer. In the first stage of this work hypotheses were derived from factors in the new student's background and experience that are reported to have a bearing on his state of mental health at university. The factors are those that can be measured at the student's point of entry to university and they comprise two main groups; (a) objective factual data about the student's life, background and experience, and (b) his subjective opinions and attitudes recorded within a structured questionnaire framework. Subsequent data collections have provided indices of the mental state and academic performance of the students who make up the cohort; these form the material on which the pre-constructed hypotheses are now investigated.

The hypotheses cover a wide variety of items. They are examined separately in respect of
(a) medically diagnosed psychiatric morbidity in the cohort, and
(b) self-declaration of emotional or nervous illness by the cohort.

Of the cohort of 1,555 students, the former group - those diagnosed by their doctors to have had a psychological illness - comprise 172 students (88 men, 84 women); the latter group - those who declared illness - comprise 178 students (99 men, 79 women).

The main aim of this investigation is to study the influence of each factor concerned on the prevalence of psychiatric disorders among the cohort. As well as this, but secondary to the main intention, the results demonstrate
the characteristics of students who have psychiatric disorders.

Presentation of results

The areas for examination are treated in the following order:

1. **SOCIAL AND DEMOGRAPHIC FACTORS**
   - Personal factors: Sex - age - social class - marital status - religious affiliation.
   - Domiciliary and ethnic factors: Domiciliary distribution - ethnic differences - cultural differences - the overseas student - national differences.
   - Parental and family factors: the broken home (parents) - the broken home (marriage) - happiness in the home - influences of following parent's profession - students' attitudes to entrance to university - parental pressures.

2. **ECONOMIC FACTORS**
   - Financial support and hardship: Financial strain on family - severity of strain - influences of grants and scholarships - economic difficulties of married students.

3. **MEDICAL FACTORS**
   - Previous health: Self-rating of health - loss of school time from illness - frequency of medical consultation - number of previous illnesses declared - nature of previous ill-health among students.
4. **EDUCATIONAL FACTORS**

**Pre-University:** Category of schooling by type of educational establishment - academic means of matriculation - self-ratings of achievement in spheres of school activity - influence of being an "all-rounder".

**University:** Faculty in which entered for study - type of degree course - academic performance - its relationship to degree of psychiatric illness.

5. **LIVING AT THE UNIVERSITY**

**Living arrangements:** Students at home - students in halls of residence, flats, lodgings - previous experience of independence - the student commuter - living with relations.

These five main areas are presented in turn.

**Definitions**

Throughout these results the phrase "diagnosed illness" refers to the students who were stated by their doctors to have consulted with a psychological condition during the survey year, and "declared illness" to those who had stated in respect of the same period of scrutiny that they had been emotionally or nervously unwell.

**Text and tables**

This section of results is comprised of a text followed, for convenience of reference, by the tables and concludes with a summary of the
main points in the section.

The following conventions are used in the text and tables.

The argument from which each hypothesis was derived is briefly given. Next, each hypothesis is stated under the appropriate heading. The distribution of the cohort by the operative factor(s) is shown, and this is followed by the findings obtained on examination of the factor's influence on case rates for illness.

For each of the hypotheses studied the tables show the absolute numbers of individuals in the various distributions: the observed numbers for diagnosed illness and declared illness respectively are given, and the percentages of cases in each group are indicated. Because of the significant differences in prevalence of psychiatric morbidity for men and for women, the results in each table are arranged separately for the two sexes. These tables are indicated in the text by capital letters and Roman figures (e.g. TABLE IV). For clarity in presentation of some of the tables, histograms have been prepared and are included with the text (e.g. Figure 2).

Certain data collected in the survey provide information from which material was derived for testing as hypotheses. These have been included, for convenience, in the text and are referred to, as elsewhere in this thesis, by Arabic numerals (e.g. Table 12 or Table 17).

In the tables '—', represents "nil", 'n.k.' represents "not known", and the signs * and † refer to descriptive footnotes.
The statistical methods applied in the analysis are fully described in Appendix II. The calculations were based in each instance on the investigation of a null hypothesis, but for ease of literary style the hypotheses in the text are posed in positive form.
SOCIAL AND DEMOGRAPHIC FACTORS

SEX

It has been reported that psychiatric disorders occur more frequently among women than among men.

Hypothesis: "The prevalence of psychiatric disorder is greater for women than for men."

The cohort comprised 961 men and 574 women.

The distribution of case rates for diagnosed and declared illness is shown for men and women in Figure 2. Of 961 men, 88 (9.0 per cent.) had diagnosed illness and 99 (10.1 per cent.) had declared illness, while of 574 women 84 (14.6 per cent.) had diagnosed illness and 79 (13.8 per cent.) had declared illness.

The rates of both diagnosed and declared illness for women are significantly higher than the rates for men ($X^2 = 11.81, p < 0.01$, $X^2 = 4.39, p < 0.05$ respectively), therefore the hypothesis is borne out.

AGE

It has been argued that older students are more prone to develop psychiatric disorders than younger students. In contrast, it has been reported that younger students are the greater risk.

Hypothesis: "The prevalence of psychiatric disorders is affected by age."

The age breakdown of the cohort is shown in TABLE I. All age groups from 17 to 21+ years were represented. For both men and women the greatest
FIGURE 2

Sex-specific case rates for diagnosed and declared illness.
FIGURE 3
Age-specific case rates for diagnosed and declared illness.
numbers were aged 18 years. A larger proportion of men than women were aged 21 years and over on university entry.

There is no association between age and case rates for either diagnosed or declared illness for either sex (Figure 3). The hypothesis is not borne out.

SOCIAL CLASS

It has been suggested that students whose family status lies in the lower social classes experience particular stresses at university which make them prone to develop psychiatric disorders.

Hypothesis: "The prevalence of psychiatric disorders is greater for those from the lower social classes than for those whose background is of higher socio-economic status."

Table 12 shows the social class distribution of the cohort by the categories adopted by the Registrar General:

<table>
<thead>
<tr>
<th>SOCIAL CLASS</th>
<th>MEN</th>
<th>WOMEN</th>
<th>ALL STUDENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>307</td>
<td>224</td>
<td>531</td>
</tr>
<tr>
<td>II</td>
<td>311</td>
<td>184</td>
<td>495</td>
</tr>
<tr>
<td>III</td>
<td>290</td>
<td>144</td>
<td>434</td>
</tr>
<tr>
<td>IV</td>
<td>34</td>
<td>10</td>
<td>44</td>
</tr>
<tr>
<td>V</td>
<td>30</td>
<td>5</td>
<td>35</td>
</tr>
<tr>
<td>n.k.</td>
<td>9</td>
<td>7</td>
<td>16</td>
</tr>
<tr>
<td>All classes</td>
<td>981</td>
<td>574</td>
<td>1,555</td>
</tr>
</tbody>
</table>

Table 12: Distribution of the cohort by social class
Two-thirds of the cohort came from social classes I and II; classes IV and V were under-represented in comparison.

The distribution of illness by social class is shown in TABLE II. There is no association between social class and case rates. The hypothesis is not borne out: the prevalence among students from the lower social classes is no greater than among their fellows.

MARITAL STATUS

It has been argued that married students are subject to greater stresses and responsibilities than single students which make them more prone to develop psychiatric illness.

Hypothesis: "The prevalence of psychiatric disorders is greater for married students than for single students."

Only 33 out of the 961 men and 5 out of the 574 women were married on university entry. All these students were over 21 years of age. One half of the men and all but one of the women came from overseas.

The numbers for diagnosed and declared illness were very small (men; 2 diagnosed, 2 declared; women; none diagnosed, 1 declared) and no conclusions can be drawn from this.

RELIGIOUS DENOMINATION

It has been reported that students who have psychological difficulties often declare that they have recently relinquished their affiliation to their former faith or have undergone changes in religious persuasion. It
has also been argued that those who form a minority religious denomination are more prone to experience stresses in a culture where the majority holds different religious views and codes; this would seem to be particularly relevant to non-Christian students in a Christian culture.

Two hypotheses are here examined:

1. "The prevalence of psychiatric disorders is greater for those who declare that they have no religious affiliation than for those who declare otherwise."

2. "In relation to religious groups, the prevalence of psychiatric disorders is greater among minority groups."

The students comprised the following religious denominations (Table 13):

Almost one-half of the cohort were Presbyterians (Church of Scotland), one-fifth were Anglicans and less than one-tenth were Roman Catholics. A wide variety of Christian denominations were represented. Of those who were not Christian, almost one-half were Jews. One-tenth of the men declared that they had no religious affiliation; the proportion for women is less than this.

TABLE III shows that men who declared no religious affiliation have significantly higher case rates for declared illness ($X^2 = 9.72, p < 0.01$). The former hypothesis is therefore borne out in respect of men who declare illness. Religious affiliation does not significantly influence case rates for diagnosed illness nor for declared illness in women.

TABLE IV shows the distribution of psychiatric disorders among students who belonged to Christian denominations. Case rates are not significantly
<table>
<thead>
<tr>
<th>RELIGION</th>
<th>MEN</th>
<th>WOMEN</th>
<th>ALL STUDENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHRISTIAN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anglican</td>
<td>221</td>
<td>143</td>
<td>364</td>
</tr>
<tr>
<td>Baptist</td>
<td>15</td>
<td>6</td>
<td>21</td>
</tr>
<tr>
<td>Brethren</td>
<td>2</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>&quot;Christian&quot;</td>
<td>22</td>
<td>3</td>
<td>25</td>
</tr>
<tr>
<td>Christian Scientist</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Christadelphian</td>
<td>-</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Congregational</td>
<td>6</td>
<td>11</td>
<td>17</td>
</tr>
<tr>
<td>Disciple of Christ</td>
<td>-</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Elim Alliance</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Greek Orthodox</td>
<td>-</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Jehovah's Witness</td>
<td>-</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Lutheran</td>
<td>10</td>
<td>13</td>
<td>23</td>
</tr>
<tr>
<td>Methodist</td>
<td>26</td>
<td>21</td>
<td>47</td>
</tr>
<tr>
<td>Pentecostal Fellowship</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Presbyterian</td>
<td>424</td>
<td>274</td>
<td>698</td>
</tr>
<tr>
<td>Quaker</td>
<td>5</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>Reformed Waldensian</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Roman Catholic</td>
<td>75</td>
<td>31</td>
<td>106</td>
</tr>
<tr>
<td>Salvation Army</td>
<td>3</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>Seventh-day Adventist</td>
<td>-</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>U.F.C. Christian</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Unitarian</td>
<td>-</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Welsh Independant</td>
<td>3</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>NON CHRISTIAN</td>
<td>17</td>
<td>11</td>
<td>28</td>
</tr>
<tr>
<td>Jewish</td>
<td>10</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td>Moslem</td>
<td>5</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Hindu</td>
<td>2</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Buddhist</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Jain</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>NO RELIGIOUS AFFILIATION (Atheist, Agnostic, &quot;None&quot;)</td>
<td>98</td>
<td>30</td>
<td>128</td>
</tr>
<tr>
<td>RELIGION NOT STATED</td>
<td>31</td>
<td>11</td>
<td>42</td>
</tr>
</tbody>
</table>

| TOTAL                        | 981 | 574   | 1,555        |

Table 13: Distribution of the cohort by religious denomination
different for Presbyterians and Anglicans than for the minority Protestant groups or Roman Catholics. Similarly, although the numbers here considered are small (TABLE V), the case rates for illness among non-Christians are not significantly greater than for illness among Christians. Thus the latter hypothesis is not borne out: minority religious groups at Edinburgh are not especially prone to psychiatric disorders.

ETHNIC AND DOMICILIARY CONSIDERATIONS

It has often been stressed that overseas students are particularly prone to develop psychiatric disorders. This is held to be especially true for those who are subject to the stresses set up by differences in language, race and culture. Further, if overseas students experience anxiety that is evoked in adapting to a situation of cultural change, to a lesser extent the same factors might be operative for English students at a Scottish university.

The following hypotheses were constructed:

1. "The prevalence of psychiatric disorders is greater for overseas students than for British nationals."

2. "In relation to overseas students, the prevalence of psychiatric disorders is greater among those who are experiencing marked cultural transition."

3. "In relation to overseas students, the prevalence of psychiatric disorders is greater among those whose mother tongue is not English."

4. "In relation to overseas students, the prevalence of psychiatric disorders is greater among coloured students."

5. "In relation to British students, the prevalence of psychiatric disorders is greater among those at this university who are not Scots."
The home domicile of the students is set out in Table 14:

<table>
<thead>
<tr>
<th>HOME</th>
<th>MEN</th>
<th>WOMEN</th>
<th>ALL STUDENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edinburgh</td>
<td>233</td>
<td>127</td>
<td>360</td>
</tr>
<tr>
<td>Within 30 miles</td>
<td>176</td>
<td>84</td>
<td>260</td>
</tr>
<tr>
<td>Elsewhere in Scotland</td>
<td>193</td>
<td>116</td>
<td>309</td>
</tr>
<tr>
<td>Elsewhere in U.K.</td>
<td>296</td>
<td>168</td>
<td>464</td>
</tr>
<tr>
<td>British Commonwealth</td>
<td>39</td>
<td>17</td>
<td>56</td>
</tr>
<tr>
<td>Foreign Country</td>
<td>44</td>
<td>62</td>
<td>106</td>
</tr>
</tbody>
</table>

**Table 14:** Distribution of the cohort by home domicile

Almost two-thirds of the students were Scottish and less than a third came from England. Very few were Welsh and only three came from Ulster.

One hundred and sixty two students came from the Commonwealth and foreign countries (Table 15).

The greatest numbers were the non-graduating students from America (twice as many women as men) and West Germany, and degree students from Africa, the West Indies and Caribbean countries.

The distribution of psychiatric disorders among the cohort by the main domiciliary groups is shown in TABLE VI. Case rates do not significantly differ for Scots, other British students, or overseas students.
<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>MEN</th>
<th>WOMEN</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Denmark</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>France</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Germany (West)</td>
<td>9</td>
<td>15</td>
<td>24</td>
</tr>
<tr>
<td>Holland</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Iceland</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Italy</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Norway</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Sweden</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>America</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canada</td>
<td></td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Chile</td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>United States of America</td>
<td>22</td>
<td>41</td>
<td>63</td>
</tr>
<tr>
<td>West Indies and Caribbean countries</td>
<td>9</td>
<td>7</td>
<td>16</td>
</tr>
<tr>
<td>Africa</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gambia</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Ghana</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Kenya</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Mauritius</td>
<td>8</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Nigeria</td>
<td>5</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Rhodesia</td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Seychelles</td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Sudan</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Swaziland</td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Tanganyika</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Uganda</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Middle-East</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aden</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Jordan</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>South-East</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ceylon</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Asia</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Malaya</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Far-East</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hong Kong</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Japan</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Korea (South)</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Australia</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

All overseas countries 83 79 162

Table 15: Overseas students: countries of origin
Thus hypotheses "1" and "5" are not borne out: overseas students as a group are not more prone to psychiatric disorders than British students at home; English students are not significantly more prone to psychiatric disorders than Scottish students.

Overseas students - cultural transition. Cultural background was determined by reference to each overseas student's nationality, domicile, race, religion and language.

Thirty-one men did not have a Western background, of these 11 were cases* and 20 were not: 52 men did have a Western background, of these only 5 were cases and 47 were not ($X^2 = 6.79, 1\text{ d.f.}, p < 0.01$). Hypothesis "2" is borne out for men: the prevalence of psychiatric disorders is greater among those who are experiencing cultural change. This hypothesis could not be tested for women: only one woman overseas student was not from a Western cultural background.

Overseas students - language barrier. Forty-nine men had had to learn English as a second language, of these 13 were cases and 36 were not: 34 spoke English as their mother tongue and of these only 3 were cases and 31 were not. Similarly, 24 women had had to learn English and of these 6 were cases; 55 spoke English as their mother tongue and of these 14 were cases. The differences in case rates are not statistically significant.

* cases of declared and diagnosed illness were added together because of the small numbers involved. Using the same procedures to determine differences in case rates by cultural background of all students in the cohort, it was found that case rates are significantly high for men who did not have a Western background ($X^2 = 10.9, p < 0.001$).
Hypothesis "3" is not borne out: rates are not affected by language barriers.

Overseas students - race. Of the men, 36 were coloured and of these 12 (33.3 per cent.) were cases, in contrast to 47 men who were not coloured among whom only 4 (8.5 per cent.) were cases ($X^2 = 6.57, 1 \text{ d.f.}, p < 0.02$). Eleven women were coloured, of whom 4 (36 per cent.) were cases, in contrast to 69 who were not coloured of whom only 16 (23 per cent.) were cases ($X^2 = \text{n.s.}$). Coloured men from overseas, therefore, do have significantly more psychiatric disorders than their fellows. Case rates for women are similar but do not achieve significant levels. Hypothesis "4" is borne out in respect of overseas men: coloured students have more psychiatric disorders than other overseas students.

Analysis of groups of overseas students. Case rates were examined for national groups whose numbers permitted this. African men have high rates for psychiatric disorders (8 in 27 = 30 per cent.) of which half the cases were Nigerian students. German women (5 in 15 = 33 per cent.) and American women (12 in 41 = 30 per cent.) also have high rates. In contrast, American men (2 in 22 = 9 per cent.) and West Indies men (1 in 9 = 11 per cent.) have low rates. Numbers in the remaining groups were too small for analysis.

In relation to whether overseas students had been away from their home country before, the prevalence of psychiatric disorders is no greater among those who had not had such experience.

BACKGROUND OF A BROKEN HOME

It has been reported that a conspicuous proportion of students who develop

* Again considering all students in the cohort, case rates for diagnosed/declared illness combined are significantly higher for coloured students than for white students ($X^2 = 10.2, p < 0.01$).
psychiatric disorders come from homes that have been disrupted by death or by separation of the parents.

**Hypothesis:** "The prevalence of psychiatric disorders is greater for students from broken homes than for those whose family composition has not been severed by separation or death of one or both parents."

**TABLE VII** shows that one-sixth of the men and one-sixth of the women came from a broken home. They had declared on entry that one or both parents was not living at home by reason of death, divorce or separation.†

For men, the case rates are the same for both diagnosed and declared illness whether their families were intact or not. For women, however, case rates are high among those from broken homes, significantly so for declared illness ($X^2 = 6.68, 1 \text{ d.f.}, p < 0.01$). The hypothesis is borne out for declared illness in women students; the broken home plays a significant role.

**BROKEN MARRIAGE**

It has been suggested that married students whose marriage has been broken by divorce, separation or death of spouse are prone to develop psychiatric disorders.

**Hypothesis:** "The prevalence of psychiatric disorders among married students is greater for those whose marriage has been broken than for those in whom this factor is not operative."

Four of the 38 married students were divorced, and one was a widow.

† Those whose parent(s) were absent on work, e.g., at sea, were not included in the 'broken home' category.
Three of the 33 married men were cases, only one of whom had a broken marriage. Only one of the 5 married women was a case; her marriage had previously broken up.

The numbers are inconclusively small. The hypothesis cannot be borne out.

**DISHARMONY IN THE HOME**

Disturbed family relationships are often stressed as a potent source of emotional instability among students.

Hypothesis: "In relation to happiness in the home, the prevalence of psychiatric disorders is greater among those whose home life is unhappy."

In TABLE VIII it is seen that only a small proportion (31 men, 16 women) had declared on university entry that their home was 'less than happy'.

The case rates for diagnosed and declared illness among both the men and women in whom this factor was operative are uniformly high. By reason of the small numbers involved the hypothesis cannot be borne out.

**WHEN PARENT IS A UNIVERSITY GRADUATE**

It has been demonstrated in studies of the academic performance of students at Edinburgh University that those who are the sons and daughters of graduates do less well than those whose parents are not graduates. Consequently, it is argued that the poor academic performance of the former may be due to stresses which are evoked by the particular aspirations and
awareness of parents who are graduates.

Hypothesis: "In respect of parental pressures imposed on the student, the prevalence of psychiatric disorders is greater among those who are the sons and daughters of university graduates."

About one-third of the students were children of university graduates (TABLE IX). The distribution is similar for both sexes.

Among men who are the sons of graduates there is a significantly lower case rate for diagnosed illness \( (X^2 = 4.27, 1 \text{ d.f.}, p < 0.05) \). Among women there is no significant difference in case rates in respect of this factor. The hypothesis is disproved; for men the reverse hypothesis is true.

WHEN STUDENT IS STUDYING TO ENTER SAME PROFESSION AS PARENT

This examines the last mentioned aspect of parental pressures in a more specific way.

Hypothesis: "In respect of parental pressures imposed on the student, the prevalence of psychiatric disorders is greater among those whose future university degrees are likely to lead them to enter the same profession as their parents."

This factor was operative for only 131 men and 113 women (TABLE X).

As before, among men whose degrees will likely lead them to enter the same profession as their parents there is a significantly lower case rate for diagnosed illness \( (X^2 = 4.23, 1 \text{ d.f.}, p < 0.05) \). Among women there are no significant differences in case rates. The hypothesis is disproved.
ATTITUDES TO ENTERING UNIVERSITY

The attitudes of a student and his parents to his entering university are held to be most important in relation to both the student's motivation and his parents' influence on him from either an excess or paucity of encouragement. These factors are here examined.

Attitudes among students

It is argued that poorly motivated students are unhappy at university and consequently prone to develop emotional disturbance.

Hypothesis: "In respect of attitudes to entering university, the prevalence of psychiatric disorders is greater among students whose attitudes are unfavourable."

Very few (15 men, 7 women) declared on university entry that they were other than in favour of taking a university place (TABLE XII).

For these students the prevalence of psychiatric disorders is greater among both men and women for both diagnosed and declared illness. However the numbers here considered are small, and the hypothesis cannot be borne out.

Attitudes among parents - the student's opinion

It is argued that where parents are not in favour of a student entering university the resultant family pressures contribute towards emotional disturbance in the student.

Hypothesis: "In respect of attitudes to entering university, the prevalence of psychiatric disorders is greater among students who are aware that their parents are not in favour of their entering university."

In the original questionnaire students recorded their opinions of each
parent's attitude, but as the numbers of those who recorded unfavourable attitudes on the part of either or both parents are small, the data have been grouped to include the attitudes of both parents together, and this is set out in TABLE XII.

Fifty three men and 29 women declared that their parent(s) were not 'in favour' of their taking a university place.

The case rates for these students are consistently high, but the differences in rates between this group and those who declared that their parents were 'in favour' are not significant. The hypothesis is not borne out.

**ECONOMIC FACTORS**

Financial strain and hardship are widely cited as stress factors which contribute towards emotional difficulties among students. The influence of economic factors on the prevalence of psychiatric disorders is here examined.

**INFLUENCE OF GRANTS, BURSARIES AND SCHOLARSHIPS**

It has been shown that those whose university education is pursued with only a minimum of private funds are prone to experience emotional disturbance. Students in whom this factor is operative would be found among
those whose education is not supported by grant, bursary or scholarship.

Hypothesis: "The prevalence of psychiatric disorders is greater for students whose education is not financially assisted than for those who hold grants, bursaries or scholarships."

One-seventh of the men and one-sixth of the women reported that they were not in receipt of financial assistance other than from their families (TABLE XIII). It is cautionary to point out that of these, 28 men and 62 women were overseas students, many of whom, particularly the American students, are not generally believed to be financially embarrassed.

The hypothesis is not borne out: the prevalence of psychiatric disorders among non-grant-aided students is no greater than among their fellows.

FINANCIAL STRAIN ON THE FAMILY

It is suggested that students who are aware that their being at university imposes a financial strain on their parents are likely to be under greater emotional strain than their fellows.

Hypothesis: "In respect of financial strain imposed by the student being at university, the prevalence of psychiatric disorders is greater among those who report this."

TABLE XIV shows that rather less than half of both the men and the women reported that their university education was imposing a financial strain on their families.

The hypothesis is not borne out: there are no significant differences in case rates for psychiatric disorders in respect of financial strain.

SEVERITY OF FINANCIAL STRAIN ON THE FAMILY

Pursuing the last hypothesis further, it is likely that among students
who are aware that their being at university imposes a financial strain on their parents, the resultant emotional strain might be greater among those who felt this most keenly.

Hypothesis: "In respect of financial strain imposed by the student being at university, the prevalence of psychiatric disorders is greater among those who report severe financial strain."

TABLE XV shows the degrees of financial imposition rated by those who reported a strain on their family resources. Severe strain was declared by one-tenth of these students.

The hypothesis is not borne out: in respect of the degree of financial strain, among men the case rates are the same; however women who reported severe strain have higher case rates, but the differences are not significant.

NEED FOR VACATION EARNINGS

It is suggested that students who are influenced by financial stringency, and have emotional difficulties which stem from this, would be especially aware of the necessity of earning money from vacation employment.

Hypothesis: "In respect of financial strain imposed by the student being at university, the prevalence of psychiatric disorders is greater among those who declare the necessity for vacation earnings."

Approximately one-half of the men and one-third of the women declared that vacation earnings would be a necessity (TABLE XVI).

The hypothesis is not borne out: there are no differences in case rates for psychiatric disorders in respect of this factor.
ECONOMIC DIFFICULTIES OF MARRIED STUDENTS

It is often suggested that married students are faced with excessive economic hardship since their resources must meet their own educational expenses as well as adequate support for their spouse and family. For this reason it is plausible to assume that the strain imposed by financial struggle would render married students particularly prone to emotional reactions.

Because so few in the cohort were married (see page 148) it is not possible effectively to examine this factor.

MEDICAL FACTORS

Pointers to a patient's proneness to psychiatric disorders have been cited among his attitudes to health, consulting habits and previous medical and psychiatric history. These medical factors are here examined in respect of the student cohort.

SELF-RATING OF HEALTH

It is argued that a morbid self-perception of standard of health is conspicuous among those who are prone to psychiatric disorders.

Hypothesis: "In respect of self-rating of health, the prevalence of psychiatric disorders is greater among those who rate their health as 'below average'."
Only 7 students (6 men, 1 woman) rated their health as 'below average'. Of these, 2 men were cases. Because of these small numbers the hypothesis cannot be borne out.

**FREQUENCY OF CONSULTATION**

It has been reported in general practice studies that the average number of consultations per year is conspicuously higher for patients with psychoneurotic disorders than for other attenders.

Hypothesis: "There is a relationship between case rates for psychiatric disorders and the number of consultations made by students with their doctors during the 12 months prior to university entry."

Three-quarters of all students had consulted their doctors twice or less during the last year. The proportions were similar for both sexes. There were 112 men and 82 women who had consulted 3-5 times and only 24 men and 25 women who had consulted on 5 or more occasions.

The data were grouped to allow statistical comparisons to be made (Figure 4, TABLE XVII).

For both sexes there is a conspicuous amount of diagnosed illness among those who had consulted 3 or more times during the previous 12 months. For men the differences in case rates are especially marked \( (X^2 = 22.6, 1 \text{ d.f.}, p < 0.001) \) while the differences for women only approximate to the conventional level of significance \( (X^2 = 3.8, 1 \text{ d.f.}, p = 0.05) \).

In respect of diagnosed illness, therefore, the hypothesis is borne out. For declared illness, however, case rates are not significantly related to frequency of consultation.
FIGURE 4

Frequency of consultation (previous 12 months)
ILLNESS WHILE AT SCHOOL

It has been reported that pupils who develop emotional disturbance in their later school years react to these difficulties by showing symptoms of ill-health and often prolonged absence from school.

Hypothesis: "In respect of illness while at school, the prevalence of psychiatric disorders is greater among those who were absent from school for one term or more on account of ill-health."

Nine men and four women reported the loss of at least one term at school on account of ill-health.

Two of the men had diagnosed illness; none of the women were cases. The hypothesis is not borne out.

REPORTING PAST ILLNESSES

Certain general medical and psychosomatic conditions have been shown to occur prominently among medical outpatients who rate high scores for neuroticism on psychological testing. Complaints relating to these conditions together with some psychological symptoms were listed in the first questionnaire and each student was asked to mark those which he had had during the 5 years prior to university entry (see page 57).

Hypothesis: "There is a relationship between case rates for psychiatric disorders and the number of past illnesses declared."

Six hundred and five men and 359 women declared that they had had one or more of the listed conditions (Table 16).
Table 16: Past illnesses - number declared by students.

The influence of this factor on case rates is shown in TABLE XVIII.

The correlation between the number of past illnesses declared and case rates is suggested from study of the proportions of those with psychiatric disorders in each group;

<table>
<thead>
<tr>
<th>NUMBER DECLARED</th>
<th>MEN</th>
<th>WOMEN</th>
<th>ALL STUDENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>376</td>
<td>215</td>
<td>591</td>
</tr>
<tr>
<td>1</td>
<td>326</td>
<td>172</td>
<td>498</td>
</tr>
<tr>
<td>2</td>
<td>192</td>
<td>113</td>
<td>305</td>
</tr>
<tr>
<td>3</td>
<td>55</td>
<td>40</td>
<td>95</td>
</tr>
<tr>
<td>4 or more</td>
<td>26</td>
<td>22</td>
<td>48</td>
</tr>
<tr>
<td>5 or more</td>
<td>8</td>
<td>12</td>
<td>20</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Past illnesses declared</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3+</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Men</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>diagnosed illness</td>
<td>.072</td>
<td>.098</td>
<td>.099</td>
<td>.155</td>
</tr>
<tr>
<td>declared illness</td>
<td>.069</td>
<td>.083</td>
<td>.146</td>
<td>.210</td>
</tr>
<tr>
<td><strong>Women</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>diagnosed illness</td>
<td>.098</td>
<td>.134</td>
<td>.204</td>
<td>.230</td>
</tr>
<tr>
<td>declared illness</td>
<td>.083</td>
<td>.105</td>
<td>.212</td>
<td>.257</td>
</tr>
</tbody>
</table>

Case rates for both diagnosed and declared illness among men and women
FIGURE 5

Case rate trends in relation to number of past illnesses declared by students.
uniformly increase in proportion to the number of past illnesses declared. This trend is shown in Figure 5.

Among men, the association is significant for declared illness \((x^2 = 20.71, 3 \text{ d.f.}, p < 0.001)\), although not for diagnosed illness. For women there is such a correlation for both diagnosed and declared illness \((x^2 = 11.28, 3 \text{ d.f.}, p < 0.02, x^2 = 21.35, 3 \text{ d.f.}, p < 0.001 \text{ respectively})\).

The hypothesis, therefore, is borne out for declared illness, and for diagnosed illness in women.

PAST ILLNESSES

The past illnesses considered in this study are made up of general medical, psychosomatic and psychiatric symptoms and disorders. There are 23 in all. It is suggested, in respect of each, that students in whom these illnesses have recently occurred are more prone to develop psychiatric disorders than those who have not been ill from these conditions. Thus, a student who declared that he had had complaints relating to one of these 'stress' disorders might be thought to be more vulnerable to psychological pressures than the student who did not declare this complaint.

A general hypothesis was posed:

Hypothesis: "In relation to past illnesses experienced by students, the prevalence of psychiatric disorders is greater among those who declared complaints of a particular illness, than those who did not declare complaints of the same illness."

This hypothesis is directed at each listed past illness in turn.

Table 17 shows for each illness the numbers and percentages of students who reported complaints of past illnesses.
<table>
<thead>
<tr>
<th>ORDER</th>
<th>PAST ILLNESS</th>
<th>MEN (n = 981)</th>
<th>WOMEN (n = 574)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reported by student</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>1.</td>
<td>Athlete's foot</td>
<td>200</td>
<td>20.4</td>
</tr>
<tr>
<td>2.</td>
<td>Acne</td>
<td>172</td>
<td>17.5</td>
</tr>
<tr>
<td>3.</td>
<td>Warts</td>
<td>95</td>
<td>9.7</td>
</tr>
<tr>
<td>4.</td>
<td>Nasal catarrh</td>
<td>94</td>
<td>9.6</td>
</tr>
<tr>
<td>5.</td>
<td>Skin diseases</td>
<td>81</td>
<td>8.3</td>
</tr>
<tr>
<td>6.</td>
<td>Fractures</td>
<td>61</td>
<td>6.2</td>
</tr>
<tr>
<td>7.</td>
<td>Migraine</td>
<td>47</td>
<td>4.8</td>
</tr>
<tr>
<td>8.</td>
<td>Nervous complaints</td>
<td>42</td>
<td>4.3</td>
</tr>
<tr>
<td>9.</td>
<td>Alopecia</td>
<td>37</td>
<td>3.8</td>
</tr>
<tr>
<td>10.</td>
<td>Insomnia</td>
<td>27</td>
<td>2.8</td>
</tr>
<tr>
<td>11.</td>
<td>Asthma</td>
<td>26</td>
<td>2.7</td>
</tr>
<tr>
<td>12.</td>
<td>Low back pain</td>
<td>25</td>
<td>2.7</td>
</tr>
<tr>
<td>13.</td>
<td>Dyspepsia</td>
<td>25</td>
<td>2.6</td>
</tr>
<tr>
<td>14.</td>
<td>Pruritus</td>
<td>19</td>
<td>1.9</td>
</tr>
<tr>
<td>15.</td>
<td>Urticaria</td>
<td>19</td>
<td>1.9</td>
</tr>
<tr>
<td>16.</td>
<td>Stammering</td>
<td>13</td>
<td>1.8</td>
</tr>
<tr>
<td>17.</td>
<td>Obesity</td>
<td>11</td>
<td>1.1</td>
</tr>
<tr>
<td>18.</td>
<td>Rheumatism</td>
<td>9</td>
<td>0.9</td>
</tr>
<tr>
<td>19.</td>
<td>Tuberculosis</td>
<td>6</td>
<td>0.6</td>
</tr>
<tr>
<td>20.</td>
<td>Goitre</td>
<td>2</td>
<td>0.2</td>
</tr>
<tr>
<td>21.</td>
<td>Diabetes</td>
<td>1</td>
<td>0.1</td>
</tr>
<tr>
<td>22.</td>
<td>Epilepsy</td>
<td>1</td>
<td>0.1</td>
</tr>
<tr>
<td>23.</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 17: Past illnesses declared by students
Among both men and women persistent nasal catarrh, athlete's foot, acne and warts were most prominently reported. Dysmenorrhoea was the condition most frequently reported by women (16.4 per cent. of all women students). Nervous complaints, migraine and insomnia ranked high on the lists and were reported twice as often by women as by men. Fractures, asthma, alopecia, dyspepsia, and pruritus were more often reported by men, while women proportionately declared more rheumatism and arthritis, low back pain, and obesity. The same proportions of men and women declared skin diseases and urticaria. Stammering was reported by only a few, but twice more often by men than by women. Tuberculosis, goitre, diabetes and epilepsy were the conditions least commonly declared by either sex.

The influence of the past illnesses on case rates is shown in Table XIX. For men, case rates are significantly high for declared illness among those who reported alopecia \( (X^2 = 4.4, p < 0.05) \) and those who reported persistent nasal catarrh \( (X^2 = 3.9, p < 0.05) \). For women, case rates are significantly high for diagnosed illness among those who reported migraine \( (X^2 = 3.85, p < 0.05) \) and for both diagnosed and declared illness among those who reported dysmenorrhoea \( (X^2 = 8.7, p < 0.01; X^2 = 13.12, p < 0.001 \) respectively). Where insomnia was reported there are conspicuously high case rates among men for diagnosed illness, and for declared illness, where the greater numbers allowed statistical testing \( (X^2 = 6.0, p < 0.02) \). Similarly, case rates are significantly high among women who reported insomnia for both diagnosed and declared illness \( (X^2 = 11.51, p < 0.001; X^2 = 36.9, p < 0.0001 \) respectively). Where previous nervous complaints were reported there are significantly high
rates among men for both diagnosed and declared illness ($X^2 = 20.4, p < 0.0001$; $X^2 = 16.5, p < 0.001$ respectively) and also among women ($X^2 = 22.99, p < 0.001$; $X^2 = 45.7, p < 0.0001$ respectively).

Conspicuously high case rates are seen among students who reported other past illnesses, but the numbers who did so are small and statistical methods could not be applied. Among men these are asthma, dyspepsia, low back pain, fractures and migraine, and among women, rheumatism and stammering.

EDUCATIONAL FACTORS

Pre-University

TYPE OF SCHOOL ATTENDED

Studies on progress and academic performance of medical students at the University of Edinburgh have shown significant correlations with 'student wastage' and type of school formerly attended by the students. At this university wastage is greater among students from Scottish schools than among those from English schools. It is widely held that emotional difficulties are a potent cause of student wastage, so it is suggested that the prevalence of psychiatric disorders might be high among groups in which student wastage is known to be high, namely, among university students educated at Scottish schools.
Hypothesis: "In relation to type of school attended, the prevalence of psychiatric disorders is greater among those who were educated at Scottish schools."

The students attended the following types of school:

<table>
<thead>
<tr>
<th>SCHOOL ATTENDED</th>
<th>MEN</th>
<th>WOMEN</th>
<th>ALL STUDENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edinburgh independent fee paying</td>
<td>46</td>
<td>31</td>
<td>77</td>
</tr>
<tr>
<td>Edinburgh state-aided fee paying</td>
<td>144</td>
<td>57</td>
<td>201</td>
</tr>
<tr>
<td>Edinburgh L.E.A.</td>
<td>72</td>
<td>57</td>
<td>129</td>
</tr>
<tr>
<td>Other Scottish independent fee paying</td>
<td>17</td>
<td>7</td>
<td>24</td>
</tr>
<tr>
<td>Other Scottish state-aided fee paying</td>
<td>22</td>
<td>8</td>
<td>30</td>
</tr>
<tr>
<td>Other Scottish L.E.A.</td>
<td>290</td>
<td>167</td>
<td>457</td>
</tr>
<tr>
<td>English &quot;Public&quot; Schools</td>
<td>72</td>
<td>32</td>
<td>104</td>
</tr>
<tr>
<td>English &quot;Grammar&quot; Schools</td>
<td>218</td>
<td>127</td>
<td>345</td>
</tr>
<tr>
<td>Schools abroad</td>
<td>100</td>
<td>88</td>
<td>188</td>
</tr>
<tr>
<td><strong>ALL TYPES OF SCHOOL</strong></td>
<td>981</td>
<td>574</td>
<td>1555</td>
</tr>
</tbody>
</table>

Table 18: Distribution of the cohort by type of school attended.

Fifty-nine per cent. of the cohort had been educated in Scotland and 29 per cent. at English schools. The percentages are similar for men and women. The remainder (12 per cent.), mostly overseas students, had been educated outwith the United Kingdom.

TABLE XX shows that there is no association between psychiatric disorders and type of school attended by the students. The hypothesis is

* The small numbers of students who had attended schools in Wales or Northern Ireland are included here.
not borne out: the high wastage among students from Scottish schools is not associated with any greater prevalence of mental disturbance among this group.

PUBLIC SCHOOLS

It has been shown that student wastage at university is greater among those educated at public schools than among their fellows. The previous argument is similarly followed, that the prevalence of psychiatric disorders might be high among this particular high wastage group.

Hypothesis: "The prevalence of psychiatric disorders is greater among students educated at public schools than among those educated at state aided, grammar, or Local Education Authority schools."

TABLE XXI shows that approximately one-sixth of the students had been educated at public schools. The proportions are similar for both sexes.

Students educated at British public schools have the same case rates as the others. The hypothesis is not borne out: the high wastage among 'public school' students is not associated with any greater prevalence of mental disturbance among this group.

ENTRANCE QUALIFICATIONS

It has been shown at the University of Edinburgh that wastage is greater among students who qualify for matriculation with the Scottish Leaving Certificate than among those with the General Certificate of Education.

Hypothesis: "The prevalence of psychiatric disorders is greater among students who matriculate with the S.L.C. than among those with the G.C.E."

More students entered the university with the S.L.C. than with the G.C.E.
(TABLE XXII).

There are no significant differences in case rates between these two groups of students. The hypothesis is not borne out: the high wastage among S.L.C. students at university is not associated with any greater prevalence of mental disturbance in these students.

ABILITIES AND ACTIVITIES AT SCHOOL

It is argued that the allrounder at school is the well integrated and stable individual at university. Those who show an unsatisfactory record in all non-work aspects of school life are felt to have personal or medical limitations which do not augur well for their mental health in university. These factors could be assumed to be most operative when the student himself is aware of them.

Hypothesis: "In relation to general performance at school, the prevalence of psychiatric disorders is greater among non-allrounders."

On entry the students were asked to rate their performance in respect of work, sport, and extra-curricular activities at school. Those who rated themselves as 'below average' in any of the three areas of performance were recorded as 'non-allrounders'.

TABLE XXIII shows that more than one-third of both men and women students were non-allrounders at school.

Among men the case rates for both diagnosed and declared illness are significantly higher for non-allrounders than for allrounders ($X^2 = 6.73$, $p < 0.01$; $X^2 = 14.35$, $p < 0.001$ respectively). The same is true for
diagnosed and declared illness among women who were non-allrounders \( (X^2 = 4.11, \ p < 0.05; \ X^2 = 5.36, \ p < 0.05 \) respectively). The hypothesis is born out: the prevalence of psychiatric disorders is greater among those who were not allrounders at school.

This association is now examined in detail:

**Work at school below average**

Only 17 students (14 men, 3 women) rated their school-work as below average.

Of these, two men and one woman were cases.

Low self-rating on work at school does not effectively contribute to the association shown above.

**Sport at school below average**

One quarter of the men and women in the cohort rated themselves as below average at sports (**TABLE XXIV**).

These students have the same case rates as the others. Participation in school sporting activities does not influence the association between psychiatric disorders and not being an allrounder.

**Extra-curricular activities at school below average**

One quarter of the men and less than one-fifth of the women in the cohort rated themselves as below average in participation in clubs and societies (**TABLE XXV**).

Among men the case rates for both diagnosed and declared illness are significantly higher in the 'below average' group than in the other \( (X^2 = 14.95, \)
p < 0.001; $X^2 = 11.15$, $p < 0.001$ respectively). Among women the same association is shown ($X^2 = 10.19$, $p < 0.01$; $X^2 = 17.67$, $p < 0.001$ respectively).

Thus the association demonstrated between psychiatric disorders and not being an allrounder is a reflection of the particular proneness to illness of those who report a 'below average' participation in the extra-curricular activities at school.

At University

FACULTY IN WHICH STUDYING

It has been argued that students studying the liberal arts are more prone to develop psychiatric disorders than those studying the sciences and medicine.

Hypothesis: "The prevalence of psychiatric disorders is affected by faculty in which studying."

The distribution of the cohort by faculty has been shown in detail in Table 1 on page 89.

The inter-faculty differences in case rates for psychiatric disorders are set out in TABLE XXVI. There are no significant differences in case rates in respect of faculty for diagnosed and declared illness in men and for diagnosed illness in women. A high case rate for declared illness among women

* Detailed descriptions of these differences are given on pages 111 and 131.
Inter-faculty differences in case rates.
Music students (see Figure 6) brings about a significant association between psychiatric disorders and faculty in this column ($X^2 = 11.07, 5$ d.f., $p < 0.05$), but the numbers in this faculty are small (9 women only) which suggests that this association may be fortuitous. The hypothesis is not borne out: faculty does not significantly affect case rates.

**TYPE OF COURSE IN WHICH STUDYING**

The previous hypothesis is here examined with more particular reference to the argument that students studying the liberal arts are more prone to develop psychiatric disorders than those studying the sciences and medicine.

Hypothesis: "The prevalence of psychiatric disorders is greater among students taking academic courses than among those taking scientific courses."

The data were grouped (TABLE XXVII) to include as students taking academic courses those studying in the Faculties of Arts, Music and Law, with non-graduating students attending classes in these faculties; and as students taking scientific courses those studying in the Faculties of Science and Medicine, with non-graduating students attending classes in Science.

There are no significant differences in case rates for diagnosed and declared illness between students taking academic courses and those taking scientific courses. The hypothesis is not borne out.

**ACADEMIC PERFORMANCE**

It is argued that psychological illness is a common and a potent cause of inadequate academic performance among students. The standards of academic
performance attained by members of the cohort have been shown in Table 10 on page 138, where the criterion for inadequate academic performance is defined as the performance of "any student who ought to have been able to sit and pass all the degree examinations for which his course of study prepared him, and did not do so on the first occasion."

Hypothesis: "In relation to academic performance, the prevalence of psychiatric disorders is greater among those whose performance is inadequate."

Rather more than one-half of the students had made an 'inadequate academic performance' within the framework of the defined criteria (TABLE XXVIII).

Among men case rates are higher for both diagnosed and declared illness in those whose performance was inadequate in contrast to those who had sat and passed all their degree examinations on the first occasion. The differences, however, are not significant. Among women with diagnosed illness, again case rates are higher for the 'inadequate performance' group but not significantly so. On the other hand, among women with declared illness the case rates are significantly higher for those whose performance was adequate ($X^2 = 13.82, p < 0.001$). The hypothesis is borne out for women with declared illness only.

Severity of illness and academic performance.

It has been suggested that students who consult their doctors with minor emotional disorders do not have an especially poor academic performance. This may on the one hand be due to the beneficial effects of supportive treatment, or on the other hand, may derive from the added 'high drive' stimulus
of stress on performance.

Hypothesis: "In respect of medically detected psychiatric illness among students, academic performance is especially poor among those with formal psychiatric illness, but not especially poor among those with minor psychiatric illness."

For this analysis only students with diagnosed illness are considered. All had, of course, consulted a doctor, although not necessarily in the pre-examination period. Referring to Kessel's classification, the cases were broken down to separate those diagnosed to have a formal psychiatric illness (psychosis, neurosis or personality disorder) from those with 'conspicuous psychiatric morbidity' - the lesser psychiatric disorders. The academic performance of these two categories is compared against that of the students who were not diagnosed by their doctors to have had a psychiatric disorder (Table 19).

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>MEN</th>
<th>WOMEN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All in group</td>
<td>Inadequate academic performance</td>
</tr>
<tr>
<td></td>
<td>n.</td>
<td>%</td>
</tr>
<tr>
<td>Not cases</td>
<td>811</td>
<td>401 49.5</td>
</tr>
<tr>
<td>Lesser psychiatric disorders (Kessel's C.P.M.)</td>
<td>46</td>
<td>23 50.0</td>
</tr>
<tr>
<td>Formal psychiatric illness</td>
<td>39</td>
<td>23 59.0</td>
</tr>
</tbody>
</table>

Table 19: Severity of illness and academic performance

Among both men and women the percentages for inadequate academic performance are no different in students who had lesser psychiatric disorders.
FIGURE 7

Severity of illness and academic performance.
than in those who were not cases at all. In contrast the percentages for inadequate performance are high for both men and women who had formal psychiatric illness. These differences are illustrated in Figure 7.

These findings support the hypothesis. It is clear that, in respect of psychiatric disorders, inadequate academic performance at university is marked only among those with formal illness: students with lesser psychiatric disorders in this cohort gave no worse a performance than their colleagues who were not ill.

**LIVING ARRANGEMENTS AT THE UNIVERSITY**

The domestic arrangements of students have attracted much attention in respect of their influence on the mental health of students. Numerous claims have been put forward - that living at home puts a strain on the student by reason of loyalties split between filial roles and the sophistication of university life - that uncongenial lodgings provoke psychological stresses - that the impersonal regimentation of halls of residence may also make for emotional difficulties, and that the unsheltered loneliness of living in flats provokes psychological reaction. In addition, the hardship of daily travel has been cited as a source of strain on the student commuter, as have the obligations and restrictions of living with relatives, and lack of any previous experience of domestic independence.
The roles played by these factors in the prevalence of psychiatric disorders among the cohort are considered here.

LIVING AT HOME

It is argued that (a) living at home is a source of emotional strain on students because the loyalties of many are split between the tradition of filial roles on the one hand and the desire for independence on the other, and (b) living away from home carries stresses that result from loneliness, insecurity and perhaps a surfeit of badly managed independence. To examine the respective influences of these factors the following hypothesis was posed:

Hypothesis: "The prevalence of psychiatric disorders is affected by living arrangements whether at home or away from home."

One-third of the men and women students were living at home (TABLE XXIX). Among men case rates are significantly high for declared illness in those living away from home ($X^2 = 6.94, p < 0.01$), but not for diagnosed illness or declared illness in women. Thus the hypothesis is borne out only for men with declared illness, in that the pertinent factor in living arrangements is, for them, living away from home.

PREVIOUS EXPERIENCE OF LIVING AWAY FROM HOME

It is argued that the young student who is unaccustomed to independence is more prone to develop psychiatric disturbance than his colleagues who have had previous experience of living away from home.

Hypothesis: "In relation to living away from home, the prevalence of psychiatric disorders is greater among those to whom this is a new experience."
TABLE XXX shows that less than half of the men and women who were now living away from home at the university had not been away from home before.

The hypothesis is not borne out: the prevalence of psychiatric disorders among these students is not greater than among their more experienced colleagues.

LIVING WITH RELATIVES

It is argued that students who lodge with their relatives during term are under particular stresses which make for emotional difficulties. They are, figuratively speaking, neither at home nor away from it.

Hypothesis: "In respect of living arrangements while at university, the prevalence of psychiatric disorders is greater among those who lodge with their relatives."

Only 43 students (28 men, 15 women) were living with relatives.

Of the men, 2 had diagnosed illness and 2 had declared illness; of the women, 2 had diagnosed illness and 3 had declared illness. The hypothesis is not borne out.

COMMUTING

It has been suggested that daily travel is a source of stress for students who live at home and a distance from the university.

Hypothesis: "In relation to living at home, the prevalence of psychiatric disorders is greater among those who live at a distance from the university."

TABLE XXXI shows that one-third of the men and one-quarter of the women at home were living outwith Edinburgh but within a 30 mile commuting distance.
The hypothesis is not borne out: those commuting daily have lower case rates than those who live at home in Edinburgh.

**RESIDENCE DURING TERM**

Many views are argued concerning the disadvantages to the student's mental health of each of the common choices of residence for students - home, hall of residence, flats and lodgings. A general hypothesis was posed:

Hypothesis: "The prevalence of psychiatric disorders is affected by living arrangements while at university."

**TABLE XXXII** shows that the largest proportion of both men and women lived in lodgings, while nearly as many lived at home. A greater proportion of women than men lived in halls of residence. Very few (56 men, only 15 women) lived in flats.

Men who lived at home have the lowest case rates for both diagnosed and declared illness. Case rates were lowest among women for those who lived in halls of residence. Spectacularly high case rates for both diagnosed and declared illness are found among women who lived in flats (see Figure 8), but the numbers here considered are small, and the differences in rates are not significant.

The hypothesis is not borne out: the prevalence of psychiatric disorders is not affected by living arrangements.
CASE RATE /%\n
MEN

0 5 10 15 20 25

HOME HALL FLAT LODGINGS

DIAGNOSED ILLNESS

DECLARED ILLNESS

WOMEN

0 5 10 15 20 25 30

HOME HALL FLAT LODGINGS

DIAGNOSED ILLNESS

DECLARED ILLNESS

FIGURE 8

Residence during term.
### TABLE I
**Age.**

<table>
<thead>
<tr>
<th>AGE GROUP</th>
<th>All in Group</th>
<th>Psychological Condition Diagnosed</th>
<th>Psychological Condition Declared</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>17-</td>
<td>129</td>
<td>10</td>
<td>7.8</td>
</tr>
<tr>
<td>18-</td>
<td>456</td>
<td>45</td>
<td>9.9</td>
</tr>
<tr>
<td>19-</td>
<td>171</td>
<td>12</td>
<td>7.0</td>
</tr>
<tr>
<td>20-</td>
<td>49</td>
<td>4</td>
<td>8.2</td>
</tr>
<tr>
<td>21+</td>
<td>176</td>
<td>17</td>
<td>9.7</td>
</tr>
<tr>
<td></td>
<td>P(4 d.f.)</td>
<td>n.s.</td>
<td>n.s.</td>
</tr>
</tbody>
</table>

### TABLE II
**Social Class**

<table>
<thead>
<tr>
<th>SOCIAL CLASS</th>
<th>All in Group</th>
<th>Psychological Condition Diagnosed</th>
<th>Psychological Condition Declared</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>I</td>
<td>307</td>
<td>27</td>
<td>8.8</td>
</tr>
<tr>
<td>II</td>
<td>311</td>
<td>29</td>
<td>9.3</td>
</tr>
<tr>
<td>III, IV, V</td>
<td>354</td>
<td>32</td>
<td>9.0</td>
</tr>
<tr>
<td></td>
<td>P(2 d.f.)</td>
<td>n.s.</td>
<td>n.s.</td>
</tr>
<tr>
<td>RELIGIOUS AFFILIATION</td>
<td>MEN</td>
<td>WOMEN</td>
<td></td>
</tr>
<tr>
<td>----------------------</td>
<td>-----</td>
<td>-------</td>
<td></td>
</tr>
<tr>
<td></td>
<td>All in Group</td>
<td>Psychological Condition</td>
<td>All in Group</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Declared</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>852</td>
<td>70</td>
<td>8.2</td>
<td>79</td>
</tr>
<tr>
<td>Denied</td>
<td>98</td>
<td>13.3</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>p(1 d.f.) n.s.</td>
<td>&lt;0.01</td>
<td>p(1 d.f.) n.s.</td>
</tr>
</tbody>
</table>

(table continued...)

**TABLE III**

Religious affiliation

<table>
<thead>
<tr>
<th>RELIGIOUS DENOMINATION (Christian)</th>
<th>MEN</th>
<th>WOMEN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All in Group</td>
<td>Psychological Condition</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Presbyterian</td>
<td>424</td>
<td>35</td>
</tr>
<tr>
<td>Anglican</td>
<td>221</td>
<td>21</td>
</tr>
<tr>
<td>Other Protestant*</td>
<td>97</td>
<td>7</td>
</tr>
<tr>
<td>Roman Cath.</td>
<td>75</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>p(3 d.f.) n.s.</td>
<td>n.s.</td>
</tr>
</tbody>
</table>

*Other Protestant: All protestant non-conformist denominations (excluding the Presbyterian Church)

**TABLE IV**

Religious denomination
<table>
<thead>
<tr>
<th>RELIGIOUS GROUP*†</th>
<th>MEN</th>
<th>WOMEN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All in Group</td>
<td>Psychological Condition</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Christian</td>
<td>817</td>
<td>68</td>
</tr>
<tr>
<td>Not Christian</td>
<td>35</td>
<td>6</td>
</tr>
</tbody>
</table>

\[ P(1\text{ d.f.}) \text{ n.s.} \quad \text{n.s.} \]
\[ P(1\text{ d.f.}) \text{ n.s.} \quad \text{n.s.} \]

*31 men and 11 women did not state their religion. Only 3 were cases.
498 men and 30 women stated they were atheist, agnostic or otherwise denied religious affiliation.

**TABLE V**
Religious group

<table>
<thead>
<tr>
<th>COUNTRY OF DOMICILE</th>
<th>MEN</th>
<th>WOMEN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All in Group</td>
<td>Psychological Condition</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Scotland</td>
<td>602</td>
<td>47</td>
</tr>
<tr>
<td>Other United Kingdom</td>
<td>296</td>
<td>33</td>
</tr>
<tr>
<td>Overseas</td>
<td>83</td>
<td>8</td>
</tr>
</tbody>
</table>

\[ P(2\text{ d.f.}) \text{ m.s.} \quad \text{n.s.} \]
\[ P(2\text{ d.f.}) \text{ n.s.} \quad \text{n.s.} \]

**TABLE VI**
Country of domicile
### TABLE VII

**Broken home**

<table>
<thead>
<tr>
<th>FAMILY COMPOSITION</th>
<th>MEN</th>
<th>WOMEN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All in Group</td>
<td>Psychological Condition</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Family intact</td>
<td>822</td>
<td>73</td>
</tr>
<tr>
<td>Broken home</td>
<td>159</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>P(1 d.f.)</td>
<td>n.s.</td>
</tr>
</tbody>
</table>

### TABLE VIII

**Disharmony in the home**

<table>
<thead>
<tr>
<th>&quot;HOME LIFE&quot;</th>
<th>MEN</th>
<th>WOMEN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All in Group</td>
<td>Psychological Condition</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Students opinion:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Happy</td>
<td>950</td>
<td>84</td>
</tr>
<tr>
<td>Unhappy</td>
<td>31</td>
<td>4</td>
</tr>
<tr>
<td>P(1 d.f.)</td>
<td>n.s.</td>
<td>n.s.</td>
</tr>
</tbody>
</table>
### Table IX

Parent a university graduate

<table>
<thead>
<tr>
<th>PARENT A GRADUATE</th>
<th>MEN</th>
<th></th>
<th></th>
<th>WOMEN</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All in Group</td>
<td>Psychological Condition</td>
<td></td>
<td></td>
<td>All in Group</td>
<td>Psychological Condition</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Graduate</td>
<td>258</td>
<td>15</td>
<td>5.8</td>
<td>21</td>
<td>8.1</td>
<td>214</td>
</tr>
<tr>
<td>Not a graduate</td>
<td>723</td>
<td>73</td>
<td>10.1</td>
<td>78</td>
<td>10.8</td>
<td>360</td>
</tr>
<tr>
<td><strong>P(1 d.f.)</strong></td>
<td>&lt;0.05</td>
<td>n.s.</td>
<td></td>
<td></td>
<td><strong>P(1 d.f.)</strong></td>
<td>n.s.</td>
</tr>
</tbody>
</table>

### Table X

Profession of parent and likely profession of student

<table>
<thead>
<tr>
<th>PROFESSION OF PARENT</th>
<th>MEN</th>
<th></th>
<th></th>
<th>WOMEN</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All in Group</td>
<td>Psychological Condition</td>
<td></td>
<td></td>
<td>All in Group</td>
<td>Psychological Condition</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Student - the same</td>
<td>131</td>
<td>5</td>
<td>3.8</td>
<td>12</td>
<td>9.2</td>
<td>113</td>
</tr>
<tr>
<td>Student - different</td>
<td>850</td>
<td>83</td>
<td>9.8</td>
<td>87</td>
<td>10.2</td>
<td>461</td>
</tr>
<tr>
<td><strong>P(1 d.f.)</strong></td>
<td>&lt;0.05</td>
<td>n.s.</td>
<td></td>
<td></td>
<td><strong>P(1 d.f.)</strong></td>
<td>n.s.</td>
</tr>
</tbody>
</table>
### TABLE XI

Student's attitude to entering university

<table>
<thead>
<tr>
<th></th>
<th>MEN</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All in Group</td>
<td></td>
<td>Psychological Condition</td>
<td></td>
<td></td>
<td>All in Group</td>
<td></td>
<td>Psychological Condition</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td></td>
<td></td>
<td></td>
<td>n</td>
<td>%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not declared &quot;in favour&quot;</td>
<td>15</td>
<td>2</td>
<td>(-)</td>
<td>5 (33.3)</td>
<td></td>
<td>7</td>
<td>3</td>
<td>12.9</td>
<td>2 (28.6)</td>
<td></td>
</tr>
<tr>
<td>Declared &quot;in favour&quot;</td>
<td>966</td>
<td>86</td>
<td>8.9</td>
<td>94 (9.7)</td>
<td></td>
<td>567</td>
<td>81</td>
<td>14.3</td>
<td>77 (13.6)</td>
<td></td>
</tr>
<tr>
<td>(1 d.f.)</td>
<td>n.s.</td>
<td></td>
<td>n.s.</td>
<td></td>
<td></td>
<td>(1 d.f.)</td>
<td>n.s.</td>
<td>n.s.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### TABLE XII

Student's opinion of parents' attitudes to his entering university

<table>
<thead>
<tr>
<th></th>
<th>MEN</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All in Group</td>
<td></td>
<td>Psychological Condition</td>
<td></td>
<td></td>
<td>All in Group</td>
<td></td>
<td>Psychological Condition</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td></td>
<td></td>
<td></td>
<td>n</td>
<td>%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Declared not &quot;in favour&quot;</td>
<td>53</td>
<td>9</td>
<td>17.0</td>
<td>8 (15.1)</td>
<td></td>
<td>28</td>
<td>5</td>
<td>17.9</td>
<td>4 (14.3)</td>
<td></td>
</tr>
<tr>
<td>Declared &quot;in favour&quot;</td>
<td>928</td>
<td>79</td>
<td>8.5</td>
<td>91 (9.8)</td>
<td></td>
<td>546</td>
<td>79</td>
<td>14.5</td>
<td>75 (13.7)</td>
<td></td>
</tr>
<tr>
<td>(1 d.f.)</td>
<td>n.s.</td>
<td></td>
<td>n.s.</td>
<td></td>
<td></td>
<td>(1 d.f.)</td>
<td>n.s.</td>
<td>n.s.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table XI shows the distribution of students' attitudes to entering university, with percentages for those not declared "in favour" and those declared "in favour". Table XII provides similar data for parents' attitudes, with a focus on whether parents declared the student's entry as "in favour" or not. Both tables include statistical notes for the significance of the results.
### TABLE XIII

**Grants, bursaries and scholarships**

#### Financial Support

<table>
<thead>
<tr>
<th></th>
<th>MEN</th>
<th>WOMEN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All in Group</td>
<td>Psychological Condition</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Hold grants</td>
<td>844</td>
<td>78</td>
</tr>
<tr>
<td>Do not hold</td>
<td>137</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>n.s.</td>
<td>n.s.</td>
</tr>
</tbody>
</table>

\( \chi^2 \) (1 d.f.) n.s. n.s. n.s. n.s. n.s.

### TABLE XIV

**Financial strain on the family**

#### Financial Strain on Family

<table>
<thead>
<tr>
<th></th>
<th>MEN</th>
<th>WOMEN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All in Group</td>
<td>Psychological Condition</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Students' opinion:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>479</td>
<td>40</td>
</tr>
<tr>
<td>No</td>
<td>502</td>
<td>48</td>
</tr>
<tr>
<td></td>
<td>n.s.</td>
<td>n.s.</td>
</tr>
</tbody>
</table>

\( \chi^2 \) (1 d.f.) n.s. n.s. n.s. n.s. n.s.
<table>
<thead>
<tr>
<th>DEGREE OF FINANCIAL STRAIN ON FAMILY</th>
<th>MEN</th>
<th></th>
<th></th>
<th>WOMEN</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All in Group</td>
<td>Psychological Condition</td>
<td></td>
<td>All in Group</td>
<td>Psychological Condition</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Students opinion:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A little</td>
<td>429</td>
<td>36</td>
<td>8.4</td>
<td>44</td>
<td>10.3</td>
<td>231</td>
<td>37</td>
</tr>
<tr>
<td>A lot</td>
<td>50</td>
<td>4</td>
<td>8.0</td>
<td>6</td>
<td>12.0</td>
<td>21</td>
<td>7</td>
</tr>
<tr>
<td>P(1 df)</td>
<td>n.s.</td>
<td></td>
<td>n.s.</td>
<td></td>
<td>p(1 df)</td>
<td>n.s.</td>
<td></td>
</tr>
</tbody>
</table>

**TABLE XV**

Severity of financial strain on the family

<table>
<thead>
<tr>
<th>VACATION EARNINGS</th>
<th>MEN</th>
<th></th>
<th></th>
<th>WOMEN</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All in Group</td>
<td>Psychological Condition</td>
<td></td>
<td>All in Group</td>
<td>Psychological Condition</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Declared a necessity</td>
<td>454</td>
<td>44</td>
<td>9.7</td>
<td>46</td>
<td>10.1</td>
<td>177</td>
<td>30</td>
</tr>
<tr>
<td>Not declared</td>
<td>527</td>
<td>44</td>
<td>8.3</td>
<td>53</td>
<td>10.1</td>
<td>397</td>
<td>54</td>
</tr>
<tr>
<td>P(1 df)</td>
<td>n.s.</td>
<td></td>
<td>n.s.</td>
<td></td>
<td>p(1 df)</td>
<td>n.s.</td>
<td></td>
</tr>
</tbody>
</table>

**TABLE XVI**

Need for vacation earnings
### TABLE XVII

Frequency of consultation

<table>
<thead>
<tr>
<th>NUMBER OF CONSULTATIONS MADE LAST YEAR</th>
<th>NORMATIVE</th>
<th>PSYCHOLOGICAL CONDITION</th>
<th>GASETRIT</th>
<th>NORMATIVE</th>
<th>PSYCHOLOGICAL CONDITION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All in Group</td>
<td>0-2</td>
<td>3+</td>
<td>0-2</td>
<td>3+</td>
</tr>
<tr>
<td>0-2</td>
<td>84.5</td>
<td>61</td>
<td>7.2</td>
<td>80</td>
<td>9.5</td>
</tr>
<tr>
<td>3+</td>
<td>136</td>
<td>27</td>
<td>19.9</td>
<td>19</td>
<td>14.0</td>
</tr>
<tr>
<td><strong>(1 d.f.) &lt; 0.001</strong></td>
<td>n.s.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### TABLE XVIII

Past illnesses - number declared by students

<table>
<thead>
<tr>
<th>NUMBER OF PAST ILLNESSES DECLARED</th>
<th>NORMATIVE</th>
<th>PSYCHOLOGICAL CONDITION</th>
<th>GASETRIT</th>
<th>NORMATIVE</th>
<th>PSYCHOLOGICAL CONDITION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All in Group</td>
<td>0-2</td>
<td>3+</td>
<td>0-2</td>
<td>3+</td>
</tr>
<tr>
<td>0</td>
<td>376</td>
<td>27</td>
<td>7.2</td>
<td>26</td>
<td>6.9</td>
</tr>
<tr>
<td>1</td>
<td>326</td>
<td>32</td>
<td>9.8</td>
<td>27</td>
<td>8.3</td>
</tr>
<tr>
<td>2</td>
<td>192</td>
<td>19</td>
<td>9.9</td>
<td>28</td>
<td>14.6</td>
</tr>
<tr>
<td>3+</td>
<td>87</td>
<td>10</td>
<td>11.5</td>
<td>18</td>
<td>21.0</td>
</tr>
<tr>
<td><strong>(3 d.f.) n.s.</strong></td>
<td>&lt;0.001</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note: NORMATIVE, PSYCHOLOGICAL CONDITION, and GASETRIT stand for different categories or conditions within the study.*
<table>
<thead>
<tr>
<th>PAST ILLNESS</th>
<th>MEN</th>
<th>WOMEN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All in Group</td>
<td>Psychological Condition</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Urticaria</td>
<td>yes</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>962</td>
</tr>
<tr>
<td>Athlete's foot</td>
<td>yes</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>781</td>
</tr>
<tr>
<td>Alopecia</td>
<td>yes</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>944</td>
</tr>
<tr>
<td>Asthma</td>
<td>yes</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>955</td>
</tr>
<tr>
<td>Skin disease</td>
<td>yes</td>
<td>81</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>900</td>
</tr>
<tr>
<td>Diabetes</td>
<td>yes</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>990</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>yes</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>975</td>
</tr>
<tr>
<td>Nasal catarrh</td>
<td>yes</td>
<td>94</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>837</td>
</tr>
<tr>
<td>Goitre</td>
<td>yes</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>979</td>
</tr>
<tr>
<td>Rheumatism</td>
<td>yes</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>972</td>
</tr>
<tr>
<td>Pruritus</td>
<td>yes</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>962</td>
</tr>
<tr>
<td>Dyspepsia</td>
<td>yes</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>956</td>
</tr>
<tr>
<td>Aneu</td>
<td>yes</td>
<td>172</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>809</td>
</tr>
<tr>
<td>Low back pain</td>
<td>yes</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>955</td>
</tr>
<tr>
<td>Obesity</td>
<td>yes</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>970</td>
</tr>
<tr>
<td>Fractures</td>
<td>yes</td>
<td>61</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>920</td>
</tr>
<tr>
<td>Warts</td>
<td>yes</td>
<td>95</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>886</td>
</tr>
<tr>
<td>Migraine</td>
<td>yes</td>
<td>47</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>934</td>
</tr>
<tr>
<td>Insomnia</td>
<td>yes</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>954</td>
</tr>
<tr>
<td>Stammering</td>
<td>yes</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>963</td>
</tr>
<tr>
<td>Nervous complaints</td>
<td>yes</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>939</td>
</tr>
<tr>
<td>Epilepsy</td>
<td>yes</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>980</td>
</tr>
<tr>
<td>Dysmenorrhea</td>
<td>yes</td>
<td>94</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>480</td>
</tr>
</tbody>
</table>

*Percentages not calculated where observed case numbers less than 5.

TABLE XIX

Past illnesses declared
### TABLE XX

Type of school attended

<table>
<thead>
<tr>
<th>SCHOOL EDUCATION</th>
<th>MEN</th>
<th></th>
<th></th>
<th>WOMEN</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All in Group</td>
<td>Psychological Condition</td>
<td></td>
<td>All in Group</td>
<td>Psychological Condition</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Scottish</td>
<td>591</td>
<td>45</td>
<td>7.6</td>
<td>51</td>
<td>8.6</td>
<td>327</td>
<td>47</td>
</tr>
<tr>
<td>English</td>
<td>290</td>
<td>32</td>
<td>11.0</td>
<td>36</td>
<td>12.4</td>
<td>159</td>
<td>21</td>
</tr>
<tr>
<td>Foreign</td>
<td>100</td>
<td>11</td>
<td>11.0</td>
<td>12</td>
<td>12.0</td>
<td>88</td>
<td>16</td>
</tr>
</tbody>
</table>

\[ \chi^2 (2 \text{ d.f.}) \text{ n.s.} \quad \text{ n.s.} \quad \chi^2 (2 \text{ d.f.}) \text{ n.s.} \quad \text{ n.s.} \]

### TABLE XXI

Education in Britain; Public schools

<table>
<thead>
<tr>
<th>EDUCATED IN BRITAIN*</th>
<th>MEN</th>
<th></th>
<th></th>
<th>WOMEN</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All in Group</td>
<td>Psychological Condition</td>
<td></td>
<td>All in Group</td>
<td>Psychological Condition</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Public school</td>
<td>135</td>
<td>10</td>
<td>7.4</td>
<td>13</td>
<td>9.6</td>
<td>70</td>
<td>9</td>
</tr>
<tr>
<td>Other</td>
<td>746</td>
<td>67</td>
<td>8.9</td>
<td>76</td>
<td>10.2</td>
<td>416</td>
<td>60</td>
</tr>
</tbody>
</table>

\[ \chi^2 (1 \text{ d.f.}) \text{ n.s.} \quad \text{ n.s.} \quad \chi^2 (1 \text{ d.f.}) \text{ n.s.} \quad \text{ n.s.} \]

*Students educated abroad are not included.

### TABLE XXII

Education in Britain; Public schools
<table>
<thead>
<tr>
<th>ENTRANCE QUALIFICATIONS</th>
<th>MEN</th>
<th>WOMEN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Psychological Condition</td>
<td>Psychological Condition</td>
</tr>
<tr>
<td></td>
<td>All in Group</td>
<td>Diagnosed</td>
</tr>
<tr>
<td>S.L.C.</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>G.C.E.</td>
<td>526</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>378</td>
<td>40</td>
</tr>
</tbody>
</table>

* Only S.L.C. and G.C.E. certificates considered here

**TABLE XXII**
Entrance qualifications

<table>
<thead>
<tr>
<th>GENERAL PERFORMANCE AT SCHOOL</th>
<th>MEN</th>
<th>WOMEN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Psychological Condition</td>
<td>Psychological Condition</td>
</tr>
<tr>
<td></td>
<td>All in Group</td>
<td>Diagnosed</td>
</tr>
<tr>
<td>Allrounder</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Non-allrounder</td>
<td>626</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>355</td>
<td>43</td>
</tr>
</tbody>
</table>

\( P(1 \text{ d.f.}) < 0.01 \text{ n.s.} \text{ n.s.} \) \( P(1 \text{ d.f.}) < 0.05 \text{ n.s.} \text{ n.s.} \)

**TABLE XXIII**
Allrounders at school
<table>
<thead>
<tr>
<th>SPORT AT SCHOOL</th>
<th>WOMEN</th>
<th> </th>
<th>MEN</th>
<th> </th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All in Group</td>
<td>Diagnosed</td>
<td></td>
<td>All in Group</td>
</tr>
<tr>
<td>Below average:</td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Yes</td>
<td>212</td>
<td>18</td>
<td>8.5</td>
<td>25</td>
</tr>
<tr>
<td>No</td>
<td>769</td>
<td>70</td>
<td>9.1</td>
<td>74</td>
</tr>
<tr>
<td>P(1 d.f.)</td>
<td>n.s.</td>
<td>n.s.</td>
<td></td>
<td>n.s.</td>
</tr>
</tbody>
</table>

**TABLE XXIV**

Sport at school

<table>
<thead>
<tr>
<th>CLUBS AT SCHOOL</th>
<th>WOMEN</th>
<th> </th>
<th>MEN</th>
<th> </th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All in Group</td>
<td>Diagnosed</td>
<td></td>
<td>All in Group</td>
</tr>
<tr>
<td>Below average:</td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Yes</td>
<td>201</td>
<td>32</td>
<td>15.9</td>
<td>33</td>
</tr>
<tr>
<td>No</td>
<td>780</td>
<td>56</td>
<td>7.2</td>
<td>66</td>
</tr>
<tr>
<td>P(1 d.f.)</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
<td></td>
<td>&lt;0.01</td>
</tr>
</tbody>
</table>

**TABLE XXV**

Extra-curricular activities at school
### TABLE XXVI

<table>
<thead>
<tr>
<th>FACULTY</th>
<th>MEn</th>
<th>Psychological Condition</th>
<th>WOMEN</th>
<th>Psychological Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All in Group</td>
<td>n</td>
<td>%</td>
<td>Diagnosed</td>
</tr>
<tr>
<td>Arts</td>
<td>299</td>
<td>32</td>
<td>10.7</td>
<td>37</td>
</tr>
<tr>
<td>Music</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Law</td>
<td>59</td>
<td>3</td>
<td>5.1</td>
<td>6</td>
</tr>
<tr>
<td>Medicine</td>
<td>214</td>
<td>19</td>
<td>8.9</td>
<td>23</td>
</tr>
<tr>
<td>Science</td>
<td>369</td>
<td>33</td>
<td>8.9</td>
<td>30</td>
</tr>
<tr>
<td>Non-Grad</td>
<td>39</td>
<td>1</td>
<td>2.6</td>
<td>3</td>
</tr>
</tbody>
</table>

$\chi^2$ (5 d.f.) n.s. n.s. (5 d.f.) n.s. 0.05  

(see text)

### TABLE XXVII

<table>
<thead>
<tr>
<th>COURSE OF STUDY</th>
<th>MEn</th>
<th>Psychological Condition</th>
<th>WOMEN</th>
<th>Psychological Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All in Group</td>
<td>n</td>
<td>%</td>
<td>Diagnosed</td>
</tr>
<tr>
<td>Academic</td>
<td>395</td>
<td>36</td>
<td>9.1</td>
<td>45</td>
</tr>
<tr>
<td>Scientific</td>
<td>586</td>
<td>52</td>
<td>8.9</td>
<td>54</td>
</tr>
</tbody>
</table>

$\chi^2$ (1 d.f.) n.s. n.s. (1 d.f.) n.s. n.s.

(see text)
<table>
<thead>
<tr>
<th>ACADEMIC PERFORMANCE</th>
<th>MEN</th>
<th></th>
<th></th>
<th>WOMEN</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All in Group</td>
<td>Psychological Condition</td>
<td></td>
<td>All in Group</td>
<td>Psychological Condition</td>
<td></td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Adequate</td>
<td>470</td>
<td>39</td>
<td>8.3</td>
<td>40</td>
<td>8.5</td>
<td>251</td>
</tr>
<tr>
<td>Inadequate</td>
<td>483</td>
<td>46</td>
<td>9.5</td>
<td>59</td>
<td>12.2</td>
<td>306</td>
</tr>
<tr>
<td></td>
<td>P(1 d.f.) n.s.</td>
<td>n.s.</td>
<td></td>
<td>P(1 d.f.) n.s.</td>
<td>&lt;0.001</td>
<td></td>
</tr>
</tbody>
</table>

† Figures do not include certain students whose academic performance was not sub judice.

**TABLE XXVIII**

**Academic performance**

<table>
<thead>
<tr>
<th>LIVING ARRANGEMENTS</th>
<th>MEN</th>
<th></th>
<th></th>
<th>WOMEN</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All in Group</td>
<td>Psychological Condition</td>
<td></td>
<td>All in Group</td>
<td>Psychological Condition</td>
<td></td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Living at home</td>
<td>388</td>
<td>32</td>
<td>8.8</td>
<td>27</td>
<td>7.0</td>
<td>195</td>
</tr>
<tr>
<td>Living away from home</td>
<td>593</td>
<td>56</td>
<td>9.4</td>
<td>72</td>
<td>12.1</td>
<td>379</td>
</tr>
<tr>
<td></td>
<td>P(1 d.f.) n.s.</td>
<td>&lt;0.01</td>
<td></td>
<td>P(1 d.f.) n.s.</td>
<td>n.s.</td>
<td>n.s.</td>
</tr>
</tbody>
</table>

**TABLE XXIX**

**Living arrangements: at home and away**
<table>
<thead>
<tr>
<th>LIVING AWAY FROM HOME</th>
<th>MEN</th>
<th></th>
<th></th>
<th>WOMEN</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All in Group</td>
<td>Psychological Condition</td>
<td></td>
<td>All in Group</td>
<td>Psychological Condition</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Diagnosed</td>
<td>Declared</td>
<td></td>
<td>Diagnosed</td>
<td>Declared</td>
</tr>
<tr>
<td>Hadn't before</td>
<td>289</td>
<td>28</td>
<td>9.7</td>
<td>31</td>
<td>10.7</td>
<td>166</td>
</tr>
<tr>
<td>Had before</td>
<td>340</td>
<td>31</td>
<td>9.1</td>
<td>44</td>
<td>12.9</td>
<td>230</td>
</tr>
</tbody>
</table>

\[ P(1 \text{ d.f.}) \text{ n.s.} \] \[ n.s. \] \[ P(1 \text{ d.f.}) \text{ n.s.} \] \[ n.s. \]

**TABLE XXX**

Experience of living away from home

<table>
<thead>
<tr>
<th>HOME SITUATION</th>
<th>MEN</th>
<th></th>
<th></th>
<th>WOMEN</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All in Group</td>
<td>Psychological Condition</td>
<td></td>
<td>All in Group</td>
<td>Psychological Condition</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Diagnosed</td>
<td>Declared</td>
<td></td>
<td>Diagnosed</td>
<td>Declared</td>
</tr>
<tr>
<td>In Edinburgh</td>
<td>263</td>
<td>24</td>
<td>9.1</td>
<td>20</td>
<td>8.0</td>
<td>140</td>
</tr>
<tr>
<td>Within 30 miles</td>
<td>125</td>
<td>8</td>
<td>6.4</td>
<td>6</td>
<td>4.8</td>
<td>55</td>
</tr>
</tbody>
</table>

\[ P(1 \text{ d.f.}) \text{ n.s.} \] \[ n.s. \] \[ P(1 \text{ d.f.}) \text{ n.s.} \] \[ n.s. \]  

* Figures include students living with spouse or relatives as well as those living with their parents.

**TABLE XXXI**

Living at a distance from university
<table>
<thead>
<tr>
<th>RESIDENCE DURING TERM</th>
<th>MEN</th>
<th></th>
<th>WOMEN</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All in Group</td>
<td>Psychological Condition</td>
<td>All in Group</td>
<td>Psychological Condition</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Home</td>
<td>388</td>
<td>32</td>
<td>8.2</td>
<td>27</td>
</tr>
<tr>
<td>Halls of Residence</td>
<td>111</td>
<td>10</td>
<td>9.0</td>
<td>11</td>
</tr>
<tr>
<td>Flat</td>
<td>56</td>
<td>5</td>
<td>8.9</td>
<td>6</td>
</tr>
<tr>
<td>Lodgings</td>
<td>426</td>
<td>41</td>
<td>9.6</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>P(3 d.f.) n.s.</td>
<td>n.s.</td>
<td>P(3 d.f.) n.s.</td>
<td>n.s.</td>
</tr>
</tbody>
</table>

**TABLE XXXII**

Residence during term
SUMMARY OF RESULTS

The investigation of hypotheses derived from factors in the student's background and experience reveal varying influences on case rates for psychiatric disorders among the total entry of 1,555 Edinburgh University students who were studied during one academic year. The findings are summarized as follows:

Social and demographic factors

SEX
Women have significantly high case rates for both diagnosed and declared illness.

AGE
Has no influence on case rates.

SOCIAL CLASS
Has no influence on case rates.

MARITAL STATUS
Small numbers: no conclusions can be drawn.

RELIGIOUS DENOMINATION
Men who declared no religious affiliation have significantly high case rates for declared illness. There are no significant inter-denominational differences in case rates. Minority religious groups are not more prone to psychiatric disorders than the others, nor non-Christians than Christians.
ETHNIC FACTORS
Scottish and English students have similar case rates. British and overseas students have similar case rates. Among overseas students, the prevalence of psychiatric disorders is significantly high for those who are confronted with cultural transition, for those who are coloured, but not for those whose first language is not English, nor for those who have never lived away from their own country before.

BROKEN HOME
Women who come from a broken home have significantly high case rates for declared illness.

BROKEN MARRIAGE
Small numbers: no conclusions can be drawn.

DISHARMONY IN THE HOME
Small numbers; where disharmony is reported case rates are high, but no conclusions can be drawn.

WHEN PARENT IS A UNIVERSITY GRADUATE
The sons of graduates have significantly low case rates for diagnosed illness.

WHEN STUDENT IS STUDYING TO ENTER SAME PROFESSION AS PARENT
Men studying to enter their father's profession have significantly low case rates for diagnosed illness.

ATTITUDES TO ENTERING UNIVERSITY
Students not in favour - small numbers; case rates are high but no conclusions can be drawn.
Parents not in favour (student's opinion) - has no influence on case rates.

Economic factors

GRANTS, BURSARIES AND SCHOLARSHIPS
Have no influence on case rates.
NEED FOR VACATION EARNINGS
Has no influence on case rates.

FINANCIAL STRAIN ON THE FAMILY
Has no influence on case rates.

ECONOMIC DIFFICULTIES OF MARRIED STUDENTS
Small numbers: no conclusions can be drawn.

Medical factors

LOW SELF-RATING OF HEALTH
Small numbers: no conclusions can be drawn.

FREQUENCY OF CONSULTATION
Men and women who reported 3 or more consultations during the previous year have significantly high case rates for diagnosed illness.

ILLNESS AT SCHOOL
Small numbers: no conclusions can be drawn.

NUMBER OF PAST ILLNESSES REPORTED
There is a significant correlation between the number of past illnesses reported and case rates for declared illness, and for diagnosed illness in women.

PAST ILLNESSES
For men, case rates are significantly high for diagnosed illness among those who reported previous nervous complaints; and for declared illness among those who reported alopecia, persistent nasal catarrh, insomnia, and previous nervous complaints. For women, case rates are significantly high for diagnosed illness among those who reported dysmenorrhoea, insomnia, migraine, and previous nervous complaints; and for declared illness among those who reported dysmenorrhoea, insomnia, and previous nervous complaints.
Educational factors

TYPE OF SCHOOL ATTENDED
Has no influence on case rates.

PUBLIC SCHOOL EDUCATION
Has no influence on case rates.

ENTRANCE QUALIFICATIONS
Have no influence on case rates.

ABILITIES AND ACTIVITIES AT SCHOOL
Below average at work: has no influence on case rates.
Below average at sport: has no influence on case rates.
Below average at clubs: case rates are significantly high for both diagnosed and declared illness.
The 'non-allrounder': case rates are significantly high for both diagnosed and declared illness.

FACULTY IN WHICH STUDYING
Has no influence on case rates.

TYPE OF COURSE IN WHICH STUDYING
'Academic' and 'scientific' students have similar case rates.

ACADEMIC PERFORMANCE
Women who made an 'inadequate academic performance' have significantly high case rates for declared illness. Analysis of categories of illness demonstrates that inadequate academic performance is marked only among men and women with formal psychiatric illness; students with lesser psychiatric disorders gave no worse a performance than their colleagues who were not ill.

Living arrangements at the university

LIVING AT HOME
Men who are living away from home have significantly high case rates for declared illness.
PREVIOUS EXPERIENCE OF LIVING AWAY FROM HOME

Has no influence on case rates.

LIVING WITH RELATIVES

Has no influence on case rates.

COMMUTING

Has no influence on case rates.

RESIDENCE DURING TERM

Has no influence on case rates.
DISCUSSION
At the Conference on the Epidemiology of Mental Illness organised by the Nuffield Provincial Hospitals Trust in 1960, Professor G.M. Carstairs, discussing some urgent demands for future epidemiological research in psychiatry, said: "I should like to see more systematic studies of university students. There is reason to believe that in several of our universities a good deal of psychiatric illness goes undetected, with consequences which are distressing and at times disastrous for the student. In the absence of thorough investigation, the true dimensions of this problem cannot be known" (Carstairs, 1962).

This thesis reports such a study on psychiatric morbidity among university students. It has been carried out epidemiologically and is a prospective inquiry into the factors that influence the prevalence of psychiatric disorders among first year students of the University of Edinburgh.

* * *

The general method of approach to this study was determined largely by the concept of multiple causation of psychiatric disorders. The work was based on a preconception of the factors likely to be relevant to the causation of psychiatric disorders among university students, but it was clear from the reports in the literature on student mental illness that many factors were involved. This was to be expected in relation to psychiatric disorders where, as Reid (1960) pointed out, we are dealing with both the predisposing
characteristics of the individual and the precipitating effects of the immediate environment. The first essential of an exploratory epidemiological survey of this kind was that it should cover for study all possible factors believed to have a bearing on the mental health of students. There has been no intention to carry out an intensive investigation into any one selected area; the object was to explore all areas in order to discover which factors most influenced the prevalence of psychiatric disorders among a defined student population.

The parameters of the inquiry set only one limitation on the scope of the investigation. This was that the factors for investigation were those which could be readily identified at the point of entry of each student to the university. Fortuitous environmental stresses, such as sexual difficulties, religious quandaries or adaptational problems arising after the student's entry to university, which could not be anticipated by reference to the pre-university characteristics of students, fell outside the scope of this inquiry. Every factor that has been cited in the literature as a likely concomitant of student mental illness and which was measurable on entry without direct examination of the student was included for investigation. The questionnaire used to identify the cohort, and the presence or absence in each of the factors reported to have a bearing on the mental health of students, provided data to permit the testing of 40 hypotheses.

A feature of this project has been the very high level of cooperation on the part of the students whom it concerned and the doctors with whom they were registered. Thus, 100 per cent. of the cohort were identified and
followed through in the study, the Mid-Survey inquiry met with a 92 per cent.
response from students and a 91 per cent. response from their doctors, and the
details of medical coverage of the cohort were established for 98 per cent.
of them. Ninety-nine per cent. of students who were sent the final questionnaire
enquiring about their mental health replied to it, the records of every student
registered with the physicians of the University Health Service were scrutinized,
and the general practitioners of 98 per cent. of the students not registered
with the University Health Service gave details about them. Similarly,
the academic record of every member of the cohort was determined, and the
reason for drop-out of all but three of those who had not completed their first
year was learnt. It is felt that this extent of coverage added much to the
validity of the findings presented in this thesis.

The final composition of the cohort was 1,555 students (981 men, 574
women) who, under the terms of the criteria employed, were entering upon the
new experience of university life for the first time. It was a prime object
of this investigation that the cohort should, without exception, comprise all
students at risk during the period of scrutiny. To achieve this, a 'catch-all'
approach was used whereby all students who declared that they were first year
were asked to complete the questionnaire and those among them who satisfied
the criteria were included in the cohort. By this method many students
filled in the questionnaire who, although new to the University of Edinburgh
had either previous experience or primary degrees from elsewhere, and were
not truly 'first year' under the terms employed. However, the merit of this
approach was plain in that only 42 members of the cohort were not identified
at this time, most of whom had been exempted from x-ray (and therefore from attendance at the site of the operation) or were direct entry students into second year medicine, dentistry or veterinary medicine. Very few simply were missed, and some of these had been absent through illness. The methods used for identifying the cohort on entry were operationally most satisfactory. On the other hand it was a matter of some difficulty to adjust the cohort to its final composition since the criteria for inclusion were not applicable to every new student registered on the university official nominal roll. Although the details provided by the Matriculation Office and certain Faculties were helpful in this respect, it was necessary in the end to check each questionnaire form individually against the index cards compiled by the Department of Student Accommodation and Welfare. By this method it was assumed with fair certainty that every first year student eligible for inclusion in the cohort was included (the Student Accommodation and Welfare list was only 'semi-official' and there was, in fact, no alternative source of data for confirmation), and that, apart from the one who refused, the cohort was made up of a 100 per cent. total entry of first year students to the University of Edinburgh at the beginning of the survey year.

Case finding techniques used in this study

Psychiatric morbidity data on university students reported in the literature have been derived from one of four sources: university health service reports, details of usage of psychiatric services for students, voluntary health examinations, and questionnaire studies. Estimates provided
by these studies have frequently been claimed by their authors to be under-estimates, affected as they are by the facilities available (Carroll and Jones, 1944; Fry, 1942; Read, 1954a), and by the limitations that not all who have psychiatric disorders consult their doctors (Malleson, 1954), that little is known about students who live locally and do not attend university health services (Still, 1961a), that it is not known how many students consult doctors with whom they are not registered under the National Health Service (Davy, 1960; Lucas, 1960), and even that the attitudes of university physicians may, in fact, discourage distressed students from consulting with psychological problems (Malleson, 1961). The search for the 'true' prevalence of psychiatric disorders within a population is, as Carstairs (1962) pointed out, always worthwhile but rarely attainable. However, aware of these main deficiencies at the outset of this investigation, it was an object of the study to use case finding techniques that would as far as possible minimise them.

The first step in this direction was that the survey enquired equally about the mental health of all students at risk during the period of scrutiny, considering alike those registered with the physicians of the University Health Service and those registered with other general practitioners. Second, a wide coverage of sources of psychiatric care and advice was carried out, to identify, irrespective of how they had been referred, those members of the cohort who had seen a psychiatrist during the same period. It has often been said that students are likely to seek a consultation without going through the normal referral channels and without the prior knowledge
of the general practitioner. Because of this, enquiries were made not only at every psychiatric out-patient and in-patient service in Edinburgh and the South-East region of Scotland, but also of individual psychiatrists, particularly those attached to the medical school and those in private practice. This proved to be rewarding, since one-third of all in the cohort who had seen a psychiatrist had done so without first telling their own doctors about it.

These two approaches in case finding had been planned at the outset of this inquiry and were applicable in principle to any cohort for prospective study. The consulting habits of this cohort, and the reporting standards of their doctors, could only be determined after each group had been identified. This led to the Mid-Survey inquiry which was carried out during the second of the three university terms that made up the survey year. This inquiry had three objects, all directly related to the planning and the efficiency of case finding techniques: first, to find out the extent to which students attended doctors with whom they were not registered; second, to find out the extent to which doctors were likely to co-operate in providing data; and third, to find out the amount of agreement between students and doctors about consultations made by the one with the other. The response to this inquiry was gratifying: over 90 per cent. of both students and their doctors replied to the questionnaire that had been distributed.

*This part of the inquiry was primarily directed towards general practitioners, not the university physicians. It was already known that an accurate record of each attendance and illness is kept by the physicians of the University Health Service. The results of the Mid-Survey inquiry in respect of the university physicians gave good proof of this (see page 98).
The conclusions from the Mid-Survey inquiry were clear-cut. Very few students had consulted doctors other than those with whom they were registered, indicating that case finding from general practitioners could reliably be centred on the student's own doctor. The 91 per cent. response from students' general practitioners - without either reminders or personal contacts - gave ample reassurance of their likely co-operation in subsequent data collection. The findings of the amount of agreement between students and doctors about consultations were revealing, and serious; there was a considerable difference between consultations reported by students and those recorded by doctors. Of all consultations reported or recorded, 30.3 per cent. were recorded but not reported and 33.5 per cent. were reported but not recorded. These percentages are higher than those reported by Cartwright (1963) in her study of the part played by memory errors in providing accurate data for a morbidity survey in general practice. She found that of all consultations reported or recorded, 17.6 per cent. were recorded but not reported and 17.3 per cent. were reported but not recorded. The reasons analysed by Cartwright for defective reporting by patients were twofold; either they had failed to remember the consultation at all (the time interval here was only 4 weeks), or they had wrongly reported the date of the consultation. Errors in recording by the general practitioners stemmed from wrongly recording the date, not recording the consultation at all, or recording the consultation in the wrong patient's notes. In the present study it was clear from the Mid-Survey inquiry that reliance on general practitioner recording by
questionnaire would have meant a sizeable loophole (33.5 per cent.) as far as case finding was concerned. To overcome the objection that part of the information gained in data collection would have come from known defective sources, two steps were taken. First, doctors were contacted personally at their surgeries and, where possible, actual records were consulted for details of students registered with the practice, as a means to greater accuracy in case finding. Second, the students were also contacted, by questionnaire, to rate themselves in respect of their mental health during the survey year. By these methods, the known deficiencies in general practitioner reporting were, it is thought, largely offset.

The use in data collection of the category of 'declared illness' - cases identified by the questionnaire responses of students who declared that during the period of scrutiny they had been 'emotionally or nervously unwell' - was thought to overcome Malleson's (1954) objection that "for many, their unhappiness is statistically non-existent". While this was the reason for using this form of additional case finding, two unpredicted findings emerged which showed the value of this procedure. For 85 per cent. of those who declared that they had been emotionally unwell and that they had consulted a doctor for this, the doctor had recorded a diagnosis of a psychological condition. This high percentage indicates, trite though the comment may be, that an effective and simple method of gathering morbidity data on students who consult with psychiatric disorders is to ask the students themselves. The second finding that emerged was that, with very few exceptions, case rates for declared illness throughout most classifications
of students were very similar to case rates for diagnosed illness. Those who declared illness and those who had diagnosed illness were, in the most part, demographically alike, although there was less than a 50 per cent overlap of students who comprised these two groups. To avoid equating a declaration of emotional ill-health with a diagnosis of a psychological illness, the two types of cases were treated as entirely separate items. The similarity of the attributes of each, however, does suggest that the only main difference between the groups was perhaps that some of those who had declared illness did not go to see a doctor.

The method used to determine the prevalence of psychiatric morbidity among the cohort was that described by Kessel (1960). This technique employs a classification of illness derived from the modes of presenting psychiatric disability and uses the general practitioner as the case finder. Kessel's technique was ideally suited to this survey. It had the following advantages:

1. The criteria for a psychological condition are clear and meaningful in the light of the general practitioner's experience of psychiatric disorders.
2. The criteria are brief, explicit, and could be readily applied in considering a patient.
3. The criteria not only identify cases but provide a handy means of their classification.
4. The classification takes account of the fact that general practitioners are more accustomed to deal in terms of complaints rather than formal diagnoses, and indeed that the categories of Section V of the International
Classification of Disease are unsuitable for use in general practice (Kessel, 1962). It therefore allows scope for recognition of formal psychiatric illness, of psychological symptoms, and of physical conditions in which psychological factors are known to play a part.

5. This case finding technique had been put through careful testing by Kessel and his colleagues, it has now become a standard research instrument, and it is finding increasing application in epidemiological surveys today.

6. The use of these criteria in the present study has provided a rare opportunity for comparing the morbidity data found with those for the general population. Future comparisons of morbidity data among students in different universities can be made by using the same techniques.

The procedures were uniformly carried out in each practice and with each doctor. Four rules of thumb were strictly observed. First, the operational criteria for identification of a case were explained and discussed before individual patients were considered. Second, the diagnosis of the presence or absence of a psychological condition was always made by the general practitioner. The author's role was only to guide and record, and never to persuade or dissuade the doctor in making his decision. Third, if the doctor felt unable to make a decision, the student was not recorded as a case (this occurred on only about 4 occasions when the time interval between the author's visit and the student's consultation was considerable). Fourth, many doctors were inclined to base a judgement on a long acquaintance
with the student and his family, coupled with knowledge of his medical and social history and personal circumstances. It was, therefore, emphasised to each doctor that this survey was concerned only with consultations made during the period of scrutiny. This was very important for consistency in case finding, since the family doctors obviously had a fuller and longer knowledge of their patients than had the university physicians with whom their patients had only been registered for a few months. This difference, however, was not reflected in case rates from these two sources; they were substantially similar.

Personal contact was of considerable value in case finding with doctors. In relation to the uniformity of procedure used in identifying cases, a particular advantage was that the author, being present, was able to see that the general practitioners were using the criteria and classification in more or less the same way.

This part of the study took fully six months to complete. Every doctor who was contacted fully co-operated in the study, very few seemed in any way sceptical, and many were especially helpful and expressed much interest in the survey.

Ethical considerations in case finding

It was a primary consideration of this study that any details made available by the students or their doctors should be treated with professional secrecy. Scrupulous attention was paid to this throughout. The students
were informed at the outset that the information sought from them was for research purposes and would not be disclosed to any official or unofficial bodies. Thus they knew that this was a research study, that personal details about them were not for the University's information and that their participation was voluntary.

In probing into personal matters, the questionnaire that was presented at the beginning of the inquiry endeavoured to take personal susceptibilities into account. The 'psychiatric' nature of the inquiry was not advertised, nor was it denied, and it was thought that the majority of students were aware of its particular area of inquiry.

The permission of each student was sought before his doctor was contacted about his mental health status during the year, and case finding was in this way carried out with the acquiescence of the students concerned.

The prevalence of psychiatric disorders among the cohort

Of the 1,555 students at risk during one academic year, their doctors identified 172 patients, 88 men and 84 women, as having presented a conspicuous psychiatric disability. The one (academic) year period prevalence rate for students with psychiatric disorders defined within the criteria of Kessel's classification was thus 9.0 per cent. for men and 14.6 per cent. for women. These results tend to confirm what individual general practice studies have suggested, that psychiatric disorders do indeed occupy a considerable amount of the doctor's working time.

How far these figures represent the real extent of psychiatric illness
among students cannot be determined solely on the basis on consultations made with doctors. As Cooper et al. (1962) have pointed out; "we do not know how consistently such disorders can be identified clinically by general practitioners with no special interest or training, nor to what extent doctors' individual attitudes may influence the identification of psychiatric morbidity." This study, however, by using the additional category 'declared illness', had provided a measure of ill-health reported by the students themselves, independant of whether they had consulted a doctor or not. The findings on self-declaration of emotional illness suggest that several students were ill, yet their doctors did not know about it. This was because some had not consulted at all, some had consulted though not specifically for a psychological condition, and perhaps some had consulted with psychological symptoms, the significance of which was not apparent to the doctor. The proportions of students who declared that they had been emotionally unwell during the period of scrutiny and had not been identified as psychiatric cases by their doctors were a further 5.8 per cent. of the men and 6.9 per cent. of the women. (Illnesses for which students do not consult a doctor may come to light dramatically at a later date; two women students - both members of the cohort - who had declared illness but had not consulted a doctor for their symptoms, attempted suicide within six months of the end of the period of scrutiny. On recovery they both stated that they had been very distressed for over a year, but had not sought medical advice).

The preponderance of women among the psychiatric cases in this study is
in accord with the findings of several previous investigations: whether it represents a true sex difference in the incidence of psychiatric disorders is not known, though here the added evidence of significantly high case rates for declared illness among women would suggest that this may be so. It is possible, as Cooper et al. (1962) observed, that the sexes tend to react differently to emotional disturbance, women turning to medical aid whereas men may seek relief from non-medical sources, though Cartwright (1957) found in a house-to-house morbidity survey that men were in fact more inclined than women to report illnesses both in respect of their families, and themselves. Among university students higher case rates among women have been uniformly reported, and while this probably can be more attributed to their sex than to their being at university, some authors have pointed out that women students have particular emotional disadvantages: Swainson (1961) commented that women have more difficulty than men in adapting to university life because of a "greater need for creativity to express itself in the field of personal relationships", while Davy (1961) took a less interpretative view and cited the strain of competition in academic training with which women, in the ambivalent role of training for a graduate career on the one hand and preparation for marriage on the other, may be less well equipped to cope.

Ilnesses - The use of Kessel's criteria has the advantage that it permits diagnostic breakdown of the case material. Analysis of the categories of illness revealed that the specific prevalence for formal psychiatric illness was 3.9 per cent. for men and 6.4 per cent. for women. The remaining categories comprised other conspicuous psychiatric morbidity, which brings the total
prevalence for all psychological conditions found by doctors to the stated figures of 9.0 per cent. for men and 14.6 per cent. for women. Only 8 of the 172 patients with psychiatric disorders exhibited psychotic symptoms during the year; half of these were men who had schizophrenia. Formal psychiatric illness accounted for less than half of the cases. Most of these were neuroses among which anxiety states figured most prominently; this was true for both sexes. Psychotic and neurotic disorders together accounted for one-third of all illnesses among men and rather more than one-third of all illnesses among women. The ratio of men to women students who had psychoses (3:1) was in excess of the ratio (1.7:1) of men to women in the cohort. The reverse was true in respect of neuroses, which were conspicuous among women students (male:female ratio = 0.7:1). Similar findings were reported by Cooper et al. (1962) in a general practice morbidity study, where the frequent occurrence of neurosis accounted for a large part of the preponderance of female psychiatric cases.

Character disorders were rarely diagnosed: the 11 students placed in this category were mainly judged to have had psychological symptoms influenced by their personal inadequacy or immaturity. One patient was stated by his doctor to have a schizoid personality, two had consulted a psychiatrist for advice about their homosexual tendencies, but otherwise no florid personality abnormalities were recorded. This was not so in Kessel's general practice study: as would be expected there were considerably more patients with character disorders among the practice population than among the selected student
Are students more prone to develop psychiatric disorders than others?

It is argued, rightly, that it is impossible to evaluate the differences between the results of individual studies without having both uniformity of criteria and detailed information about the composition of the populations studied. Since it has been widely stated, without substantive evidence, that the prevalence of psychiatric disorders is greater among students than among others of the same age in the general population, it was an object of this study to examine whether a difference does exist or not. This has proved to be possible because Kessel's (1960) original study provided sex- and age-specific data for a general practice population, and the present study has used, in an identical manner, the same criteria for identification of cases.

In addition, the author had the opportunity to carry out concurrently a parallel investigation among another group of young people, apprentices undergoing training at a Royal Naval Establishment (Kidd, 1962). Prevalence figures for psychiatric disorders among this cohort were obtained. These rates are here directly comparable with the rates for students since the same criteria were also employed. The student and the naval apprentice cohorts had the following similarities: the mean age and age range of each cohort were similar; the apprentices and the students were both in their first year of training and study at their respective centres; the apprentices, like the students, have three terms with equivalent vacations, and therefore
the period of scrutiny for each comprised an academic year; the Sick Bay and the University Health Service provide very similar facilities (it so happened that both naval surgeons at the Establishment were Edinburgh graduates and, like the university physicians, had had the same undergraduate schooling in the Edinburgh traditions of psychiatry); and, lastly, both cohorts before entry had been selected by their qualifications and assessment of their potentialities from among many applicants for places. The main differences between the students and apprentices were in socio-economic status, environmental discipline, and living arrangements (all the naval personnel living 'aboard').

The prevalence of psychiatric disorders of the same defined severity among the student cohort, the naval apprentices and the population of a general practice (Kessel, 1960) is set out for comparison as follows:

<table>
<thead>
<tr>
<th>COHORT</th>
<th>MEN</th>
<th></th>
<th>WOMEN</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Population at risk</td>
<td>Diagnosed Illness</td>
<td>Population at risk</td>
<td>Diagnosed Illness</td>
</tr>
<tr>
<td>Edinburgh students</td>
<td>981</td>
<td>88</td>
<td>9.0</td>
<td>574</td>
</tr>
<tr>
<td>Naval apprentices</td>
<td>109</td>
<td>10</td>
<td>9.2</td>
<td>-</td>
</tr>
<tr>
<td>General practice (age-specific rates, 15-34 yrs.)</td>
<td>117</td>
<td>9</td>
<td>8.0</td>
<td>169</td>
</tr>
</tbody>
</table>

* Figures do not include patients with character disorders
Among men, case rates are similar in the three groups. Case rates among women students are higher than Kessal's figure for the general population aged 15-34 years, but this difference is not significant ($X^2 = 3.26$, n.s.). These findings cast doubt on the traditional view that university students are especially prone to develop psychiatric disorders. For men particularly, the prevalence of psychiatric disorders is no greater among students than among naval apprentices or young people registered with a London general practice. For women, the prevalence of psychiatric disorders is higher, but not significantly higher among students than among women of similar age in the general population. The evidence provided by these comparisons is in agreement with the views stated by Read (1961) who commented "I cannot feel that those who obtain university places are intrinsically more vulnerable than the rest." Malleson (1961) also denied that students as a body were unstable, and Logan and Goldberg (1953) held the similar opinion that university students were more stable than non-university young people "who give a picture of psychiatric instability much more florid than we see in the university population."

The numbers on which these comparisons are based are of course small, but further information, similarly employing Kessal's criteria, will be provided soon for both students at another university (Caldbeck-Heenan, 1963) and for the populations of 3 general practices (Cooper et al., 1962).

**Correlates of student psychiatric illness**

The hypotheses tested in this work have provided the answers that the
study was specifically designed to yield, namely, the significant characteristics of first year university students who developed psychiatric disorders. Each hypothesis was based on survey and experimental data which indicated that associations might exist between factors in the new student's background and experience and his predisposition to psychiatric disorders.

By comparing the case rates found in those for whom each factor was operative with the case rates found in those for whom the factor was not operative and subjecting the data to statistical testing, the factors that significantly influenced case rates for psychiatric disorders were determined.

The interpretation of these results requires two cautionary notices. First, questions of statistically supported association are frequently entangled with questions of 'cause' and 'effect'. For this reason it is necessary to stress that the establishment of a statistical association by means of the chi-square test does not necessarily imply any causal relationship between the factor studied and the student's subsequent mental ill-health, but it does indicate that students in whom such a factor is operative are significantly more likely to develop psychiatric disorders than those in whom the factor is not operative. In this way, the factors found to be significantly associated with illness are not the causes, but rather the outstanding attributes that influence predisposition to illness. Second, the evidence that some factors did not significantly influence case rates for psychiatric disorders relates to the total cohort and the interpretation of such a result is that these factors are not outstanding attributes that influence predisposition to illness. This does not exclude the possibility
that for some students any one of these 'non-significant' factors may be an over-riding source of stress that brings about psychological symptoms among them, just as the presence of a 'significant' factor in some students may in no way influence their mental health. The associations, proven or not proven, relate to the group experience of all, but individual exceptions will occasionally occur.

Age differences did not affect the prevalence of psychiatric disorders among the cohort. Case rates showed only a gradual increase with age, which is in keeping with the findings from general practice studies (Fry, 1957; Cooper et al., 1962; Kessel, 1960; Kessel and Shepherd, 1962) and with those for students at Oxford (Davidson, et al., 1955) and at London (Hopkins et al., 1957). The opposing argument put forward in respect of students at American universities (McKinney, 1937; Mechanic, 1962) was not borne out by the findings in this study. Neither the younger nor the older entrant had disproportionately high case rates for psychiatric disorders.

Case rates were not affected by social class differences. This is contrary to the widely held view that students from low-socio-economic backgrounds encounter much emotional difficulty in adapting to university life (Fry, 1942; Malleson, 1954; Read, 1954). This difference might be attributed to the fact that Edinburgh students are less socially conscious than students at other universities, but this cannot be the full explanation, since at Oxford and Cambridge where upward-mobile students are more an
out-group than elsewhere, class background was not considered a significant correlate of psychiatric disorders among students (Davidson et al., 1955; Rook, 1959). Edinburgh students from working class homes had no higher a prevalence for psychiatric disorders than those from professional homes. This is an important finding, since the reverse is so often held, incorrectly, to be true. There were indeed students from the lower social classes who were ill, but in no higher a proportion than among those from any other social class.

Only 38 students, mostly men, were already married when they entered university. There did not seem to be any evidence that the married students were more prone to develop psychiatric disorders than the others, but conclusions could not be drawn from the small numbers involved.

A wide variety of religious persuasions was declared by the cohort. One half of the students were Presbyterians, mostly Scots, and one fifth were Anglicans, mostly English. A surprisingly high number (128 students) declared that they were atheists, agnostics, non-believers or otherwise had no religious affiliation. Religious quandary is more commonly thought to be an intellectual process that arises when the student, at university, is influenced to a much less extent by the attitudes and values of his parents which hitherto held. It is therefore revealing that for almost one in ten of the Edinburgh students, this decision had been made before university entry. Case rates for psychiatric disorders were significantly high for declared illness among men with no religious affiliation, though the
interpretation of this association is not clear. It may indicate that students who have been early confronted with a personal need for decision-making on religious issues have a greater predisposition to emotional illness; it may indicate that they were at a disadvantage because they lacked the special emotional support of religious belief, or it may simply mean that declaring emotional illness and declaring no religious affiliation are both similar expressions of unrest among disturbed young people.

Mechanic's (1962) finding that Anglican and Jewish students were particularly inclined to seek medical advice for personal problems, and that Catholics were less inclined to, was not borne out in this study. All religious groups, Christian and non-Christian, were equally represented among the psychiatric cases.

Overseas students as a group were not more prone to develop psychiatric disorders than were British students at Edinburgh. Reports from other centres have uniformly shown the reverse. It cannot be implied, however, that Edinburgh is in a unique position of admitting overseas students who are not neurosis-prone or that the environment at Edinburgh us particularly less traumatic for foreign students than it is elsewhere; the explanation for this unexpected finding lies in the ethnic composition of the overseas student group.

Among the overseas students, those who were coloured and those who did not come from a Western-type cultural background had significantly higher case rates than those who were not coloured and those who came from a Western-type cultural background. This is very important, for it shows that not all
overseas students are prone to breakdown, only those who are faced with the greatest differences in ethnicity and environment. It is therefore reasonable that high case rates will be found in universities where the overseas group comprise a high proportion of coloured students. Inter-university rates differences will vary according to the ethnic composition of the overseas student population.

American women students were found to have high case rates for psychiatric disorders, but this is unremarkable since Americans are known to be less hesitant to ventilate psychological problems than are their British colleagues (Ralph, 1959).

Case rates for declared illness were significantly high for women students from broken homes. This did not obtain for men, though equal proportions of each (one sixth) came from a broken home. This finding suggests that the effect of losing of a parent is greater on women than men. A similar sex difference was found in relation to declaration of disharmony in the home. The hypothesis that the prevalence of psychiatric disorders is greater among those whose home life is unhappy was, by reason of the small numbers who stated that they came from an unhappy home, not borne out. However, the case rates among men who did declare this were unremarkable while case rates were proportionately much higher for both diagnosed and declared illness among women. This points to the greater emotional vulnerability of women in the face of personal unhappiness and would appear to be a factor of some importance in the causation of emotional illness among women students.

Studies of the academic performance of Edinburgh students have shown that
those who are the sons and daughters of university graduates do less well than those whose parents are not graduates. This factor was included in this investigation because Lief et al. (1960) had suggested that the particular pressures exerted by graduate parents adversely affected the motivation and emotional outlook of their sons. Entirely contrary to expectation the reverse was found to obtain: the prevalence of psychiatric disorders was significantly greater among men who were not graduates' sons and who were not studying to enter the same profession as their parents. Without further investigation the explanation for these findings cannot be known. It is possible that emotionally-harmful pressures were exerted more by the non-graduate parents because they were ambitious for their sons to make the best of educational opportunities which they themselves had not had.

The fact that the relationship was proved for men and not for women has no obvious explanation. If parental pressures do play a part in this association, the reason that only men were affected may indicate that the pressures to pursue their studies are directed more towards sons than daughters. It is possible that parents are more aware of the former's need to succeed in their career, while many tend to view further education as less of a necessity for women than it is for men.

No-one could deny that the student who does not want to go to university, and has no real interest in his studies will find it hard to get on. The same can be said for those who feel that they are studying the wrong subject or heading for the wrong career. Case rates were, however, not affected by attitudes to entering university. Only 22 students declared on entry that
they were other than in favour of taking a university place. They had, as
might be expected, high case rates, but as the numbers were so small the
hypothesis that an unfavourable attitude influences case rates could not be
borne out. Although this study provides no proof of this association, from
the mental health viewpoint it is surely wrong, as Davy (1960) pointed out,
that students who do not want to come to university should be persuaded to
do so.

Case rates for psychiatric disorders among students who stated that
their parents were other than in favour of their taking a university place
were not significantly high (again the numbers were small). It is interesting
that case rates among women were the same whether their parents were
enthusiastic about their entry or not, while among men those who said that
their parents were not enthusiastic had higher rates of illness. Conceivably
this may reflect the greater importance with which men view their education.

The economic factors examined in this study revealed, interestingly,
that financial hardship did not influence the prevalence of psychiatric disorders
among the cohort. There were no significant differences in case rates in
respect of financial strain, not being grant-aided, or stating a need for
vacation earnings. Almost half of the students declared that their being at
university imposed a financial stain on their families, but only one tenth
of those who did so rated this as a severe strain. The slightly higher case
rates found among women who reported severe financial strain did not obtain
for men, which again suggests that women may be more affected than men by an
emotionally toned awareness of family difficulties.
These findings are consistent with those of Davidson et al. (1955) who were unable to demonstrate any greater amount of financial insecurity among patients than among a control group of healthy students. It is interesting that university physicians who have cited financial strain as a potent stress factor (Johnston, 1955; Macklin, 1947; Read, 1954) have either not given data in support or have considered the histories only of students who were ill. The distressed student in his search for environmental causation of his symptoms often incriminates factors (such as money worries) about which one normally is concerned but not so frequently psychiatrically disturbed. The prominence with which these factors have appeared in clinical reports may conceivably be due to the fact that the neurotic student is simply more aware of them, and not that the factors themselves have brought about the neurosis.

The medical factors examined in respect of the cohort revealed many significant pointers to the student's proneness to psychiatric disorders among his attitudes to health, consulting habits and previous medical and psychiatric history.

The association between a low self-rating of health and poor mental health demonstrated for American students (McKinney, 1937; Rust, 1960) seemed to hold true for the Edinburgh students as well, but this could not be statistically demonstrated because only 7 students rated their health as below average.

In general practice the average number of consultations made per year is conspicuously higher for patients with psychoneurotic disorders than for
other attenders (Kessel, 1960). In the present study, there was a conspicuous amount of diagnosed illness among students who had consulted 3 or more times during the previous 12 months, and the hypothesis that there is a relationship between case rates and frequency of consultation was borne out. Of course it is true that the more frequently a patient attends his doctor, the greater is the opportunity for the doctor to recognise psychological symptoms in the patient, but the past consulting habits of students proved to be just as relevant to their subsequent mental health as Kessel found they were to the patients' current mental health. Kessel showed that patients who visited a doctor often had higher rates for psychological illness than those who went less often; this study has shown that students who visited a doctor often during the previous year had higher rates for psychological illness during the following year than those who went less often. Thus, the previous consultation rates of students are a predictive index of their subsequent mental health.

In comparing the data in this survey with those of Kessel (1960), it is found that the patient consulting rates are similar but the consultation rates are different: 26 per cent. of all patients at risk in the general practice study consulted on 5 or more occasions during the year, while only 3.2 per cent. of the students had done so in the year before coming to university. Pre-entry students, it would seem, have low consultation rates: a lot of them consulted, but not many of them consulted often.
Absence from school due to illness was a rare characteristic among the students: only 9 of them declared that they had missed a term or more during their last 5 years at school. Henn's (1951) finding among Cambridge students of a significant correlation between invalidism in adolescence and breakdown at university could not be confirmed for the Edinburgh cohort.

Case rates for both diagnosed and declared illness among men and women uniformly increased in proportion to the number of past illnesses they had declared in the questionnaire on university entry. This trend was marked and a significant correlation between psychiatric disorders and the number of past illnesses reported was established in respect of declared illness, and diagnosed illness in women. This finding can be viewed in two ways. It shows that the more complaints a student stated that he had had in the past, the more likely he was to present with a psychological illness during the period under survey; therefore, those who have had a lot of illness tend to have psychological illness. On the other hand, it could mean that students who declare many past illnesses are likely to declare psychological illness in any subsequent questionnaire. For the latter interpretation, however, it would have to be assumed that the illness-prone characteristic of being a 'declarer' would render the student equally likely to declare symptoms to his doctor, for the same trend has been shown for diagnosed illness. The difficulties in explaining this finding do not, however, detract from the importance or the value of the information. What has been shown is that illness-prone students may be identified by the characteristic of admitting to a series of medical complaints set down in a questionnaire.
The individual complaints referred to physical, psychosomatic and psychiatric disorders that had previously been reported to occur in association with stress, among both the general and student populations. Because of the 'stress' nature of these past illnesses, it was expected that those who were prone to psychiatric disorders would be more likely to have experienced such illnesses than those who were not neurosis-prone. One-third of the students (approximately equal proportions of men and women) did not declare any of these complaints. It cannot, however, be assumed from this that they had not had any of the complaints; in a study at Belfast, Johnston (1954) observed that 60 per cent. of students who did not reply to a health questionnaire were found at later medical examination to have some defect which they knew about. In the present study, 7.2 per cent. of the men and 9.8 per cent. of the women who had declared on entry that they had had not past illnesses were found by their doctors to have psychological illness during the ensuing period of scrutiny.

Of the complaints listed, women more frequently reported past illnesses of an obviously psychological nature while men more frequently reported those of a less obviously psychological nature. Ten per cent. of the women and only 4 per cent. of the men reported previous nervous complaints. Trivial conditions were frequently reported, and serious conditions, such as asthma, goitre, tuberculosis, diabetes and epilepsy were reported by only a few. Significantly high case rates were found among students who reported previous nervous complaints, insomnia, migraine, alopecia, dysmenorrhoea and persistent
nasal catarrh. It is not surprising that psychiatric disorders occurred significantly more often among students who had had similar conditions in the past, but it is very useful to know that a past history of such complaints is a significant indicator of proneness to psychiatric disorders in students. The past illnesses most prominently associated with psychiatric disorders were insomnia, previous nervous complaints and, among women, dysmenorrhoea. Among the other conditions, migraine and alopecia both have well-known psychological implications but it is not so obvious why case rates for psychiatric disorders were significantly high among men who declared a history of persistent nasal catarrh. Sainsbury (1960) showed that patients consulting at a general hospital with chronic nasal infections had significantly high scores on neuroticism (as measured by the M.P.I.), but otherwise there is little experimental evidence in the literature supporting the notion of a neurotic predisposition in nasal catarrh.

Conspicuously high case rates were found among students who reported other past illnesses, but the numbers who did so were small and statistical tests could not be applied. Case rates among acne-complainers were the same as among those who did not report acne; this finding agrees with Lucas's (1961) results which showed that London students who had acne did not differ from a control group in either neuroticism scores or in the frequency with which they reported psychological symptoms.

Educational factors derived from reports on student wastage did not provide indices of liability to psychiatric disorders. Case rates were not affected by the type of school attended by students, cases occurring equally
throughout each group. Although wastage has been reported to be greater among students who qualify for matriculation with the Scottish Leaving Certificate than among those with the General Certificate of Education, psychiatric disorders occurred less frequently among the former than among the latter (except for diagnosed illness in women where the rates were the same in both groups). Case rates among public school men and women were the same as among the others, though again wastage is known to be greater among those educated at public schools. Edinburgh entrants comprised less than the national average proportion of public school-educated students. Kelsall (1957) has shown that 21 per cent of all entrants to British universities have been educated at public schools; the equivalent figure for the cohort was 15 per cent.

The disparity between these concomitants of student wastage and the concomitants of student breakdown perhaps suggests that psychiatric illness among students cannot be an over-riding cause of student failure.

Students who were not 'allrounders' at school had significantly high case rates. This was true for both sexes and in respect of both diagnosed and declared illness. The association demonstrated between psychiatric disorders and not being an allrounder was found to be a reflection of the particular proneness to illness of those who reported a 'below average' participation in the extra-curricular activities at school. This evidence confirms the clinical findings that have been widely reported (Macklin, 1951, 1956; Malleson, 1961; Parnell, 1957; Rust, 1960), and points to the validity of Davy's (1960) observation that students who relate an unsatisfactory record
in the non-work aspects of school life are "a mental health risk and should be discouraged from university entry."

Students taking academic subjects were not more prone to illness than those taking scientific subjects. Men studying Arts had higher case rates than men studying Science and Medicine. These slight differences did not obtain to the same extent for women, although very few women studying Science declared illness. Women medical students had higher than average case rates, and though this fact is generally known, it is poorly documented. Students of both sexes in the Faculty of Law had uniformly low case rates. Women music students, on the other hand had extremely high case rates. This finding may be entirely fortuitous since there were only 9 women music students in the cohort, or it may point to a greater vulnerability among those whose studies are integrally concerned with aesthetic sensitivity combined with a high demand on technical skill.*

The results of this study provide no evidence to confirm Davy's (1960) view that students whose subjects specifically lead to a professional career are less likely to be neurotic than those taking a general Arts education.

One of the most important findings of this survey was that psychological factors seemingly played little part in determining the academic performance of the cohort. It has been argued that psychological illness is a common and a potent source of inadequate academic performance among students. Recently, however, evidence has been accumulating that generalisations concerning

* This was the view expressed by the Dean of the Faculty of Music when these findings were made known to him.
an association between psychiatric disorders and inadequate performance may be invalid. Grant (1961) and Parnell (1951) reported that psychiatrically handicapped students acquitted themselves satisfactorily at their studies, though some of the missed a term or more on account of illness; Malleson (1957, 1958a) has advocated strongly that minor degrees of psychiatric illness are not necessarily bad for studies; and Furneaux (1962) has shown by psychological testing that "a certain lack of emotional stability is related to successful performance." This study presents evidence to support these views. In the first place there was no association found between diagnosed illness and inadequate academic performance among the cohort (there was for declared illness in women, but in considering this factor it must be remembered that academic performance was being tested by the degree examinations at the same time as the questionnaires relating to declared illness were distributed; declaring emotional illness in this setting is perhaps not so very remarkable). Second, by dividing those who had been found by their doctors to be ill into two groups - students with formal psychiatric illness and those with other conspicuous psychiatric morbidity (a valid procedure when Kessel's classification is used) - it was found that those who had formal psychiatric illness had made a worse academic performance than those who had lesser degrees of psychiatric illness. In fact, the academic performance of those with lesser degrees of psychiatric illness was no worse, slightly better, than the performance of students who had not been ill at all. This supports Malleson's and Furneaux's findings, and offers the conclusion that a minor degree of psychiatric illness is not at all a potent cause of inadequate academic performance.
The numerous claims that have been put forward about the effects of particular living arrangements on students while at university were not borne out in this survey. The one exception was that living away from home was found to be associated with significantly high case rates for declared illness among men, although not for women. The other evidence in this thesis that domestic and family matters are seemingly more important to the mental health of women than men is somewhat at variance with this finding. A possible explanation is that proportionately more women than men lived in halls of residence and that proportionately more men that women lived in lodgings: case rates among women in halls were low and case rates for declared illness among men in lodgings were high. This suggests, therefore, that the high case rates among men might be due to the fact that a number of them were living in unsatisfactory lodgings - an argument put forward by Macklin (1947) - rather than the effect of living away from home.

Both men and women who lived in halls of residence had low case rates. Men who lived at home had lower than average case rates, while women who lived at home had higher than average case rates. Women who lived in flats were few, but their case rates were very high: the reverse was true for men. It is not clear why women in flats should have such high rates of illness. Matchett (1961) considered that two factors may be at work: first, that first year women who choose to live in flats are 'neurotically' keen to avoid the disciplines of lodgings and halls of residence, and second, that living in flats on a low income makes the student prone to both physical and emotional discomfort. However, the variations in case rates throughout the living
arrangement groups were not supported statistically. The prevalence of psychiatric disorders was not significantly affected by living arrangements while at university. This was also true in respect of previous experience of living away from home, living with relatives and commuting.

The importance of 'negative' findings

This study set out to demonstrate the significant attributes of students who are prone to develop psychiatric disorders. Many of the factors examined have been shown to be significantly associated with student breakdown. The factors that have been shown not to be associated with student breakdown are of no less importance.

The factors that did not significantly influence the prevalence of psychiatric disorders among the cohort fell into two groups;

(a) Those that clearly influenced case rates among the very few students in whom the factors were operative, but because of the small numbers involved, statistical correlations could not be shown. These factors, therefore, were not important as a major source of stress among all the students who comprised this cohort, but only because they were operative in so few of the students. The importance of these factors in provoking student breakdown must not be overlooked simply because only a few students were affected. Also it must be realised that, while among this cohort such factors only were operative for a few students, at another university there might conceivably be many more students in whom the factors were operative, and there one would find that the factors were significantly associated with student breakdown.
(b) Those that clearly did not influence case rates. These factors are not merely negative findings: they are significant attributes of mentally healthy students. Just as the significant attributes of the neurosis-prone student can be used to identify the student who is likely to become ill, these 'negative' findings can be used to identify the student who is not likely to become ill.

As well as this, it must be remembered that all the factors considered in this study were those that have been cited as likely concomitants of psychiatric disorders among students. The knowledge that some of them are concomitants, some of them are concomitants but only affect a small minority of students, and some of them are not concomitants of psychiatric disorders among students equally provides a basis for the planning of rational preventive measures. For this, it is just as essential to know which factors are not important as it is to know those which are.

CONCLUSIONS

Of the 1,555 students who made up the cohort in this investigation, 2 were admitted to a mental hospital, a further 16 consulted a psychiatrist and in all 172 students who consulted a doctor were found to have a psychological condition. Expressing the rates in round figures one might say that during
their first year at the university approximately one in a thousand students needed admission to hospital for psychiatric care, one in a hundred consulted a psychiatrist, and one in ten consulted a general practitioner with a conspicuous psychiatric disability.

Independent of case finding by doctors, 178 students (11.4 per cent. of the cohort) declared that they had been emotionally or nervously unwell during their first year at the university.

Factors significantly associated with high case rates for psychiatric disorders among students were:

**Sex:** case rates were higher among women than among men.

**Religion:** men who declared that they had no religious affiliation had significantly high case rates for declared illness.

**Race:** coloured students had significantly high case rates.

**Cultural background:** overseas students who had come from a non-Western background had significantly high case rates.

**Broken home:** women who came from a broken home had significantly high case rates for declared illness.

**Parent's education:** men whose parents were not university graduates and men who were not studying to enter their parent's profession had significantly high case rates for diagnosed illness.

**Frequency of consultation:** men and women who reported 3 or more consultations during the previous year had significantly high case rates for diagnosed illness.

**Reporting past illnesses:** there is a significant correlation between the number of past illnesses reported and case rates for declared illness, and diagnosed illness in women.

**Past illnesses:** for men, case rates were significantly high for diagnosed illness among those who reported previous nervous complaints; and for declared illness among those who reported alopecia, persistent nasal catarrh, insomnia
and previous nervous complaints. For women, case rates were significantly high for diagnosed illness among those who reported dysmenorrhoea, insomnia, migraine and previous nervous complaints; and for declared illness among those who reported dysmenorrhoea, insomnia and previous nervous complaints.

Activities at school: case rates were significantly high among 'non-allrounders'.

Living away from home: men who were living away from home had significantly high case rates for declared illness.

Conspicuously high case rates were found among the small numbers of students in whom the following factors were operative:

Ethnic group: Nigerian men, American women and German women had high case rates.

Disharmony in the home: case rates were high (particularly among women) among those who declared that their home was 'less than happy'.

Attitudes to university entry: students who declared that they were other than in favour of taking a university place had high case rates.

Self-rating of health: students who rated their health as 'below average' had high case rates.

Past illnesses: case rates were high among those who reported urticaria, stammering, low back pain and dyspepsia.

Faculty: women music students had high case rates.

Accommodation: women living in flats had high case rates.

The factors that were not associated with student breakdown were:

Age; social class; marital status; religious denomination; nationality; language; broken marriage; parents attitudes to student entering university; being grant-aided; financial strain on the family; financial hardship on the student; illness at school; certain past illnesses (those not listed above); type of school attended; public school education; entrance qualifications; faculty in which studying; type of course in which studying; previous experience of living away from home; living with relatives; commuting; residence during term.
Academic performance

Women who made an inadequate academic performance had significantly high case rates for declared illness. Although this finding is statistically supported, it must be interpreted with caution since 'declared illness' was registered by the students when they were taking their examinations (on which their academic performance was judged to be adequate or inadequate).

Inadequate academic performance was marked only among men and women with formal psychiatric illness; students with less specific psychiatric disorders gave no worse a performance than their colleagues who were not ill.

Can students who are likely to develop psychiatric disorders be identified at the point of university entry?

The findings of this investigation have provided social, demographic, and medical measures of the student's personal predisposition to psychological illness. A knowledge of the characteristics of the illness-prone student are of particular value for two reasons: first, for identification of those who are likely to breakdown at university under ordinary circumstances because they are illness-prone, and second, for identification of those whose personal predisposition to illness renders them more likely than others to react unfavourably to stressful environmental circumstances. Thus, the characteristics of illness-prone students relate directly to personal predisposition to psychiatric disorders and, indirectly, to the effects of the immediate environment in provoking psychological reactions.

The picture that emerges of the characteristics of students who are prone to develop psychiatric disorders shows that they can be identified and that there are definite main areas in which significant factors may be found.

Medical factors. These are the most noticeable. Illness-prone students
can be readily identified from their medical histories and their consultation rates. These students are already known to their doctors; reference to their doctors would allow a prone group to be delineated.

**Educational factors.** It is not important to know what examinations the students have passed or what type of school they attended; it is important to know about their capacity for general adjustment in the broader aspects of school life. Illness-prone students can be identified by their lack of participation in the non-work aspects of the school curriculum. These students are known by their teachers to experience difficulty in adjusting to the general and social milieu of community life.

**Personal factors.** Two groups of illness-prone students can be identified by their personal characteristics. Women students are more prone to develop psychiatric disorders than men, and this study shows that women from broken homes or unhappy homes are particularly vulnerable in this respect. The second group comprises coloured students and those who have not come from a Western cultural background. Among overseas students, those who are confronted with the greatest ethnic and environmental contrasts are especially illness-prone.

One of the best ways of finding out which students are prone to develop psychiatric disorders is to ask them. Although this point may seem obvious, it is not generally appreciated that this is the case. This study provides data in support of such a view. Significant proportions of those who reported on entry that they had had previous nervous complaints were subsequently found to have had a psychiatric disorder during the period of scrutiny. These
findings support the opinion that students know their psychiatric liabilities, and if asked, they will declare them. Students' statements about their mental health seem reliable.

Most emphasis in this study has been placed on the factors in the student's background and experience thought likely to have a bearing on his subsequent mental health. The pattern of the characteristics of illness-prone students that this study has provided, however, suggests that for many, as Davy (1960) pointed out, that "the scene is set long before the man and woman arrives at the university." This is important, because it seems that before coming to university these students already had a personal predisposition to psychiatric disorders. They presented with psychiatric disorders during their first year at university, but the characteristics by which they are identified are the characteristics of illness-prone young people anywhere. Perhaps student problems are more the problems of illness-prone individuals who happen to be students rather than problems that confront them because they are students. From the evidence provided by this study, it would seem appropriate that those who are concerned with student mental health should lay more emphasis on the personalities of the students than on environmental factors in the university.

The practical applications of this study

Those who are concerned with the health and welfare of students may find this information useful in the organisation and administration of services for students and, in particular, as a means of identifying those who are likely to need special help.
This study provides information that is primarily relevant to the prevention of psychiatric disorders among students. The knowledge of the significant characteristics of students who are likely to develop psychiatric disorders is an essential step in designing a rational service for prevention of student breakdown. This could be applied in two ways: (a) in student selection, and (b) in student health and welfare.

Student selection methods are now everywhere employed and everyday improving. A criticism commonly voiced by both academic staff and university physicians is that some students who seem to be prone to develop incapacitating psychiatric disorders are not identified before admission to the university. The aim of selection methods is to ensure that those chosen for a university education show the necessary promise that they shall benefit fully from it, and student selection is of course not concerned to deny access to university all those who will fortuitously have minor psychiatric disturbances. However, it is plausible to believe that a knowledge of the significant characteristics of students who are most likely to be ill would be useful in more selective consideration of those who are, by reason of these disadvantageous factors, more likely than others to have to quit their studies.

Perhaps these findings have most application in the field of student health and welfare. If university physicians and others who are concerned with the welfare and happiness of students were aware of the factors that are the hallmark of predisposition to psychiatric disorders among students, it is possible that (a) such illness may be prevented entirely by providing
a vigilant counselling service for the illness-prone student, and (b) that students identified by these characteristics could be earlier recognised to be ill and their illness consequently modified by prompt intervention by medical and welfare services.

The present study can be viewed as the first stage of an epidemiological experiment. The characteristics of students prone to psychiatric disorders have been charted. It would be challenging, and worthwhile, to design an experiment which would have the purpose of studying the effect of informed medical and welfare intervention of the prevalence of psychiatric disorders among the 'high risk' students identified in this study. For this operation, the 'high risk' students could be identified by their personal characteristics and from their medical history and school record on entry: this cohort could be divided into two equal groups, and during their first year counselling and surrogate services could be extensively provided for one group, the other acting as controls. If the services were effective, one would expect lower case rates for illness among those who had been in the experimental group than among the controls. An investigation of this type would indicate in a most practical way that preventive psychiatry among the student body is a worthwhile task. As Carstairs (1962) pointed out, "a study of this question will be worthwhile not only for the recognition and relief of student mental illness, but also because it can be a means of convincing our colleagues in the teaching centres of the usefulness of psychiatric epidemiology."

Finally, this study has provided information which is useful for future research into aetiological factors in student mental illness. It has been an
exploratory epidemiological study, specially designed to investigate a wide variety of factors believed to have a bearing on the mental health of students. It is now practical to use the information found on extensive macroscopic investigation as the basis for intensive investigation into the areas in which pointers to the causation of psychiatric disorders among students have been shown.

This study has shown that without great material resources and with the goodwill of the students, their doctors and the university staff, valuable information about student mental health can be collected and analysed. There is no need for those who are responsible for the mental health care of students to rely on hearsay or to generalise about all students from selected clinical material. Epidemiological studies both strengthen and gain strength from clinical studies; both are necessary undertakings for advances to be made in the prevention, recognition and treatment of psychiatric disorders among young people at university.
SUMMARY
1. This thesis reports a study on psychiatric morbidity among university students. It is an epidemiological inquiry into the factors that influence the prevalence of psychiatric disorders among students of the University of Edinburgh. It is a prospective inquiry: a total cohort of first year students were identified on university entry, classified according to the presence or absence in each of factors reported to have a bearing on the mental health of students, and followed for a complete academic year. Psychological illness that presented during this period was related back to the results of the initial classification, and in this way the factors that significantly influenced the prevalence of psychiatric disorders among the cohort were determined.

2. The aim of this investigation was to determine the factors that most influence the prevalence of psychiatric disorders among a total new entry of university students. It was also an object of the study to determine the prevalence of psychiatric disorders of defined severity among a student population 'at risk'. As well as this, but secondary to the main intentions, the results have demonstrated the characteristics of individuals who comprised a total student intake, and of students who have psychiatric disorders.

3. The operational procedures fell naturally into the following stages;

   The first stage consisted of a review of the literature on student mental illness and student wastage. For each factor cited as having a bearing on the mental health of students, a hypothesis was constructed, apt for epidemiological testing. These hypotheses were the matrix within which this study was developed.
The second stage describes the methods used to identify the total cohort of first year students. This was carried out at the beginning of the survey year. All new students were asked to complete a questionnaire that was used as an instrument to ascertain in each student the presence or absence of the factors of his experience putatively related to his subsequent mental health. The final composition of the cohort was 1,555 students, of whom 981 were men and 574 were women. There was only one refusal. With this exception the cohort was made up of a 100 per cent total entry of first year students to the University of Edinburgh at the beginning of the survey year.

The third stage was concerned with a "Mid-Survey" inquiry, directed towards both students and their doctors, which was carried out at the end of the first three months of the period of scrutiny. It determined the extent to which students had consulted doctors other than those with whom they were registered. Next, it showed to what extent doctors were likely to cooperate in providing data (judged by their responses to this "Mid-Survey" study), and finally it demonstrated the amount of agreement between students and doctors about consultations made by the one with the other. This inquiry made it possible to decide the best methods for detecting those who had developed psychiatric disorders and on suitable criteria to be used for case identification.

The fourth stage, that of case identification, was reached at the end of the survey year. First, a questionnaire study was carried out to enquire of each member of the cohort whether, during the academic year, they had been "emotionally or nervously unwell." This provided a measure of self-declaration of illness by the cohort. Second, the prevalence of psychiatric disorders among the cohort was determined. This was done by (a) making enquiries at all psychiatric services within the city of Edinburgh and the South-East region of Scotland to determine whether any member of the cohort had been seen by a psychiatrist as an inpatient or as an outpatient during the period of scrutiny, and (b) determining whether any member of the cohort had consulted his own doctor (whether at the University Health Service or one of 257 general practitioners with whom those not attending the Service were registered) for a psychiatric disorder of defined severity. This investigation provided a period prevalence rate for psychiatric disorders of defined severity among the total cohort of all first year students at risk during one academic year. Third, the academic record of each was scrutinized to identify, within a framework of criteria, those who had made an 'inadequate academic performance'.

4. Of the 1,555 students who comprised the cohort, during the period of scrutiny 2 were admitted to a mental hospital, a further 16 had consulted a psychiatrist and, in all, 172 students (88 men, 84 women) who consulted a
were diagnosed to have a psychological condition. The one (academic) year period prevalence rate for psychiatric disorders among the cohort was 9.0 per cent. for men and 14.6 per cent. for women.

5. Of all at risk, 178 (99 men, 79 women) declared by questionnaire that during the period of scrutiny they had been "emotionally or nervously unwell." Expressed as percentages, the rates for self-declaration of illness among the cohort were 10.1 per cent. for men and 13.8 per cent. for women.

6. The hypotheses derived from the factors cited in the review of the literature were tested separately in respect of (a) medically diagnosed psychiatric morbidity in the cohort and (b) self-declaration of emotional or nervous illness by the cohort. In summary, these are considered together:

Factors significantly associated with high case rates for psychiatric disorders among the students were: female sex; a declaration of no religious affiliation; being coloured; coming from a non-Western cultural background; a history of a broken home; parents' education; consultation rates; declaration of past illnesses; declaration of past history of previous nervous complaints, insomnia, migraine, alopecia, dysmenorrhoea, persistent nasal catarrh; not being an allrounder at school; living away from home.

Conspicuously high case rates were found among the small numbers of students in whom the following factors were operative: ethnic factors (Nigerian men, American women and German women cited); declaration of
disharmony in the home; unfavourable attitudes to university entry; low self-rating of health; declaration of past history of urticaria, stammering, low back pain and dyspepsia; being a woman music student; flat dwelling (women).

The factors that were not associated with psychiatric disorders among students were: age; social class; marital status; religious denomination; nationality; language; broken marriage; parents' attitudes to student entering university; being grant-aided; financial strain on the family; financial hardship on the student; illness at school; certain past illnesses not listed above; type of school attended; public school education; entrance qualifications; faculty in which studying; type of course in which studying; previous experience of living away from home; commuting from home to university; residence during term.

7. Inadequate academic performance was marked only among men and women with formal psychiatric illness: students with less specific psychiatric disorders gave no worse a performance than their colleagues who were not ill.

8. This study has demonstrated that the picture that emerges of the characteristics of students who are prone to develop psychiatric disorders shows that they can be identified on entry to the university, and that there are definite main areas (medical, educational and personal) in which significant factors may be found.
9. It is suggested that the factors found to be associated with psychiatric disorders among students could be used as a basis for the prevention and recognition of student mental illness. This information should be especially of interest to those who are concerned with student selection and to those who are concerned with the health and welfare of students at university.

10. Suggestions are made for further definitive and experimental studies that have been made possible by this prospective exploratory investigation.
APPENDIX ONE

QUESTIONNAIRES, CIRCULAR LETTERS AND INFORMATION SHEETS USED IN THIS STUDY
IDENTIFICATION QUESTIONNAIRE: for completion by all students eligible for inclusion in the cohort at point of university entry.

UNIVERSITY OF EDINBURGH

STUDENT HEALTH RESEARCH : STRICTLY CONFIDENTIAL

For First Year Students Only

PLEASE READ THIS:

This form is part of an enquiry into health and social factors affecting the well-being of students. Its contents are entirely confidential and will not be passed on to anybody outside the research team. We would be most grateful for your co-operation in completing it. It does not take more than a few minutes.

Most of the questions can be answered by writing X in the appropriate square, or by putting a ring round 'yes' or 'no'.

Thank you very much.

October, 1961

MEDICAL RESEARCH COUNCIL ENQUIRY

1. Surname (In Block Letters)
2. Prenom(s)
3. Sex, ring
   - male
   - female
4. Age at LAST birthday
5. Marital state, ring
   - single
   - married
   - other
6. Nationality
7. Name and address of your doctor at home
8. Name and address of your doctor in Edinburgh
   (If same as above, write 'same'. If University Student Health Service, write 'univ')
9. During the past 12 months, how many times have you seen a doctor for yourself, approximately?
   - 0
   - 1-2
   - 3-5
   - 6-10
   - 10 or more
10. Please put a cross (X) against each of the following complaints which you have experienced in the last five years.

- Urticaria, blotches on the skin
- Athlete's foot
- Hair falling out, alopecia, baldness
- Asthma
- Skin rash, eczema, dermatitis
- Diabetes
- Tuberculosis of the lungs
- Persistent nasal catarrh, sinus trouble
- Goitre
- Rheumatism, arthritis
- Persistent itching
- Persistent indigestion, acid stomach, ulcer
- Acne
- Low back pain
- Obesity, overweight
- Fractures
- Warts
- Migraine, frequent headaches
- Insomnia, sleeplessness
- Stammering, stuttering
- Nervous complaints, anxiety, tension
- Epilepsy, fits, convulsions
- Painful or irregular periods, women's complaints

11. How do you rate your health?

- above average
- average
- below average

12. Country of birth

- Scotland
- Elsewhere in U.K.
- Other *

*If other, state which

13. First language (mother tongue)

- English
- other *

*If other, specify

14. Religion or religious denomination
15. Where is your home?  
   Edinburgh  
   Within 30 miles  
   Elsewhere in Scotland  
   Elsewhere in U.K.  
   British Commonwealth  
   Other country

16. Have you ever lived away from your family for more than 2 months?  
   yes  
   no  
   don't know

17. Who else usually lives at your home?  
   Father  
   Mother  
   Brother(s)/Sister(s)  
   Other relative(s), inc. step-guardian, not relative  
   Spouse  
   Your child(ren)  
   Others

Put an X against all that apply

18. Father's employment*  
   (a) Nature of job  
   (b) Industry, trade or profession

*If retired or deceased, give previous usual occupation

19. Parent a university graduate?  
   Father:  
   no  
   yes  
   Degree

   Mother:  
   no  
   yes  
   Degree

20. Attitudes to your entering university  
   Write appropriate number in EACH box

   Your's  
   Father's  
   Mother's

   1. Much in favour  
   2. In favour  
   3. Neutral  
   4. Opposed  
   5. Much opposed  
   6. Not applicable
21. Would you describe your home before coming to university as

- very happy
- averagely happy
- less than happy

22. Name and location of your last school

23. Academic examinations passed

- Scottish Leaving Certificate
- G.C.E. or Higher School Certificate
- Other*

*If other, specify

24. Please rate your prowess at school in regard to:

(a) Work

- Above average
- Average
- Below average

(b) Sport

- Above average
- Average
- Below average

(c) Clubs

- Above average
- Average
- Below average

25. Was your schooling (last 5 years) interrupted by ill-health for a period of one term or more?

- yes
- no

26. University Faculty or Department in which you are entered

- Degree(s), Diploma or Certificate for which you are studying

27. Which of the following do you hold

Put an X against all that apply

- Competitive scholarship or bursary
- Grant
- Neither

28. Do you anticipate having to earn money during vacation to support yourself?

- yes
- no

Is being at university imposing financial strain on your family?

- yes
- no
29. Proposed residence during term

30. With whom will you be living?

*If yes, 
  a little
  a lot
  House or flat
  Hostel
  Room with meals
  Room without meals
  Parents
  Spouse
  Other relatives
  Other student(s)
  Alone
  Other*

*If other, describe
APPENDIX I (b)

IDENTIFICATION QUESTIONNAIRE: letter to students found not to have completed the first questionnaire at point of university entry.

STUDENT HEALTH RESEARCH

Medical Research Council Unit, 2 George Square, Edinburgh, 8.


Dear

At the beginning of the autumn term students in their first year of study completed the Health and Welfare questionnaire. Without exception, every one of your colleagues co-operated in filling in the form.

Unfortunately a few students, of whom you are one, were missed out. We would be very obliged if you would now complete the form, which is enclosed, and return it as soon as possible in the stamped-addressed envelope.

As this is a medical questionnaire, its contents will be treated with the strictest confidence, and under no circumstances will your information be divulged to any private or official sources.

Thanking you in anticipation.

Cecil B. Kidd, M.D.
MID-SURVEY INQUIRY (1): formfilled in by the cohort at lectures or subsequently by postal inquiry.

MEDICAL RESEARCH COUNCIL ENQUIRY

STUDENT HEALTH RESEARCH

January 1962

<table>
<thead>
<tr>
<th>NAME and prename(s)</th>
<th>FACULTY or Department</th>
</tr>
</thead>
</table>

Did you consult a doctor between the beginning of the Autumn Term 1961 and January 1st of this year? YES NO (ring)

(Do not include consultations in 1962)

if YES,

Was the doctor: A University Student Health Service doctor? Your usual general practitioner or partner etc? Another general practitioner? Any other doctor?
APPENDIX I (d)

MID-SURVEY INQUIRY (2) accompanying letter to students of the cohort who were not contacted at lectures.

Medical Research Council Unit,  
2 George Square,  
Edinburgh, S.  

February, 1962.

STUDENT HEALTH SURVEY

Dear

At the beginning of this term students in their first year of study were asked at most lectures to fill in a very short form in connection with the student health survey. Unfortunately we were unable to get around all the lecture theatres and inevitably certain students were missed out of whom you were one. I enclose this form now and I would ask if you would, in strictest confidence, let us have the simple information which we require. When you have done this would you put the form in the enclosed envelope and hand it to ANY SERVITOR in the University.

Thank you for your co-operation and help.

Yours sincerely,

Cecil B. Kidd, M.D.
Dear,

In co-operation with the University of Edinburgh this Unit is conducting a research survey into the health of students during their first year at the university.

As part of this work I am trying to obtain information about medical consultations made by these students. The information obtained will of course be completely confidential. It will not be passed on directly or indirectly to the student or the university authorities.

The student(s) listed below gave me your name as the general practitioner. I would be most grateful if you could let me know from your records the one simple fact of whether or not there has been a consultation with you, or the other members of your practice, between the start of the academic year, 1st October, 1961 and 1st January, 1962.

For your convenience the lower part of this form may be used for replying. A stamped envelope is enclosed.

Thank you very much for your help.

Yours sincerely,

Cecil B. Kidd, M.D.

Consultations between 1.10.61 and 1.1.62

RING

Yes or No

\[ RING \] Yes or No

\[ RING \] Yes or No

\[ RING \] Yes or No

\[ RING \] Yes or No

\[ RING \] Yes or No
APPENDIX I (f)

END OF YEAR DATA COLLECTION (Students): postal inquiry to all students in the cohort to ascertain self-declaration of emotional or nervous illness.

Medical Research Council Unit,
2 George Square,
Edinburgh, 8.

June, 1962.

STUDENT HEALTH SURVEY

Dear Sir/Madam,

At the beginning of the autumn term 1961 the Health and Welfare questionnaire was given to all students in their first year of study at Edinburgh University. As you are at present completing your first academic year at the university I would now like to ask you if you have been in good health throughout the year.

Would you please fill in the short form which is attached below, then seal it in the enclosed stamped addressed envelope and return it to me AS SOON AS POSSIBLE either by post, or by handing it today to any Servitor in the university.

This medical questionnaire is entirely confidential and your answers will be available only to me as the physician concerned with this research. Under no circumstances will your information be divulged to any private or official bodies.

Thank you very much.

Yours sincerely,

Cecil B. Kidd, M.D.

MEDICAL RESEARCH COUNCIL UNIT INQUIRY

Between the beginning of the autumn term 1961 and today -

Have you been physically (RING) no yes - IF YES: Did you consult a doctor? (RING) no yes

Have you been emotionally or nervously unwell? (RING) no yes - IF YES: Did you consult a doctor? (RING) no yes

As part of this research Dr. Kidd would like to visit some students' doctors to discuss illness among students. May he take it that you would have no reason to object to this if your doctor was one of those visited? If you do have an objection, would you please indicate your reason here.

(signed) .............................................
END OF YEAR DATA COLLECTION (Students): reminder letter sent to students in the cohort who did not make an early reply.

Medical Research Council Unit,
2 George Square,
Edinburgh, 8.

June, 1962.

STUDENT HEALTH SURVEY

Dear Sir/Madam,

Recently I sent to you at your Edinburgh address the enclosed form in connection with the Student Health Survey. Unfortunately a few of these forms, of which yours is one, have not been returned. These may have gone astray or been mislaid since the summer vacation is now starting. In case this is so I am enclosing another copy.

Until I get all the replies in I cannot get on with finishing the research, so I would be really grateful for your co-operation. May I repeat that the enquiry is completely confidential, and I am sure that you will appreciate that the medical and scientific value of this research must depend on the full completeness of response.

With many thanks,

Yours sincerely,

Cecil B. Kidd, M.D.
APPENDIX I (h)

END OF YEAR DATA COLLECTION (Students): letter sent to students in the cohort whose self-declaration questionnaire form was incompletely answered.

Medical Research Council Unit,
2 George Square,
Edinburgh, 8.

June, 1962.

STUDENT HEALTH SURVEY

Dear Sir/Madam,

Thank you very much for so promptly returning the Health Research Questionnaire. I regret having to get in touch with you again, but on the slip you returned there was no answer ringed for

Question 1 / Question 2

This is a very small point, but I am sure you will appreciate that the medical and scientific value of this research must depend on the completeness of response.

May I ask you to be so kind as to answer and return the duplicate questionnaire enclosed.

With many thanks,

Yours sincerely,

Cecil B. Kidd, M.D.
APPENDIX I (i)

END OF YEAR DATA COLLECTION (Doctors): information sheet given to each general practitioner when visited.

MEDICAL RESEARCH COUNCIL

Unit for Research on the Epidemiology of Psychiatric Illness

2 George Square,
Edinburgh, S.
August, 1962.

STUDENT HEALTH SURVEY

In co-operation with the University of Edinburgh this M.R.C. Unit is conducting a research survey into the health of students during their first year at the university. Psychiatric illness, problems of adaptation and situational maladjustment have been widely cited as a prime cause of student failure at universities, and many doctors stress that students, particularly in their first year of study, most frequently consult about conditions in which psychological mechanisms are known to play a part. Studies throughout British universities show clearly that even minor psychological disturbance potently interferes with work and the student's enjoyment of life. Much of these findings are based on university health service experience. The true nature and extent of these conditions is known only to the students who have them and their own doctor who treats them.

Our survey has been made possible by the willing co-operation of some 1600 students who started their studies at Edinburgh University in October 1961. They all completed a questionnaire dealing with health and social factors that have been found to characterise students who develop difficulties. In a second questionnaire at the end of this academic year considerable numbers of students reported that they "had been emotionally or nervously unwell" during the year. We now want to follow this up by discussion with their doctors, and we have the students' individually given permission in writing to do so.

The purpose of this is to achieve more rigorous criteria in the detection of emotional and nervous illness. By detecting all cases known to doctors, we shall be able to identify the true characteristics of the 'high risk' student. Our aim is that this fact-finding survey shall make possible the groundwork for future measures of preventive medicine among students.

Cecil B. Kidd, M.D., D.P.H.
APPENDIX TWO

NOTE ON STATISTICAL PROCEDURES USED IN THIS STUDY
Cohort numbers

In the early stages of asking the new entry students to complete the first questionnaire it became apparent that both the response and the co-operation of the students would allow inclusion of the total entry in the cohort, rather than adopt a system of stratified random sampling by sex and faculty which had been provisionally considered as an alternative. This latter would have had the merit, in the face of a low response, of facilitating a more intensive encouragement of fewer students to co-operate in the study. Since only one of the total entry of 1,555 students refused to complete the first questionnaire this procedure was unnecessary. Hence the cohort number equals the total entry to the University of Edinburgh in one academic year. (In respect of the 'refusal', background factual information about this student was obtained from other university sources).

The role of statistical procedures in this study.

The main conclusion of this work for which the investigation was specifically designed is that certain factors in the medical, social and personal background of a student are associated with his subsequent demonstration or declaration of mental ill-health in his first academic year. Consequently hypotheses were drawn up relating to each area for examination and, by dividing the cohort in terms of the presence or absence of each factor (or alternative factors if several were considered), differences in prevalence of psychiatric morbidity for each group were examined by inspection of the percentage case rates found for each. The role of statistical procedures was to determine
whether, in relation to the total, these differences could have arisen by chance, or had arisen because there might be an association between the factor cited and subsequent psychological disorder. Secondly mathematical application would determine the level of significance of any association thus found.

Methods used

For statistical purposes each hypothesis examined was converted to the null hypothesis that the observed and expected frequencies of a finding do not differ. Chi-square tests were used, calculating from the formula

\[
\text{Chi-square} = \sum \frac{(O_i - E_i)^2}{E_i}
\]

Where \(O_i\) stands for the observed frequencies and \(E_i\) for the expected frequencies and \(i\) runs from 1 to \(n\), the number of cells in the contingency table. When a value for chi-square was computed, the number of degrees of freedom on which it was based was ascertained and the value then referred to a table of values of chi-square to determine the probability level. A small probability level indicates that the result obtained would be expected to occur by chance very rarely and so is indicative of a real difference between the proportions being compared. In this study values which did not attain the 5 per cent. critical probability level were considered "not significant", and designated in the tables by the letters "N.S."

It was occasionally found that data had to be regrouped when the expected value was less than 5 in any one cell of the tables,
to give an expected value greater than the required minimum.

Many of the tables for testing were fourfold (2 x 2) contingency tables (the members of the cohort having been dichotomised in two different ways). Taking the following table as an example

<table>
<thead>
<tr>
<th></th>
<th>ILL</th>
<th>NOT ILL</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>a</td>
<td>b</td>
<td>a+b</td>
</tr>
<tr>
<td>NOT-A</td>
<td>c</td>
<td>d</td>
<td>c+d</td>
</tr>
<tr>
<td>TOTAL</td>
<td>a+c</td>
<td>b+d</td>
<td>N (= a+b+c+d)</td>
</tr>
</tbody>
</table>

Chi-square is calculated from the formula

\[
\text{chi-square} = \frac{(ad-bc)^2 N}{(a+c)(b+d)(c+d)(a+b)}
\]

with one degree of freedom.

When the observed numbers were small, the chi-square value in a table with one degree of freedom was adjusted by means of Yates correction, incorporated in the above formula as

\[
\text{chi-square} = \left[\frac{(ad-bc) - 0.5N}{(a+c)(b+d)(c+d)(a+b)}\right] ^2 N
\]

**Interpretation**

When the probability level obtained from a chi-square test was smaller than the 0.05 conventional level of significance, the null hypothesis was discarded and an association was claimed between the tested variable and those students in the cohort with
psychological disorders. While an association is strongly suggested by marked differences in percentage case rates between students identified as having, say, declared a previous nervous illness and those not having declared this, the establishment of the association as statistically significant by means of the chi-square test does not necessarily imply any causal relationship between previous nervous illness and subsequent psychological disorder while at university. The association simply is that students who declared a previous nervous illness are students who are significantly more likely to develop psychological disorder at university in contrast to those who did not declare previous nervous illness who are significantly less likely to develop psychological disorder. In this way the significance of the proven associations lies in their merit as strong pointers to the correlates of illness and not as pointers to distinct causality.
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