

STUDENT MENTAL HEALTH: AN EPIDEMIOLOGICAL STUDY IN TAIWAN¹

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This paper reports some important findings of a 4-year epidemiological study in an university. All the freshmen were studied from the time of entrance to the university up to graduation by means of questionnaires and individual interviews. Nearly one-third of the freshmen were found to be ratable as "psychiatric cases." Some differences in prevalence of symptoms among various domicile groups and sexes, and in comparison with the general population, were found. Although the prevalence rates of mental disorders did not, as a whole, change during the later years of college, some changes in symptom-manifestation were observed. They are discussed in light of influences of college experiences on student mental health. Those social, cultural and life experience factors which were found to be related to freshmen mental health and attitudes toward professional help are presented. Academic achievement was correlated with mental health. The value of the Maudsley Personality Inventory and Mental Health Questionnaires in psychiatric case-finding in freshmen year and in predicting mental condition in later years, and their correlation with academic achievement are discussed. Some area for future study are suggested.

Though there have been countless numbers of studies on students published in the current literature in the past several decades, it was not until some two decades ago that mental health problems of students really became the focus for research by the fields of psychiatry, sociology and psychology, based on some important theoretical thinking on the psychosocial meanings of the student and also accelerated by rapidly growing awareness of the need for establishment of services for student's problems (Fransworth, 1957; Wedge, 1958; Funkenstein, 1959).

The growing interests and joint effort in the field of psychiatry was first created in the form of the Group for the Advancement of Psychiatry Report No. 17, March 1955, entitled "The Role of Psychiatrists in College and Universities," later in the same Report No. 32, January, 1957, entitled "Considerations on Personality Development in College Students," and most recently in the same Report No. 52 on May, 1962, entitled "The College Experience: A Focus for Psychiatric Research." In the G. A. P. Report 52, 181 articles or monographs were reviewed. More comprehensively in the "Annotated Bibliography from 1936-1955", Funkenstein reviewed 1803 articles.

Among current studies on emotional problems of students, the well planned intensive epidemiological studies have, as King (1964) said, been scanty. There has been so far no longitudinal

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prospective study which deals with the students' mental health problems from the entrance to college up to the time of graduation reported.

Starting with a pioneer work of Lin (1953) who made systematic studies on mental disorders of Chinese in three communities using unusually intensive and comprehensive case-finding method during 1946-1948, a number of epidemiological studies in Taiwan have been reported and epidemiological research (Lin *et al.*, 1969; Rin & Lin, 1962; Rin *et al.*, 1966) as a method of objective evaluation of the psychiatric problems and as a basis for planning for future development in mental health projects in Taiwan has been well appreciated (Lin, 1961).

Using the well-established epidemiological methodology, we were able to carry on intensive prospective research on the students of a large urban university in Taiwan during 1963-1967. The research was initiated to provide the university authority with knowledge and data about the true picture of mental health situation of students as a guideline for planning for future development in mental health services for students. We were particularly interested in finding out (1) the one academic year prevalence rate of psychiatric disorders in freshmen, (2) validity of some questionnaires in psychiatric case-finding or case-prediction, (3) what familial, social, environmental and other background factors might be related with high risk of psychiatric disorders, (4) relationships between academic achievement and mental health, and (5) how the mental health problems as found in the freshmen year might change during the four years of college life. All of the newly enrolled students in the year of 1963 were studied and were regularly followed up until the time of their graduation. Based on this study, this paper reports on some major psychiatric findings with some emphasis on the picture of the natural changes in mental health during four-years of college education. An attempt is also made to discuss some important issues in preventive aspects of mental health services in university settings and on the areas for future research works.

METHOD

The National Taiwan Normal University in which the present study was carried out is located in Taipei and consists of three colleges, namely, Education, Literature and Arts, and Natural Sciences with altogether 16 departments for a four-year Bachelor's Degree Program and two Training Divisions for a two-year non-degree program. The current total student population is around 4,150. Besides, several departments offer a five-year program for the Bachelor's Degree for the evening class with currently some 800-900 students. Graduate study for a two-year Master's Degree is provided in three departments and more recently the Ph.D. was made available at the Institute of Chinese. Graduate students and evening class students are not included in the present study.

All the 1,137 students newly enrolled at the University were used as the sample for the prospective follow-up study. Table 1 shows its sex and domicile composition. There were more male than female students at the ratio of 1.5 to 1. "Taiwanese" refers to those whose father was born and had already been in Taiwan before World War II. The great majority of Taiwanese had been in Taiwan even before 1895 when Taiwan came under the Japanese occupation. "Mainlanders" refer to either those who themselves or whose fathers migrated to Taiwan from the

Table 1. Total Freshman Sample According to Sex and Domicile

	Taiwanese	Mainlanders	Overseas Chinese	Total
Male	453	113	120	686
Female	182	133	136	451
Total	635	246	256	1137

China mainland after World War II, and "Oversea Chinese" refers to those who were born and grew up in foreign countries (mostly southeast Asian countries) and came to Taiwan for their education. Though these three groups are entirely the same in ethnic origin, they are, however, often regarded as different subculture groups because of the different social-cultural environments and value orientations in which they were reared. Generally speaking Taiwanese students are shy, reserved and inhibited in self-expression of feelings and opinions, rather conservative in relationships with the opposite sex, and are passive participants in extra-curricular activities. They are less interested and aloof in discussions of general political matters, but are diligent, obedient and studying hard. The mainlander students are more open in their expression of feelings and opinions, aggressive and critical, and use to be more active participants in various activities of the school. The overseas students are regarded as a "privileged" or "special" group of students like "guest students" from foreign countries by the native students. Some of them are quite active and appear to be much easier and freer in their relationship with the opposite sex and in pursuing their enjoyment such as dancing or other social activities, but some, on the other hand, are even more conservative than Taiwanese students. Quite a number of overseas Chinese students have difficulty with academic achievement. The different prevalence rate of psychiatric disorders between the native Taiwanese and the mainland Chinese in the general population has been reported in the previous studies (Lin *et al.*, 1969; Rin *et al.*, 1966). Mean age of male students was 21.6 with the majority distributed between 19-25, and 20.1 for female students with the majority distributed between 18-23. There were 432 students in the College of Education (male 256 and female 176), 387 students in the College of Literature and Arts (male 178 and female 209) and 318 students in the College of Natural Sciences (male 252 and female 66).

At the time of the physical entrance examination basic information was collected from every one of the freshmen in respect to their current mental condition through a mental health questionnaire (M. H. Q.), to their familial-social-cultural-living environment and attitude toward the college, past schooling and past medical history, etc., through a specifically designed background questionnaire, and to their personality pattern through a Chinese version of the Maudsley Personality Inventory (M. P. I). Another simple self-rating type of health questionnaire was checked by each student at the end of the first semester and academic year, respectively, in order to rate the student's self-evaluation of health. Finally, at the end of the first academic year, 324 systemic samples (28.5 per cent) were drawn (every third and fourth alternatively from the whole 1,137 name list) and a detailed psychiatric examination was made by two psychiatrists (Yeh and Chu) on 313 students (11 students escaped from the examination). In the sophomore and junior years, a follow-up study of the whole student body was made by means of a simple type of health

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questionnaire administered at the end of the academic year. At the end of the senior academic year the same questionnaires (M. P. I. and M. H. Q.) and the simple self-rating type of health questionnaire as given in the freshman year were given, and the same random sample students were seen for detailed psychiatric examination by the same examiners. Thus all freshmen enrolled in 1963 were intensively studied prospectively up to the time of graduation.

Major Psychiatric Findings Among Freshmen

Out of 313 systematically drawn random subjects who were given psychiatric examinations, 16 cases or 5.1 per cent, showed some kinds of symptoms which could be regarded as "definitely a psychiatric case" (Diagnostic rating A), 80 cases or 25.6 per cent could be regarded as "highly probably a psychiatric case" (Diagnostic rating B), and 124 cases or 39.6 per cent could not be regarded as "a psychiatric case" though they exhibited some kinds of symptoms (Diagnostic rating C) according to the objectively defined diagnostic criteria for the manifested symptoms of the students. Ninety-three cases or 29.7 per cent were entirely free from any kind of symptom (Diagnostic rating D). Taking the Diagnostic Rating A and B, it was found, as shown in Table 2, that 30.7 per cent out of the 313 students examined had had symptoms which needed psychiatric treatment or attention during the first academic year. Comparison of this rate with other studies is not simple because of the different methodology and intensity applied in case-finding. But just to cite a few, in his study of 833 Yale undergraduates using a "Twelve-Problems Scale," Rust (1960) found that 30 per cent of the group studied indicated no problems and one-quarter reported four or more problems. Smith *et al.* (1963) who studied a 20 per cent representative sample of male students at a moderately small church-affiliated metropolitan liberal arts college using a semi-objective questionnaire (College Health Survey) found that out of 86 students studied 59 per cent were classified as "well," 30 per cent as "subclinically" disturbed, and 12 per cent as "clinically" disturbed on a six-point scale estimating mental health status. Using a self-rating type of health questionnaire and an intensive case-finding method from the university health service, family doctors, psychiatrists in the catchment area, Kidd (1965) found

Table 2. Diagnostic Rating According to Sex (First Survey)

Diagnostic rating*	Female		Male		Total	
	No.	(%)	No.	(%)	No.	(%)
A	11	(5.9)	5	(4.0)	16	(5.1)
B	42	(22.5)	38	(30.2)	80	(25.6)
C	74	(39.5)	50	(39.7)	124	(39.6)
D	60	(32.2)	33	(26.2)	93	(29.7)
Total	187	(100.1)	126	(100.1)	313	(100.0)

*A: Degree 4 impairment of symptom-manifestation with definite psychogenicity.

B: Degree 3 impairment of symptom-manifestation with definite or probable psychogenicity.

C: Degree 1 or 2 symptom-manifestation with doubtful psychogenicity.

D: No symptom-manifestation at all.

the prevalence rate of psychiatric disorders among the 1,555 freshman population at the University of Edinburgh was 9.0 per cent for men and 14.6 per cent for women. In our study the Diagnostic Rating A Group could be regarded as definitely psychiatric cases and perhaps needing immediate psychiatric attention. Those who belonged to Diagnostic rating B may be regarded as a group highly vulnerable to mental ill-health, and this group makes comparison difficult because of its relatively wide range, depending on the criteria applied. Out of 12 per cent who were regarded as "clinically" disturbed in Smith's study, 6 per cent were "markedly" disturbed and this group may be pertinent to compare with our Diagnostic rating A group.

As a whole there was no significant difference between the prevalence of male and female students though the latter appeared to be slightly higher (Table 3.). Among female students, as shown in Table 3, the prevalence rate was highest in the oversea Chinese and lowest in the Taiwanese, with mainlander students standing in between. The differences between groups did not, however, reach statistical significance level. Among the male students, the prevalence rate between each domicile was approximately the same.

Table 3. Prevalence Rate and Case Number According to Domicile and Sex (First Survey)

	Male		Female		Total	
	R.%	(No.)	R.%	(No.)	R.%	(No.)
Taiwanese	29.2	(38)	26.9	(14)	28.6	(52)
Mainlanders	25.0	(7)	37.8	(14)	32.3	(21)
Oversea Chinese	27.6	(8)	40.5	(15)	34.8	(23)
Total	28.3	(53)	34.1	(43)	30.7	(96)

The majority of the manifested psychiatric symptoms were psychophysiologic reactions and psychoneurosis either alone (15 per cent in the former and 9.9 per cent in the latter) or both combined (4.2 per cent) and only 1.6 per cent were personality trait problems. As a whole the rate of psychophysiologic reactions was, as shown in Table 4, significantly higher among the female students than male students. This difference was more obvious in "Mainlander" and "Oversea Chinese" groups than in the Taiwanese group. In females this rate was highest in the "Oversea Chinese" and lowest in the Taiwanese with "Mainlanders" standing in between, though the difference did not reach significant level. On the contrary, the same rate was about the same between the three domicile groups in male students. These findings seem to indicate that the Oversea female Chinese students are more vulnerable to psychophysiologic disorders than any other sex and domicile group of freshmen. This can be speculated in view of the changes in the living environment that female "Oversea" students had to experience. Tension headache, heavy sensation of head, dizziness, upset stomach and functional gastrointestinal disorders and general weakness are more or less commonly seen psychophysiologic symptoms. Disturbed menstrual cycle, with or without premenstrual tension and upset G.I. functions were frequently seen among the Female Oversea students. When compared with nearest corresponding

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Table 4. Prevalence Rate According to Diagnosis, Domicile and Sex (First Survey)

	Taiwanese				Mainlander			
	Male		Female		Male		Female	
	R.%	(No.)	R.%	(No.)	R.%	(No.)	R.%	(No.)
Psychophysilogic R.	11.5	(15)	15.4	(8)	10.7	(3)	21.7	(8)
Psychoneurosis	10.0	(13)	5.8	(3)	14.3	(4)	8.1	(3)
P. P. R. + Psychoneurosis	6.2	(8)	3.7	(2)	—	(0)	3.0	(1)
Personality Dis. P. D. + P. P. R.	1.5	(2)	2.0	(1)	—	(0)	5.4	(2)
Total	29.2	(38)	26.9	(14)	25.0	(7)	38.2	(14)

	Oversea Chinese				Total			
	Male		Female		Male		Female	
	R.%	(No.)	R.%	(No.)	R.%	(No.)	R.%	(No.)
Psychophysilogic R.	10.3	(3)	27.0	(10)	11.2	(21)*	20.6	(26)*
Psychoneurosis	17.5	(5)	8.1	(3)	11.8	(22)**	7.1	(9)**
P. P. R. + Psychoneurosis	—	(0)	5.4	(2)	4.3	(8)	4.0	(5)
Personality Dis. P. D. + P. P. R.	—	(0)	—	(0)	1.1	(2)	2.4	(3)
Total	27.8	(8)	40.5	(15)	28.4	(53)	34.1	(43)

* $\chi^2=5.2$ $0.05 > p > 0.02$ $df=1$

** $\chi^2=1.8$ $0.3 > p > 0.2$ $df=1$

age-group (16-25) of the general population in rural and suburban areas in Taiwan (25.3 per cent for male and 28.7 percent for female), the rate of psychophysilogic reactions of freshmen was significantly lower in the male group, while it showed no significant difference in females (Rin *et al.* 1966). In contrast to psychophysilogic reactions, the rate of psychoneurosis appeared to be higher among the male students than female in all three domicile groups, though the difference did not reach significant level. Anxiety and depression which are frequently accompanied with decreased memory, difficulty in concentration during study, insomnia, dreamfulness, inferiority and pessimism toward their own future and obsessive over-concern of physical and psychological health, etc., are the frequently seen symptoms. The same comparison with the general population as mentioned above showed that the rate of psychoneuroses of freshmen was significantly higher in male (five times as many in students) while it showed no difference in female students (2.3 per cent in male and 4.7 per cent in female in general population). To summarize, psychoneurotic symptoms are much more frequently seen among the students than in the same age-group of general population, more obviously among male students, while psychophysilogic reactions are more often seen in the same age-group of general population than the students in the present-day Taiwan.

Age was significantly associated with the prevalence rate of psychiatric disorders. As a whole

the older the age the higher the case rate. There was, however, some difference between the male and female students. In males, the case rate was fairly the same until the age of 24 and significantly increased from the age of 25, while in the females, the rate increases from the age of 21.

There were two psychotic cases found during the freshman year out of 1,137 total freshmen population. This means the prevalence rate of psychosis is around 0.17 per cent, and this is significantly lower than that of the corresponding age-group of the general population in Taiwan (less than half) (Lin *et al.*, 1967). The low rate of psychosis in student population can be understood by reference to the fact that the college students are highly selected, and cases of gross mental impairment like psychotic disorders would either have broken down already or shown gross maladjustment before entering the college. The first one was a schizophrenic who became fully psychotic characterized by paranoid features such as hallucinations and persecutory delusions and ultimately had to be hospitalized during the second semester of the freshman year. He had been, however, hospitalized in the Department of Psychiatry, National Taiwan University Hospital, in his high school days under diagnosis of obsessive-compulsive neurosis, and for the years after discharge from the hospital up to his entrance to the college, his study efficiency had been greatly impaired. The second one was a paranoid psychosis of acute onset who allegedly became panicky by the ideas of something being wrong in the expressions and attitudes of his fellow students at the cafeteria and that he may be harmed, several days after the first semester began. Both cases came from the southern part of Taiwan and ultimately had to repeat the freshman year because of long-term sick leave from school. The first case was later regularly followed up and treated at the University Health Center but relapsed two times, both of which required hospitalization, and finally was dismissed from the University as he was doing so badly with his work. The second did, however, recover from his psychosis and has so far been doing well.

Are the Freshman Year Experiences Responsible for Occurrence of Psychiatric Disorders?

It can be speculated that the freshman year is the most critical year in terms of emotional problems that the first college experiences may bring about to the students than any other year of college. In Taiwan it may be also speculated that the "National Joint Entrance Examination System" may add much more emotional stress to the freshmen. Brief mention may be needed here about the entrance examination system in Taiwan; that is, any individual college or university does not take its own students independently but receives students assigned to each school through a "Nationwide joint entrance examination" given by the Special Committee appointed by the Ministry of Education. Under this system all departments of colleges and universities in Taiwan are classified into four categories: Category I is natural sciences such as physics, chemistry and engineering, etc.; Category II is for literature, arts and education, etc.; Category III is for biological sciences such as medicine, zoology, botany and agriculture, etc.; and Category IV is for social sciences such as sociology, law, economics and commerce, etc. Only within each category an applicant is allowed to apply for as many colleges or universities as are available according to the order of his preference. The entrance examination is given on the same days nationwide

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under the strict supervision of the Ministry of Education. After the examination papers are scored, the minimal requirements for each category are publicized, and each applicant is assigned to a department of a college or university according to the order of his application and to the score of his achievement. A student, for example, who applied to the Department of Physics of the National Taiwan University as his first choice, the Department of Chemistry, of same University, as the second choice and the Department of Physics of the National Taiwan Normal University as the third choice, etc., may be put into the second or the third one if his score did not reach the minimal requirement of the first or second one. Seemingly, the department that the freshmen get into may be the eighth, or even twentieth choice instead of the first choice. Under these circumstances the department and college are so often not the departments or colleges that they really wanted to attend. Some freshmen may try to take the entrance examination again next year, and since there is no guarantee that he would be able to get into the college he really wants next year, he cannot leave the department he was put in. This means that he has to deal with two major things, the college work and at the same time preparation for the next year's entrance examination. Taking this university as an example, less than half namely, 44.2 per cent of the freshmen in 1963 were in the department of their first choice, 15.4 per cent in the second, 10.9 per cent in the third and the rest, 27.5 per cent in the fourth, or lower, choice. About half, namely, 52.4 per cent of the freshmen claimed the entrance examination of 1963 was their first trial and 47.7 per cent to be the second time and even more. Thus hypothetically this situation may have great impact on the freshmen and may result in increased rate of psychiatric disorders. Is this true at all? The answer is yes and no! It is true that the freshman year was the most critical year of college life, as will be discussed later when we looked at the occurrence of the psychiatric symptoms. When, however, we looked into the duration of manifested symptoms of 96 cases who were diagnosed as psychiatric case in the freshman year, it was discovered that 62.5 per cent of the cases had symptoms before entrance to college out of which 16.7 per cent had had symptoms for even over five years, and only in 37.5 per cent had their symptoms appeared after entrance to college (Table 5). These findings do not seem to support the above hypothesis; or if the entrance examination system has something to do with the mental health of the students, then the impact may be greater on high school students who have to undergo a year or more of preparation for the entrance examination to

Table 5. Duration of Symptom Manifestation According to Sex (First Survey)

	Male		Female		Total	
	No.	(%)	No.	(%)	No.	(%)
Less than 6 mos.	6	(11.3)	5	(11.6)	11	(11.5)
6 m.-1 yr.	16	(30.2)	9	(20.9)	25	(26.0)
1 yr.-2 yrs.	13	(24.5)	8	(18.6)	21	(21.9)
2 yrs.-5 yrs.	11	(20.8)	12	(27.9)	23	(24.0)
Over 5 yrs.	7	(13.2)	9	(20.9)	16	(16.7)
Total	53	(100.0)	43	(100.0)	96	(100.0)

come than on freshmen who have already gone through the examination. There was, furthermore, no difference in the prevalence rate of psychiatric disorders between the students who declared the department they are attending as their "first choice" and the students who did not, and also between the students who declared that the entrance examination they passed was their first experience and the students who did as "second time" or "more." The stress of college life, if this has something to do with the students' mental health in terms of manifested psychiatric systems, had already been there on the high school pupils as far as can be found from our study.

Is Any Social, Cultural and Environmental Background Factor Related to High Risk of Psychiatric Disorders?

In studies in the field of social psychiatry the interplay between the social environment and mental health has always been the object for the investigation. Leighton (1963; 1963), for example, using an epidemiological approach, was able to prove his hypothesis that a community with a low state of organization—few and badly supported school and church groups for example—tended to produce higher rates of symptomatic people than did the communities that were well organized. Though we did not think so far as Leighton did as the university is much more homogenous and well integrated and quite different in social setting from the outside community—we wanted to know whether mental ill-health was associated with any social, cultural or environmental background factor. Background factors which were analyzed included 39 variables which were obtained through a questionnaire given at the time of the entrance physical examination. The variables included family, religion, home situation, living area, schooling situation in past, current health status, financial condition, the attitude of the parents toward the department or college the student is attending, the order of the application in the entrance examination, etc.

Having age specified, we were not able to find any statistically significant difference in case rate of psychiatric disorders between each factor of the variables among the 313 examined students, except in two variables, "Nature of hometown" and "financial burden that entering to college brought about to family." In both sex groups those students who were from small towns showed higher case rate than would be expected compared with those who came from city or rural areas. Examination of the variable, "the financial difficulties that their entering college may bring about to the family" revealed that in male students the case rate was higher in the students who declared "not at all" than students who declared "very much," and the case rate was lowest in the students who declared "a little," while in the female group the case rate was highest among the students who declared "very much" rather than the students who did "not at all" and "a little." The explanation for the implication of these findings is difficult now.

The studies done in the other countries, for example, the Kidd's study (1965) at the University of Edinburgh, using the case who consulted their family doctors and psychiatrists in the catchment area and also consulted with the university health service, combined with self-evaluation of student's own health as psychiatric cases, he was able to find that *female sex, declaration of no religious affiliation, coming from a non-western cultural background, a history of a broken home in female sex, low parent education, more frequency of seeing a doctor, declaration of having alopecia in male, dysmenorrhea and nasal catarrh in the past, past history of insomnia, little*

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participation in school activities in the past and the *experience of living away from home* in the background factors to be significantly associated with higher rate of psychiatric disorders; and *age, social class, marital status, religious denomination, nationality, language, broken marriage, parent's attitude to student's entering university, public school education* to be the factors that are not associated with the psychiatric disorders. Now what made these differences between these two studies? There may be two explanations: The first one is that perhaps the high rate of psychiatric disorders is not related to any social, cultural and environmental background in the student population in Taiwan, since our students in Taiwan are highly selected and are much more homogenous in background than the University of Edinburgh. The other explanation might be the differences in methodology applied for case-finding. One thing we did find to be significantly associated with high case rate, like in Kidd's study, was the students self-estimation of their health. There were significantly more psychiatric cases among the students who rated their health to be "below average" and "worse than before" than the students who rated "average" or "beyond average" and "better than before."

Though statistically not significant, some tendencies have been observed. In the following variables of background the case rate of psychiatric disorders seemed to be higher in the students with the former background than the latter respectively.

1. Those whose families are "out of the city of Taipei" and "outside of Taiwan" over "in city of Taipei." This was more obvious in females.
2. Those who declared their participation in school activities at high school to be "little" over "average" and "quite often."
3. Those who declared the frequency of seeing a doctor in the past year to be "3-5 times" and "6 times and more" over "none" and "1-2 times."
4. Sibling order being "an only child" and "in-between" over "oldest child" and "youngest child" in both sexes.
5. Those father's education was "illiterate," "primary school" and "junior high school" over "high school" and "college."
6. "Three generation family" over "basic family" in male, this was opposite in females.
7. Those who declared being away from home "longer than 6 months" over those who declared "never been away from home" and "been away from home less than 6 months."

In summary of our findings, we may be able to say, though still very preliminary, that a student's mental health or disorder-proneness that could be expected during the years to come in college life can be better and reliably judged from the student's previous personal experiences in terms of the way he reacted to or adjusted with his environment and his medical history in the past rather than being judged from the environment the freshman is fit in. These findings are mutually related with and are also in support of the findings as mentioned in the preceding paragraph. For these reasons we agree with what Kidd said that "perhaps student problems are the problems of illness-prone individuals who happen to be students rather than problems that confront individuals because they are students." These are of the utmost importance especially in terms of early case-identification at the very beginning of their college life.

How Did the Students Seek Professional Help Before Entering College and During the Freshman Year?

In total 58.3 per cent of the freshmen who were diagnosed as psychiatric cases had never seen a doctor of any kind, 28.1 per cent reported a history of taking some kinds of medicine by themselves without a doctor's prescription and only 41.7 per cent of the cases had consulted physicians for their symptoms (Table 6). Significantly more female students either consulted

Table 6. Treatment Received in the Past According to Sex

	Male		Female		Total	
	No.	(%)	No.	(%)	No.	(%)
None	22	(41.5)	7	(16.3)	29	(30.2)
Self-medicated	11	(20.8)	16	(37.2)	27	(28.1)
Consulted doctors	20	(37.7)	20	(46.5)	40	(41.7)
Total	53	(100.0)	43	(100.0)	96	(100.0)

$\chi^2 = 7.82$ $p = 0.02$ $df = 2$

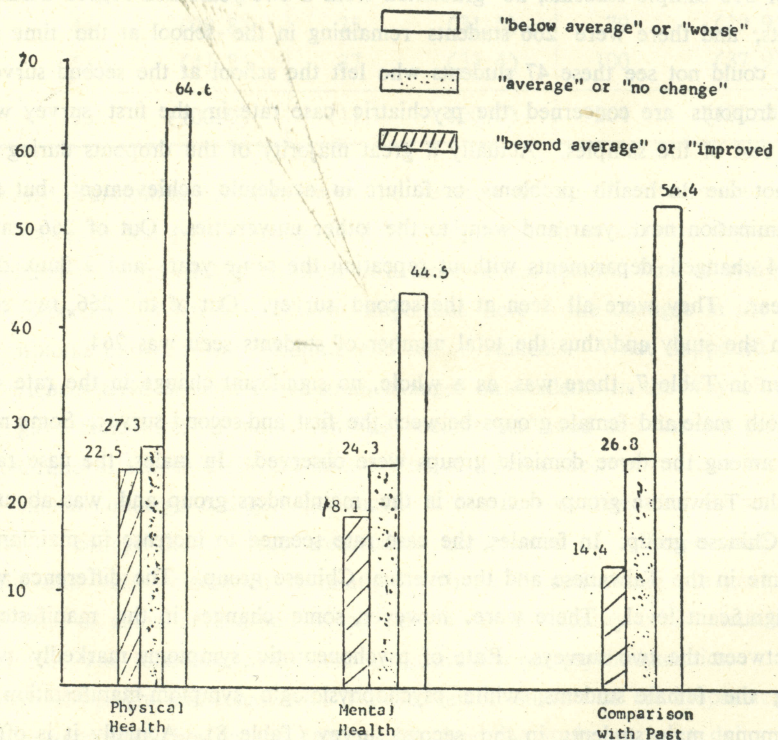


Fig. 1. Student's Self-rating of Health and Rates of Seeking for Professional Help.

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physicians or self-medicated than male students. Most of the medicine taken by the students themselves are vitamins, tonics, nutrition-rich stuff, and some students take herb-drugs. The rate of seeking medical help among the psychiatric cases did not change much during the freshman year and throughout the years later, but when we looked into the student's self-rating of their health, we found there was significant relationship between this and their seeking medical help. As shown in Fig. 1, the more the students rate their health to be "ill" or to be "worse than before" the more they tend to seek professional help. In other words, what makes students seek for professional help is very much dependent on their own evaluation of health condition (more physical than mental) rather than the presence of objectively defined psychiatric symptoms. University health centers as a whole are more used by male students than female students. In both sexes those who live out from their own families seemed to use a university health center more often than those who live with their own families. Although the number of those consulting at the university health center with psychological or emotional problems has been increasing gradually, they still are far from the number of students expected.

How Did the Mental Health Situation Found in the Freshman Year Change During the Later Years of College Life?

The same detailed psychiatric examinations as given at the end of the freshman year were given to the same students samples by the same examiners at the end of the senior academic year. Out of 313 sample students, 28 graduated from a two-years non-degree training course, 15 were dropouts, and there were 266 students remaining in the school at the time of the second survey. We could not see these 47 students who left the school at the second survey, but as far as these 19 dropouts are concerned the psychiatric case rate in the first survey was about the same as the rest of the samples. Actually a great majority of the dropouts during the freshman year were not due to health problems or failure in academic achievement, but they took the entrance examination next year and went to the other universities. Out of 266 sample students remaining, 14 changed departments without repeating the same year, and 9 flunked and were in the junior year. They were all seen at the second survey. Out of the 266, two senior students escaped from the study and thus the total number of students seen was 264.

As shown in Table 7, there was, as a whole, no significant change in the rate of psychiatric disorder in both male and female groups between the first and second survey. Some minor changes in case rate among the three domicile groups were observed. In males, the case rate seemed to increase in the Taiwanese group, decrease in the mainlanders group and was about the same in the oversea Chinese group. In females, the case rate seemed to increase in mainlanders and was about the same in the Taiwanese and the oversea Chinese group. The difference was, however, not at the significant level. There were, however, some changes in the manifested psychiatric symptoms between the two surveys. Rate of psychoneurotic symptoms markedly went up, especially among the female students, while psychophysiologic symptom-manifestation went down, especially among male students in the second survey (Table 8). Actually it is often difficult to clearly differentiate psychoneurosis from psychophysiologic reactions since psychophysiologic reaction is, dynamically speaking, a kind of somatization neurosis. Here we make a diagnosis basing

Table 7. Diagnostic Rating of the Manifested Psychiatric Symptoms

The First Study						
Diagnostic Rating	Male		Female		Total	
	N.	%	N.	%	N.	%
A	10	(7.2)	5	(4.5)	15	(5.7)
B	32	(20.9)	32	(28.9)	15	(24.2)
Subtotal	42	(28.1)	37	(33.4)	79	(29.9)
C	56	(36.6)	40	(36.0)	96	(36.4)
D	55	(35.9)	34	(30.6)	89	(33.7)
Total	153	(100.0)	111	(100.0)	264	(100.0)

The Second Study						
Diagnostic Rating	Male		Female		Total	
	N.	%	N.	%	N.	%
A	10	(6.6)	8	(7.2)	18	(6.8)
B	36	(23.5)	31	(27.9)	67	(25.4)
Subtotal	46	(30.1)	39	(35.1)	85	(32.2)
C	44	(28.8)	35	(31.5)	79	(29.9)
D	63	(41.2)	37	(33.4)	100	(37.9)
Total	153	(100.0)	111	(100.0)	264	(100.0)

simply on the prominently manifesting symptoms with the severest degree of impairment. Psychoneurosis refers to a more or less psychological kind of symptom such as anxiety, depression, or obsessive-compulsive, and psychophysiological refers to a more or less somatic kind of symptom. Diagnosis is not really important. What seems to be important here is the changes in the way of manifesting their symptoms between the freshmen and senior students. What happened here is perhaps college experiences have brought about some changes on students in the way of dealing with their psychological difficulties. Somatization has become less used and instead perhaps repression, compensation, rationalization, intellectualization kind of defense mechanisms have become more prominent as the students undergo college experiences. It can be speculated that the students in the learning process of college life undergo tremendous experiences of self-realization and search into their identity and value-orientation in relation with reality and future life goal, and these easily result in a kind of emotional turmoil which can be called "identity crisis" manifested in forms of psychoneurosis. The following cases seem to illustrate some psychodynamics.

Case 1. A 25 year old single male, native of Taiwan, senior student of the Department of education appeared to be aggressive, hostile and openly criticized the study we were doing with great scepticism when was seen. He at first refused to talk about his problems; instead he openly criticized the university and faculty staff. Gradually as the interview went on he was

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Table 8. Prevalence Rate According to Diagnosis, Domicile and Sex (Second Survey)

	The First Study					
	Male		Female		Total	
	N.	%	N.	%	N.	%
Psychoneurosis	16	(10.5)	4	(3.6)	20	(7.6)
Psychophysiologic reactions	15	(9.8)	23	(20.7)	38	(14.4)
Psychoneurosis & P. P. R.	10	(6.5)	7	(6.3)	17	(6.4)
Personality disorder	1	(0.7)	1	(0.9)	2	(0.8)
Psychoneurosis & Personality disorder						
P. P. R. & Pers. disorder			2	(1.8)	2	(0.8)
Psychosis						
Subtotal	42	(27.5)	37	(33.3)	79	(30.1)
Non-psychiatric cases	111	(72.5)	74	(66.7)	185	(69.9)
Total	153	(100.0)	111	(100.0)	264	(100.0)

	The Second Study					
	Male		Female		Total	
	N.	%	N.	%	N.	%
Psychoneurosis	22	(14.4)	11	(9.9)	33	(12.5)
Psychophysiologic reactions	8	(5.2)	18	(16.2)	26	(10.0)
Psychoneurosis & P. P. R.	12	(7.8)	9	(8.1)	21	(8.0)
Personality disorder	1	(0.7)			1	(0.4)
Psychoneurosis & Personality disorder	2	(1.3)	1	(0.9)	3	(1.2)
P. P. R. & Pers. disorder	1	(0.7)			1	(0.4)
Psychosis						
Subtotal	46	(30.1)	39	(35.1)	85	(32.2)
Non-psychiatric cases	107	(69.9)	72	(64.9)	179	(66.9)
Total	153	(100.0)	111	(100.0)	264	(100.0)

Increase in neurotic symptoms $\chi^2=5.18$.05 > p > .02

Decrease in psychophysiologic symptoms $\chi^2=0.80$

able to, though slowly and defensively, talk about his own problems. He had been suffering from frequent depressive mood, difficulty in concentration, a feeling of uncertainty and frequent insomnia since his junior year. His father died when he was 8. Soon after that his mother married a mainlander civil servant, leaving him to his maternal grandparents by whom he was brought up. There has been tremendous suppressed hostility of an ambivalent nature toward his mother since his boyhood. This has been displaced and manifested in his aggressive and critical attitude toward authority and also in strong striving for independence and the desire of moving up his social state as manifested in forms of very hard study. He finishes the Normal Junior College where he studied hard and used to be at the top or one of the best three of the class. As a result of his

excellent achievement he was given the privilege of entering the Taiwan Normal University without taking an entrance examination under the sponsorship of his mother school. When he was in the Normal Junior College he used to suffer from tension headaches, blurring of vision, general weakness and frequent upset stomach; and in order to keep up his physical condition and study pace he often took some kind of tonic and vitamins. This condition was carried into his college days, and he was diagnosed as having a psychophysiological reaction, Degree B at the time of the first survey. During the same year he was sent to the Normal University he also passed the National Joint Entrance Examination and was assigned to the Department of Law, of the National Taiwan University. Though he was quite uncertain about high school teaching as a life career, he entered the Normal University for financial reasons and because he wanted to be independent of his grandfather (Normal University provides part room and board allowance in addition to free tuition to all students). As time went on at the Normal University he felt more and more uncertain about his choice of profession and regretted his decision. Hard competition with classmates in academic achievement, which was the great threat to his partly successful defense mechanism in the past, dissatisfaction with the faculty staff at the University and recent complications in a love affair, about which he was reluctant to tell me, seemed to greatly reinforce his emotional difficulties. At times he felt he was really a person of excellent talent who could succeed greatly in his professional career, but then he would feel quite inferior about the unsatisfactory school achievement at the University. Feelings of uncertainty, inferiority and depressive moods seemed to become greater, together with critical and aggressive kinds of attitudes toward school authority in the senior year of the college. "To face with graduation from University and, thereafter, to be really standing upon my own feet was something I learned to be very hard from my college experiences," he said.

Care 2. Another case is a 22-year old single female, a mainlander Chinese, in her senior year in the Department of History. Being the oldest of four siblings and having a younger sister two years her junior who apparently did better than the case in school, she had always felt schooling to be a great burden and a kind of pressure from her parents. The feeling seemed to grow greater as she moved up to senior high school. She used to feel weak all over with headaches, dizziness, loss of memory, and difficulty in concentrating through the years of senior high school. The condition became worse in the third year of senior high when she had to face the college entrance examination. The Department of History was not the department she wanted most, but both she and her parents were happy that she passed the examination and finally got into the Normal University. For the first semester she seemed to be free from the above symptoms that she had had before, but around the mid-term examination period of the second semester she developed again the same symptoms and also irregular menstruation and soreness of legs and back, etc. As a result of these symptoms her academic record was very unsatisfactory, she said. She consulted the Department of Psychiatry of the National Taiwan University Hospital and was diagnosed as having psychophysiological reactions then. She was unhappy at home, did not associate very much with her classmates, was passive in school activities and began to doubt her family's religion, Buddhism, and began to go to the Catholic church. She seemed to become more aware of her personality problems and this made her feel inadequate and depressed. During

the senior year she was in love with a male student with whom she seemed to be greatly identified. She was very interested in him, yet the feeling was quite ambivalent and it was difficult for her to tell her parents. Her school record in the senior year was quite unsatisfactory, and she used to suffer from depressive moods, insomnia and considerable difficulty in concentration and memory. At the time of the second psychiatric examination she said she was no longer as worried about her physical condition as she was in high school, but was more worried about her future problems in terms of marriage and a professional career. Her parents wanted her to study abroad after graduation, which she was quite uncertain about. Her younger sister, who apparently was doing very well in the Department of Foreign Languages at the other University, was planning to go abroad for graduate study as soon as she graduated from the University, but to study abroad did not mean much to the case. Her sibling rivalry and negative feelings toward her parents were apparently affecting this case in her attitude toward her boyfriend and future career.

Care 3. The third case is a 24-year old single oversea Chinese female student from Malaysia who was in her senior year in the Department of Chinese. This case came to our attention when she consulted the Department of Psychiatry, National Taiwan University Hospital, in her freshman year with a lot of hypochondriacal complaints such as headaches, dizziness and forgetfulness since she came to Taiwan for her college education. But what really bothered her and what brought her to the psychiatric consultation was a spell of severe dizziness and blackingout which used to occur right before or during the examination. She asked her classmates to accompany during the interview, complained a lot in an exaggerated manner and finally cried out that it was difficult for her to let the examiner believe how much she was suffering from her symptoms. She gave the examiner an impression of a childish, emotionally immature and unstable person. She was referred to the University Health Center where she was treated by one of the authors (Yeh). The history of her present illness revealed that she had had those symptoms for the past three or four years since high school in Malaysia; in fact she was very much discouraged against coming to Taiwan by the school authority in her hometown because of her symptoms. She had the same spells once on the boat on the way from Malaysia to Taiwan.

She was the fifth of eight siblings, having two elder brothers and two elder sisters. Her father was the owner of a small shop, and the financial condition during her childhood was uneasy for the family. The father left home when she was in the second grade to live with another woman and never came back. The mother was a nagging, aggressive type of person, but was a hardworking woman who brought up all the children by herself. The mother sacrificed herself by working hard but also expected the children to go beyond her own primary school education. Two elder brothers and sisters were all working to support the family when the case entered junior high school. The eldest sister had not married, though she was in her thirties, and she was the only person who encouraged this case to move up to senior high school and later to come to Taiwan for a college education in order to teach in the Chinese School in her hometown after graduation. Since her senior high school days she used to suffer from tremendous tension before and during examinations because of her strong anxiety and fear of failure and guilt feeling toward her mother and sister, and finally she started to have blacking-out spells during examinations in the semester of the first year of senior high school. Because of her peculiar

symptoms she became one of the well-known students to the staff of the school. After her entrance to the Normal University her fear of failure in examinations became much greater, and the symptoms became worse. She was seen regularly at the University Health Center where she quickly showed her eagerness to come with strong dependency needs to the therapist. She used to become depressive and complain of headache and dizziness whenever she had letters from her mother, and she would bring that to tell the therapist with tears. As it became easier for her to express her feelings verbally and also to clarify some of her ambivalent feelings toward her mother and sister under the support of the therapist, her physical symptoms gradually disappeared. Instead of having actual spells of blacking-out, her symptom was a kind of anxiety that she might have the same spell again before the examination. Since her regular attendance at the health center she has never had the same symptoms again, but instead her underlying insecurity and anxiety became apparent. She became happier, more pleasant and apparently was able to adjust better to her college life. This case illustrates how the student from overseas with psychophysiological problems was helped by a supportive type of psychotherapy and how the symptom-manifestation pattern changed during the years of college life.

There were some changes in the attitude of the students toward their own health. As shown in Fig. 2, there were significantly more senior students who claimed that their health, both physical and mental, was "beyond average" than when they were in their freshman year. The change were obvious. In comparison with their health before entering college, 43.2 per cent (in physical)

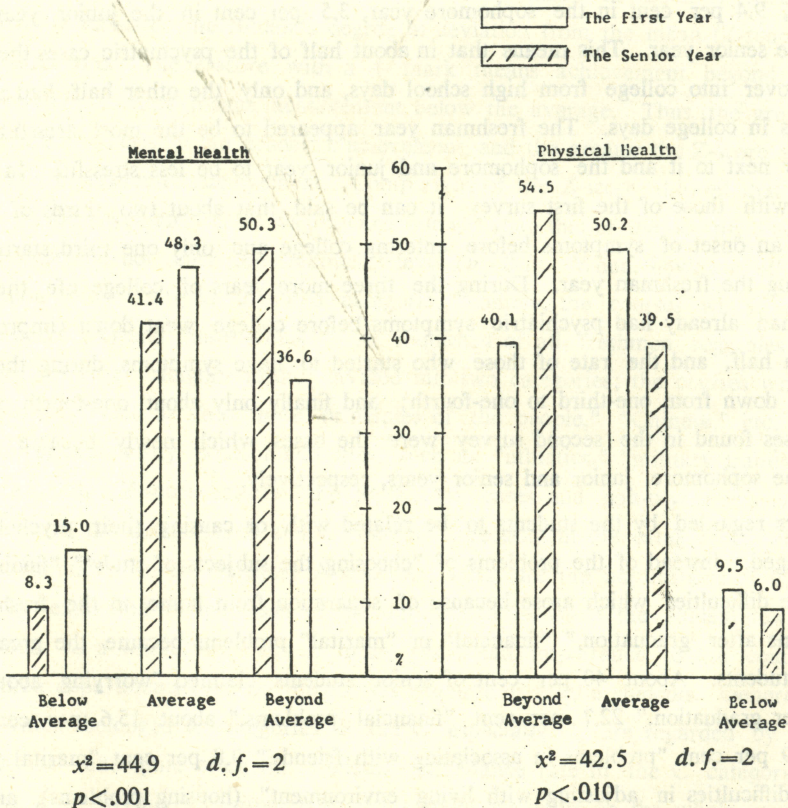


Fig. 2. Comparison of Self-rating of Health between the First and Senior Year.

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and 43.6 per cent (in mental) of the senior students declared it "better than before," 42.9 per cent in physical and 43.9 per cent in mental, claimed "no change," while in the freshman year the corresponding figures were 27.1 per cent in physical, 24.1 per cent in mental to be "better than before" and 64.2 per cent in physical and 67 per cent in mental to be "no change" respectively. In both physical and mental aspects of health, more male students claimed "better than before" than female students.

As observed in the freshman year, the low self-estimation of their own health, more obvious in mental, was again significantly associated with a high case rate of psychiatric disorders in the senior year. This relationship was quite consistent through the whole year of college.

"Dissatisfaction with their departments" was also significantly related with the high case rates in the senior year. This was, however, not found in the freshman year.

The attitude toward their own future career significantly changed. In the freshman year 52.7 per cent of the students declared high school teaching to be a life career, 38.6 per cent declared "uncertain" and only 8.6 cent stated "definitely no," while the corresponding figures in the senior year changed to 31.8 per cent as "yes," 30.3 per cent as "uncertain" and 37.9 per cent as "no." There were more female students who declared school teacher as a life profession than male students.

Out of the total cases who were diagnosed to be psychiatric cases in the second survey, 49.4 per cent were having onsets of their symptoms before entering college, 24.7 per cent in the freshman year, 9.4 per cent in the sophomore year, 3.5 per cent in the junior year and 12.5 per cent in the senior year. This means that in about half of the psychiatric cases the symptoms were carried over into college from high school days, and only the other half had an onset of their symptoms in college days. The freshman year appeared to be the most stressful year with the senior year next to it and the sophomore and junior year to be less stressful. In combining these findings with those of the first survey, it can be said that about two thirds of psychiatric cases had had an onset of symptoms before entering college and only one third started to have symptoms during the freshman year. During the three more years of college life, the case rate of those who had already had psychiatric symptoms before college went down (improved) from two thirds to a half, and the rate of those who started to have symptoms during the freshman year also went down from one-third to one-fourth; and finally only about one-fourth of the total psychiatric cases found in the second survey were the cases which newly became psychiatric cases during the sophomore, junior and senior years, respectively.

The factors regarded by the students to be related with or causing their psychological difficulties changed. Instead of the problems of "choosing the subjects of study" "finding a place to live" or the difficulties which arose because of separation from home in the freshman year, "future problems after graduation," "financial" or "marital" problems became the great concerns of the senior students. About 40 per cent of senior students claimed "worrying about the life in general after graduation," 22.7 per cent "financial problems," about 15.6 per cent "family problems," 15.9 per cent "problems in associating with friends," 9.8 per cent "marital problems," 6.6 per cent "difficulties in adjusting with living environment" (housing problems), and 5.3 per cent "not accustomed to the climate" and finally 3.3 per cent "other factors than above." Signifi-

cantly more male students claimed "difficulties in adjusting with living environment," "marital problems" and "financial problems" than females.

Is Academic Achievement Related to Personality and Psychiatric Disorders?

Though a good many studies on this subject have appeared in current literature, findings are controversial to compare with each other owing to the different methodology and criteria applied in the study. We were interested in finding out how the school achievement was related to personality factors and emotional disturbances as may be manifested in psychiatric symptoms in the college students of Taiwan. We had a hypothesis that the greater the student's emotional problems and maladjustment which may be manifested in various forms of psychiatric symptoms and also may be measured by M. P. I. and M. H. Q., the lower the student's academic achievement.

As the first step of testifying this hypothesis, the academic achievement of the 96 students with psychiatric disorders (psychiatric cases out of the 313 systematic random samples in the first survey) were compared with the other 217 non-psychiatric students at the end of the freshman year. In order to avoid any bias which may be caused by the different standards of the scoring among the professors and departments, a Z-score was calculated for each of the 313 students. A Z-score, which was calculated by the formula of the difference between the student's actual score and the mean score of his class as the numerator and the standard deviation of his class as the denominator, thereby indicated the student's degree of deviation from the mean (Z-score 0) of the class to both directions. The Z-score with a + mark means achievement beyond the average, and the score with - mark means achievement below the average. Thus, the greater the Z-score with a + mark, the better is the academic achievement, and the greater the Z-score with a - mark, the lower is the academic achievement. Comparison of the Z-score showed that the academic achievement of the psychiatric cases was obviously lower than that of the non-psychiatric cases, though the difference did not reach the significant level ($p=0.1$). When, however, all the courses in the curriculum were classified into two categories, namely, the courses which were specific to each department (A) and those which were requested of all freshmen regardless of department, and having the latter category further divided into two categories; the courses which were given in the classroom such as the "three principles of the people," "Chinese," etc. (B) and the courses which require mostly outdoor activities, such as "athletics," "military training," etc. (C), the differences of the Z-score between the psychiatric cases and non-psychiatric cases became highly significant in the categories B and C courses, especially in the category C, while this difference was not significant in the category A courses. What are the implications of these findings? These may be explained on the basis of the different attitudes of the student toward the courses. The students as a whole may attach more value and importance to the courses which are specific to their departments than on the courses required of all the students. Generally speaking the courses which belonged to categories B and C, especially C, are regarded by the students as "non-important" and quite often the students' attendance rate in the C category is low. Since the students with psychiatric symptoms cannot equally put effort on the whole courses because of their impaired study efficiency, they may have to concentrate on the category A

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courses and put less effort on the categories B and C courses, while the non-psychiatric students are more or less able to put their effort efficiently to the whole courses than the psychiatric students. This phenomenon was more obvious in males than females.

In order to further test the stability of the above relationship and to support our hypothesis, the follow-up study on the same random sample was made at the time of their graduation. Z-scores of the whole courses on each semester (altogether 8 semesters) were calculated and the mean Z-scores of the four diagnostic groups as shown in the Figure 3 were compared. The overall findings have clearly shown the same trends as found in the freshman year. The mean Z-score of the whole courses were highest in the diagnostic group D (-), followed by C and then B, and was lowest in the diagnostic group A (++) throughout the whole semesters. Though it did not reach the statistically significant level on the entire semesters, the analysis of correlation has clearly shown the general trends of negative correlation between the Z-score and the scores of neuroticism of M. P. I. and M. H. Q. in both the first and second survey in the four diagnostic groups with some exceptions in the groups B and C.

From the above findings we could say that the academic achievement of the students with objectively defined psychiatric symptoms was significantly lower than that of students without psychiatric symptoms. This finding, however, is not necessarily indicative that the academic achievement is primarily due to emotional impairment. What are primary or "causal" and secondary or "resulted" are beyond the scope which can be deduced from this finding. The primary and secondary relationship may be reversed; that is, emotional impairment may be due to poor academic achievement. It is almost true that these two always form a vicious circle in the college students.

The relationship of academic achievement to the scores of M. P. I. and M. H. Q. may not be as simple as its relationship to psychiatric disorders. Since the high rate of psychiatric disorders was significantly associated with high scores of the M. P. I. and M. H. Q., it can be speculated that the academic achievement is also significantly related in some way to the scores of these questionnaires. The study of Kelvin *et. al* (1965) at the University College of London showed that although the group of dropouts and failures had the highest score in neuroticism of M. P. I., among those who passed the examinations the score seemed to be correlated with the academic achievement. This seems to indicate that within certain limits of score a certain amount of neuroticism is needed to keep up the high academic achievement in college. Kelvin's findings were not, however, supported by our study. Academic achievement is determined by various factors with different intensity. Perhaps these factors have made the negative correlation between the academic achievement and the scores of the two questionnaires not so clear-cut in this study. Further study is needed in this area.

The Place of M. P. I. and M. H. Q. in Study of Mental Health Problems of Students

One of the main purposes of this study was to find out and to test the validity of some simple and practical questionnaires which can easily be applied to students for psychiatric case-finding. M. H. Q. consisted of 48 questions out of which 15 were taken from the Cornell Medical

Table 9. Significance Test of Mental Health Questionnaire and MPI Scores of Psychiatric and Non-psychiatric Cases

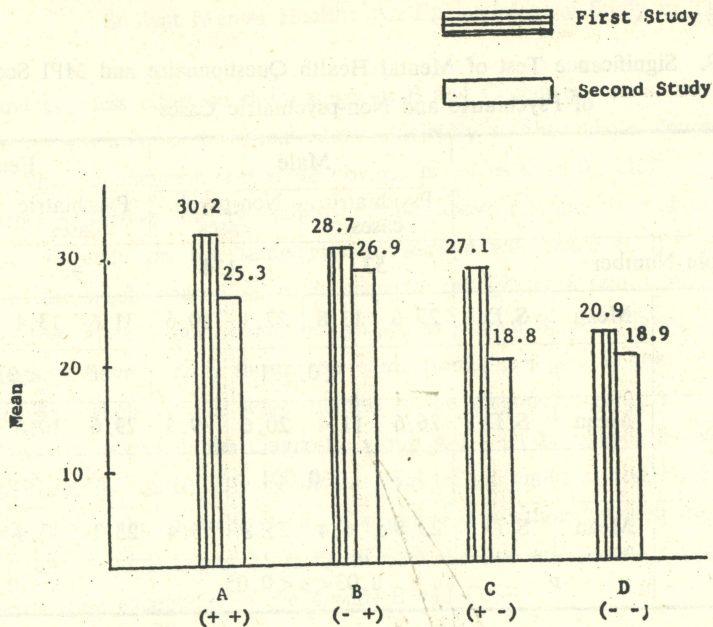
			Male				Female			
			Psychiatric cases		Non-psych. cases		Psychiatric cases		Non-psych. cases	
Sample Number			53		134		43		83	
Mental Health Questionnaire	Mean	S. D.	29.6	13.8	22.1	10.6	31.6	13.1	24.2	13.5
	<i>p</i>		<0.001				<0.001			
M. P. I. (Neuroticism)	Mean	S. D.	26.6	11.4	20.6	9.3	29.6	10.8	22.1	10.2
	<i>p</i>		<0.001				≠0.05			
M. P. I. (Extraversion)	Mean	S. D.	23.9	6.4	25.8	5.4	23.1	7.4	25.9	8.7
	<i>p</i>		0.03 < <i>p</i> < 0.05				≠0.05			

Index, and the rest either from M. P. I. or self-established. In both male and female, the mean scores of M. H. Q. and Neuroticism of M. P. I. were significantly higher among psychiatric cases than those of the non-psychiatric cases, respectively (Table 9). The mean score of Extraversion of M. P. I. was, on the contrary, higher in non-psychiatric cases than in psychiatric cases. Significantly high correlation was found between the score of Neuroticism of M. P. I. and the score of M. H. Q., and also between these two scores and the students self-rating of their health. These findings are apparently in support of high validity of these two self-explanatory questionnaires and a self-rating type of simple health questionnaire in psychiatric case-finding or even case-prediction. One may argue that the scores of these questionnaires may be unstable and that the validity may be, therefore, temporary. Analysis of the above mentioned three questionnaires given at the senior year revealed the same findings as found in the freshman year which have been mentioned above.

When whole systemic random sample students who were given the psychiatric examination in two surveys were classified into four groups according to the changes of diagnostic status, the comparison of mean scores of M. P. I. (Neuroticism) and M. H. Q. of each group yielded very interesting findings, as shown in Figure 3. The findings can be summarized as follows:

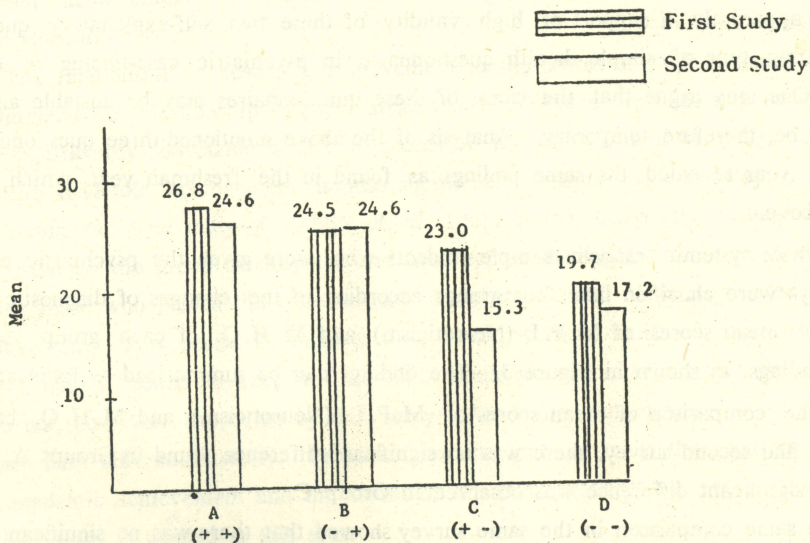
1. In the comparison of mean scores of M. P. I. (Neuroticism) and M. H. Q. between the first and second survey, there was no significant difference found in Groups A, B and D; the significant difference was observed in Group C.
2. The same comparison in the same survey showed that there was no significant difference at all in the mean scores of both questionnaires between Groups A and B, A and C, and B and C in the first survey. The significant difference was observed, however, between A and D, B and D, and C and D. In the second survey, as the diagnostic status changed, the mean scores changed accordingly. Significant differences were observed in the mean scores of both M. P. I. and M. H. Q. between Groups A and C and B and C, in addition to the same differences seen in the first survey.

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- * A: Psychiatric cases in both studies
- B: Diagnosed as non-psychiatric cases in the first study and psychiatric cases in the second study
- C: Diagnosed as psychiatric cases in the first study and as non-psychiatric cases in the second study
- D: Diagnosed as non-psychiatric cases in both studies

Fig. 3a. Changes of Diagnostic Status and Mean Scores of Mental Health Questionnaire Between the First and Second Study.



- * A: Psychiatric cases in both studies
- B: Diagnosed as non-psychiatric cases in the first study and as psychiatric cases in the second study
- C: Diagnosed as psychiatric cases in the first study and as non-psychiatric cases in the second study
- D: Diagnosed as non-psychiatric cases in both studies

Fig. 3b. Changes of Diagnostic Status and Mean Scores of Neuroticism of MPI between the First and Second Study.

3. Very interestingly enough, within Group B, in contrast to Group C, the mean scores of both questionnaires was about the same between the first and second survey in spite of the fact the diagnostic status changed. The difference between Groups B and C can be interpreted as follows. The students, who ultimately became psychiatric cases in later college life, had perhaps already shown signs in terms of high scores on both questionnaires though diagnostically they were labeled as non-psychiatric cases in the freshman year. If the students who were diagnosed as psychiatric cases had their symptoms improved ultimately in later years of college life, the mean scores fell accordingly. These two groups of students are perhaps quite different potentially in terms of prognosis. This is a very important finding of these questionnaires. That is to say, those students showing high scores on questionnaires are indicative of psychiatric disorder-proneness and have a high risk of becoming psychiatric cases in the later years of college, regardless of objective psychiatric diagnosis at that time.

These findings, in summary, clearly indicate that: (1) the attitude of the students, as a whole, to the questionnaire-filling, is reliable and consistent; (2) the validity of these questionnaires in screening psychiatric cases among the student population is significantly high and also stable during four years of college life; and (3) these questionnaires were also highly valid in predicting the psychiatric disorder-prone students.

Work to Come

What do all these findings imply in the work on students' mental health? Though some of the above-mentioned findings are preliminary, and numerous data are still in the process of analysis, these could be well integrated into the actual work in students' mental health services at the university. The student's attitude toward the questionnaire is reliable and the results obtained are highly valid. Since the freshman's mental health problems are highly associated with his past medical history, the attitude toward his health and personal experiences could be easily found out from questionnaires. The questionnaire method should be a recommended measure for psychiatric cases or psychiatric disorder-prone case-finding at the very beginning of college life. The questionnaire could be established in various dimensions and intensities from a very simple one to a highly sophisticated one according to its purposes. It is to be emphasized that even a very simple questionnaire with two questions, such as how did they feel about their own health with answers to be rated, and how often they see their doctor or seek professional help, would fulfill the needs of case-finding or case-prediction.

To confirm the results of what have been rated in questionnaires, the interview method could perhaps be well combined no matter how brief it may be; that is, to interview those who were regarded to be in high risk of psychiatric disorder as found through questionnaires and to make the final decision on the students with regard to diagnosis and degree of further professional attention. This combination could be done in the opposite order, too. For the university health center, the most ideal time of interviewing the student will be during the entrance physical examination or soon after that examination. One will be stricken by the fact that the psychiatric interview by experienced personnel, no matter how brief, will be able to pick up problem cases

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fairly well. The University Health Center of the National Tokyo University has been very successful in this regard by what they call the "two-step interview" method (Ishikawa, 1967). Brief mention of it is deserved here. All newly enrolled in the Tokyo University (currently around 2,500 yearly) are seen very briefly (for a few minutes only) by trained psychiatrists at the time of entrance physical examinations. They particularly emphasize the entrance physical examination, because this is regarded by the students as a routine procedure and they are thus less defensive, more cooperative and have an attendance rate of 100 per cent. Yearly about 20-25 per cent of the students are screened out from the first step interview to be needed for the second step. The second interview, which follows several days later, lasts about 15 minutes or so. By these procedures, they yearly screen out about 12-15 per cent of the whole freshman group. Taking schizophrenics, as an example, they reported that around 75-85 per cent of all the schizophrenics who came to the attention of the school during their college life were screened out by this method at the time of the entrance physical examination.

The student mental health services in university settings in Taiwan is still in its infantile era, and there is a lot to be done before our goal is reached. This paper, however, is not intended to discuss any issue of an administrative nature. What is the area of work to be done in further research? We were not able to identify clearly social, cultural and environmental factors which were significantly associated with the high case rate when we looked into the diagnosed psychiatric cases. Since the scores of M. P. I. and M. H. Q. and simple self-rating types of questionnaires were highly associated with psychiatric case rate, perhaps we may be able to find some relationships between the social, cultural and environmental factors and high scores of the questionnaires, if we analyze these scores in relation to all background variables. We did say that freshman mental health problems were related with the individual experiences and health status before college. Then the question will be how the students with what kind of life background react in what way with what kind of experiences in college, and whether or not the students with certain life backgrounds seemed to be more vulnerable than the students with other backgrounds. These we would like very much to see. We seem to emphasize mental ill-health too much. As has been shown in this paper the students as a whole rate their health better in the senior year than in the freshman year and before college. In the long run, college experiences must influence their health a great deal. We would like to see what kind of experiences are related to health and what kind are related to ill-health. We have said that college life means much more than a mere four years in any time of life. If it is so, then we would like to see, if we are fortunate enough to follow our samples up to five or ten years later, what happens with the student's mental health status and what is the relationship between the pre-college experiences, college experiences and the health, achievement and adjustment in later life. Nowadays, most of the students wish so much to study abroad after graduation from college. Undoubtedly the adjustment problems of the Chinese students in foreign countries are receiving rapidly increasing attention from the people concerned with student problems. We would like to see how the health or adjustment in foreign countries is related to the college experiences in one's native country and also to find out if there is any way to predict before their departure the mental health problems which may arise abroad.

We have mainly looked at mental health problems in our study, and have some findings

which are still preliminary. The other dimensions which deal with the whole group of students instead of the small group of mentally-ill students and which are perhaps more dynamic ones are studies which are to be done of the changes of personality development in terms of intelligence, value-system, level of satisfaction, ideal ego image, motivation, opinion in general, etc. How the college experiences change the students' personality, and how these changes are related with pre-college experiences are studies that should be given high priority in future research. Interdisciplinary collaboration with sociologists or anthropologists is badly needed in further research.

The other area of the study that should be done is the "dropout" problem. Although our "dropout" rate is not as high as is being reported from the universities in the States, it is to be noted that dropping out of college could often be a symptom of some kind of emotional conflict as well as the inefficient utilization of social resources. Studies into etiology of dropping out problems are not only of academic interest but are also needed from an administration point of view to minimize the student's wastage.

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