

30-Item General Health Questionnaire Scores in Male and Female University Freshmen

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The thirty-item General Health Questionnaire (GHQ30) was conducted on 1,432 university freshmen twice in June 1998 and in January 1999 to investigate their mental health conditions after matriculation.

After classifying the results by the time of investigation and gender, logistic regression analysis was performed to extract question items correlated with high GHQ scores. As a result, male students investigated in June showed the correlations among high GHQ scores and the following 5 items: subjective health conditions (SC), satisfaction with matriculation (SM), enthusiasm for studies (ES), living with (family or alone) (LW), and the difference between whether they passed the entrance examination directly upon graduation or not (EE), otherwise, that in January correlated with SC and SM only. Female students investigated in June showed the correlations among high GHQ scores and the following 3 items: SC, SM, and ES, otherwise, that in January correlated with SC, ES, and LW.

In addition, factor analysis was performed after classifying the replies to GHQ30 by the time of investigation and gender. As a result, "uselessness" was obtained as the first factor in all students, and the following factors were respectively obtained as the second factor: "human relationship and low activity" in male students investigated in June, "low activity" in male students investigated in January, "intimacy and high-tension" in female students investigated in June, and "low-tension" in female students investigated in January.

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Introduction

Recently, matriculation is no longer an extraordinary occurrence in Japan, because approximately 50% of high school graduates go on to higher educational institutions, including junior colleges and special schools of higher learning. Although diversified entrance examination systems and increased opportunity of undergoing entrance examinations appear to decrease the hurdles of matriculation, the entrance into leading universities is still the narrow trait. Therefore, many students preparing for entrance examinations may be under great stress. Nagata et al. investigated mental health conditions in 138 high school students and 672 university students in Nagasaki city using GHQ28, and reported that the mental health conditions in university students were higher than those of high school students¹⁾. However, university freshmen will be exposed to novel stressors because their studying and residential environments may greatly change after matriculation.

According to the social readjustment rating scale proposed by Holmes and Rahe in 1967, the following points were distributed to the respective life events that may occur after matriculation: 25 points for changes in living conditions (cf. 100 points for the death of a spouse), 20 points for residential changes, 20 points for changing schools, 16 points for changes in sleeping habits, 15 points for changes in eating habits, and 38 points for changes in economical conditions²⁾. They reported that these life events had become social stressors, and that approximately 53% of university students who showed a total life event score between 150 and 300 points during the last 1 year had complained of some health problems within the following 1 year. Therefore, the exposure to many such social stressors means mentally risky conditions before freshmen grow familiar with the university life.

In Japan, many university freshmen usually experience fatigue and strain immediately after matriculation,

followed by the complaint of mental disorders consisting of dullness and weak desire, which is referred to as "May disease". However, some researchers reported that many university freshmen recently develop "June disease" since the onset of "May disease" had shifted backward. Although psychological conditions of university freshmen have been evaluated in various ways, few studies have investigated changes in mental health conditions classified by the period after matriculation using objective scales. Therefore, using GHQ30, we evaluated whether mental health conditions in male and female university freshmen vary depending on the period after matriculation.

GHQ was first designed by Goldberg as a self-rating instrument for screening non-psychotic psychiatric illness and problems³⁾. The original GHQ consisted of 60-question items. Brief versions consisting of 12, 28 and 30 items have been developed. GHQ30 facilitates the measurement of general disease tendency, physical symptoms, sleeplessness, social activity disorder, anxiety and caprice, and depressive tendency.

Subjects and Methods

1. Study period: the last 10 days of June 1998 and January 1999.
2. Subjects: Among 1,432 freshmen admitted to 8 departments of A university in April 1998, 1,306 freshmen who completely replied to all questions in 2 questionnaires were enrolled. Since all freshmen who would take lectures of obligatory subjects were equally divided into 2 groups (the first and second semester groups) for convenience' sake, the similar number of students from 8 departments were enrolled in 2 studies conducted in June 1998 and in January 1999. During the first study in June 1998, 401 male students (Jun(M)) and 256 female students (Jun(F)) were enrolled. During the second study in January 1999, 408 male students (Jan(M)) and 241 female students (Jan(F)) were enrolled. However, the individual students investigated in June 1998 and in January 1999 were not the same students.
3. Methods: Two questionnaires were used in this study. During a lecture of an obligatory subject, the details of this study were explained to all freshmen, and they were asked to reply these questionnaires. Briefly, unsigned replies to these questionnaires were obtained, and the presence or absence of cooperation to this study and the details of replies were kept secret. In addition, all freshmen were told that their school records were not influenced by the presence or absence of cooperation to this study.

Since almost all freshmen attending the lecture replied to these questionnaires, the recovery rate was more 90%.

4. Instrument:

- (1) A general questionnaire regarding the university life: According to the items of A university life investigation which had been performed once a year since the 1983 fiscal year, items such as the department they belonging to, age, and living with family or alone were investigated, in addition to 13 other items such as the difference between whether they passed the entrance examination directly upon graduation or not, satisfaction with matriculation, the presence or absence of close friends, enthusiasm for studies, and subjective health conditions.
- (2) A questionnaire regarding mental health standards: The Japanese version of the 30-item General Health Questionnaire (GHQ30) was used⁴⁾. In each question of the 30-item GHQ, the students were asked to choose among: 1) none, 2) sometimes, 3) often, and 4) almost always. The results were evaluated by the two-step assessment method (0-0-1-1-method). GHQ scores were distributed as students with mental problems would show a higher score. According to the results of previous studies, university freshmen showing 8 points or more out of maximal 30 points were classified into a high-score group consisting of freshmen with mental problems^{5, 6)}. The results were analyzed using the Statistical Analysis Package SPSS. The male and female students of each investigation time were treated separately.

Results

Characteristics of subjects classified by the time of investigation and the number of freshmen classified by question items.

Table 1 shows the characteristics of subjects. In this study, 887 male students (447Jun (M) and 440 Jan (M)) and 545 female students (282Jun (F) and 263Jan (F)) who completely replied to the general questionnaires regarding the university life were enrolled. This table also shows the detailed number of students who replied to 7 items, excluding 6 items such as branch questions regarding the year of matriculation, gender, and satisfaction with matriculation, and items that should be replied after ranking. The mean age of the subjects ranged from 18 to 19 years. With regard to residential situation, percentages of freshmen who were living with family were as follows: 23% in Jun

Table 1. Characteristics of Subjects

| Study period Sex | June | | | January | | |
|--|------|--------|------------|---------|--------|------------|
| | Male | Female | Both Sexes | Male | Female | Both Sexes |
| No. of subjects | 447 | 282 | 729 | 440 | 263 | 703 |
| Average age | 18.7 | 18.4 | 18.6 | 19.3 | 19.1 | 19.2 |
| Living with family | 101 | 120 | 221 | 116 | 106 | 226 |
| alone | 346 | 161 | 507 | 323 | 156 | 479 |
| Entrance examination passed directly | 327 | 237 | 564 | 314 | 213 | 527 |
| not passed directly | 118 | 45 | 163 | 126 | 50 | 176 |
| Satisfaction with matriculation satisfied | 145 | 99 | 244 | 131 | 82 | 213 |
| not satisfied | 302 | 183 | 485 | 309 | 181 | 490 |
| Enthusiasm for studies enthusiastic | 93 | 59 | 152 | 90 | 59 | 149 |
| not enthusiastic | 352 | 222 | 574 | 347 | 203 | 550 |
| Having close friends have | 393 | 260 | 653 | 381 | 249 | 630 |
| not have | 52 | 22 | 74 | 57 | 14 | 71 |
| Subjective health conditions good | 283 | 180 | 463 | 274 | 159 | 433 |
| bad | 164 | 102 | 266 | 164 | 104 | 268 |

(M), 26% in Jan (M) (24% in all male students), 43% in Jun (F), and 40% in Jan (F) (42% in all female students). However, the percentage of students who were living alone in an apartment or boardinghouse was high. Concerning the difference between whether they passed the entrance examination directly upon graduation or not, the following percentages of students passed the entrance examination directly upon graduation: 73% in Jun (M), 71% in Jan (M) (72% in all male students), and 84% in Jun (F), and Jan (F) (83% in all female students). However, living with family or alone and the percentage of students who passed the entrance examination directly upon graduation did not significantly differ between students investigated in June 1998 and in January 1999.

With regard to the satisfaction with matriculation, the following percentages of students were satisfied with matriculation: 32% in Jun (M), 30% in Jan (M) (31% in all male students), 35% in Jun (F), and 31% in Jan (F) (33% in all female students). Concerning the enthusiasm for studies, the following percentages of students replied that they were very enthusiastic or slightly enthusiastic in studies: 21% in Jun (M), 21% in Jan(M) (21% in all male students), 21% in Jun (F), and 23% in Jan (F) (22% in all female students). The degree of satisfaction with matriculation and enthusiasm for studies did not significantly differ among freshmen regardless of the period after matriculation.

With regard to the presence or absence of close male or female friends, the following percentages of students replied that they had trusted friends to

whom their hopes and fears can be disclosed each other or that they had relatively close friends: 88% in Jun(M), 87% in Jan(M) (88% in all male students), 92% in Jun(F), and 95% in Jan(F) (93% in all female students). Thus, it was found that approximately 90% of university freshmen had close friends. In addition, the following percentages of students replied that their physical conditions were very or relatively well: 63% in Jun(M), 63% in Jan(M) (63% in all male students), 64% in Jun(F), and 60% in Jan(F) (62% in all female students).

Distribution of GHQ scores

The distribution of GHQ scores was evaluated in 819 male students (405 Jun (M) and 414 Jan (M)) and in 499 female students (256 Jun (F) and 243 Jan (F)) who completely replied to all items of GHQ30. Figure 1 shows the distribution of GHQ scores in male students classified by the time of investigation. Since the

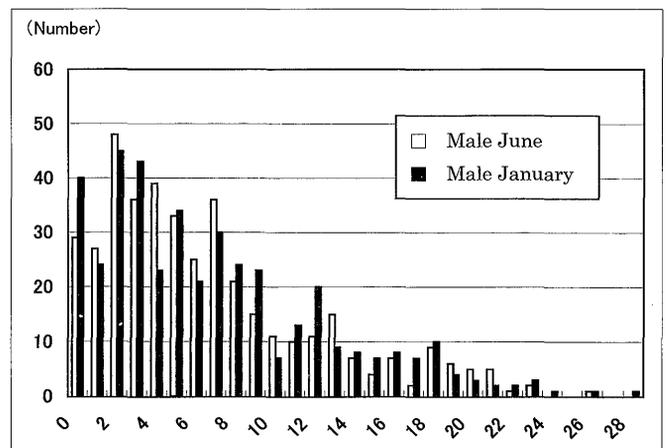


Figure 1. Number distribution of GHQ scores of male by investigation time.

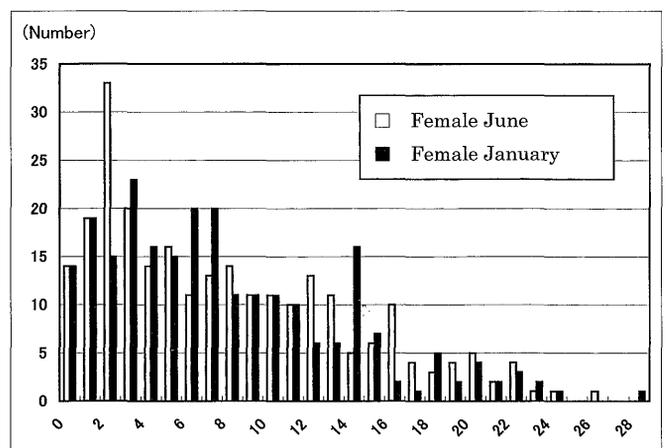


Figure 2. Number distribution of GHQ scores of female by investigation time

distribution of GHQ scores was biased to a lower level, the number of students who showed high GHQ scores was limited. Male students most frequently showed 2 points (11.9% in Jun (M)) and 10.1% in Jan (M)). As shown in Figure 2, the distribution of GHQ scores classified by the time of investigation was also biased to a lower level in female students. In addition, female students most frequently showed 2 points (12.9% in Jun (F) and 9.5% in Jan (F)). The frequencies of the score "0", were 7.2% for the June male group (Jun (M)) and 9.7% for the January male group (Jan(M)), 5.5% for the June female group (Jun (F)) and 5.8% for the January female group (Jan (F)).

Table 2 shows mean values, median scores and standard deviations of GHQ scores and percentages of students who showed high GHQ scores classified by the time of investigation and gender. Jun (F) and Jan (F) showed the highest mean score of 7.77, suggesting that female students show higher GHQ scores regardless of the time of investigation. In contrast, male students showed the following mean scores: 6.84 in Jan(M) and 6.62 in Jun (M). Therefore, it was found that mental health conditions did not significantly differ among university freshmen regardless of the period after matriculation. Percentages of students who showed GHQ scores of 8 or more were as follows: 45.3% in Jun (F), 41.6% in Jan (F), 37.0% in Jan (M), and 32.6% in Jun (M). The study in June 1998 demonstrated that the number of female students who showed GHQ scores of 8 or more was significantly greater than that of male students ($p<0.01$). When GHQ scores were compared between male and female students regardless of the time of investigation, the number of female students who showed GHQ scores of 8 or more was significantly greater than that of male students (34.8% in male students vs. 43.5% in female students, $p<0.05$).

Median scores of each group were 5 point in Jun(M) and Jan(M), 7 point in Jun(F), 6 point in Jan(M).

Table 2. Means and Medians of Total Score of the 30-Item GHQ with Percentage of High Score Students

| | June | | | January | | |
|------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | Male | Female | Both Sexes | Male | Female | Both Sexes |
| No. of Subjects | 405 | 256 | 661 | 414 | 243 | 657 |
| Mean \pm SD | 6.62 \pm 5.45 | 7.77 \pm 6.08 | 7.07 \pm 5.73 | 6.84 \pm 5.70 | 7.77 \pm 5.83 | 7.15 \pm 5.76 |
| Median | 5 | 7 | 6 | 5 | 6 | 6 |
| High score students(%) | | | | | | |
| Score \geq 8 | 32.6 | 45.3 | 37.5 | 37.0 | 41.6 | 38.7 |

Question items correlated with high GHQ scores

Among 13 general questionnaire items regarding the university life, the replies to 8 items, excluding 5 items such as branch questions regarding the year of matriculation, gender, and satisfaction with matriculation, and items that should be replied after ranking, were summarized after classification by the time of investigation and gender. Table 3 shows the results of logistic regression analysis by which question items correlated with high GHQ scores (≥ 8 points) were extracted. In male students investigated in June 1998, high GHQ scores negatively correlated with "subjective health conditions" ($p<0.001$), "satisfaction with matriculation" ($p<0.01$), and "enthusiasm for studies" ($p<0.01$). Also, high GHQ scores negatively correlated with "the failure of the initial entrance examination and enrollment after preparing for another chance" ($p<0.02$). The correlation between high GHQ scores and living with family or alone was evaluated, and high GHQ scores positively correlated with "living alone" ($p<0.02$). In male students investigated in January 1999, high GHQ scores negatively correlated with "subjective health conditions" ($p<0.001$) and "satisfaction with matriculation" ($p<0.01$). In female students investigated in June 1998, high GHQ scores negatively correlated with "subjective health conditions" ($p<0.001$), "satisfaction with matriculation" ($p<0.05$), and "enthusiasm for studies" ($p<0.05$). In female students investigated in January 1999, high GHQ scores negatively correlated with "subjective health conditions" ($p<0.001$) and "enthusiasm for studies" ($p<0.05$), although they positively correlated with "living with family or alone" ($p<0.05$) and "living alone". However, high GHQ scores did not correlate with the presence or absence of close friends.

Table 3. Results of Logistic Regression Analysis

| Question items | Significance | | | |
|----------------|--------------|--------|---------|--------|
| | June | | January | |
| | Male | Female | Male | Female |
| LW | * | NS | NS | ** |
| EE | * | NS | NS | NS |
| SM | ** | * | *** | NS |
| ES | ** | * | NS | * |
| HF | NS | NS | NS | NS |
| SC | *** | *** | *** | *** |

* $p<0.05$ ** $p<0.01$ *** $p<0.001$ NS means Not Significant.
Independent variables (High GHQ Score, not High GHQ Score)
Dependent variables (LW, EE, SM, ES, HF, SC)

LW means "Living With". EE means "Entrance Examination".
SM means "Satisfaction with Matriculation".
ES means "Enthusiasm for Studies". HF means "Having close Friends".
SC means "Subjective health conditions".

Results of factors analysis

Factor analysis was performed after classifying the replies to GHQ30 by the time of investigation and gender. As shown in Table 4, 2 factors consisting of more than 2 characteristic values were obtained in the following percentages of students : 35% in Jun (M) M6, 36% in Jan (M), 38% in Jun (F), and 37% in Jan (F). "Uselessness" was obtained as the first factor in all students, and the following items were respectively obtained as the second factor: "human relationship and low activity" in Jun (M), "low activity" in Jan (M), "intimacy and high-tension" in Jun (F), and "low-tension" in Jan (F).

Table 4. Result of Factor Analysis

| Item subscale | June | | | | January | | | |
|--|--------------------|-----|----------------------|-----|--------------------|-----|----------------------|-----|
| | Male ¹⁾ | | Female ²⁾ | | Male ³⁾ | | Female ⁴⁾ | |
| | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 |
| 1. Items of Able to concentrate | 45 | 21 | 52 | 17 | 52 | -1 | 39 | 22 |
| 2. Losing much sleep over worry | 43 | -34 | 44 | 26 | 44 | 26 | 49 | -31 |
| 3. Feeling mentally alert | 52 | -34 | 44 | 26 | 44 | 26 | 49 | -31 |
| 4. Feeling full of energy | 51 | 48 | 53 | -36 | 53 | -36 | 54 | 41 |
| 5. Having restless nights | 35 | -34 | 49 | 16 | 49 | 16 | 38 | -36 |
| 6. Managing to keep busy | 22 | 49 | 36 | -46 | 36 | -46 | 27 | 44 |
| 7. Getting out of the house | 26 | 40 | 26 | -33 | 26 | -3 | 16 | 31 |
| 8. Managing as well as most people would | 39 | 24 | 45 | 0 | 45 | 0 | 28 | 12 |
| 9. Doing things well | 53 | 39 | 64 | -28 | 64 | -28 | 64 | 30 |
| 10. Feeling warmth and affection | 34 | 52 | 43 | -53 | 43 | -53 | 37 | 49 |
| 11. Getting on with other people | 47 | 37 | 50 | -34 | 50 | -34 | 52 | 44 |
| 12. Feeling that playing a useful part | 53 | 45 | 55 | -51 | 55 | -51 | 59 | 42 |
| 13. Not capable of making decisions | 37 | 15 | 34 | 0 | 34 | 0 | 41 | 11 |
| 14. Feeling constantly under strain | 0 | -39 | 19 | 52 | 19 | 52 | 15 | -51 |
| 15. Not capable overcome | 43 | -42 | 43 | 46 | 43 | 46 | 49 | -39 |
| 16. Finding life a struggle all the time | 34 | -29 | 12 | 42 | 12 | 42 | 28 | -28 |
| 17. Enjoying day-to-day activities | 59 | 34 | 67 | -41 | 67 | -41 | 58 | 37 |
| 18. Taking things hard | 46 | -40 | 52 | 40 | 52 | 40 | 49 | -42 |
| 19. Getting scared or panicky | 47 | -37 | 47 | 42 | 47 | 42 | 61 | -23 |
| 20. Capable to face up to problem | 37 | 23 | 37 | -29 | 37 | -29 | 39 | 38 |
| 21. Everything getting top of you | 46 | -32 | 55 | 30 | 55 | 30 | 54 | -34 |
| 22. Feeling unhappy and depressed | 58 | -30 | 62 | 34 | 62 | 34 | 65 | -26 |
| 23. Losing confidence | 61 | -38 | 62 | 35 | 62 | 35 | 67 | -27 |
| 24. Feeling worthless | 58 | -27 | 56 | 44 | 56 | 44 | 59 | -23 |
| 25. Feeling life hopeless | 67 | -23 | 62 | 0 | 62 | 0 | 65 | -11 |
| 26. Feeling hopeful about future | 31 | 29 | 39 | -23 | 39 | -23 | 36 | 26 |
| 27. Feeling reasonably happy | 38 | 44 | 48 | -42 | 48 | -42 | 37 | 33 |
| 28. Feeling nervous | 48 | -38 | 52 | 44 | 52 | 40 | 54 | -43 |
| 29. Feeling life not worth living | 61 | -15 | 54 | 15 | 54 | 15 | 68 | 0 |
| 30. Unable to do because of bad nerve | 57 | -26 | 69 | 26 | 69 | 26 | 70 | -23 |

Male¹⁾ :Jun(M)
 Female²⁾ :Jun(F)
 Male³⁾ :Jan(M)
 Female⁴⁾ :Jan(F)

Discussion

With regard to the distribution of GHQ scores, Goldberg who has developed GHQ reported that the percentage of normal subjects who showed higher GHQ scores was limited since 56% of them showed 0 point. However, patients with severe psychosis tended to show higher scores since they did not show 0 point⁵⁾. In this study, university freshmen tended to show the distribution of GHQ scores shifted to a

lower level, and this finding was similar to that reported by Goldberg.

However, the percentage of students who showed higher GHQ scores was around 40% in all freshmen enrolled in this study, excluding Jun(M). In particular, approximately 50% of female students investigated in June 1998 showed higher GHQ scores. Therefore, it is considered that university freshmen are exposed to novel stressors even when they are freed from pressure of entrance examinations. Medalie reported that stepping into a new life without looking back into the past is important for university freshmen because the time of freshmen is the period of transition from the family member to the university community member⁷⁾. Medalie also noted that stepping into the new world after overcoming sorrow for losses is a theme of the freshman's university life. This is a psychological process called as "object loss" in the field of psychoanalysis⁸⁾. Object loss consists of an experience of losing various relationships with other people and objects, and an experience of losing part of oneself who was a high school student and living with other family members, as well as studying and playing with friends. Such loss experiences are reported to become the strongest stressor. In addition, Margolis reported that "secession from the familiarized world", "self-determination by free will", and "the acquisition of ability" are important issues during the period of university freshmen⁹⁾. However, these issues may become strong stressors until freshmen are familiarized with the university life because self-determination and the acquisition of novel ability require a lot of time, and because accumulation of some experiences is also needed.

Many university freshmen enrolled in this study were living alone, and they tended to develop mental disorders because household affairs such as cooking and washing, economical management, and homesick became stressors during their daily life. Although it was not used a question item in this study, a study conducted in the United Kingdom reported that good or bad economical conditions became the strongest stressor in university freshmen¹⁰⁾.

Many Japanese studies have investigated university freshmen. Based on their rich experiences in consultation from university students, Tsuruta reported that the university life within 1 year after matriculation is the period to be adapted to the university life, as well as the time of another orientation by overcoming agony and problems occurring during this period¹¹⁾. Studies, university life (circle activities and part-time jobs), human and parental relations were sub themes for adaptation to the university life. In Japan, the

entrance into a university is far more difficult than to graduate from the university. Therefore, most students preparing for the entrance examinations consider that the university life after matriculation is mentally very comfortable. However, the relief from studies for the entrance examinations is not equal to the relief from their agony, because young university freshmen are usually in troubles while they observe themselves during the process of growing to maturity.

This study failed to demonstrate that mental health conditions of university freshmen differ depending on the period after matriculation. This was because the first study was conducted in June, which was slightly late to evaluate the onset of "May disease", and because the second study conducted in January might be influenced by the subsequent second term examinations. However, if "May disease" occurred in university freshmen in this study, lower GHQ scores might have been obtained in June. However, the onset of "May disease" might not be evaluated by GHQ, or students with mental disorders might have dropped out of the university in June. Moreover, the results of this study may suggest the prevalence of "May disease". If it is true, such mental conditions in university freshmen cannot be collected as "May disease".

With regard to sex difference, mental health conditions in female students investigated in June 1998 and in January 1999 were lower than those of male students. Some previous studies have reported that female students showed higher GHQ scores than males¹⁾. This might be because the trend of personality, responses to environmental changes, and the significance of the relationship with friends differ between male and female students. Myers et al. reported that the prevalence rate of mental disease was higher in females between 18 and 24 or between 25 and 44 years of age, although it halved in those above 45¹²⁾. Watanabe reported the similar tendency because the frequency of mental disorders and neurosis peaked in young women¹³⁾. If young women have a tendency to exhibit various mental symptoms such as the feeling of insufficiency, high-tension, depression, or anxiety, the results of this study also suggest the similar tendency.

The results of factor analysis demonstrated that "uselessness" was the greatest factor that influenced male and female university freshmen regardless of the time of investigation, followed by the influence of "high-tension", "low activity", and "human relationship". That is, "Feeling that life is entirely hopeless" (item number 25), "Feeling that life isn't worth living" (No.29), and "Losing confidence in oneself"(No.23) frequently influenced male students investigated in June,

whereas "Losing confidence in oneself" (No.23), "Incapable enjoying normal day-to-day activities" (No.17), and "Incapable doing anything because of one's nerves were too bad" (No.30) frequently influenced male students investigated in January. In addition, "Incapable doing anything because of one's nerves were too bad" (No.30), "Incapable enjoying normal day-to-day activities" (No.17), and "Incapable doing things well" (No.9) frequently influenced female students investigated in June, whereas "Incapable doing anything because of one's nerves were too bad" (No.30), "Feeling that life isn't worth living" (No.29), and "Losing confidence in oneself" (No.23) frequently influenced female students investigated in January. Although all freshmen were freed from the imminent obstacle of entrance examinations, the degree of satisfaction with matriculation was limited. Therefore, most university freshmen without enthusiasm and tension may be puzzled what to do if they cannot find the next goal.

Next, we evaluated question items correlated with high GHQ scores. Among 4 groups of university freshmen, high GHQ scores negatively correlated with "subjective health conditions", probably because the questionnaire included items regarding physical health conditions during the last 1 month such as "sleeplessness" (No.2) and "Feeling full of energy" (No.4). This may sufficiently support the results of GHQ. In addition, "satisfaction with matriculation" negatively correlated with high GHQ scores in Jun (M), Jan (M), and Jun (F), while "enthusiasm for studies" negatively correlated with high GHQ scores in Jun (M) Jan (M), Jun (F), and Jan (F).

In November 1998, a mailed questionnaire survey conducted on randomly selected 1,791 students in A university (recovery rate: 77.9%) demonstrated that 34% of students were somewhat dissatisfied with the university, department, and school subjects¹⁴⁾. This was because of the following reasons: the exclusive field of study they selected was not appropriate for them (34%); lectures they attended were not interesting (20%); and they had future anxiety about getting a job (16%). In particular, 44% of all students investigated were dissatisfied with lectures they attended mostly because the details of lectures were not interesting or were too difficult. Since reduced enthusiasm for studies and the degree of satisfaction may influence each other, mental problems may persist if the current situation does not change compared to that immediately after matriculation.

With regard to living with family or alone in Jun (M) and Jan (F), high GHQ scores positively correlated with living alone. In male students, inconvenience of

living alone may be rapidly manifested as physical inconvenience such as unfamiliar household affairs. In contrast, inconvenience of living alone may gradually be manifested as loneliness (psychological inconvenience) such as homesick in female students.

It was unexpected that the presence or absence of close friends was not correlated with the occurrence of mental problems in any of these 4 groups. Based on the findings of many social support studies, the relationship with friends has been reported to relieve stress because it tends to be maintained by strong mental connection^{15, 16, 17, 18, 19)}. Although students who had no friends were thought to easily complain of mental disorders as they might strongly feel lonely, the results of this study did not support this hypothesis. Recently, thin relationship with friends that allows the avoidance of close communication with friends by maintaining some psychological distance has been reported, suggesting images of young university students who are wary of injuring friends or being injured by friends despite the fear of isolation. Nakazono investigated 168 university students, and reported that students who avoided the relationship with others did not ask their friends for support, and that the presence or absence of friendly support correlated with mental health conditions in students who were concerned about others¹⁵⁾.

Although approximately 90% of male and female students replied that they had close friends, the results of this study did not demonstrate that the presence of close friends exerted a favorable influence on their mental health conditions. However, the findings obtained in this study may be identical to novel images of university students reported by previous studies. Since friends in the university were not differentiated from friends before matriculation, it might not be evaluated whether they made friends in the university and whether the presence or absence of university student friends influenced the occurrence of mental disorders. With regard to the adaptation to the university life and the relationship with friends, further accumulation of studies is needed in the future.

Toyoshima et al. investigated overall life events occurred during high school and university lives and the state of adaptation to the university life in approximately 1,000 national university freshmen in Aomori Prefecture²⁰⁾. As a result, freshmen who were not adapted to the university life within 1 year after matriculation despite the presence of well-adaptive feeling immediately after admission were characterized by the following issues: (1) the absence of subjective involvement in studies during the high school period; (2) early restriction of their first choice university

during the process of determining their future course without attaching much importance to their aptitude and academic specialty; (3) limited degree of satisfaction with matriculation; (4) absence of concrete images of future courses and careers after graduation from the university; and (5) limited prospect of realizing activities that they wanted to do after matriculation. Toyoshima et al. also reported that students without the adaptive feeling would be adapted to the university thereafter if they had characteristics other than those described above.

In A university, psychiatrists briefly interview with all freshmen. In addition, a chair of health care was established as an obligatory subject to give a lecture on mental health. In addition to the orientation immediately after matriculation, another orientation for supporting the adaptation to the university life based on the results of this study and various previous studies may be useful for all university freshmen. Furthermore, I would like to propose that screening of students by the cooperation of faculties in charge, administrative officials, counselors, and physicians based on the results of interview, lecture reports, and questionnaire surveys is important to detect predictive factors of adaptation to the university life.

Conclusions

Using GHQ30, we evaluated whether the difference in the investigation time after matriculation influenced mental health standards in 1,432 university freshmen. The results were statistically analyzed after classification by gender, and the following findings were obtained.

- 1) Regardless of the period after matriculation, all female students showed the mean GHQ score of 7.77, whereas male students investigated in June 1998 and in January 1999 respectively showed mean GHQ scores of 6.62 and 6.84.
- 2) The percentage of female students who showed a GHQ score of 8 points or more, which was reported to show the presence of mental problems, was higher than that of male students (32.6% in Jun (M) and 37.0% in Jan (M) vs. 45.3% in Jun (F) and 41.6% in Jan (F)).
- 3) "Uselessness", "high-tension", "human relationship", and "low activity" were obtained as factors closely associated with the occurrence of mental problems.

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