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A study of lifestyle and dietary habits in Japanese nursing students

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Abstract: This study aimed to reveal the relationship between nursing students' lifestyle and dietary habits. We provided a questionnaire to 1st year and 4th year nursing and non-nursing college students. In 4th year nursing students, we found that lifestyle, dietary habit, and eating disorder correlate closely. We determine that lifestyle and dietary habits in 4th year nursing students are affected by a stress reaction and psychological tension caused by the rigors of clinical nursing practice and preparation for a national board examination. We argue that by correcting lifestyle and dietary habits in 4th year nursing students, it may be possible to prevent the development of eating disorders.
Keywords: eating disorder, lifestyle, dietary habits, nursing school students, psychological tension, stress reaction.

INTRODUCTION

Feeding behaviors such as eating disorders are frequent occurrences from the late teens into the early 20s. Many female college students have feeding behavior problems that can be called eating disorders or the precursors of an eating disorder [1]. The causes of eating disorder development include life stresses and complications that may take place in anyone, including the stress of living alone and university maladjustment [2]. Moreover, stress causes deviations in feeding behavior more frequently in females than in males, and females are more likely to cope by eating when under stress [3]. Stress reactions and psychological tension in nursing students in clinical nursing practice is higher than in non-training students, because of the amount of time taken to describe clinical practice records and in relations with clinical staff [4]. It has been reported that students living with a family and students with more social interaction with other students have a lower stress reaction than students living by themselves and with little social interaction [4].

It is believed that nursing students suffering from stresses related to clinical nursing practice and national board examination preparation are at increased risk of developing an eating disorder and coping with stress by eating [4-7].There are also many students with feeding behavior problems who are current or potential eating disorder patients [1-3]. Factors in the nursing school environment may contribute to the development of eating disorders [4-7]. By improving student lifestyle, we may reduce these risks and the likelihood that stress will result in deviations in feeding behavior.

Risk factors for eating disorders include attempts to cope with stress, a sense of insufficiency, and a desire to become thin [3,8]. However, it is not obvious whether a student's lifestyle is connected with the risk of developing an eating disorder. Making the link between lifestyle and eating disorder clear would suggest that we could intervene in the development of an eating disorder in ways other than those involving dietary habits, and that prophylaxis against eating disorders would be possible by improving lifestyle at an early stage. We consequently aimed to study the lifestyle and dietary habits of nursing and non-nursing students and to assess the risk factors for eating disorders.

METHODS

Design and Participants

This study was a cross-sectional survey using a self-completed questionnaire. The subjects were 90 1st and 4th year nursing students at the Kyoto Prefectural

University of Medicine, and 95 1st and 4th year non-nursing students at the Department of Law, R University. The study was carried out between 1 September and 30 November 2013.

Data collection and analysis

The questionnaire distributed contained the eating disorder rate scale [9] and lifestyle questionnaire [10]. The eating disorder rate scale consists of four factors by a principal factor method and varimax rotation.

In the eating disorder scale, we asked each question item in four steps. An answer of "Always" scored 4 points, "Often" scored 3 points, "Sometimes" scored 2 points, and "Never" scored 1 point. We calculated the total points for each factor (1st factor: 36 points, 2nd factor: 36 points, 3rd factor: 16 points, 4th factor: 12 points). Four different diet quality scores were calculated. Factor 1 measured "a life predominated by hyperphagia and meals", Factor 2 "fear of obesity", Factor 3 "tension related to eating", and Factor 4 "vomiting". We further computed the total of 12 items related to factors 1 and 3, and set 23 or more points in the responses to these items as a cut-off point for an eating disorder.

The results of the lifestyle questionnaire measured lifestyle and dietary habits. Answers of "It is good" scored 3 points, "Usually" scored 2 points, and "It is bad" scored 1 point. We calculated the total points for each parameter, and presuppose that a high total score indicates a healthy lifestyle.

The differences between groups in the eating disorder scale, dietary habits, and lifestyle were analyzed using the Wilcoxon test. We evaluated the intergroup weight of the eating disorder scale and the frequency distribution of the lifestyle questionnaire using the chi-squared test. Moreover, the relationship between eating disorders, dietary habits, and lifestyle was analyzed using the correlation coefficient and testing the interaction with the ANCOVA model. Significance was set at $p < .05$, two-tailed.

Ethical consideration

This study received ethical approval from the Institutional Review Board of the Kyoto Prefectural University of Medicine (notice number of determination: ERB-E-33). The students received an information sheet that explained the study's purpose and methods, and were given oral assurance that participation was voluntary and that their personal information would be kept confidential during and after the study.

RESULTS

Eating disorder scale

The result of the eating disorder scale is shown in Table 1. We found significant differences in the 2nd, 3rd, and 4th factors between 1st-year and 4th-year nursing students ($p<.05$). There were no significant differences between 1st factor and the 1st+3rd factor. 35.6% of 4th year nursing students and 44.4% of 1st year nursing students passed the eating disorder cut-off of 23 or more points, but this difference was not significant.

There was a significant difference between 1st year nursing and non-nursing students in the 4th factor ($p<.01$). In the response to the 4th factor question "I have the impulse to vomit after a meal", non-nursing students more frequently responded "always" and "often" ($p<.01$). Individuals in the 23-point cut-off eating disorder group were 44.4% of nursing students and 50% of non-nursing students (not significant).

Significant differences were seen in the 2nd factor ($p<.05$) and the 3rd factor ($p<.01$) between 4th-year nursing and non-nursing students. The 2nd factor question "I use purging" had more frequent responses of "always" and "often" in 4th-year non-nursing students ($p<.05$). The 23-point cut-off eating disorder group comprised 35.6% of nursing students and 50% of non-nursing students (not significant).

Table 1. Eating disorder factor (Average ±Standard deviation)

	Nursing 1st year (n=45)	Nursing 4th year (n=45)	Non-nursing 1st year (n=50)	Non-nursing 4th year (n=45)	Wilcoxon testing result Nursing 1st-4th year / Nursing -nonnursing 1st year / Nursing - nonnursing 4th year
The 1st factor	17.69 ±6.03	15.91 ±5.01	16.66 ±5.46	14.60±4.36	n.s./n.s./n.s.
The 2nd factor	17.67 ±4.73	13.20±4.13	18.90 ±5.52	15.87 ±5.39	*/n.s./*
The 3rd factor	5.53±1.49	5.07±2.21	5.62±1.83	6.27±2.34	*/n.s./**
The 4th factor	3.11 ±0.38	3.51±0.99	3.96±1.54	3.42±0.81	*/**/n.s.
The 1st +3rd factor	23.22 ±6.01	20.98 ±5.40	22.28 ±6.10	20.87 ±4.99	n.s./n.s./n.s.

*: $p<0.05$, **:$p<0.01$, n.s.:not significant

Lifestyle questionnaire (lifestyle and dietary habits)

The results of the lifestyle questionnaire are shown in Table 2. A significant difference in lifestyle was seen between 1st year and 4th year nursing students (p<.05). The frequency of the response "Yes" to the question "Do you wake up at a fixed time" was 11.1% in 4th year nursing students and 46.7% in 1st-year nursing students (p<.05). The frequency of the response "6 hours or more" to the question "How many hours of sleep do you get" was 48.9% in 4th year nursing students and 62.4% in 1st year nursing students (p<.05).

A significant difference was seen in lifestyle between 4th year nursing and non-nursing students (p<.05). The frequency of the response "6 hours or more" to the question "How many hours of sleep do you get" was 48.9% in 4th year nursing students and 4.4% in 4th year non-nursing students (p<.01). The frequency of the response "6 hours or more" to the question "How many hours do you study per day on average" was 86.7% in 4th year nursing students and 60.0% in 4th year non-nursing students (p<.01). The frequency of the response "6 hours or more" to the question "How many hours daily are working hours, such as a part-time job" was 20.1% in 4th year nursing students and 60.0% in 4th year non-nursing students (p<.01). The frequency of the response "Yes" to the question "Is your sleep or meal life rhythm influenced by unavoidable situations, such as a part-time job and training" was 77.8% in 4th year nursing students and 57.8% in 4th year non-nursing students (p<.05). The frequency of the response "No" to the question "Is your meal timing regular" was 26.6% in 4th year nursing students and 48.9% in 4th year non-nursing students (p<.05).

Table 2. Lifestyle and dietary habit (Average ± Standard deviation)

	Nursing 1st year (n=45)	Nursing 4th year (n=45)	Non-nursing 1st year (n=50)	Non-nursing 4th year (n=45)	Wilcoxon testing result Nursing 1st-4th year / Nursing -nonnursing 1st year / Nursing -nonnursing 4th year
Lifestyle	30.04±2.73	28.80±2.50	27.00±2.10	27.20±2.40	*/n.s./*
Dietary habit	11.20±2.06	12.24±2.00	11.76±1.38	12.42±1.69	n.s./n.s./n.s.

*: p<0.05, **:p<0.01, n.s.:not significant

The relationship between eating disorders, lifestyle and dietary habits

The relationship detected by correlation coefficient between eating disorders, lifestyle and dietary habits is indicated in Table 3A. In 4th year nursing students, there was a significant relationship between eating disorder and lifestyle (p<.05), lifestyle and dietary habits (p<.01), and dietary habits and eating disorder (p<.01). In 1st year nursing students, there was a significant relationship between eating disorder and lifestyle (p<.05). In 1st year non-nursing students, there was a significant relationship between eating disorder and lifestyle (p<.05) and eating disorder and dietary habits (p<.05). No significant relationships were found in 4th year non-nursing students.

The interaction model of relationship in Table 3B between eating disorder and lifestyle showed a significant difference between 4th year and 1st year nursing students (p<.01) and 1st year nursing and non-nursing students (p<.01). This method also indicated a significant difference between 4th year nursing and non-nursing students in the relationship between eating disorder and dietary habits (p<.01) as well in the between lifestyle and dietary habits in 4th year and 1st year nursing students (p<.01) and 1st year nursing and non-nursing students (p<.01).

Table- 3: A relationship of an eating disorder, a lifestyle and a dietary habit

A.Correlation coefficient

	Eating disorder and Lifestyle	Eating disorder and Dietary habit	Lifestyle and Dietary habit
Nursing 4th year	0.31*	0.50**	0.51**
Nursing 1st year	−0.29*	0.18	−0.26
Non-nursing 4th year	0.16	−0.08	0.09
Non-nursing 1st year	0.32*	0.36*	0.27

*: p<0.05, **:p<0.01

B.Test interaction

	Eating disorder and Lifestyle	Eating disorder and Dietary habit	Lifestyle and Dietary habit
Nursing 4th year v.s. Non-nursing 4th year	p=0.43	p<0.01	p=0.06
Nursing 4th year v.s. Nursing 1st year	p<0.01	p=0.13	p<0.01
Nursing 1st year v.s. Non-nursing 1st year	p<0.01	p=0.14	p<0.01

DISCUSSION

It is reported that 19.4% of nursing students and 15.3% of non-nursing university students suffer from eating disorders [11]. As mentioned, risks of an eating disorder include coping mechanisms to reduce stress [3,8]. Final year nursing students are more likely to experience stressors related to relationships with clinical staff and clinical competence assessment [6]. Stress levels contribute to physical and psychological distress in nursing students [4,5,7]. There is a concern that the added demands of modern nursing programs place the student under greater pressure because of competing demands [6]. This study investigated the lifestyle and dietary habits of nursing and non-nursing students and estimated the risk factors for developing an eating disorder in nursing students.

By mean total points, the groups from best to worst healthy life habits were 1st year nursing, 4th year nursing, 4th year non-nursing, and 1st year non-nursing. A significant difference was seen in lifestyle between 4th year and 1st year nursing students. A significant difference was seen in lifestyle between 4th year nursing and non-nursing students. Long sleep hours and a regular diet are considered to be the backbones of healthy student life. 4th year nursing students had longer studying hours, while 4th year non-nursing students' working hours, such as at a part-time job, were longer. We suggest that clinical training and study hours have an unavoidable effect on the life rhythm of 4th year nursing students.

In nursing students, while a significant relationship between eating disorder and lifestyle was observed between 4th year and 1st year students, there was no relationship in non-nursing students. Consequently, we suggest that it is a particular trait of nursing students that eating disorder and lifestyle have a relationship. The relationship varies between 4th year and 1st year students, and it appears that the link between lifestyle and dietary habits is stronger in 4th year nursing students. Moreover, lifestyle and dietary habits are affected by stresses including clinical nursing practice and study for a national board examination. We argue that this situation results in a link in 4th year nursing students between lifestyle and a dietary habit. A health education intervention is effective at modifying the dietary habits of adolescents [12]. It is therefore probable that we can prevent the development of an eating disorder by correcting lifestyle and dietary habits in 4th year nursing students.

CONCLUSION

1. In lifestyle, the mean total points of each group demonstrate the following ranking from most to least healthy life habits: 1st year nursing students, 4th year nursing students, 4th year non-nursing students, and 1st year non-nursing students.
2. In 4th year nursing students, lifestyle, dietary habit, and eating disorder correlate closely. Lifestyle and dietary habits are affected by stresses including clinical nursing practice and preparation for a national board examination. By correcting lifestyle and dietary habits in 4th year nursing students, we suggest that it may be possible to prevent the development of eating disorders.

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