ปัจจัยที่สัมพันธ์กับภาวะสุขภาพจิตของนักศึกษาพยาบาลเวียดนาม
Factors Related to Mental Health among Vietnamese Nursing Students

นิพนธ์ต้นฉบับ

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Original Article

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บทคัดย่อ

วัตถุประสงค์: เพื่อศึกษาภาวะสุขภาพจิตและความสัมพันธ์ของภาวะสุขภาพจิตกับปัจจัยที่เกี่ยวข้องได้แก่ ความสำเร็จในการเรียนโดยพิจารณาจากเกรดเฉลี่ยสะสม เชาว์อารมณ์ ความภูมิใจแห่งตน และการสนับสนุนทางสังคม ในนักศึกษาพยาบาลของมหาวิทยาลัยแห่งหนึ่งในประเทศเวียดนาม **วิธีการศึกษา:** การวิจัยแบบภาคตัดขวางนี้ทำในนักศึกษาพยาบาล 110 คน ปีการศึกษา 2015 โดยการสุ่มแบบง่าย แบบสอบถามประกอบด้วย 1) ข้อมูลทั่วไป รวมทั้งเกรดเฉลี่ยสะสม 2) แบบวัดเชาว์อารมณ์ Schutte Emotional Intelligence Scale 3) แบบวัดความภูมิใจแห่งตน Rosenberg Self-esteem Scale 4) การสนับสนุนทางสังคม Personal Resource Questionnaire 2000 และ 5) แบบวัดภาวะสุขภาพจิต Mental Health Inventory ฉบับย่อ 18 ข้อ แบบวัดที่ 2 ถึง 5 มีค่าสัมประสิทธิ์แอลฟาเท่ากับ 0.83, 0.81, 0.86 และ 0.80 ตามลำดับ วิเคราะห์ข้อมูลโดยสถิติเชิงพรรณนาและค่าสหสัมพันธ์ของเปียร์สัน **ผลการศึกษา:** ภาวะสุขภาพจิตของนักศึกษาพยาบาลกลุ่มนี้อยู่ในระดับปานกลาง มีค่าเฉลี่ยเท่ากับ 64.91 (± 7.57) ส่วนค่าเฉลี่ยของ เกรดเฉลี่ยสะสม เชาว์อารมณ์ ความภูมิใจแห่งตน และการสนับสนุนทางสังคม เท่ากับ: 2.82 (± 0.21), 127.00 (± 13.7), 25.86 (± 3.42), และ 80.62 (± 10.78) ตามลำดับ ภาวะสุขภาพจิตมีความสัมพันธ์ทางบวกกับเกรดเฉลี่ยสะสม (*r* = 0.24, *P* < 0.01), เชาว์อารมณ์ (*r* = 0.26, *P* < 0.01) ความภูมิใจแห่งตน (*r* = 0.33, *P* < 0.01), และ การสนับสนุนทางสังคม (*r* = 0.37, *P* < 0.01). **สรุป:** ผลการศึกษาทำให้ทราบระดับภาวะสุขภาพจิตและปัจจัยที่เกี่ยวข้องกับภาวะสุขภาพจิตในนักศึกษาพยาบาลชาวเวียดนาม อาจนำไปประยุกต์เพื่อพัฒนาคุณภาพการจัดการศึกษา ตลอดจนพัฒนากิจกรรมหรือโครงการเพื่อส่งเสริมภาวะสุขภาพจิตในนักศึกษาพยาบาลเหล่านี้

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Abstract

Objectives: To examine mental health and testing its relationships with including education achievement (cumulative Grade Point Average; GPA), emotional quotient, self-esteem, and social support among nursing students from one particular university located in Vietnam. **Method:** In this cross-sectional study, 110 baccalaureate full-time nursing students in the academic year 2015 were included using simple random sampling technique. Self-report questionnaires were used to collect data, including 1) cumulative GPA, 2) the Schutte Emotional Intelligence Scale, 3) the Rosenberg Self-esteem Scale, 4) the Personal Resource Questionnaire 2000, and 5) the 18-item version of Mental Health Inventory. The scales number 2 to 5 yielded Cronbach's alpha coefficients of 0.83, 0.81, 0.86, and 0.80, respectively. Data were analyzed using descriptive statistics and Pearson's product-moment correlation coefficient. **Results:** Mental health was at a moderate level with a mean score of 64.91 (± 7.57). Mean scores of GPA, emotion quotient, self-esteem, and social support were 2.82 (± 0.21), 127.00 (± 13.7), 25.86 (± 3.42), and 80.62 (± 10.78), respectively. Their mental health was positively correlated with GPA (*r* = 0.24, *P* < 0.01), emotional quotient (*r* = 0.26, *P* < 0.01), self-esteem (*r* = 0.33, *P* < 0.01), and social support (*r* = 0.37, *P* < 0.01). **Conclusion:** This study's results provided baseline information regarding mental health and its related factors among Vietnamese nursing students. It could be used to improve nursing education and to develop the proper programs aiming at promoting mental health among these nursing students.

Keywords: mental health, nursing students, Vietnam

Introduction

Nursing plays a significant role in the healthcare system. Nursing students are the future professional healthcare staff who will provide care as well as support patients physically and psychologically. Thus, the students themselves should also have good mental health, which is one of the significant health components.[1]

There have been various studies that explored mental health among nursing students worldwide.[2,3] The prevalence of mental health problems or negative mental health among this population was varied. According to data from some epidemiologic studies among nursing students in China, 7.7% to 28.7% of the students experienced mental health problems.[2,3] Another study was conducted to examine the mental health of 1,686 first-year medical sciences students in Iran using the General Health Questionnaire-28 (GHQ-28). The results revealed that 35.7% of the students had mental health problems. Among them, nursing students showed the highest percentage of those who experienced mental health

problems.[4] Depression and anxiety have been documented as the most common mental health problems among nursing students in several studies.[5-7] A high prevalence of depression was found among nursing students in China, Kenya and India.[8-10] Other studies also found a high prevalence of anxiety among this population in the United States and Iran.[5,6] This was due to nursing students having to face challenges like most of other college students, such as accommodation, interpersonal relationships, parental pressure, financial burden, and as well as the students' concerns about the future. Additionally, the nursing students had more stressful academic learning and other psychological stressors.[11-13]

Mental health problems not only caused negative impacts on the students' lives, but also on their families and society. Suicide is one of the serious negative effects caused by mental health problems found in nursing students. Notably, a study was conducted in 142 nursing students of the Technological Educational Institute of Thessaloniki in Greece,[14] and it revealed that 43.9% of them reported depressive symptoms. Also, 10.6% said that they had suicidal ideation, but they didn't act on them, while two students (1.4%) declared that they could have done it if they had the chance to do so.

Mental health is one of the significant components of an individual's health, and it is related to both individual and environmental factors.[1,7,15] The three most promising individual factors associated with mental health among nursing students include education achievement,[16] the emotional quotient,[17] and self-esteem.[1] In addition, another environmental factor, which has a significant relationship with the mental health of this population, is social support.[15,18]

Previous studies in many countries have also reported that there was a significant relationship between educational achievement and mental health among nursing students.[10,19] Parvizrad et al.[17] stated that better GPAs were significantly associated with less mental health problems. Conversely, students who had poor educational achievement were more likely to be stressed. When the stress lasts for a long time, it might lead to depression or other mental problems.[7] In addition, the students with better emotional quotients reported less subjective stress and experienced better mental health.[17] This meant that the students who acknowledged their emotions and were able to regulate their emotions somehow had lower stress in their tasks or

studies.[20] Thus, they would be at a low risk to develop mental health problems.

Another significant individual factor associated with mental health among nursing students is self-esteem.[21,22] Ni et al.[1] revealed that self-esteem served as a protective factor contributing to positive mental health among the students. Those with higher self-esteem tended to have a positive evaluation towards themselves, have more confidence,[23,24] and report fewer days of mental health problems per month than those with lower self-esteem. Another study of Rosenfield, Lennon, and White[25] also found that low self-esteem was closely related to anxiety and depression.

Social support was found in many studies to be related to positive mental health, as it acted as a buffer against mental health problems among college students.[26] Nursing students with more social support reported better mental health.[27] A lack of social support made the individuals feel rejected or outcast since they perceived themselves as a loser, a failure, and a depressed person, and they even isolated themselves from others.[28] If these conditions were last for a long period of time, they could lead the students to have mental health problems.

Even though there have been various studies world-wide focusing on the mental health of nursing students, studies in Vietnam have been limited. Those few studies[29-32] conducted with Vietnamese students included the studies of Do[29], Nguyen[30], Thai[31] and Huong et al.[32] Of those studies, only the study of Huong et al.[32] was conducted with nursing students where a high incidence of depression (45.6%) among nursing students was found. Because of the importance of nursing students who will be the professional care providers in the near future, as well as the alarming issue regarding the mental health problems experienced by these students, the researchers were encouraged to conduct this study to determine the mental health and to test its relationships with related factors, including, education achievement, emotional quotient, self-esteem, and social support among Vietnamese nursing students.

Methods

Design and study settings

A cross-sectional design was employed in this study. Data collection was performed at the Faculty of Nursing of

one particular university located in the North of Vietnam from June to July, 2015.

Sample

The population of this study encompassed 292 baccalaureate full-time nursing students (Year 1 to Year 4) who were studying at one university in Vietnam in the academic year 2015. Based on the formula postulated by Thorndike,[33] there were 100 nursing students included in the sample. As data collection was based on self-report questionnaires, therefore, the researcher included an additional 10% of the sample needed.[34] resulting in the final sample size of 110 nursing students. Inclusion criteria for these participants included: 1) an age of at least 18 years, 2) having no history of mental illness as diagnosed by a psychiatrist, and 3) being willing to participate in the study. The simple random sampling technique was used.

Instruments

The instruments for data collection in this study were self-report questionnaires to capture data regarding nursing students' characteristics, educational achievement, emotional quotient, self-esteem, social support, and the mental health of nursing students.

Nursing students' characteristics

Nursing students' characteristics questionnaire was developed by the researchers. This questionnaire included nursing students' age, gender, and years of study, their satisfaction in relationships with friends and teachers, and how they chose to study nursing (choosing by themselves or suggested by others). The participants were asked to indicate their satisfaction levels towards their relationships with friends and teachers with 4 levels of response given (1 = dissatisfied, 2 = somewhat dissatisfied, 3 = somewhat satisfied, and 4 = satisfied). The educational achievement of nursing students was indicated by looking at the nursing students' cumulative GPA. In this study, the data collection was conducted during the second semester of the academic year 2015. Therefore, for the first year students, the cumulative GPA was only the academic results obtained from the first semester. For the students in the second, third, and fourth years of study, they were asked to report their cumulative GPA from their first semester to the recent semester. According to the Hai Duong Medical Technical University, the GPA of nursing students is calculated on both

scales of 10 and 4. In this study, the GPA of the participants was based on the scale of 4. The details of GPA in the 4-point scale for the bachelor's degree can be interpreted as follows: 3.5 - 4.0 as excellent, 3.0 - below 3.5 as very good, 2.5 - below 3.0 as good, 2.0 - below 2.5 as satisfactory, 1.5 - below 2.0 as pass, and below 1.5 as unsatisfactory.

Emotional quotient

Emotional quotient of nursing students was assessed using the Schutte Emotional Intelligence Scale (SEIS) developed by Schutte et al.[35] This instrument contains 33 items which measure four dimensions of emotional quotient: the perception of emotions (items 5, 9, 15, 18, 19, 22, 25, 29, 32, and 33), the self-regulation of emotions (items 2, 3, 10, 12, 14, 21, 23, 28, and 31), the regulation others' emotions (or social skills) (items 1, 4, 11, 13, 16, 24, 26, and 30), and utilizing emotions (items 6, 7, 8, **17**, 20, and 27). Each item was assessed on a 5-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). The total score was computed by first reversing the scores for items 5, 28, and 33, and then totaling all 33 items. The total score can range from 33 to 165, with higher total scores indicating a higher emotional quotient**.** The total level of scores and the total level of each dimension were classified into 3 levels, including low, moderate, and high levels by dividing the difference of maximum and minimum of the possible range by 3.[36] In this study, a high internal consistency reliability of the scale was achieved (Cronbach's alpha coefficient of 0.83).

Self-esteem

Self-esteem of nursing students was assessed using the Rosenberg Self-Esteem Scale (RSES).[37] This scale is composed of 10 items, in which each item is scored on a four-point Likert-type scale ranging from 1 to 4 (1 = strongly disagree, 2 = disagree, 3 = agree, and 4 = strongly agree). The scores were calculated by adding all the items. Five items (item 2, 5, 6, 8, and 9) were reversed from 4 to 1. The total score can range from 10 to 40, with higher scores representing higher self-esteem. The levels of self-esteem in relation to ranges of the scores low (10 – 20 points), moderate (21 – 30 points), and high (31 – 40 points). In this study, a high internal consistency reliability of the scale was achieved (Cronbach's alpha coefficient of 0.81).

Social support

Social support of nursing students was measured using the Personal Resource Questionnaire 2000 (PRQ2000), developed by Weinert.[38] This instrument consisted of 15 items, and used the Likert-type scale, which had scores ranging from 1 (strongly disagree) to 7 (strongly agree). The total score was calculated by adding all items with a possible range of 15 to 105. Higher scores indicated higher levels of perceived social support. Based on the recommendation of Federick[36], social support total score was divided into 3 levels including low, moderate, and high in correspondence with 15 – 44, 45 – 74 and 75 – 105 points, respectively. A high internal consistency reliability of the scale was achieved with a Cronbach's alpha coefficient of 0.86.

Mental health

Mental health of the nursing students was measured using the 18-item version of the Mental Health Inventory (MHI-18). This version was modified from the original 38-item scale which was developed by Veit and Ware,[39] and was used for the assessment of mental health of the general population. Participants were asked to indicate how often they had experienced various emotions over the past month. It contained 18 items. They were divided into 4 subscales, including anxiety (items 4, 6, 10, 11, and 18), depression (items 2, 9, 12, and 14), behavioral control (items 5, 8, 16, and 17), and positive affect (items 1, 3, 7, 13, and 15). Each item had a 6-point Likert-typr scale ranging from 1 (all of the time) to 6 (none of the time). Eight items (item 1, 3, 5, 7, 8, 10, 13 and 15) were reversed from 6 to 1. The total scores of this scale can range from 18 to 108, with higher scores indicating better mental health. In terms of the scores for each subscale, higher scores of positive affect subscale indicate a more positive mental health; while higher scores of negative affect subscales, including anxiety, depression, and behavioral control mean more negative mental health, or greater psychological distress. In dividing the score into 3 levels, including low, moderate and high, this study used the method recommended by Federick.[36] This scale also achieved a high internal consistency reliability in our study with a Cronbach's alpha coefficient of 0.80.

Data collection procedures

A human subject's approval was obtained from the Ethical Approval Committee, Faculty of Nursing, Burapha University, Thailand (IRB No. 13-05-2558). After the rector of the study University in Vietnam granted allowance, the process of data collection was begun. Nursing students who met the study criteria and agreed to participate in the study signed a consent form. Then, the researcher made an appointment with them after they finished their usual classes. At the appointment, the questionnaires were distributed to them. It took about 20-25 minutes to complete the set of questionnaires.

Data analysis

Data analysis was conducted using a statistical software program. The alpha level for significance was set at 0.05. Descriptive statistics were employed to describe the samples' characteristics, educational achievement, emotional quotient, self-esteem, social support, and mental health of the nursing students. One-way Analysis of Variance (ANOVA) was performed to test whether the nursing students with different years of study had different mental health scores. Pearson's product-moment correlation coefficient was used to examine the correlation between selected factors and mental health. Prior to data analysis, normality of data distribution was examined, and the assumptions were met.

Results

Descriptions of nursing students' characteristics

Completed questionnaires were obtained from 110 nursing students in total (Table 1). Among these participants, there were 29 students (26.40%) in the first year, 28 students (25.50%) in the second year, 21 students (19%) in the third year, and 32 students (29.10%) in the fourth year. They had an average age of 20.66 ± 1.21 years. Most participants were female (82.70%). More than half (60.90%) decided to study nursing by themselves. Most are satisfied with their relationships with friends and teachers. Specifically, more than half (69.10%) of the students reported that they were satisfied in their relationships with friends, and nearly half (48.20%) of the students reported satisfaction with their teachers. While these nursing students reported only 10% and 14% as somewhat dissatisfied towards relationships with their friends and teachers, respectively; no one reported dissatisfaction towards the relationships.

Table 1 Demographic characteristics of nursing students (N = 110)

General characteristics	Number	%
Age (years) (mean ± SD = 20.66 ± 1.21; range = 19 – 23)		
Gender		
Male	19	17.30
Female	91	82.70
Educational level		
1ˢᵗ year	29	26.40
2ⁿᵈ year	28	25.50
3ʳᵈ year	21	19.00
4ᵗʰ year	32	29.10
Ways of choosing the nursing program		
By themselves	67	60.90
As suggested by others	43	39.10
Relationships with friends (mean ± SD = 3.60 ± 0.65)		
Satisfied	76	69.10
Somewhat satisfied	24	21.80
Somewhat dissatisfied	10	9.10
Relationships with teachers (mean ± SD = 3.35 ± 0.70)		
Satisfied	53	48.20
Somewhat satisfied	43	39.10
Somewhat dissatisfied	14	12.70

Description of mental health among nursing students

Regarding mental health among nursing students, a mean of mental health total score of 64.91 (± 7.57) suggested a moderate level. In terms of negative affect subscales, moderate levels of anxiety (15.42 ± 3.18), depression (11.22 ± 2.68) and behavioral control (11.73 ± 3.12) were found. On the other hand, a high level of psychological well-being (22.13 ± 1.65), a positive affect subscale of, was found (Table 2). Based on ANOVA result, there was no significant difference between the years of study and mental health scores.

Table 2 Description of mental health among nursing students (N = 110)

Variables	Mean ± SD	Range	Possible score	Level
Total	64.91 ± 7.57	50 – 86	18 – 108	moderate
Subscales				
Psychological distress				
Anxiety	15.42 ± 3.18	8 – 24	5 – 30	moderate
Depression	11.22 ± 2.68	5 – 20	4 – 24	moderate
Behavioral control	11.73 ± 3.12	4 – 21	4 – 24	moderate
Psychological well-being				
Positive affect	22.13 ± 1.65	20 – 30	5 – 30	high

Description of the factors related to mental health among nursing students

As a proxy for educational achievement, a mean of the students' current cumulative GPA was 2.83 ± 0.21, which indicated a "satisfied" level (Table 3). The mean total scores of emotional quotient and social support both indicated a high level (127 ± 13.7 and 80.62 ± 10.78, respectively). Self-esteem was in moderate level (25.86 ± 3.42).

Table 3 GPA, emotional quotient, self-esteem and social support among nursing students (N = 110)

Variables	Mean ± SD	Range	Possible score	Level
Educational achievement via present GPA	2.83 ± 0.21	2.35 – 3.41	0 – 4.0	satisfied
Emotional quotient	127 ± 13.70	83 – 155	33 – 165	high
Perception of emotions	36.50 ± 4.75	18 – 47	10 – 50	moderate
Self-regulation of emotions	36.31 ± 4.49	23 – 45	9 – 45	high
Regulating others' emotions	30.37 ± 4.25	20 – 39	8 – 40	high
Utilizing emotions	23.82 ± 4.69	13 – 30	6 – 30	high
Self-esteem	25.86 ± 0.42	20 – 33	10 – 40	moderate
Social support	80.62 ± 10.78	49 - 101	15 - 105	high

The relationships between selected factors and mental health among nursing students

The results revealed that there were weak positive relationship between education achievement, emotional quotient and mental health (r = 0.24, P < 0.01; and r = 0.26, P < 0.01, respectively). Whereas, self-esteem and social support were positively correlated with mental health at a moderate level (r = 0.33, P < 0.01 and r = 0.37, P < 0.01, respectively). The correlation coefficients of the mental health and the selected factors are presented in Table 4.

Table 4 Correlation coefficients of selected factors and mental health (N = 110)

Selected Factors	Mental Health (r)
Educational achievement	0.24*
Emotional quotient	0.26*
Self-esteem	0.33*
Social support	0.37*

*P < 0.01

Discussions and Conclusions

In this study, mental health of Vietnamese nursing students was examined using the scale which assessed both positive and negative aspects of the mental health. It was different from previous studies which were usually investigated positive or negative aspects of mental health separately. For example, the studies conducted by Huong et al.[32] and Vatanasin[7] focused their studies on negative mental

health by exploring depression among nursing students; whereas, Kwag[40] conducted a study focusing on happiness among nursing students. From this study, the results showed that mean total score of mental health among the students was 64.91 ($\pm$ 7.57), which indicated a moderate level of positive mental health. Considering the subscales of mental health, this study showed that the participants had positive mental health as indicated by positive affect at a high level (22.13 $\pm$ 1.65). In terms of the negative mental health aspects, the participants had mean scores of anxiety, depression, and behavioral control at moderate levels (15.42 $\pm$ 3.18, 11.22 $\pm$ 2.68, and 11.73 $\pm$ 3.12, respectively).

In comparison with previous studies, these findings were consistent with the study of Meybodia et al.,[41] which used MHI-18 for measuring the mental health among students. This study also showed moderate levels of mental health with the total mean score of MHI-18 among male and female students (69.57 $\pm$ 18.18 and 71.02 $\pm$ 17.22, respectively). However, for the study focusing on negative mental health, such as the study of Liu and Jia[2], they examined the negative mental health of 108 nursing students in China by using the Symptom Checklist-90 scale (SCL-90). The results showed that 28.7% of them had a high score of the SCL-90 scale, which was quite high in comparison with the norm of Chinese adults. Another study conducted by Lotfi et al.[4] found that among 1,686 first-year medical sciences students in Iran, 35.7% of the students had mental health problems. Among these students, it was found that nursing students showed the highest percentage of those who reported such problems. As regards to a study conducted with Vietnamese nursing students, Huong et al.[32] pointed out that 45.6% of nursing students reported scores indicating depression. The different percentages of nursing students who had mental health problems may be attributable to using different tools to capture mental health problems, or the different sample sizes, as well as the nature of the nursing curriculum used in each university.[7]

There are several possible explanations for the mental health conditions which were at a moderate level among the nursing students participated in this study. For this study, the range of age of the participants was 19 to 23 years, with a mean age of 20.66. This age is the period when nursing students transfer from adolescence to adulthood. They become more independent, accept more responsibility for themselves, and begin to define themselves as adults.[42]

They are more likely to have better life adaptations, which help to enhance their mental health. In addition, more than half of the participants (60.9%) chose to study voluntarily in the nursing program. According to Dalir and Mazloum,[43] there was a relationship between an interest in the field of study and the students' mental health status. Students who lacked an interest in the field of study were more likely to have mental health problems. In addition, Dadkhah, Mohammadi, and Mozafari[44] reported that more positive mental health was related to students who had a higher interest in their field of study. Therefore, these possible explanations may contribute to the good mental health among the nursing students in this study. Also, according to Stuart and Laraia,[45] self-worth, knowledge and intelligence are the coping resources that allow the individual to see different ways of dealing with stress. Making decisions to study nursing may reflect their acknowledgement of the value of nursing profession and their own self-worth in devoting themselves to help others. Again, these possible explanations may apply to the mental health condition among the nursing students in this present study.

Moreover, another possible explanation for these findings may derive from the university's education management. Hai Duong Medical Technical University is one of the pioneer medical universities in Vietnam that has applied an education method via a credit system. With this method, the learners can benefit from selecting courses, reducing the amount of time studying in classes, having more time for self-study, obtaining scores from variety of assessment such as individual and group assignments, etc. All of these may contribute to the reduction of academic stress among the students and help promote their mental health. In addition, some course assignments required students to work in groups. This task may promote students to adapt themselves to work with others and to enhance more communication and provide more time shared with other students. These may also contribute to their positive mental health. Moreover, during their study times, they have more contact with their teachers, who play an important part in supporting students in their learning process as well as in their lives. All of these help to explain why the students in this study had a moderate level of mental health.

Nevertheless, having good mental health does not mean that individuals need to feel good all the time. They may at some point experience negative mental health or

psychological distress, e.g. disappointment, anxiety, etc.. This is regarded as a normal part of life. The moderate level of mental health in the subscales of psychological distress such as anxiety and depression found among nursing students in this study may be explained in this manner. In the transition period from adolescence to adulthood, individuals have mental and emotional instabilities, which may cause emotional disturbances at some point in time.[7] Nursing students also have to face the challenges like most other college students in various aspects, such as accommodation, financial burden, and the learning process. To be a nursing student, they usually keep in their minds that after graduation from the nursing program they will have to be knowledgeable and have professional skills in order to take care of patients. In addition, having success in their nursing education is very important for them. Such stressors may make the students feel anxious, and even depressed,[12] especially the students in the third and fourth years.[6] However, when comparing the mental health and years of study among nursing students in this study, there was no significant difference between the years of study and the mental health scores ($P > 0.05$).

Relationships between educational achievement and mental health

Educational achievement is one of the important factors to prepare students for their future careers.[46] GPA is considered one of the indicators reflecting learning outcomes and the decision for graduation of the students. Regarding the relationship between GPA and mental health, this study revealed that there was a positive correlation between GPA and the mental health among nursing students ($r = 0.24$, $P < 0.01$). The students who had higher educational achievement tended to have better mental health; whereas, those with low academic achievement tended to have worse mental health. This finding was consistent with the results obtained from previous studies.[10,16] Floyd[19] showed that nursing students who had a lower GPA reported a higher level of anxiety. Conversely, the students with a higher GPA had lower level of anxiety and depression. In addition, Parvizrad et al.[16] found that academic achievement was significantly related to mental health in medical sciences students ($P < 0.01$).

All of this can be explained as follows. A nursing career is well-accepted in society as a valuable and professional health career. Nursing students are the future professional

staffs in the healthcare system who play crucial roles in providing care to the patients. Succeeding in the nursing program is very important for nursing students. Therefore, the students who have good academic achievement as indicated by a high GPA often have more self-confidence and are proud of themselves. They often feel happy and have fewer mental health problems.[7] In addition, according to policy of the credit system, if the students have a certain low GPA, they will be placed on academic warning and cannot enroll in certain subjects in the following semester, which will influence their graduation. Such issues cause pressure and stress to the students.[10,47] As a result, negative attitudes and behaviors such as worry, sadness, depression, hopelessness, and even suicidal ideation are more likely to be developed when the students have a low GPA.[48] In other words, the students who have a low GPA are more prone to have more mental health problems. Moreover, when nursing students have mental health problems, they often have an impairment of the abilities to memorize and concentrate, have eating and sleeping disturbances, and lose their interest in studying. All of these things may cause their educational achievement to go even lower. This was shown in the study of Eisenberg, Golberstein, and Hunt (2009). However, the findings from this study were not consistent with the findings from the study conducted by Huong et al,[32] which showed that educational achievement was not significantly associated with depression ($r = -0.06$, $P > 0.05$), which means that even students with a high GPA may also have mental health problems. In terms of goal setting, the students who had good academic results often set themselves up for higher expectations than students who had a lower educational achievement. This may be an invisible stress for them. Thus, they may spend more time studying, may reduce the amount of time for meeting and talking with their relatives and friends, and may even miss leisure activities and exercise, etc.

Relationships between emotional quotient and mental health

Emotional quotient is the capacity of individuals to recognize their own feelings and those of others, the ability to motivate themselves, and the ability to manage well their own emotions as well as the emotions in relationships with others. The study findings showed a positive correlation between the emotional quotient and the mental health

among nursing students ($r = 0.26$, $P < 0.01$). This finding was consistent with previous studies, specifically, the study of Gupta and Kumar[49] conducted with 200 college students of Kurukshetra University, India. The results revealed that the emotional quotient was positively related with mental health ($r = 0.32$, $P < 0.05$). The students who were able to control their own emotions efficiently were more mentally healthy, and vice versa. Another study conducted by Schutte et al.[50] found that the emotional quotient was associated with a positive mood state. An explanation of this finding is that the emotional quotient serves as a significant factor that contributes to maintaining and promoting an individual's mental health.[51] Concerning nursing, the characteristics of the profession require nursing students not only to be intelligent, but to also have good interactions with others, such as patients, the patients' families, health care providers, etc. In their interactions with patients, it is not only a question of having good conversations, but the interactions are a complex process that involve the nursing student's perception and understanding of the patient's emotions, and the utilization of the perceptions to manage the patient's situations towards the goal of effective patient care. Therefore, individuals who can perceive and appraise their own emotions, who know when and how to express their feelings, and who can effectively regulate their mood states will have better mental health.[17] On the contrary, the students who are not able to manage their own emotions and to form relationships with others may have mood swings and may feel lonely and isolated. If it lasts for a long time, it may lead to mental health problems[7]. Even though the relationship between the emotional quotient and the mental health of nursing students was at a weak level, it showed promising results and was consistent with other studies which affirmed that emotional quotient was a factor related to the mental health of nursing students.

Relationships between self-esteem and mental health

According to the study finding, self-esteem was positively related to the mental health of nursing students ($r = 0.33$, $P < 0.01$). This meant that nursing students who had a high level of self-esteem had better mental health. Conversely, the students who had a lower level of self-esteem tended to have more mental health problems. Similarly, Ni et al.[1] suggested that a higher level of self-esteem could reduce the risk of developing mental health problems among nursing

students. In addition, Merianos et al.[21] found that the students in their study who had higher levels of self-esteem reported fewer days of mental health problems per month than those with lower self-esteem. As for the studies conducted in Vietnam, Huong et al.[32] also had similar findings. They found that self-esteem was negatively correlated with depression among Vietnamese nursing students ($r = -0.33$, $P < 0.01$). This means that students who had a lower level of self-esteem had worse mental health.

This finding indicates that self-esteem is one of the significant factors related to mental health. Self-esteem leads to the individual's feelings of self-confidence, sense of self-worth, and the acknowledgement of success. It serves as a protective factor against developing mental health problems during the college years.[20] Nursing students with higher self-esteem are more likely to have a sense of their self-worth. They also have a feeling of being accepted by others. This will likely make them feel satisfied and optimistic, and will enable them to effectively solve their problems. As a result, it will promote their mental health. Conversely, the individuals with low self-esteem are more likely to have pessimistic ideas and feelings of guilt towards themselves, which can cause a distortion of ideas and affect their mental health. In this study, the relationship of a moderate level of self-esteem and mental health indicated that self-esteem is an important factor contributing to the mental health of nursing students.

Relationships between social support and mental health

Finally, social support was positively correlated to mental health among nursing students ($r = 0.37$, $P < 0.01$). This meant that nursing students who had a high level of social support tended to have better mental health. Conversely, the students who received a low level of social support tended to have more mental health problems. Likewise, Jensen[52] found that greater perceived social support was negatively associated with psychological distress ($r = -0.27$, $P < 0.01$), and that nursing students who were satisfied with their social support reported lower distress. Other studies by Hefner and Eisenberg[53], Yasin and Dzulkifli[54] also revealed that students with lower quality social support were more likely to experience mental health problems. These students were at a six-fold risk of depressive symptoms, relative to students with high quality social support. As for a study conducted in Vietnam, Huong et al.[32] also had similar findings that social

support was negatively correlated to depression among Vietnamese nursing students ($r = -0.31$, $P < 0.01$).

The possible explanations for the finding imply that social support is a buffer against life stressors, as well as an agent promoting the mental health of individuals.[55] Regarding nursing students, social support can be obtained from various sources, such as their family, friends, teachers, community, or any social groups that the students are affiliated with. Greater social support helps the students to reduce the amount of stress experienced, as well as helping the individual cope better with stressful situations during their nursing education.[54,18] This contributes better mental health for the students. On the other hand, the lack of social support can make the students feel lonely and rejected, as they can perceive that they are losers or a failure.[28] All of these can make them more vulnerable to the onset of mental health problems, such as depression[56] or substance use.[57] The results from this study suggest that social support serves as one of the significant factors associated with mental health among nursing students.

In conclusion, nursing students who participated in this study reported a moderate level of mental health. Perceived social support and self-esteem were moderately related to mental health, whereas educational achievement and the emotional quotient had a weak positive relationship with mental health. Social support had the strongest positive relationship with mental health among these nursing students.

In terms of limitations, the findings from this study generated baseline information for the mental health condition among Vietnamese nursing students. The results indicated a positive trend of mental health among nursing students. Hence, continuous assessment for the students' mental health is recommended. This would enable nursing educators to screen for the students who are more prone to develop mental health problems in order to intervene before the problems become serious. It also helps them to see whether the mental health among their students is changed overtime.

In addition, from this study, it's been shown that nursing students had a moderate level of overall mental health, which is a good sign. Also, by looking at its subscales for both positive and negative mental health aspects, it was found that positive mental health indicated by positive affect was at a high level, which showed good aspect of the mental

health condition among these students. Thus, the issue of how to maintain a positive affect among these students is an interesting challenge for nursing educators. In addition, by looking at the negative mental health aspects as indicated by anxiety, depression, and behavioral control, they were also at moderate levels. Given these results, effective approaches in order to alleviate the negative mental health—anxiety, depression, and behavioral control—should be a concern as well.

This study also addresses the role of the factors related to mental health among Vietnamese nursing students. Thus, the development of proper strategies or program aimed at enhancing the students' educational achievement, emotional quotient, self-esteem, and social support should be considered, as these would help promote positive mental health among nursing students who will be significant people in the future professional staffs of the nation's health care system.

One of limitations of this study is related to the cross-sectional design, which limits the ability to identify the causal relationships between the factors and mental health as they change over time. Another limitation is that the data collection of this study was conducted from only one particular university located in the North of Vietnam. Hence, this may limit the ability to reach more general conclusions about overall Vietnamese nursing students.

Future research should be a predictive correlation design to examine influencing factors of mental health. Moreover, to help increase general conclusions of the study's findings, more than one setting of data collection is recommended.

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