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"Medical Student Syndrome" in Vietnamese psychology students

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ABSTRACT

Medical student syndrome is related to health anxiety and the amount of specialized knowledge of students. This study conducted to examine medical student syndrome on Vietnamese psychology students when they are studying courses related to clinical psychology and psychotherapy. This study used Medical Students Syndrome Questionnaire including 5-item Medical Students' Disease Perception Scale and 5-item Medical Students' Disease Distress Scale, and Health Anxiety Questionnaire to survey 249 psychology students from the Ho Chi Minh University of Education and The University of Danang – University of Science and Education in Ho Chi Minh City and Danang City, Vietnam. The findings of our study showed that the number of clinical courses had predictive power on Medical student syndrome. Students participating in more than one clinical course were more likely to increase distress. Besides, the results also indicated that Medical Students Syndrome and health anxiety were significantly and positively correlated.

Keywords: Health anxiety, Major, Medical student syndrome, Psychology students, Vietnamese

1. INTRODUCTION

Medical student syndrome (MSS) has soon drawn educators and researchers' attention. According to Moss-Morris and Petrie (2001), MSS is referred to as a process of falsely matching their own symptoms or sensations to a disease that they have known. Waterman and Weinman (2014) labelled MSS as a phenomenon that medical students continually increase disease-related fears and symptoms while they are studying those diseases. Besides, Medical student syndrome is a special kind of hypochondriasis causing health anxiety (Collier, 2008). In DSM-5 (APA, 2013), hypochondriasis is replaced by the medical terminology "Illness Anxiety Disorder - IAD". Health anxiety is considered as concerns about health in default of pathology or over concerns about little pathology.

This has been discussed in several scientific papers by scholars all over the world. Medical student syndrome has also been explored in a previous study by Woods et al., (1966). Their study indicated that 78.8 per cent of the medical students surveyed had this syndrome at some time during their studying

process (Woods et al., 1966). This finding was supported by Hodges (2004). Some authors have driven the further development of this syndrome, one of the outstanding researchers are Althagafi et al., (2019). This study was well documented; it was also well acknowledged that there were differences in MSS between medical and non-medical students. However, they were not significant. Their findings also reported that non-medical students were more likely to look for medical advice than medical students (Althagafi et al., 2019). Singh et al., (2004) proved that medical students reported lower levels of health anxiety compared to students of other majors.

Medical student syndrome was examined in other students whose major is unrelated to medical such as law students (Kellner et al., 1986). Researchers also surveyed students of psychology major who have knowledge related to medicine. Hardy and Calhoun (1997) surveyed psychological distress and MSS of American undergraduates participating in Abnormal Psychology course. The result of this study indicated that psychology students tended to worry about their mental health more than those of other majors. In addition, most of the students, who had the intention to learn and obtain an advanced counselling or psychotherapy degree, had a psychological treatment history. Hardy and Calhoun (1997) also reported that students finishing the Abnormal Psychology course were likely to be less worried about their own mental health. Most of them tended to look for help for their personal distress, especially from mental health services on the campus. Deo and Lymburner (2011) examined the psychological health of psychology students who once participated in a psychology course. Contrary to the results of Hardy and Calhoun (1997), the findings of this research revealed that there was no significant evidence for Psychology student syndrome. Psychology student syndrome could be considered as an affliction that students in the psychology major think they might get the mental illness on which they are studying (Deo & Lymburner, 2011). This study also reported that there was no change in their concern level despite they increasingly exposed to psychopathology.

For the past few years, there has been limited research on Vietnamese undergraduates' academic pressure and social stress. Nguyen and Dao-Thi (2013) conducted a study on students at Ho Chi Minh City University of Education, including psychology students and revealed that they encountered a large number of obstacles in the study process, social activities and daily routines but communication. In addition, psychology students are compulsory to increase exposure to mental disorders and specialized knowledge simultaneously. Furthermore, by virtue of the lack of sufficient preparation for specialized knowledge, students in general and freshmen, as well as sophomores, are overwhelmed by unverified information. Consequently, they gain an inaccurate understanding of normal psychological manifestations, which is more likely to be exaggerated, leading to unnecessary worry.

Medical Students Syndrome is not a new topic. However, to the best of our knowledge, few studies have focused on this subject in Vietnam, especially on non-medical students. To bridge this gap, our research is conducted to investigate medical student syndrome on Vietnamese psychology students when they are studying courses related to clinical psychology and psychotherapy. The research starts with reviewing the empirical literature of medical student syndrome on medical and non-medical students. A research methodology is presented in the second section. In the following sections, the research results and discussion are respectively introduced. Reassurance and discussion about this syndrome may go a long way to prevent this phenomenon among psychology students.

2. METHODS

Hypothesis

Ho_1 (main effect): There is no significant difference among the two study groups in the number of clinical courses when they are compared simultaneously on the Medical Students' Disease – Distress (MSS-D) and Medical Students' Disease – Perception (MSS-P).
Ho_2 (interaction effect): There is no significant interaction between the number of clinical courses and major when students are compared simultaneously on the Medical Students' Disease – Distress (MSS-D) and Medical Students' Disease – Perception (MSS-P).

Participants

Two hundred and forty-nine psychology undergraduate students participated in this prospective study from September 2019 to June 2020, including females accounted for 83.1% (n = 207) and male accounted for 16.9% (n = 42). This study, which was carried out at Ho Chi Minh City University of Education in Vietnam, was approved by the ethics committee. All participants supplied us with written informed consents. Participants were selected randomly from students at Universities in Vietnam, including 60.6% (n = 151) were from the Ho Chi Minh City University of Education, 39.4% (n = 98) were from The University of Danang - University of Science and Education (figure 1).

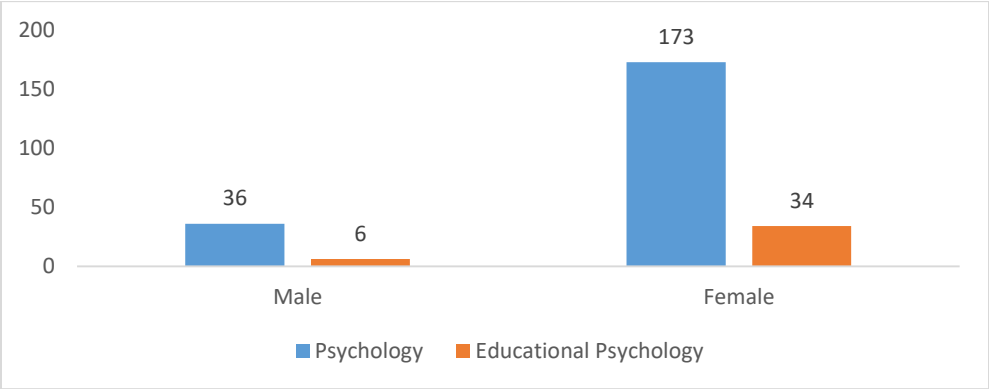

Figure 1 Number of Participants in the Gender by Groups of Major

Measurement

Participants were asked to complete the following scales: the Vietnamese versions of the Medical Students' Disease Perception Scale (MSS) based on the original Moss-Morris and Petrie (2001) and the Health Anxiety Questionnaire (HA) based on the original Lucock and Morley (1996). The Medical Students' Disease Perception Scale consists of two subscales: Medical Student's Disease-Distress (MSS-D) and Medical Student's Disease-Perception (MSS-P). The Health Anxiety Questionnaire consists of four subscales: Health worry and preoccupation (HA-W), Fear of illness and death (HA-F), Reassurance-seeking behaviour (HA-B), and Interference with life (HA-I). The items of MSS and HA were translated into Vietnamese by two bilingual researchers familiar with the construct being assessed. For one of them, the first language was Vietnamese; for the other, the first language was English. Forward and backward translation procedures were carried out in accordance with the guidelines. The exact sequence of items was maintained in the Vietnamese translation of the index. All participants were required to read the questionnaire thoroughly and choose the options that most accurately represented them. These scales consist of questions administered to the entire class at once. The internal consistency for testing reliability of MSS and HA by Cronbach's Alpha coefficient was checked (0.824 and 0.873, respectively), which are high (Bowling, 2014).

Procedure

Participants voluntarily agreed to participate and then signed consent forms regarding their rights in the completion of the study. In the beginning, participants are required to complete the General Information form, including gender and major. Subsequently, the instructions of MSS and HA were introduced to students to understand the questionnaire. Students were informed that other peers would not know their responses, and the questionnaire did not have the wrong answer. They were asked to answer and complete each question based on their own experience.

Ethical approval

The study protocol was approved by the Educational Psychology Research Group, Ho Chi Minh City University of Education, Vietnam (No. 3019/QD-DHSP)

3. RESULTS

An independent Sample T-Test was conducted to explore the difference between male and female students in the level of Medical Students Syndrome. An alpha level of 0.05 was utilized. Descriptive statistics are in Table 1. The male and female students' distributions were sufficiently normal with the aim of performing a t-test (i.e., Skew < |2.0| and Kurtosis < |9.0|; Schmider, 2010). Furthermore, the assumption of homogeneity of variances was tested and satisfied via Levene's F Test, $F(247) = 1.408$, $p = 0.225$. No significant difference between male and female students were reported, $t(247) = 0.975$, $p = 0.331$.

An independent Sample T-Test was conducted to explore the difference between male and female students in the level of Health Anxiety. An alpha level of 0.05 was utilized. Descriptive statistics are in Table 1. The male and female students' distributions were sufficiently normal for the aim of conducting a t-test (i.e., Skew < |2.0| and Kurtosis < |9.0|; Schmider, 2010). In addition, the assumption of homogeneity of variances was tested and satisfied via Levene's F Test, $F(247) = 0.075$, $p = 0.784$. No significant difference between male and female students were reported, $t(247) = 1.110$, $p = 0.268$.

Table 1 t-test results between gender

Variable		*n*	*M*	*SD*	*t-test*		
					t	*df*	*Sig. (2-tailed)*
MSS	Male	42	2.73	0.68	0.975	247	0.331
	Female	207	2.63	0.57			
HA	Male	42	2.78	0.57	1.110	247	0.268
	Female	207	2.68	0.52			

The participants got the average score on the Medical Student's Syndrome scale. The mean score for the MSS-D subscale was 2.55 (SD = 0.78). The mean score on the MSS-P subscale was 2.65 (SD = 0.59). Table 2 presents descriptive statistics of dependent variables, including MSS-D and MSS-P resulting in the numbers of clinical courses and major level groups.

Table 2 Descriptive Statistics of Medical Students Syndrome

Major	*Subject*		
	Only 1 subject	*> 1 subject*	*Combined*
Psychology (n)	*140*	*69*	*209*
MSS-P			
M	2.73	2.76	2.74
SD	0.63	0.47	0.58
MSS-D			
M	2.53	2.49	2.52
SD	0.78	0.74	0.77
MSS			
M	2.63	2.62	2.63
SD	0.61	0.49	0.57
Educational Psychology (n)	*17*	*23*	*40*
MSS-P			
M	2.62	2.97	2.83
SD	.42	0.84	0.70
MSS-D			
M	2.31	3.00	2.71
SD	0.70	0.83	0.84
MSS			
M	2.46	2.99	2.77
SD	0.49	0.75	0.69

n: Number of participants; M: Mean; SD: Standard Deviation.

The participants got the average score on the Health Anxiety Questionnaire (M = 2.7, SD = 0.53). Table 3 presents descriptive statistics of dependent variables, including Health worry and preoccupation, Fear of illness and death, Reassurance-seeking behaviour and Interference with life resulting from the numbers of clinical courses and major level groups.

A multivariate analysis of variance (MANOVA) was performed with major and the number of clinical courses students participating in as the independent variable and the MSS-D and MSS-P subscale as the dependent variables. In order to run MANOVA, the researchers conducted a preliminary assumption to examine multivariate normality and homogeneity of covariance matrices.

Table 3 Descriptive Statistics of Health Anxiety

Major	*Subject*		
	Only 1 subject	*> 1 subject*	*Combined*
Psychology (n)	*140*	*69*	*209*
HA-W			
M	2.78	2.64	2.73
SD	0.57	0.55	0.57
HA-F			
M	2.73	2.54	2.66
SD	0.72	0.64	0.70
HA-B			
M	2.72	2.86	2.77
SD	0.65	0.62	0.64
HA-I			
M	2.72	2.54	2.66
SD	0.78	0.74	0.77
HA			
M	2.75	2.61	2.70
SD	0.51	0.51	0.51
Educational Psychology (n)	*17*	*23*	*40*
HA-W			
M	2.61	2.84	2.74
SD	0.77	0.62	0.69
HA-F			
M	2.45	2.71	2.60
SD	0.78	0.75	0.76
HA-B			
M	2.73	2.68	2.70
SD	0.69	0.62	0.64
HA-I			
M	2.63	2.59	2.61
SD	0.88	0.92	0.89
HA			
M	2.58	2.73	2.67
SD	0.70	0.59	0.62

n: Number of participants; M: Mean; SD: Standard Deviation.

MANOVA is robust to violations of homogeneity of variance/covariance matrices if the sizes of groups are nearly equal or the difference of the largest and smallest group is less than around 1.5 times (Leech, Barrett and Morgan, 2005). The largest group in this sample (n = 104) was about 6.12 times larger than the smallest group (n = 17), and the multivariate homogeneity of variance-covariance matrices tested with Box's M test revealed that the M value of 19.368 was not significant (p = 0.027). Therefore, the assumption of homogeneity of covariance matrices was not satisfied. As a result, Pillai's Trace value - a more robust statistic, was used in order to report the result (table 4).

Based on the significant effects found from the MANOVA, a separate two-way univariate analysis of variance (ANOVA) for each of the dependent variables was conducted without undue inflation of the experiments Type I error (Grimm and Yarnold 1995). Levene's Test of Equality of Error Variances tests the assumption of MANOVA and ANOVA that the variances of each variable are equal across the groups. If Levene's test is significant, this means that the assumption has not been satisfied. In this study, the value of Levene's test was significant for MSS-D subscale [F (3, 245) = 0.114, p = 0.952], while it came out to be non-significant for MSS-P

subscale [F(3, 245) = 6.208, p < 0.05]. So, for the MSD subscale, the assumption that the variances of each variable are equal across the groups was met. When the follow-up ANOVAs were conducted, results for MSP were interpreted with caution. There was a difference in the level of MSS among students when they experienced different numbers of clinical courses when considered jointly on the variables Medical Students' Disease – Distress and Medical Students' Disease – Perception, Pillai's Trace value = 0.26; F(2, 244) = 3.199, p = 0.043, partial η2= 0.26. Therefore, the results suggested that the first hypothesis (Ho1) was rejected. A separate ANOVA was conducted for each dependent variable, with each ANOVA evaluated at an alpha level of 0.025 (i.e., 0.05/2).

Table 4 Combined Univariate ANOVA

Source	*Dependent Variable*	*Type III Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*	*Partial η²*
Corrected Model	MSS-P	1.551[a]	3	0.504	1.399	0.244	0.017
	MSS-D	5.955[b]	3	1.985	3.349	0.020	0.039
Subject	MSS-P	1.172	1	1.172	3.257	0.072	0.013
	MSS-D	3.406	1	3.406	5.746	0.017	0.023
Major	MSS-P	0.107	1	0.107	0.298	0.586	0.001
	MSS-D	0.640	1	0.640	1.081	0.300	0.004
*Subject * Major*	MSS-P	0.824	1	0.824	2.289	0.132	0.009
	MSS-D	4.401	1	4.401	7.426	0.007	0.029
Error	MSS-P	88.192	245	0.360			
	MSS-D	145.208	245	0.593			
Total	MSS-P	1973.040	249				
	MSS-D	1769.520	249				
Corrected Total	MSS-P	89.702	248				
	MSS-D	151.162	248				

a. R^2 = 0.017 (Adjusted R^2 = 0.005)
b. R^2 = 0.039 (Adjusted R^2 = 0.028)

There was a significant difference among students when they experienced different numbers of clinical courses on MSS-D, F (1, 245) = 5.746, p = 0.017, partial η2 = 0.023, with students participating in more than one clinical course (M = 2.75, SD = 0.09) scoring higher than students participating in one clinical course (M = 2.42, SD = 0.1). There was not a significant difference among students when they experienced different numbers of clinical courses on MSS-P, F(1, 245) = 3.257, p = 0.072, partial η2 = 0.013.

The results revealed that there was a significant multivariate effect for interaction between major and the numbers of clinical courses when considered jointly on the variables Medical Students' Disease – Distress and Medical Students' Disease – Perception, Pillai's Trace value = 0.030; F(2, 244) = 3.753, p = 0.025, partial η2= 0.030. Accordingly, the results suggested that the second hypothesis (Ho2) was rejected. A separate ANOVA was conducted for each dependent variable, with each ANOVA evaluated at an alpha level of 0.025 (i.e., 0.05/2). There was a significant difference between major and the numbers of clinical courses when considered jointly on the variables Medical Students' Disease – Distress, F(1, 245) = 7.426, p = 0.007, partial η2 = 0.029. Follow-up univariate analysis found that Psychology students (M = 2.53, SD = 0.07) scoring higher than Education Psychology students (M = 2.31, SD = 0.19) when participating in one clinical course, but Education Psychology students (M = 3.00, SD = 0.16) scoring higher than Psychology students (M = 2.50, SD = 0.09) when participating in more than one clinical course. There was not a significant difference between major and the numbers of clinical courses when considered jointly on the variables Medical Students' Disease – Perception, F(1, 245) = 2.289, p = 0.132, partial η2 = 0.009 (table 5).

Table 5 Correlation Between Medical Students' Disease (MSS) and Health Anxiety (HA)

Variable	MSS	HA	Subject
MSS	-		
HA	0.620**	-	
Subject	0.083*	-0.074	-

**. Correlation is significant at the 0.01 level (2-tailed).

Table 6 represents the corrected coefficient Adjusted R^2 was 0.397, indicating that there is almost 39.7% variation in the dependent variable of Vietnamese psychology students' MSS to a one-unit change in the independent variable. The Durbin–Watson value = 2.062, which is significant and must be approximate 2, show that the remainder is no correlation. This implies that the regression model does not breach the assumption that the independence of the error.

Table 6 Results of The Regression Model

Model	*R*	R^2	*Adjusted* R^2	*F*	*Sig.*
1	0.634[a]	0.402	0.397	82.559	0.001[b]

To investigate predictors of the students' Medical Students Syndrome, multiple linear regression tests were performed. From table 5, factors related to the MSS of Vietnamese psychology students were their levels of health anxiety ($r = 0.620$, $p < 0.001$) and the numbers of clinical courses they participated in ($r = 0.083$, $p = 0.095$). In addition, the normal P-P plot of regression standardized residual showed that the scattered points were basically distributed on the diagonal, which indicated that the residuals could be judged to be normally distributed as showed in figure 2.

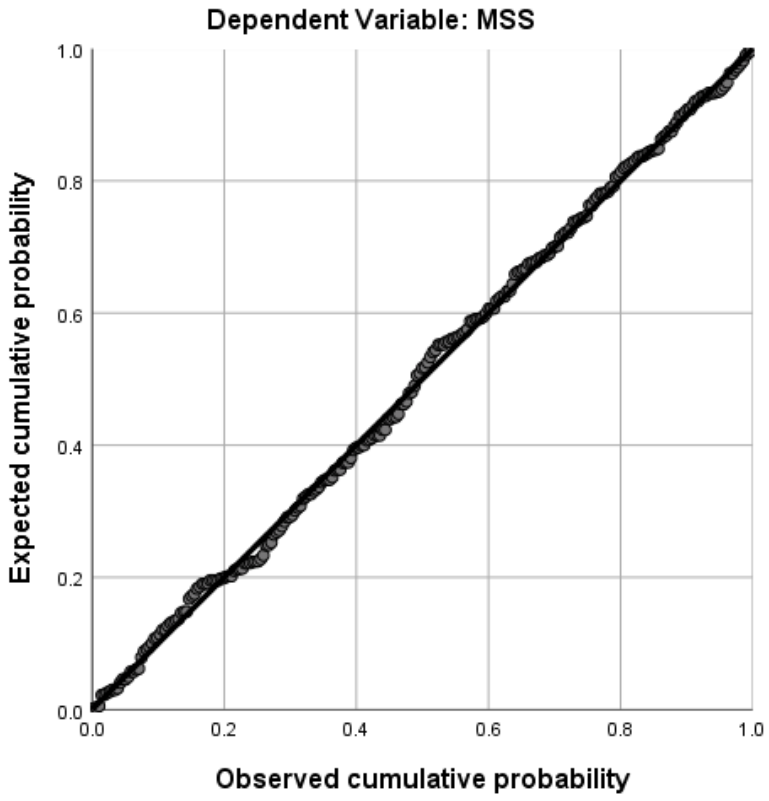

Figure 2 Normal P-P Plot of Regression Standardized Residual

The results of the regression indicated the two predictors explained 40.2% of the variance ($R^2 = 0.402$, $F(2,246) = 82.559$, $p < 0.001$). The factor with the highest predictive power on MSS was their levels of health anxiety ($\beta = 0.63$, $p < 0.05$) and followed by the numbers of clinical courses they participated in ($\beta = 0.13$, $p = 0.05$) as showed in table 7.

Table 7 Regression Coefficients

Model		*Unstandardized Coefficients*		*Standardized Coefficients*	*t*	*Sig.*	*Collinearity Statistics*	
		B	*Std. Error*	*Beta*			*Tolerance*	*VIF*
1	(Constant)	0.541	0.178		3.045	0.003		
	HA	0.701	0.055	0.630	12.738	0.001	0.995	1.005
	Subject	0.159	0.061	0.130	2.625	0.009	0.995	1.005

4. DISCUSSION

The main aims of this research are twofold: Firstly, examine medical student syndrome among Vietnamese Psychology students; secondly, test the correlation between their MSS and their health anxiety. Our study came to these conclusions: (1) Vietnamese Psychology students did not have MSS; (2) there was no significant difference in the level of MSS and health anxiety between male and female; (3) there was a difference in the level of MSS among students when they experienced different numbers of clinical courses; (4) there was a statistically significant positive correlation between MSS and health anxiety; (5) health anxiety and the numbers of clinical courses that the students took part in are predictors of MSS.

The main result of this research is that there were no clinically significant symptoms of MSS in Vietnamese psychology students. The result of this cross-sectional research found clear support for the findings of Deo and Lymburner (2011), which reported no clear evidence of MSS in psychology students. The participants of our study reported a medium level of MSS and health anxiety. The reasons that lead to this result are: (1) approximately 63% of our participants took only one clinical course in the educational curriculum; (2) those are introductory courses, which assist them in the first step towards exposing to clinical psychology, such as Introduction to psychopathology, Abnormal psychology, Introduction to psychotherapy; (3) students only focused on theory and did not stand a chance to practice; (4) Vietnamese Psychology students had incomplete perception of medical student syndrome.

From the results, it is clear that there was no significant difference in the level of MSS and health anxiety between male and female. Contrary to our finding, MacSwain et al., (2009) concluded that female students had significantly higher levels of health anxiety. Because of the gender differences in the structure and function of the brain, stress reactivity, gender stereotypes, and social experiences (Altemus et al., 2014) resonate with other environmental factors, and females are more vulnerable to health anxiety than males. However, our research failed at finding out the gender differences in the levels of anxiety due to the insufficient influences of those factors on the participants.

Extensive results carried out show that there was a difference in the level of MSS among students when they experienced different numbers of clinical courses. The more courses they participated in, the more distress they suffered. This finding is contrary to the result of Hardy and Calhoun (1997), which revealed that they were less concerned about their mental health after finishing the Abnormal Psychology course. Besides, Deo and Lymburner (2011) reported that their psychological health concern remained unchanged despite increased exposure to psychopathology. The results of correlation analysis indicated that MSS and health anxiety were significantly and positively correlated. Specifically, health anxiety acted as a predictor of their level of MSS. Health anxiety evaluates the exaggerated anxiety about future somatic and psychological symptoms (Brady & Lohr, 2014), while the fear of already having a disease also characterized Medical Student's Syndrome (Moss-Morris & Petrie, 2001).

This study suffers from a certain limitation. Concern about our research findings was that the participants of this study did not distribute uniformly. Particularly, female participants outnumbered male participants by a proportion of more than four times bigger. This could potentially lead to inaccurate outcomes. Future investigations are necessary to validate the findings which were drawn from this study.

5. CONCLUSION

Medical Student Syndrome is considered as a phenomenon that medical students continually increase disease-related fears and symptoms while they are studying those diseases. This symptom was examined in other students who is major is unrelated to medical such as psychology students. Importantly, our results provide additional information about the relationships between the number of psychology courses and MSS. In addition, our finding provides evidence that levels of health anxiety have predictive power on MSS. This serves as an excellent jumping-off point for debate and further analysis. Future research should consider the potential effects of students' health anxiety on MSS more carefully. Besides, future research could aim to replicate results in a larger sample size or in other universities in Vietnam to examine factors influencing MSS, such as not only the amount of specialized knowledge of students but also academic curricula.

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Author Contributions

TTNT, NTDT and GPTT were responsible for the study research conception and design concept, Data acquisition, Drafting of the manuscript, Critical revision of the manuscript, and Administrative, technical support. VLTC was responsible for the Statistical analysis, Data analysis and interpretation, Supervision, and Approval of the final manuscript.

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Conflicts of interest

There are no conflicts of interest.

Data and materials availability

All data associated with this study are present in the paper.

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