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Effects of Anxiety Symptoms on Undergraduate Students' Quality of Life: Mediating Role of Perceived Social Support and Self-esteem

Le-Thanh Tran¹, Duy-Hung Le^{2*}, and Quang-Dao Pham³

¹ *People's Security Academy, Ministry of Public Security of Viet Nam, Hanoi, Vietnam*

² *Ho Chi Minh City University of Education, Ho Chi Minh City, Vietnam*

³ *Ural Federal University, Yekaterinburg, Sverdlovsk Oblast, Russia*

Abstract

This study aimed to investigate the mediating effects of perceived social support and self-esteem on the relationship between anxiety symptoms and quality of life. A cross-sectional survey was administered to 308 undergraduate students. Utilizing a path model, it was found that perceived social support and self-esteem mediate the relationship between anxiety symptoms and quality of life among university students in Vietnam. Notably, higher levels of social support and self-esteem were associated with a higher quality of life, while increased anxiety negatively affected students' quality of life. These findings contribute to a deeper understanding of the mechanisms that influence undergraduate students' life perceptions and serve as a foundation for interventions aimed at enhancing well-being and mitigating the impact of anxiety on students' quality of life.

Keywords: anxiety symptoms, mediating role, quality of life, social support, self-esteem.

*Corresponding author.

Duy-Hung Le
Ho Chi Minh City University
of Education, Ho Chi Minh City,
Viet Nam
E-mail: hungld@hcmue.edu.vn
(D-H. Le)

Introduction

Undergraduate students are in an important period to learn professional knowledge and prepare for the future professional process. However, this is also a period when facing many mental health problems (Dessauvague et al., 2022; Gair & Baglow, 2018). Many students must move away from home to study, increasing loneliness and homesickness, which can then exacerbate previous psychotic symptoms or the emergence of a new mental disorder (Thurber & Walton, 2012; Vasileiou et al., 2019). Indeed, previous research has shown that there is an increasing trend in student mental disorders such as anxiety and depression in recent years (Carl et al., 2014; Rossi et al., 2020). In addition, female, low-income, gay and bisexual students have a greater risk of mental disorders (Said et al., 2013). Mental disorders have an impact on students' lives and work, with previous research showing that increases in symptoms of mental disorders are associated with poorer academic performance and that an even greater risk of depression may lead to suicidal ideation (Keyes et al., 2012). As such, student mental health is an important issue and has received much attention.

Quality of life is an individual's perception of their life within the context of the culture and value systems in which they live and about their goals, aspirations, standards, and concerns. (Whoqol Group, 1998). In psychology, quality of life reflects an individual's subjective assessment of various aspects of life, and quality of life is considered a multidimensional construct (Chaudhari et al., 2018). Quality of life is sometimes used as the equivalent of 'life satisfaction' or 'happiness' (Upton, and Upton, 2015). However, they cannot be identified with each other because the quality of life emphasizes the individual's perception of different aspects of life (World Health Organization, 1998). Several studies have shown that quality of life is negatively correlated with anxiety across different patient groups (Araghi et al., 2013; Chaudhari et al., 2018; Quelhas & Costa, 2009; Tastan et al., 2010; Pinar et al., 2012). For the group of undergraduate students, the study by Jenkins and colleagues (2021) showed that students with more severe symptoms of anxiety had a lower quality of life. Shiri et al. (2022) reported that the quality of life in people with anxiety increased significantly after psychotherapeutic intervention. Therefore, it can be said that anxiety has a direct impact on quality of life.

Support from family, friends and significant others acts as a protective factor against the negative impact of a stressful event (Cohen & Wills, 1985). Several studies have shown that perceived social support is negatively related to anxiety levels and positively related to quality of life (Dennison et al., 2009). In addition, perceived social support partly mediates the relationship between anxiety and quality of life in some groups, such as pregnant women and breast cancer patients (Kugbey et al., 2020; Yu et al., 2020). However, the study by Panayiotou and Karekla (2013) on the Cypriot community group found that perceived social support did not reduce the negative impact of anxiety on quality of life. Therefore, it is necessary to consider this issue in different subjects. Furthermore, cultural factors can also influence this relationship. Therefore, one of the purposes of the present study was to clarify whether

perceptions of social support mediate the impact of anxiety on the quality of life among college students in Vietnam.

Previous research has shown that there is a negative relationship between anxiety and self-esteem (Fathi-Ashtiani et al., 2007). Indeed, the effects of intense anxiety experiences can have negative effects on self-concept and reduce an individual's self-esteem (Sowislo & Orth, 2013). Furthermore, anxiety is thought to negatively affect social functioning (Schultz et al. 2004). Meanwhile, self-esteem is predictive of several psychological variables, such as happiness and life outcomes (Sowislo & Orth, 2013). On this basis, several studies have shown that self-esteem acts as a mediator in the relationship between anxiety and quality of life in undergraduate students (Park & Chung, 2020; Urzúa et al. 2021). Therefore, we suggest that self-esteem also plays a mediating role in the relationship between anxiety and quality of life in Vietnamese undergraduate students.

In addition, highly perceived social support can help individuals respond positively to stressors and develop a positive view of self-worth and self-esteem (Cohen & Wills, 1985; Xia et al., 2013). In contrast, poorly perceived social support makes individuals feel devalued, which leads to negative self-evaluation and low self-esteem (Li et al., 2018). Therefore, it can be said that perceived social support has a positive effect on self-esteem. In turn, self-esteem affects quality of life (Lepp et al., 2014). Moreover, some studies have shown that self-esteem also acts as a mediator between perceived social support and several other outcome variables, such as well-being or life satisfaction (Cao & Liang, 2020; Ilyas et al., 2020; Tian et al., 2012). These pieces of evidence support the hypothesis that the relationship between anxiety and quality of life is mediated by a chain from perceived social support to self-esteem.

Therefore, we propose three hypotheses:

Hypothesis 1: Perceived social support mediates the relationship between anxiety symptoms and quality of life among undergraduate students.

Hypothesis 2: Self-esteem mediates the relationship between anxiety symptoms and undergraduate students' quality of life.

Hypothesis 3: Perceived social support and self-esteem are serial mediators between symptoms of anxiety and quality of life among undergraduate students.

Methods

Study design

This study aims to investigate the mediating role of perceived social support and self-esteem on the relationship between anxiety symptoms and quality of life among Vietnamese undergraduate students. Therefore, the author designed a cross-sectional study with the method of data collection from the questionnaire. Because the time to conduct the study was during the period when Vietnam was heavily impacted by the 4th outbreak of COVID-19 (February 2020), we encountered a limitation in recruiting participants. Therefore, the cross-

sectional study design on a convenient population sample is suitable for our study performance. However, we have tried to collect a sample that ensures representative criteria for the geographical areas of Vietnam to describe the most general description of the research objectives. Participants are undergraduate students enrolled in the study at 6 universities from 3 regions of Vietnam (3 from the southern region, 2 from the northern region and 1 from the central region).

A letter was designed for the students to introduce the study, explain the purpose of the survey, and obtain the university managers' permission to participate in the study. The survey process took place online via Google Forms. Participants were informed about the study via an information sheet, which was attached to every single questionnaire. The information sheet provided details about the study aims, the questionnaire content, confidentiality, choice of participation, and withdrawal, as well as the contact details of the research team. Completion of the questionnaire indicated implied consent on the part of the student. Only fully completed questionnaires were included in the final analysis. The survey took place entirely online in February 2022 via personal email, which was provided by the universities' information technology team.

Measure

Measuring quality of life: The World Health Organization Quality of Life Scale is a self-report questionnaire consisting of 26 items on a 5-point linker scale (WHOQOL-BREF; Whoqol Group, 1998). The first 2 items measure the overall quality of life and health, and the remaining 24 items are used to measure the physical health domain, psychological domain, social relationship domain and environmental domain of quality of life. Test scores from regions are moved to a 0-100 scale with higher scores indicating a better quality of life. The overall quality of life is calculated as the average score of 4 domains. The Vietnamese version of the scale has good validity and reliability in previous studies (Vo et al., 2020). In this study, Cronbach's coefficient is 0.89.

Measuring perceived social support: The Multidimensional Scale of Perceived Social Support was used to assess perceptions of support from family, friends, and significant others. The scale includes 12 items; in this study, each item is rated from 1 to 5 (1: strongly disagree; 5: completely agree). A higher score represents a higher perceived level of social support. The scale has good validity and reliability (Zimet et al., 1988). In this study, Cronbach's alpha coefficient was 0.88.

Measure self-esteem: Rosenberg's self-esteem scale (Rosenberg, 1965) consists of 10 indicators ranging from strongly disagree to strongly agree. Strongly disagree is assigned 1, and strongly agree is assigned 4. Negative self-esteem indicators are reverse coded before the mean score is calculated. The higher the grade point average (GPA) is, the higher the student's self-esteem. In this study, Cronbach's reliability of the scale is 0.77.

Measure symptoms of anxiety: The Generalized Anxiety Disorder (GAD) scale-7 (Spitzer et al., 2006) is a self-report questionnaire about the symptom severity of generalized

anxiety disorder. The 7-item questionnaire was developed based on the diagnostic criteria for GAD in the 4th edition of the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 1994). Each item was rated from 0 (none) to 3 (almost every day). A higher score on the GAD-7 predicts more severe anxiety symptoms. In this study, Cronbach's alpha coefficient was 0.85.

Participants

The participants were 308 undergraduate students from three regions of Vietnam selected by a convenient sampling method. Students took approximately 20 minutes to read and complete the survey. The results obtained were 308 valid questionnaires that were included in the analysis. Among them, there were 125 males and 183 females aged 18 to 22 (mean age = 20.5; SD = 1.12). The study was approved and supervised by the ethics committee of a key pedagogical university under the Vietnamese Ministry of Education and Training (Project code: QD1050/DHSP) and the Declaration of Helsinki.

Data analysis

SPSS 22.0 software was used for statistical analysis. Score analysis of the frequency, proportion and meaning of the research variables was performed. Then, Pearson correlation analysis was performed to check the relationship between the studied variables.

The PROCESS macro version 4.1 used in SPSS was used to analyze the mediating effect of perceived social support and self-esteem on the relationship between anxiety symptoms and quality of life. Anxiety symptoms are the independent variable, and quality of life is the dependent variable. Perceived social support and self-esteem are mediating variables. The 95% confidence intervals were calculated with 5000 bootstrap samples.

We used the three criteria of Baron and Kenny (1986) to test the mediator model: (a) the independent variable significantly predicts the mediating variable; (b) the mediating variable significantly predicts the dependent variable; and (c) when the mediating variable is added to the model, the impact from the independent variable to the dependent variable is no longer significant, and the impact value decreases to 0. In the case that this value drops but is not zero, there may be other mediating variables outside the model.

Results

Some demographic characteristics of the participants

Table 1 shows some demographic characteristics of the participants. The participants were students aged 18 to 22 (mean age = 20.5; SD = 1.12). Among them, there were 125 (41%) males and 183 (59%) females. Forty-nine (19%) participants were positive for COVID-19 at the time of taking the survey.

Tab. 1. Sociodemographic Characteristics of Participants

Baseline characteristic	n	%
Gender		
Male	125	41
Female	183	59
Educational level		
Freshmen	102	33
Sophomore	60	20
Junior	76	25
Senior	70	23
COVID-19 status		
Negative	259	81
Positive	49	19

Note. N = 308.

Descriptive statistics and correlations between research variables

The statistics of the mean score, standard deviation, minimum, maximum, and Pearson correlation among the research variables are shown in Table 2. Anxiety symptoms were negatively correlated with perceived social support, self-esteem, and quality of life ($r = -.25, p < .01; r = -.41, p < .01; r = -.43, p < .01$). Perceived social support was positively correlated with self-esteem and quality of life ($r = .38, p < .01; r = .55, p < .01$). Self-esteem was positively correlated with quality of life ($r = .42, p < .01$).

Tab. 2. Descriptive statistics and Pearson correlation between the variables

	M	SD	1	2	3	4
1. AS	6,90	3,91	–			
2. PSS	44,36	7,32	-.25**	–		
3. SE	17,31	4,08	-.41**	.38**	–	
4. QOL	62,70	11,36	-.43**	.55**	.42**	–

Note. N = 308. M = mean. SD = standard deviations. AS = anxiety symptoms. PSS = perceived social support. SE = self-esteem. QOL = quality of life. ** $p < 0.01$.

Testing the mediating effects of perceived social support and self-esteem

The total model of the impact of anxiety symptoms on quality of life was statistically significant: $F = 71.07, p < .001, R^2 = .189$.

Anxiety symptoms have a negative impact on perceived social support ($b = -.46, \beta = -.25, t = -4.487, p < .001$) and self-esteem ($b = -.35, \beta = -.34, t = -6.545, p < .001$). Perceived social support has a positive impact on self-esteem ($b = .16, \beta = .29, t = 5.713, p < .001$) and quality of life ($b = .67, \beta = .43, t = 8.913, p < .001$). Self-esteem has a positive effect on quality of life ($b = .42, \beta = .15, t = 2.946, p < .001$) (see Table 3).

Tab. 3. The mediating role of perceived social support and self-esteem on the relationship between anxiety symptoms and quality of life

Model pathways	b	β	$s_e b$	t	95% CI	
					Lower	Upper
Total effects						
AS → QOL	-1.26	-.43	.15	-8.431***	-1.553	-0.965
Direct effects						
AS → QOL	-.78	-.27	.14	-5.517***	-1.052	-.499
AS → PSS	-.46	-.25	.10	-4.487***	-.667	-.260
AS → SE	-.35	-.34	.05	-6.545***	-.455	-.245
PSS → QOL	.67	.43	.07	8.913***	.515	.807
PSS → SE	.16	.29	.03	5.713***	.107	.220
SE → QOL	.42	.15	.14	2.946**	.138	.693
Indirect effects						
AS → PSS → QOL	-.31	-.11	.08	–	-.488	-.162
AS → SE → QOL	-.15	-.05	.05	–	-.253	-.042
AS → PSS → SE → QOL	-.03	-.01	.01	–	-.065	-.008

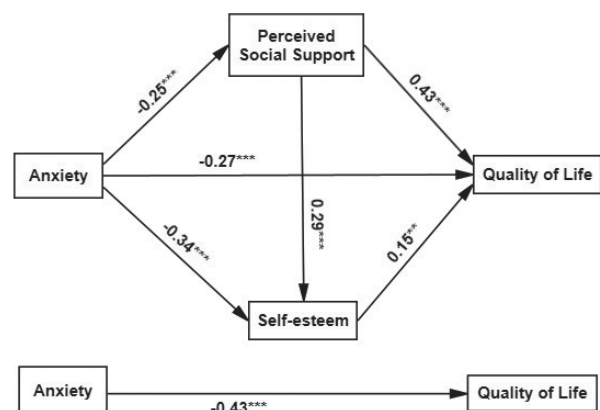
Note. N = 308. AS = anxiety symptoms. PSS = perceived social support. SE = self-esteem. QOL = quality of life. ** $p < 0.01$. *** $p < 0.001$.

The direct impact of anxiety symptoms on quality of life in the absence of perceived social support and self-esteem was negative and statistically significant ($b = -1.26, \beta = -0.43, t = -8.431, p < .001$), and it was still statistically significant when adding mediators of perceived social support and self-esteem; however, the effect size of the impact was reduced ($b = -.78, \beta = -.27, t = -5.517, p < .001$).

In addition, anxiety had a negative indirect effect on quality of life through perceived social support ($b = -.31, s_e b = .08, 95\% CI_b [-.488, -.162]$), self-esteem ($b = -.15, s_e b = 0.05, 95\% CI_b [-.253, -.042]$), and serial mediators of perceived social support and self-esteem ($b = -.03, s_e b = .01, 95\% CI_b [-.065, -.008]$). The 95% confidence interval based on the 5000-sample bootstrap of the above indirect effects pathways contains no value 0.

As a result, the variables for social support and self-esteem in the hypothetical model meet the requirements for the mediating variable of Baron and Kenny (1986). These results demonstrate that the relationship between anxiety and quality of life was mediated by perceived social support and self-esteem (see Figure 1).

Fig. 1. Impact model of anxiety symptoms on quality of life



Discussion

This study aimed to examine the mediating role of perceived social support and self-esteem in the relationship between symptoms of anxiety and quality of life. Studying this issue helps to better understand the mechanisms underlying the impact of anxiety symptoms on quality of life to provide better mental health care for undergraduate students in a developing country. Based on the results, we acknowledge the mediating role of self-esteem and perceived social support in reducing the participants' anxiety symptoms and increasing the quality of life. This finding reinforces the evidence for a mediating role of these two variables in previous studies (Kugbey et al., 2020; Yu et al., 2020). Although the participants in the previous studies were not mainly undergraduate students, it is important empirical evidence for us to see the interdisciplinary similarity of these two variables when designing studies on different groups of participants in different social contexts.

In terms of the mediating role of perceived social support, previous studies have shown mixed results on the role of perceived social support in the relationship between anxiety symptoms and quality of life. Some studies suggest that perceived social support partially mediates the relationship between anxiety and quality of life in certain groups, such as pregnant women and breast cancer patients (Kugbey et al., 2020; Yu et al., 2020). However, the study by Panayiotou and Karekla (2013) on the Cypriot community group again found that perceived social support did not reduce the negative impact of anxiety on quality of life. Our study results agree with the first group of authors (Kugbey et al., 2020; Yu et al., 2020) that perceived social support plays a mediating role in the relationship between anxiety symptoms and quality of life. This supports our hypothesis 1. When analyzing a social context, our results are appropriate because the context of this study is the period of social distancing due to the impact of the COVID-19 pandemic. The participants had to self-isolate at home under different family economic circumstances, resulting in many variations in their mental health. These results and facts show that the state of social distancing in Vietnam increases GAD among undergraduate students, and one of the main affected factors is the limited provision of social support. Vietnam is a developing country with many restrictions in social support, which increased students' anxiety during the pandemic. Therefore, with perceived social support, it is reasonable to expect remission of GAD symptoms, and this is likely to be similar in other social context settings and study designs.

In terms of the mediating role of self-esteem, which is less well known than perceived social support, we find that self-esteem plays a part in mediating the relationship between anxiety symptoms and quality of life. Self-esteem is seen as a factor that helps individuals cope with life events and avoid the effects of stress, anxiety and depression (Dumont & Provost, 1999). In this study, self-esteem is viewed as a psychological process that can change based on the individual's experience (Zeigler-Hill, 2013). Specifically, by the experience of anxiety symptoms. Several studies have also suggested that self-esteem may be considered a mediator between anxiety and quality of life in undergraduate students. Our findings reinforce previous

findings for the mediating role of self-esteem and broaden the understanding of the similarity of self-esteem's role in reducing anxiety symptoms and increasing students' quality of life in a developing country. When analyzed in the current social context, this finding was important because it was the basis for us to design and implement mental health programs for undergraduate students. Research reports on mental health have all found a significant drop in undergraduate students' self-esteem due to the impact of the COVID-19 pandemic (Ross et al., 2020). Therefore, self-esteem-focused counseling and self-esteem development education programs are needed as both preventive and intervention strategies for low-self-esteem-related mental health disorders as well as GAD. The goal of these strategies is to increase the quality of life, satisfaction in online learning and the well-being of students in a developing country. Thus, our hypothesis 2 is also supported.

In addition, this study also shows that the relationship between anxiety symptoms and quality of life is also mediated by the chain from perceived social support to self-esteem. This result can be explained by some previous studies. First, the effects of anxiety symptoms can impair perceptions of social support by focusing too much on potential hazards and not paying attention to sources of social support. While self-esteem can be shaped and changed by relationships and social rejection, a decrease in perceived social support may result in a decrease in self-esteem (Lamer et al., 2015; Leary et al., 1995; Li et al., 2018). The final process is a decline in self-esteem leading to a decline in quality of life. This mediating relationship is essential for mental health care and intervention strategies for undergraduate students in a developing country.

Conclusion

The investigation of the impact of undergraduate students' anxiety on quality of life that is mediated by perceived social support and self-esteem has strengthened our knowledge about the mediating role of these two variables in a developing country's study setting. During the COVID-19 pandemic, anxiety symptoms have had a negative impact on the quality of life of Vietnamese students. However, when perceived social support and self-esteem improvement strategies were provided to students, anxiety symptoms tended to decrease. Both the proposed hypotheses are accepted. This result proves the appropriateness and effectiveness of social care policies as well as mental health care that Vietnam has implemented, as well as an important foundation for designing support strategies for undergraduate students that are appropriate to the social context. Our results demonstrate the appropriateness of the mediating variable research model setting in a developing country and reinforce relevant previous findings. This can be seen as a reference for developing countries with similar research orientations to propose appropriate mental health and social security strategies for the people of that country, especially undergraduate students. Nevertheless, this study had some limitations. First, this is a cross-sectional study, so there will inevitably be limitations on the nature and depth of the

mediating role of perceived social support and self-esteem in the relationship between the participants' anxiety symptoms and quality of life. Second, the data were collected by using convenience sampling and were conducted in certain areas in Vietnam. These data could limit the generalizability of the results on a national scale and need to be expanded in the research area. Moreover, the research and development of other study designs or theoretical frameworks on the quality of life or anxiety approach is an indispensable direction to strengthen and broaden our understanding of this field.

Ethical approval

The study was approved and supervised by the Psychology Department Ethics Committee of the key pedagogical university under the Vietnamese Ministry of Education and Training and by the Declaration of Helsinki, code: QD2695/BGDDT.

When the participants agreed to participate in the study, they have informed of the study's aims and asked to sign a written consent to participate, secure information and authorize the publication of results.

Data availability statement

The data and material for this study is available for those who want to know about the in-depth interview data of the participants.

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Authors' contribution

Le-Thanh Tran: Conceptualization, study design, supervisor.

Duy-Hung Le: Paper writing, data collection, data analysis.

Quang-Dao Pham: Literature review, data analysis.

Conflict of interest

The authors admit that this study have no conflicts of interest.

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