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Factors Related to Psychological Distress Among Nursing Students Volunteering in Covid-19 Frontline Prevention In Vietnam.

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ABSTRACT

The aim of the study to examine the level of psychological distress among nursing students volunteering in Covid-19 frontline prevention in Vietnam and related factors. Nursing students volunteering in frontline prevention presented emotional effects, including positive and negative effects on their psychological well-being. A cross-sectional study design was used and four hundred seventy-one students who volunteered for frontline prevention were randomly selected in the study using inclusion criteria. Data were collected from October to December 2021. A demographic questionnaire, the General Self-Efficacy Scale, the 6-item Kessler Psychological Distress Scale, the Brief Coping Orientation to Problems Experienced Inventory Questionnaire, and the Quality of life EQ-5D-5L were used to measure the variables. The data analysis was conducted by using descriptive statistics and linear regression. The research found that students presented a high risk of psychological distress. There was a significant correlation between problem- and emotional- coping strategies, quality of life, and psychological distress. Moreover, family support and psychological distress among nursing students had a strong relationship. Lecturers and high education institutions responsible for nursing students should pay more attention to developing psychological interventions in enhancing coping strategies and quality of life and various supports to reduce distress among nursing students fighting the epidemic.

Keywords: *Nursing students, Covid-19 frontline prevention, psychological distress, related factors, Vietnam*

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INTRODUCTION

The Covid-19 pandemic is the most serious global health crisis of this century, with more than 396 million infected cases and 5.75 million died patients worldwide as reported by February 8, 2022, announced by the World Health Organization (2022).1 Countries' Ministry of Health have responded to the crisis by converting hospitals into Covid-19 units and taking measures to control the spread of the virus. One of the first measures adopted in countries such as Canada, the United Kingdom (UK), and the United States was to cease the clinical practice of nursing students.2 However, countries such as Spain and the UK launched initiatives to call for final-year nursing students to join the nursing workforce.3-4 Similar to other countries, the healthcare system in Vietnam is severely over-stretched with the increasing number of people diagnosed with Covid-19. Hence, nursing students who volunteered to work at hospitals and community health centers would help to reduce the disease burden on society and the healthcare system in Vietnam.

Initiatives to motivate students who have volunteered in the fight against epidemics have been described in some countries during outbreaks of the severe acute respiratory syndrome and Middle East Respiratory Syndrome.5 Research has indicated that students tend to volunteer to work during medical disasters and present a optimistic emotion towards the situation.6-7 Some studies have suggested potential risks and recommendations against the use of nursing students participating in voluntary epidemic prevention.4,7 However, the situation is complex, as some nursing students participating in epidemic prevention and control may not feel confident enough to perform the associated tasks.9 Students have also indicated problems with psychological stress, such as fear, depression, anxiety, ineffective coping measures,10-11 and low quality of life.12-14 Therefore, in addition to professional knowledge and skills in patient care, students were trained by functional units such as the local CDC on protective methods to avoid infection for themselves and the community, then students were confident in performing their assigned tasks.15

While participating in the prevention and control of the Covid-19 epidemic, students expressed a variety of feelings including both negative and positive feelings.6,16 A study conducted in Spain by Martin Delgado (2021) explored students' experiences in caring for patients during the SARS outbreaks and indicated that in addition to challenges and overwhelming experience, they felt willing and thrived professionally.9 In the context of the current Covid-19 pandemic, a quantitative study by Tran and colleagues (2021) found that in addition to negative feelings, nursing students eagerly participate in Covid-19 prevention and control activities. Beside, the students clearly express their gratitude for the support of the government, family and friends. Another important point in the psychology of students when participating in the prevention and control of the Covid-19 epidemic is that students understand the meaning of the nursing career they have chosen.15

However, to date, limited studies have been undertaken to evaluate the psychological responses of healthcare workers and nursing students in participating in epidemic prevention.17-18 In addition, Gao et al. (2021) investigated the psychological responses of nursing students to the Covid-19 outbreak and found that post-traumatic stress disorder levels were high in nursing students. In Hong Kong, research results showed that nursing students indicated that this is an opportunity for them to demonstrate their professional competence and be more confident in their future career.19-29 The final-year nursing students participating in the prevention and control of the Covid-19 epidemic revealt that although students are worried about the risk of infection, they feel obliged to volunteer to join the health care force.7,21 In assessing Vietnamese nursing students' intention to participate in epidemic prevention and control of nursing students, Q. A Tran et al. (2021) indicated that most participants had positive intentions when participating in epidemic prevention and control activities.

The previous research results found that there were various factors related to psychological distress among students participating in epidemic prevention and control activities.

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The study results showed that boosting confidence in practice can be particularly effective in improving stress and work performance in students.9 Confidence in the practice of nursing students in pandemic prevention and control activities was usually lower than the normal situation, therefore, the students often were unsure of practice skills and fear of infection, which may lead to an increased level of distress.21 The level of psychological distress varies depending on coping strategies and the quality of life of students while participating in the frontline prevention activities.11 Research related to mental health well-being perceived by students and health workers in Covid-19 found that there was a positive correlation between coping strategies and psychological distress. Studies found an important role for social support in relation to mental health issues in nursing students. Support from the government, family and experts helps students deal with distress and anxiety while participating in the prevention and control of Covid-19.11

Vietnam is one of the Asian countries severely affected by the Covid-19 pandemic. When the outbreak began, the government called for staff and healthcare students to volunteer to provide aid to areas severely affected by the Covid-19 pandemic.22 The study was conducted in epidemic-affected provinces/cities where nursing students volunteered to assist with Covid-19 outbreaks. This included hospitals of all levels, field hospitals, and medical centers that provided screening tests, Covid-19 vaccinations, and tracing of infected persons. During epidemic outbreaks, thousands of nursing students from year two to year four in nursing and medical universities in Vietnam volunteered to assist with the prevention and control of the Covid-19 epidemic. These students had previously submitted a volunteer application to participate in epidemic prevention and control according to calls from the Government and Universities. They underwent training courses based on their current competency in Covid-19 prevention and control activities by CDC Vietnam. While participating in volunteer work in the hospitals or commune health centres, they coordinated with medical staff to carry out activities under the supervision and support of lecturers from their universities. The purpose of this study was to examine the level of psychological distress among nursing students volunteering in Covid-19 frontline prevention in Vietnam and related factors.

Framework of the study

The study was guided by Roy's adaptive model.23 In Roy's perspective, person is a fully adaptive system in which, in order to survive, the person performs constant interaction with the internal and external environment. This adaptive system includes cognitive and regulatory subsystems that enable the person to achieve adaptation through physiology, self-concept, functional roles, and interdependence. When people are faced with stimuli, they strive to find coping strategies to adapt themselves to the new situation. Therefore, according to Roy's model, when person find ineffective countermeasures, the person may have negative consequences or develop the diseases.23 Psychological distress presents a negative consequence based on the model. Nursing students participating in the prevention and control of the Covid-19 epidemic were lacking practical experience and may face situations of contact and provide direct care for infected patients, while increased infection cases represent stimuli on adaptive ability of the nursing students. These stimuli gradually overwhelm their abilities resulting in ineffective adaptation. Finally, students who may feel that ineffective adaptation is psychological distress. Based on Roy's adaptation model, psychological stress can be implied as a sign of a health imbalance between stimuli and adaptation. From the literature review, there were various factors related to psychological distress in anti-epidemic students. However, this study focused on the general characteristics of students, confidence in practice, coping methods, and quality of life of students while participating in epidemic prevention and control, which represented the stimuli.

METHODS

Design

This study used a cross-sectional design to examine the level of psychological stress among nursing students participating in epidemic prevention and control in Vietnam.

Participants

The participants were nursing students who volunteered to assist with Covid-19 prevention and control activities. In the provinces, there are health centers where the nursing students performed their assigned tasks under the supervision of their lecturers. The inclusion criteria for the nursing students were current involvement in prevention and control activities and without serious physical or mental health problems. The RAs used the inclusion criteria to send randomly the link to the participants.

Sample size

G * Power 3.1.9.2 was used to calculate the sample size. About 50% of nursing students volunteered to participate in Covid-19 prevention and control activities.7 Thus, an error of 5% and a confidence level of 99% required a minimum of 325 participants. An estimated 10% of the participants could withdraw from the study, the expected sample was 358 students. The study used the multi-stage selection sampling method to recruit the participants. Phase 1 conveniently selected universities with nursing students volunteering against Covid-19 from October to December. In each university, the students were randomly selected from the target population using a random number assigned by a research assistant who was blinded to the student's identity. Finally, until the end of December 2021, 471 participants who met the included criteria rated the questionnaire.

Data collection

The data collection was carried out from October to December 2021. The five research assistants (RAs) were Vietnamese nursing instructors who worked at the universities and supervised students while they participated in Covid-19 prevention and control activities. They were trained to collect data using the research instruments online. Each RA used a mobile app (Zalo) to create a group of students who met the inclusion criteria in their university. The KoBoTool Box application was used to conduct online data collection. The link of invitation, informed consent, and questionnaires were sent to the participants by the RAs. They provided the pre-notification, an additional reminder to the participants lively and on the Zalo group to enhance the rates of responses.24

The RAs were nursing faculty members from nursing and medical universities involved in the study. These RAs were trained in how to use research instruments to measure outcome variables online via Zoom by the primary investigator and were also trained to assist the researcher in the randomizing sampling process.

Measurements

Three self-reported questionnaires were used to collect the data. The questionnaires included demographic characteristics, the General Self-Efficacy Scale, the 6-item Kessler Psychological Distress Scale, the Brief COPE Questionnaire, and the EQ-5D-5L Vietnamese version.

Demographic characteristics were age, gender, study year, Covid-19 vaccination, ever-infected with Covid-19, infected relatives/friends with Covid-19, the number of times the student volunteered for Covid-19 prevention and control, and the students' family's support regarding their decision to volunteer.

The General Self-Efficacy Scale was used to measure the confidence of students participating in Covid-19 prevention and control.25 The original scale was used to measure self-efficacy in patients with chronic diseases. The research group adapted the scale to ensure consistency in their understanding of all students in the Covid-19 situation. The questionnaire consisted of 10 items, with participants asked to rate their confidence levels in Covid-19 prevention and control activities. The questionnaire was scored on a 4-point Likert Scale (1 = Not at all true, 2 = Hardly true, 3 = Moderately true, 4 = Exactly true). The total scores ranged from 10 to 40, and were calculated from the scores of all questions; the higher the score, the more confident students were in Covid-19 prevention and control activities. This study determined each respondent's confidence based on the cut-off. The student's confidence level was classified as having low confidence (10-29) or high confidence (30 or higher). Zhang and Schwarzer (1995) reported that the General Self-Efficacy Scale presented high reliability at 0.88. The scale indicated high validity among Vietnamese.26

The 6-item Kessler Psychological Distress Scale was used to measure the participants' psychological stress levels.27 The original scale screened for serious mental illness among university students. The research group adapted the scale to ensure consistency in their understanding of all students in the Covid-19 situation. The participants were asked about six psychological symptoms within the previous 30 days, including feelings of "nervous", "hopeless", "restless or fidgety", "so depressed that nothing could cheer you up", and "that everything was an effort", and "worthless" related to the Covid-19 prevention and control activities. The questionnaire was scored on a 5-point Likert scale showing "never", "rarely", "sometimes", "often", and "always". The total score ranged from 0 to 30, calculated from the scores for all questions. The students' level of distress was classified as having a low risk of psychological distress (overall score of 0-12) or a high risk of psychological distress (overall score of 13 or higher). The 6-item Kessler Psychological Distress Scale presented high reliability, with a Cronbach's alpha of 0.84.27 The scale has shown high validity among Vietnamese.28

The Brief COPE Questionnaire was used to measure the participants' coping strategies.29 The questionnaire consisted of 28 items with three domains of emotional focussed coping, problem focussed coping and avoidant coping. The questionnaire was scored on a 4-point Likert scale indicating "never", "rarely", "occasionally", and "often". Sub-scale scores ranged from 0 to 32 (problem focussed coping), 0 to 48 (emotional focussed coping), and 0 to 32 (avoidant coping), with higher scores indicating effort at changing the stressful situation, regulating emotions associated with the stressful situation, and disengaging from the stressor, respectively.29 The Brief COPE Questionnaire scale indicated high validity among Vietnamese.30

The EQ-5D-5L Vietnamese version scale was used to measure the participants' quality of life.31 The questionnaire consisted of five items, with participants asked about five dimensions of quality of life while participating in the Covid-19 prevention and control, including mobility, pain/discomfort, usual activities, anxiety/depression, and self-care. The questionnaire was scored on a 5-point Likert scale indicating "no problems", "slight problems", "moderate problems", "severe problems" and "unable to/severe problems" about aspects of life while students participated in epidemic prevention and control activities. An excellently quality of life person would have a score of 11111 and a quality of life coefficient of 1. A person who was "quite anxious or rather melancholic" may have a score of 11113 and a coefficient of quality of life of 0.885. The coefficient was compared with the standard coefficient of the quality of life according to the table of quality of life scale in Vietnam. The EQ-5D-5L scale indicated high validity among Vietnamese.31

The General Self-Efficacy Scale, the 6-item Kessler Psychological Distress Scale, and the Brief COPE Questionnaires were originally in English and translated into Vietnamese by the research team according to Sousa and Rojjanasrirat (2011).32 The questionnaires translated into Vietnamese were tested for reliability before conducting actual data collection by 30 students who met the inclusion criteria for participants in the study. In the study, the reliability of the General Self-Efficacy Scale, 6-item Kessler Psychological Distress Scale, and Quality of Life Scale were 0.75, 0.82, and 0.87, respectively. The Cronbach's alpha of the Brief COPE Questionnaire was 0.79, and its subscales ranged from 0.76 to 0.80.

Ethical considerations

This study was approved by the (de-identified university) Human Research Ethics Committee (Approval No 2476/GCN-HĐĐĐ). Permission to conduct the research was obtained from all universities where the students were involved. All students were informed of the purpose of the study, the data collection procedure, possible inconveniences, and rights relating to participation in the study. The research team respected the participants' decisions, ensuring anonymity and confidentiality of information. This study did not require any physical assessment or intervention. Moreover, the lecturers participated in data collection, therefore, to avoid the viewed as 'coercive' by their students, the study information sheet with the consent form clearly explained that the survey had no questions about personal information and university name.

Data analysis

Frequencies, means, and standard deviations were used to describe participants' characteristics. Multivariable logistic and linear regression were performed to determine the factors related to the psychological distress of nursing students participating in epidemic prevention and control. Data were analyzed using IBM® SPSS® statistical software, version 26, and statistical significance was set at $p < 0.05$.

RESULTS

Participant characteristics

Four hundred and seventy-one students participated in the study. The average age was 21.2 years old; while most were female students (90.7%) and were vaccinated (98.5%). Only 7.0% of students had ever had Covid-19, and 26.3% of students had relatives with Covid-19. About half of the students were participating in the Covid-19 epidemic prevention and control for the first time. Most students had support from their families to participate in the volunteer activities (86.8%), as shown in Table 1.

TABLE 1: Participant characteristics (n= 471)

Variables	Number (n)	Percentage (%)
Age:		
Mean ± SD: 21.27 ± 0.96		
Gender: Male Female	 44 427	 9.3 90.7
Vaccinated: Yes No	 464 7	 98.5 1.5
I have been infected by Covid-19: Yes No	 33 438	 7.0 93.0
My relatives/close friends have been infected by Covid-19: Yes No	 124 347	 26.3 73.7
Times volunteering:		
1 time	251	53.3
≥ 2 times	220	46.7
Supported by family:		
Yes	409	86.8
No	62	13.2

Notes: SD: standard deviation.

The average scores for confidence in practice, psychological distress, and quality of life of students participating in the epidemic prevention and control were 29.27 ± 3.8, 22.6 ± 3.51, and 0.88 ± 0.17, respectively. These results indicated that most students presented high confidence in practice and risk of psychological distress; however, they had a good quality of life. The nursing students used different kinds of coping strategies, in which, problems focussed coping, emotional focussed coping, and avoidant coping were 25.12 ± 6.12, 35.07 ± 8.97, and 14.95 ± 12.15, respectively, indicating the students' efforts to change their stressful situations, regulate emotions, and disengage from the stressors. Further details are presented in Table 2.

TABLE 2: Mean and standard deviation, range and level of totals and subscales of student's confidence, psychological distress, coping strategies, and quality of life

Variables	Mean	SD	Level
Confidence	31.27	3.89	High
Psychological distress	22.6	3.51	High
Coping strategy:	75.14	10.75	
Problem focussed coping	25.12	6.12	Changing the stressful situation
Emotional focussed coping	35.07	8.97	Regulating emotions
Avoidant coping	14.95	12.15	Engaging from the stressor
Quality of life	0.88	0.17	High quality of life

Notes: SD: standard deviation.

The results indicated a significant negative correlation between psychological distress among students participating in the epidemic prevention and control and vaccination ($p < 0.05$), times of participating in Covid-19 prevention ($p < 0.001$), and support from family ($p < 0.01$) (Table 3).

TABLE 3: Univariate analysis of factors related to psychological distress among nursing students participating in epidemic prevention

Variables	**n**	**%**	***t/F***	***p***
Age			-0.92/0.85	>0.05
Sex Male Female	 44 427	 9.3 90.7	 -1.06/1.13	 >0.05
Vaccination Had vaccinated Not vaccinated	 464 7	 98.5 1.5	 -1.98/3.92	 <0.05
Infected with Covid-19 Yes No	 33 438	 7.0 93.0	 -0.88/0.78	 >0.05
Relative with Covid-19 Yes No	 124 347	 26.3 73.7	 -0.19/0.04	 >0.05
Times of participating in Covid-19 prevention				
1 time	251	53.3	-4.82/23.22	<0.001
2 times and more	220	46.7		
Support from family				
Yes	409	86.8	- 2.66/7.10	<0.01
No	62	13.2		

The results of the multivariate linear regression indicated that three factors affecting the psychological distress among nursing students participating in the epidemic prevention and control included vaccination ($\beta = -0.22$, $p < 0.01$), support from family ($\beta = 0.27$, $p < 0.05$), problem focussed coping ($\beta = -0.25$, $p < 0.01$), emotional focussed coping strategy ($\beta = -0.31$, $p < 0.05$) and quality of life ($\beta = -0.009$, $p < 0.001$). Further details are presented in Table 4.

TABLE 4: Independent risk factors for psychological distress among nursing students

Variables	Unstandardized coefficients		Standardized coefficients beta	*t*	95%CI
	β	SE			
Constant	49.33	4.88		10.10***	39.74-58.92
Vaccination	0.22	0.73	0.98	3.21	0.50-0.70
Times of participating in Covid-19 prevention	0.19	0.95	0.12	2.11	0.78-1.02
Support from family	0.27	0.56	0.36	-1.67*	0.78-0.95
Confidence in practice	0.18	0.13	0.06	1.38	-0.08-0.43
Coping strategies					
Problem focussed coping	-0.25	0.32	-0.19	-3.27**	-0.85-0.26
Emotional focussed coping	-0.31	0.22	-0.23	-2.89*	-0.92-0.35
Avoidant coping	-0.27	0.21	-0.25	-4.12	-0.83-0.37
Quality of life	0.009	0.002	-0.19	4.07***	0.005-0.01

Notes: *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$; CI: Confident interval;

DISCUSSION

This study described the psychological distress among nursing students who volunteered to participate in Covid-19 prevention and control and examined the correlations between the study participants' characteristics, confidence in practice, coping strategies, quality of life, and psychological distress. The study results provide evidence for universities, families, and society to provide appropriate support to nursing students involved in Covid-19 prevention and control.

Psychological distress of nursing students volunteering in Covid-19 frontline prevention

Distress is quite common in students, even in a typical study environment.33 This results was congruent with perspective in the Roy's adaptation model in that the nursing students generally pandemic prevention and control activities such as screening tests, Covid-19 vaccinations, and tracing of infected persons. However, implemented activities were reported that the nursing students should try to take care of the uninfected patients. It revealt that stimuli over time give students the ability to adapt, however, when this stimulus is too strong, it may gradually overwhelm their own ability to adapt, which may lead to feelings of psychological distress.

Additionally, this finding is congruent with previous studies, where psychological distress increased when facing complicated developments of the Covid-19 epidemic.9,11 The results indicated that more than half of the students (53.3%) were participating in Covid-19 prevention and control for the first time. At the initial stage of participating in the epidemic prevention and control, the students' psychological distress focused on anxiety about a new environment, being away from family, and lack of knowledge and experience related to Covid-19 prevention and control.9,11 On the other hand, when nursing students provided patient care, they were psychologically stressed due to fear of Covid-19 infection, the negative information on social networks, burnout, and isolated living, and working environment.9 This high prevalence of psychological distress may be due to more likely witness increased cases and deaths which can lead to inaccurate assessment of the epidemic situation, leading to excessive psychological distress.10,34

Factors related to the psychological distress of nursing students volunteering in Covid-19 frontline prevention

The research results partially answered the research hypothesis.

The multivariate linear regression indicated that the factors related to psychological distress among nursing students in epidemic prevention and control included support from family ($p < 0.05$), problem focussed coping ($p < 0.01$), emotionally focussed coping ($p < 0.05$), quality of life ($p<0.001$). These study results correspond to results from other studies.9,11,35

Support from the family of nursing students volunteering in Covid-19 frontline prevention

The support from family has an active role in helping students reduce psychological distress when participating in the fight against the epidemic.11 The support can be provided by the students' universities, academic advisors, friends, and especially, family members. In this study, most students participating in the Covid-19 prevention and control had family support. If students receive encouragement and trust from family members about their decision, this may help reduce their psychological distress; otherwise, they may experience a constant state of anxiety, low self-esteem, and lack of confidence.17 The research reported that psychological support and regular contact with nursing students played an important role in helping students reduce psychological distress during the Covid-19 pandemic.36,37

Coping strategies of nursing students volunteering in Covid-19 frontline prevention

The coping strategies were seen as a solution to adapt, which means that nursing students tried to overcome the challenges in epidemic prevention and control activities, life, and stress to adapt to this situation with the support of friends, families, and society.19 The results showed that problem- and emotion-focussed coping strategies were related negatively to psychological distress, indicating that the higher nursing students utilized problem- and emotion-focussed coping strategies, the lower psychological distress experienced. Theoretically, the coping strategies students used to deal with problems and emotions related to student behavior or situations while participating in the Covid-19 prevention and control activities, these strategies are related to levels of psychological distress, social support may be representative of contextual stimuli.23 Vietnam's nursing students were quite confident in their abilities and easily adapted to new circumstances.15 In addition to the negative psychological distress, nursing students became aware of the opportunity to learn, experience the clinical environment, and learn how to work in groups.38 This study also found that nursing students dealt with psychological stressors by using emotion-focussed coping strategies, such as talking and sharing their feelings, through video calls to receive psychological support from family and friends. They also played sports, practiced yoga, and did other activities, such as reading, that helped them deal with psychological distress.

The results of this study correspond to previous studies.11,19,36, The research results indicated that the nursing students involved in caring for patients with Covid-19 reduced stress by applying coping strategies of seeking support from family, spiritual refuge, listening to music, and reading books to improve their professional qualifications. Over time, nursing students participating in the epidemic prevention and control activities adjusted to safe adaptations of compliance with prevention and isolation measures.20

Quality of life among nursing students volunteering in Covid-19 frontline prevention

The multivariable linear regression analysis results in the current study indicated that the quality of life was a factor related to the psychological distress of nursing students participating in epidemic prevention and control. This result was consistent with previous study findings by Leong et al. (2021) and Simionescu (2021) where students participating in the Covid-19 prevention and control had high psychological distress, they had a low quality of life.13,34 Therefore, nursing schools should make a greater effort to identify and solve the issues experienced by nursing students and ensure there is professional and emotional support before and during students' participation in the frontline, as recommended by Leong et al. (2021).13 Families should also provide emotional support for nursing students on the frontline of Covid-19.14 Specific coping strategies are also necessary for those nursing students before volunteering for frontline prevention, as they need strong psychological preparation to face stressful situations.

Educational initiatives and sharing experiences from teachers and friends related to the Covid-19 prevention and control activities could help them cope with future situations. Moreover, universities should adapt their educational programs to include topics about Covid-19 prevention and control and coping with psychological distress during frontline activities.

Limitations

There are some limitations to this study. First, the closed-ended questionnaires may not fully describe the nature of the problem; open-ended questions or interviews with nursing students may be required to contribute to a better understanding of the impact of volunteering in frontline prevention and control. The self-report by online format method may have reduced the objectivity of the data collected. The researcher may not understand deeply how the nursing students experience the frontline prevention and control activities and their affects. Finally, this study was a cross-sectional observational study; therefore, it was not possible to assess the epidemic's short-term and long-term psychological distress effects on frontline nursing students fighting the epidemic.

CONCLUSION

The results illustrate that nursing students' psychological distress during Covid-19 frontline prevention and control was very common. The most prevalent psychological distress factors were family support, problem- and emotion-focussed coping, and quality of life. Social support interventions, provision of adequate means of personal protection, and improved knowledge and skills to deal with Covid-19 should be considered to support frontline nursing students fighting the epidemic.

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CONFLICT OF INTEREST STATEMENT

No conflict of interest has been declared by the authors.

AUTHORSHIP STATEMENT

All listed authors meet the authorship criteria and that all authors are in agreement with the content of the manuscript. M, D, N, H, N, & N designed the study. M, D, N, H, & N collected the data. M, D, N, H, N, & N analyzed the data. M & N prepared the manuscript. All authors approved the final version for submission.

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