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The Psychometric Properties of the Brief Coping Questionnaire among Covid-19 Frontline Nursing Students in Vietnam

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Abstract

Objectives: The study aims to examine the psychometric properties of the translated Brief COPE Questionnaire in the Vietnamese context. Methods: The Vietnamese version of the Brief COPE Questionnaire underwent two steps of translation, cross-cultural adaptation, and psychometric validation as part of this cross-sectional descriptive study. University nursing students were on the front lines of the Covid-19 pandemic in the provinces and cities where outbreaks were occurring. From October to December 2021, information was gathered using the Vietnamese version of the Brief COPE Questionnaire. Results: The 23 items - brief COPE questionnaire Vietnamese version were divided into five categories of problem-focused coping, emotional-focused coping, support coping, substance abuse coping and religious coping. The loading coefficient of the observed variables were more than 0.5, therefore, the model achieved a good fit. The questionnaire's Cronbach's Alpha reliability coefficient, along with the five group variables, both exceeded 0.6. Conclusion: The five-factor, 23-item brief COPE questionnaire was indicated to have good psychometric properties in this study. This is a legitimate and trustworthy measurement for evaluating coping mechanisms among Vietnamese nursing students.

Introduction

Covid-19 pandemic affected on psychology and coping among frontline students (Goni et al., 2021). These individuals faced numerous challenges, including increased workload, heightened risk of exposure to the virus, and emotional distress associated with witnessing the impact of the pandemic firsthand (Savitsky et al., 2020; Li et al., 2021; Grande et al., 2021; Leong et al., 2021; Keener et al., 2021). Vietnam has been praised globally for its effective response to the Covid-19 pandemic, with relatively low infection and mortality rates. Nevertheless, this does not diminish the pandemic's effect on the mental well-being and coping mechanisms of students at the forefront. (Q. A Tran et al., 2021). Vietnam's unique sociocultural and educational context provides an interesting and valuable perspective for understanding coping strategies among students. Exploring the experiences and coping mechanisms of Vietnamese students may contribute to the existing body of knowledge on coping strategies during a

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pandemic, and potentially inform interventions and policies in other similar contexts.

The brief COPE questionnaire was a widely used instrument for assessing coping strategies in various stressful situations (Carver, 1997). It comprises 28 items that assess various coping strategies, including active coping, positive reinterpretation, and acceptance. The questionnaire provides valuable insights into the strategies that individuals cope with stress. The instruments presented to be useful in both research and clinical settings. The questionnaire was translated and validated in numerous countries to ensure its cross-cultural applicability and validity (Connor-Smith & Flachsbart, 2007; López-Pina, 2019). Researchers adapted the questionnaire into different languages and examined its psychometric properties within specific cultural contexts. These studies demonstrated the reliability and validity of the questionnaire across diverse populations, establishing it as a valuable instrument for assessing coping strategies worldwide (Carver, 1997; Connor-Smith & Flachsbart, 2007; López-Pina, 2019).

The study aims to examine the psychometric properties of the translated Brief COPE Questionnaire in the Vietnamese context. This involved assessing the questionnaire's reliability, validity, and factor structure among students on the Covid-19 frontline. Then, the study examines the coping strategies employed by students in the Covid-19 frontline in Vietnam to gain a comprehensive understanding of the coping mechanisms utilized by these students and identified any variations based on individual, sociocultural, or contextual factors. By achieving these objectives, this study seeks to contribute to the existing literature on coping methods utilized by students on the frontline of the Covid-19 pandemic, particularly within the Vietnamese situation. The findings of this research had the potential to inform interventions, policies, and support systems that promote the well-being and resilience of students facing similar challenges globally.

Methods

The Brief COPE Questionnaire Instrument

Researchers utilized the Brief COPE Questionnaire to evaluate the coping style of the participants (Carver, 1997). The initial survey comprised 28 items divided into three categories: emotional-focused coping (8 items), problem-focused coping (12 items), and avoidant coping (8 items). Participants were asked to give their level of agreement with each statement on a 4-point Likert scale from 0 (never) to 3 (often). Total scores range from 0 to 84. Scores on the sub-scales varied from 0 to 24 for problem-focused coping, 0 to 36 for emotional-focused coping, and 0 to 24 for avoidant coping, with higher scores indicating more effective coping.

Study Design

The cross-sectional descriptive study comprised two stages: translation and cross-cultural adaptation, and psychometric validation of the Vietnamese version of the Brief COPE Questionnaire.

During the initial stage, the Brief COPE Questionnaire was translated into Vietnamese in accordance with the cross-cultural adaptation guidelines outlined by Beaton et al. The translation process of the Brief COPE Questionnaire going through 6 steps (Beaton, et. al., 2007). Two nursing experts who are fluent in speaking and writing English and have background knowledge in psychology were invited to translate the Brief COPE Questionnaire into Vietnamese. They worked independently and provided two translations labeled T1 and

T2. The research team and reviewers examined and deliberated on the two translated versions, thereby agreeing to build a comprehensive translation in Vietnamese labeled T-12. Two individuals, whose native language is English, independently translated the Vietnamese version (T-12) back into English. The research team, along with translators, reviewed both back-translations (BT1 and BT2) to reach a consensus on the Pre-final version. 30 nursing students were asked to answer the questionnaire within 15 minutes. The students provided their feedback if the items in the Brief COPE Questionnaire were clear and accessible. Following the piloting step, the final Vietnamese version of the Brief COPE Questionnaire was used to examine the psychometric properties in the Vietnamese context.

In the second stage, the psychometric validation of the Vietnamese version of the Brief COPE Questionnaire was conducted among Covid-19 frontline nursing students in provinces/cities with epidemic outbreaks in Vietnam from October to December 2021.

Study Setting

This study was conducted in provinces/cities with epidemic outbreaks among Covid-19 frontline nursing students. These included hospitals at various levels, field hospitals, and medical centers, offering services such as screening tests, Covid-19 vaccinations, and tracing of infected individuals.

Sample and Sampling Method

Nursing students from universities participated in the frontline of Covid-19 epidemic in provinces/cities with outbreaks. The inclusion criteria were the students who volunteer to participate in research and without serious physical or mental health problems. The exclusion criteria were the students who were unable to complete the assigned task in the epidemic prevention process.

According to Hair and Collaborators (Hair et. al., 2010), the number of 10 participants per item should be sufficient. It means that minimum of 280 participants should be collected for the research. Finally, there were 506 students participating in the study. The student recruitment utilized a non-probability, convenient sampling approach.

Data Collection

Data was collected by using the Brief COPE Questionnaire in Vietnamese version from October to December 2021. The investigator made a list of eligible students to participate in the study. The investigator contacted to the students via email/Zalo app to introduce the study. If students agreed to participate, they were invited to sign a consent form to participate in the study. Then, students completed the questionnaire via Google form.

Data Analysis

The data analysis involved the use of SPSS 20.0 and AMOS 20.0 software. Descriptive statistics, such as mean, percentage, and standard deviation, were employed to characterize the research variables. AMOS aided in conducting confirmatory factor analysis (CFA) to assess the structural model, while Cronbach's alpha was utilized to gauge the dimensions' reliability.

Ethical Considerations

This research received approval from the Ethics Committee of Namdinh University of Nursing under the reference number 2476/GCN-HĐĐĐ. Permission to carry out the study was

secured from all the universities where the students were involved. The researcher informed the research participants about the study's objectives, data collection procedures, and their rights regarding participation. It's important to note that the study was conducted without any interventions, and students were informed of their right to withdraw from the study at any time without facing any consequences.

Results

Descriptive Statistics of Research Participants

There were 506 nursing students participated in the study. The average age of students was 21.91 ± 2.70 years old. Most of them were female students (90.3%), and have been vaccinated (98.6%). Only a small number of students had ever been infected with Covid-19 (6.7%). However, more than a quarter of students had a relative who had Covid-19 (26.3%). About half of them were students participating in Covid-19 frontline for the first time (52.6%). The majority of students had family support while participating in Covid-19 pandemic prevention (87.4%).

Psychometric Property of the Brief COPE Questionnaire in Vietnamese

Table 3. Factor Loading of the Brief COPE Questionnaire in Vietnamese.

Items	PFC	EFC	SC	SAC	RC
20. Accepting the reality of the fact that it has happened.	.817				
24. Learning to live with it.	.731				
17. Looking for something good in what is happening.	.680				
25. Thinking hard about what steps to take	.643				
7. Taking action to try to make the situation better	.639				
14. Trying to come up with a strategy about what to do.	.625				
12. Trying to see it in a different light, to make it seem more positive.	.614				
2. Concentrating my efforts on doing something about the situation I'm in	.582				
19. Doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.	.575				
13. Criticizing myself.		.752			
28. Making fun of the situation		.694			
26. Blaming myself for things that happened		.693			
16. Giving up the attempt to cope		.658			
21. Expressing my negative feelings		.620			
8. Refusing to believe that it has happened		.590			
6. Giving up trying to deal with it.		.556			
10. Getting help and advice from other people			.777		
15. Getting comfort and understanding from someone			.741		
5. Getting emotional support from others			.684		
11. Using alcohol or other drugs to help me get through it				.767	
4. Using alcohol or other drugs to make myself feel better				.752	
27. Praying or meditating					.894
22. Trying to find comfort in my religion or spiritual beliefs.					.518

Table 3 indicated that most of the items were sorted into five groups of PFC, EFC, SC, SAC and RC. The observed variables in the table were meaningful to be included in the model because factor loading coefficient were higher than 0.5.

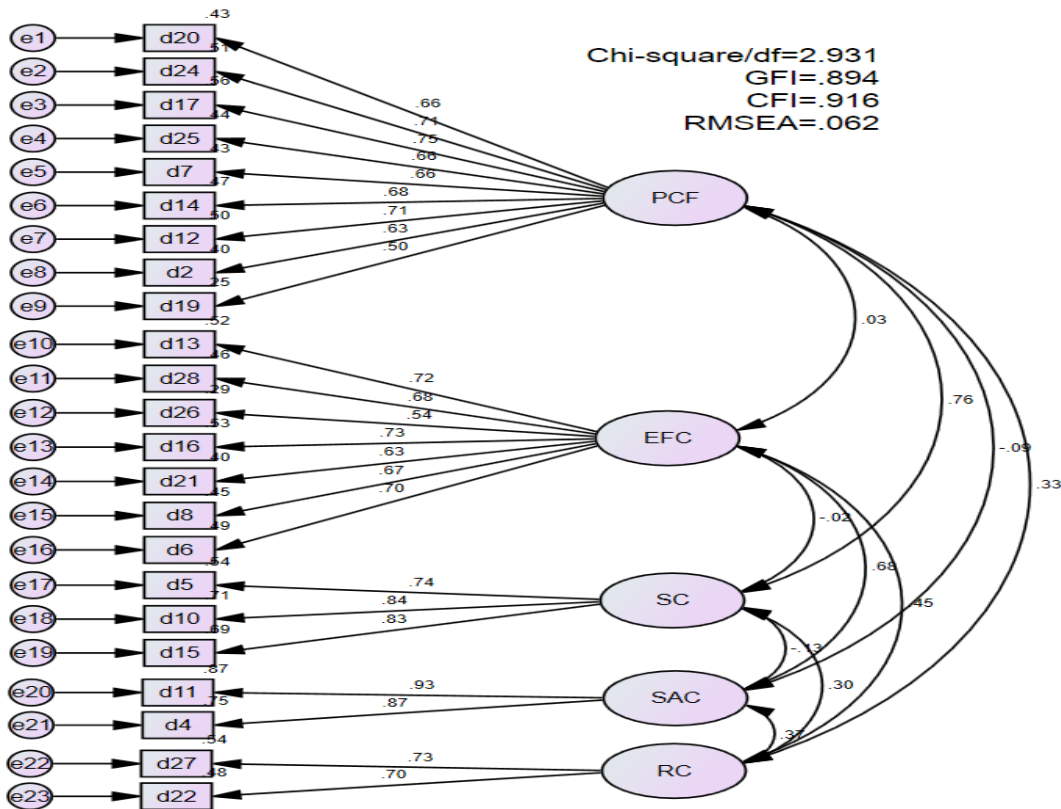


Figure 1- Model and Goodness of Fit Indexes Obtained in Confirmatory Factor Analysis of the Brief COPE Questionnaire in Vietnamese.

The statistical significance was assumed at the 0.05 level. All subscales were integrated in the model as presented in figure 1. The Model Fit indicated that CMIN/DF = 2.931 < 5 is acceptable; GFI = .894 > .8 is acceptable; CFI = .916 > .9 is good; RMSEA = .062 < .08 is good. Therefore, the model achieved a good fit.

The correlation results showed that Problem-focused coping (PFC) and Support coping (SC); Emotion-focused coping (EFC) and Substance abuse coping (SAC) had a significant positive correlation (p-value = .000 < .05). The correlation coefficients were 0.76 and 0.68 respectively, which was quite high, meaning a strong correlation between these two pairs of variables.

Descriptive Statistics of the Brief COPE Questionnaire in Vietnamese

Table 1: Descriptive statistics of the Brief COPE Questionnaire in Vietnamese (n = 506)

Subscales	Min	Max	Mean ± SD
Problem-focused coping (PFC)	0	3	2.27 ± .50
Emotion-focused coping (EFC)	0	3	0.96 ± 0.61
Support coping (SC)	0	3	2.36 ± .63
Substance abuse coping (SAC)	0	3	0.36 ± 0.69
Religious coping (RC)	0	3	1.24 ± 0.84

Total	0	3	1.44 ± 0.40
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The nursing students used substance abuse coping strategies at the lowest level (0.36 ± 0.69).

Table 2. Results of the Reliability Analysis Performed for the Dimensions of the Brief COPE Questionnaire in Vietnamese (n = 506).

Subscales	Cronbach Alpha
Problem-focused coping (PFC)	0.87
Emotion-focused coping (EFC)	0.84
Support coping (SP)	0.84
Substance abuse coping (SAC)	0.89
Religious coping (RC)	0.67
Total	0.86

The Cronbach's Alpha reliability coefficient of total questionnaire and five subscales were adequate (greater than 0.6). Each observed variable exhibited a corrected item-total correlation exceeding 0.3. As a result, the questionnaire demonstrated reliability, and the observed variables possessed significant explanatory value.

Discussion

The primary aim of this study was to assess the psychometric characteristics of the vietnamese version of the brief coping questionnaire, thereby enhancing comprehension of coping approaches utilized by students at the forefront of the covid-19 pandemic. Construct validity of the brief coping questionnaire

This study produced a five-factor construct via factor loading, compared to the fourteen-factor building of the original validated brief COPE questionnaire (Carver, 1997). This can be explained from the original validated scale's cultural adaptation (Borsa, 2012). Thus, the five factors are problem focus coping (item 20, 24, 17, 25, 7, 14, 12, 2, 19), emotional focus coping (item 13, 28, 26, 16, 21, 8, 6), support coping (item 10, 15, 5), substance abuse coping (11, 4) and religious coping (item 27, 22). The research team named the five factors based on the meanings of all items under it. The number of factors are inconsistent with other previous studies which have showed that 14 factors in study of Carver (Carver, 1997), four factors in study of Reich et al. (2016) (Reich, Costa Ball, & Remor, 2016) or eight factors in study of Garcia et al. (2018) (Garcial et al., 2018). This can be explained that the coping strategies are unstable and vary according to types of stress and sample (Velasco, Fernández, Páez, & Campos, 2006). The EFA generated 23 out of 28 standardized factors loading that varied from 0.518 to 0.894. Item 1, 3, 9, 18 and 23 were deleted and were not included in confirm factor analysis since they have factor loading less than 0.5 (Hair, 2010). These results were higher in original brief COPE questionnaire with 22 of 28 items were above 0.6; only six exceeded 0.3, and only one of them exceeded 0.4 (Carver, 1997) and were lower in study of López-Pina which have reported that all the factor loading exceed 0.5 (López-Pina, 2019).

The model's fit quality was assessed using a number of fit indicators. The model had a good CFI score of 0.916, and good RMSEA of 0.068 while GFI and CMIN/DF were acceptable (Hair, 2010) suggesting a good fit model. Moreover, all items attained a satisfactory factor loading of more than 0.5. These indices showed that the five-factor model fit well in this study.

The relationship between the five-factor model (Figure 1) implied that high correlations between PFC and SC ($r = 0.76$), as well as between EFC and SAC ($r = 0.68$). These are different coping strategies which have been used by nursing students to deal with stressful situations. PFC and SC were used at the highest level while EFC and SAC were used at the lowest level (Table 1). This supports the idea that EFC and SAC were considered as inappropriate coping strategies for Vietnamese population because the relevant data have showed that most participants prefer to focus on the problem, focus on the cause of the stress and fix this than to focus on changing the emotion or changing the perception of stressful situations (Thai, Le, Huynh, Pham, & Bui, 2021).

Reliability of the brief COPE Questionnaire

This questionnaire obtained adequate Cronbach's alpha values for the reliability for both the entire scale and its subscales. This demonstrated that all parts of the instrument measures the same concept. This data is supportive of the internal consistency reliability of the scale. These results are consistent with previous studies (Carver, 1997; López-Pina, 2019) in which all subscales achieved minimal acceptance. Reliability is correlated with the number of items in a scale with the fewer number of items may be lower the Cronbach's alphas (Nunnally & Bernstein, 1994). Only two items in the religious coping subscale might be the reason to explain for low Cronbach's alpha of this subscale.

The five-factor of brief COPE model has strong psychometric properties. Researchers and healthcare professionals in Vietnam will find it helpful in examining the coping strategies among students under the stress. This model will make it possible to implement further treatments in the future to lessen stress negative consequences. Moreover, by applying this scale can also be used as inputs to design future intervention appropriately for the people to increase coping strategies.

The current study has some limitations. First, the majority of the participants were nursing students who participated in the frontline of Covid-19 epidemic, it may be difficult to generalize the findings to other participants with different types of stress in Vietnam. Second, this study used self-reported questionnaires via google form in the data collection. This can produce the response bias if the participants might not reveal their genuine experience. Furthermore, there are no comparisons with other instruments that evaluate coping strategies among nursing students. Finally, the questionnaire was distributed only once in this study, it was not possible to examine test-retest reliability.

Conclusion

This study demonstrated that the five-factor, 23-item brief COPE questionnaire has good psychometric properties. This is a valid and reliable questionnaire for assessing coping strategies among nursing students in Vietnam.

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Conflict of Interest Statement: No conflict.

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