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Research Article

The Correlation of Coping Strategies, Perceived Social Support, and Self-Reported Anxiety among Nursing Students during the COVID-19 Outbreak

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Abstract

Aims: This study aims to investigate the correlation between coping strategies, perceived social support, and anxiety among nursing students during the COVID-19 pandemic.
Methods: A descriptive, correlational, cross-sectional study. Total sampling technique was used to recruit 106 nursing students. Data were collected using the Coping Strategies Inventory Short-Form (CSI-SF), the Multidimensional Scale of Perceived Social Support (MSPSS), and the Generalized Anxiety Disorder-7 (GAD-7). Pearson correlation was employed to examine the relationships between key variables.
Results: Anxiety was significantly correlated with engagement ($r = 0.192$, $p = 0.049$), disengagement ($r = 0.264$, $p = 0.006$), emotion-focused engagement ($r = 0.222$, $p = 0.022$), and emotion-focused disengagement ($r = 0.325$, $p = 0.001$). However, social support and its subscales were not significantly correlated with anxiety ($r = -0.007$ to 0.147, $p > 0.05$).
Conclusions: The study suggests that students with higher anxiety tend to adopt more coping strategies, suggesting that targeted training, social support networks, and personalized interventions can improve their mental health.

Keywords:
Anxiety, Coping Strategies, COVID-19, Social Support, Nursing Students

INTRODUCTION

Globally, there are 27.9 million nursing health workers, of whom 19.3 million are professional nurses. Between 2013 and 2018, the nursing workforce increased by approximately 4.7 million, indicating that nursing is the largest profession in the healthcare sector, accounting for about 59% of health professionals (1). In Indonesia, the Ministry of Health reported that there were 438,234 nursing personnel in 2020 (2).

A review of studies by Mohebi et al. (3) identified significant challenges faced by nursing students during clinical education, including violence, socio-cultural barriers, environmental and organizational issues, ineffective clinical education, stress, fear, and anxiety. Iqbal et al. (4) found that 11.3% of nursing students experienced severe anxiety, primarily triggered by clinical practice. Similarly, Zeynep (5) reported that 40.5% of nursing students experienced moderate anxiety during the pandemic, influenced by various factors such as economic difficulties, social interactions, education, family-related concerns, and health issues. These factors were positively correlated with anxiety levels among nursing students during the

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COVID-19 pandemic. A survey conducted by the American College Health Association (6) found that among students experiencing anxiety, 27.8% reported general anxiety, 65.7% experienced extreme anxiety, 1.8% had been diagnosed with anxiety, and 16.5% were diagnosed with both anxiety and depression.

Bartlett et al. (7) compared the mental health characteristics of nursing students with those of non-nursing students and found that nursing students reported significantly higher levels of stress, sleep disorders, stress-related illnesses, and anxiety. While anxiety is a normal response to stress and everyday challenges, it becomes a disorder when it is persistent, excessive, and irrational, interfering with a person's ability to function. Anxiety disorders may manifest as phobias, panic attacks, stress disorders, or obsessive-compulsive disorder, with symptoms such as fear, confusion, restlessness, helplessness, repetitive negative thoughts, muscle tension, palpitations, and difficulty breathing (8). These findings confirm that the use of coping strategies is essential for nursing students to manage stress and anxiety related to both academic and clinical demands (9).

Coping strategies, or mechanisms, are efforts to regulate emotions, behavior, cognition, physiological responses, and environmental aspects when facing challenges (10). These strategies are generally classified into two types: reactive coping, which involves responding to stressors after they occur, and proactive coping, aimed at preventing or mitigating future stressors. Additionally, coping strategies fall into four main categories: problem-focused coping, which addresses and resolves the problems causing distress; emotion-focused coping, which reduces negative emotions associated with the problem; meaning-focused coping, which employs cognitive strategies to find meaning and control the interpretation of stressful situations; and social coping, which involves managing stress by seeking support from others (11).

The literature identifies several common coping strategies used by nursing students, including seeking information or consultation, maintaining optimism, and employing distraction techniques to shift attention away from stressful situations (12). In addition to coping strategies, adequate social support plays a critical role in mitigating stress, depression, and anxiety. A study by Samson (13) demonstrated a relationship between social support and reduced levels of stress, anxiety, and depression among college students. Social support refers to the assistance provided by individuals such as parents, friends, or others within a person's social environment, helping them manage problems and challenges (14).

METHODS

Study Design

This study used a descriptive, correlational, and cross-sectional design.

Population and Sample

The participants were 106 nursing students (total sampling) enrolled in a professional nursing program at a private university in North Sulawesi, Indonesia. Data collection took place from February to May 2022. Inclusion criteria included active enrollment and willingness to participate. Students who were absent during data collection were excluded.

Research Instrument

The demographic questionnaire was used to collect information related to several factors such as age, gender, semester, residential status, relationship status, family financial stability, tribe, religion, level of spirituality, and reason to study nursing. Health characteristics were body mass index (BMI), history of chronic diseases, exercise, and caffeine use. Data regarding COVID-19 were collected such as personal protective equipment (PPE)

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availability, fear of COVID-19, knowledge and prevention of COVID-19, history of contact with COVID-19 patients, history of being infected of COVID-19, and COVID-19 vaccination.

Coping strategies in this study were measured using the Coping Strategies Inventory Short-Form (CSI-SF) questionnaire (15). This tool consists of 16 questions and 2 tiers of the subscale. The option for each question used a 5-point Likert scale, from 1-5 (1=Never, 2=Rarely, 3=Sometimes, 4=Often, and 5=Almost always). The first tier subscale includes engagement and disengagement, with a possible interval score of 8-40. While the second tier was problem-focused engagement (item 5, 6, 11, 13), problem-focus disengagement, emotion-focused engagement (4, 7, 12, 14), and emotion-focus disengagement (3, 10, 15, 16). The possible score of these 4 subscales ranges from 4 to 20 for each subscale. The higher the score, the better the coping strategy applied. Cronbach's Alpha of CSI-SF in this study was in the range of 0.70-0.72.

Multidimensional Scale of Perceived Social Support (MSPSS) was used to assess social support in this study (16). The questionnaire has 12 items and 3 subscales: Family (3, 4, 8, 11), significant other (1, 2, 5, 10), and friends (6, 7, 9, 12). There are 7 options for all items, from 1-7 (1=Very strongly disagree, 2=Strongly disagree, 3=Mildly disagree, 4=Neutral, 5=Mildly agree, 6=Strongly agree, and 7=Very strongly disagree. Higher scores indicate better social support experienced. Cronbach's Alpha of MSPSS in the current study was 0.92.

The Generalized Anxiety Disorder (GAD-7) was utilized to evaluate anxiety in the current study (17). The measure consists of 7 items and 4-point Likert scale (0-3). Possible GAD-7 score ranging from 0-21, with 4 categories of anxiety: Minimal 0-4, mild 5-9, moderate 10-14, and severe 15-21. Cronbach's Alpha of GAD-7 in this study was 0.90.

Data Collection and Analysis

Before the study was conducted, ethical clearance was obtained from the Research and Ethics Committee in West Java, Indonesia (Approval No. 256/KEPK-FIK.UNAI/EC/XI/22). Permission to use the questionnaires was granted by the developers and the researchers who conducted the psychometric validation of each instrument. All participants provided informed consent and voluntarily agreed to participate in the study.

The data were analyzed using the Statistical Package for Social Sciences (SPSS) version 27. Descriptive statistics, including mean, standard deviation, frequency, minimum, and maximum values, were computed. Bivariate analyses included the Independent t-test (for two categories), one-way ANOVA (for three or more categories), and Pearson correlation (to assess relationships between key variables). Normality was evaluated using skewness and kurtosis. A p-value of <0.05 was considered statistically significant.

RESULTS

Characteristics of Participants

The demographic characteristics and health-related factors of the participants are presented in Table 1. The participants had a mean age of 23.33 years (SD = 1.81), ranging from 21 to 30 years. The majority were female (81.1%), in their second semester (72.6%), living in rented housing (68.9%), in a relationship (50.9%), and financially stable (79.2%). Most participants identified as Minahasan (58.5%) and Christian (96.2%), with 70.8% reporting a moderate level of spirituality. Seventy-nine participants (74.5%) chose nursing as their preferred field of study.

The mean BMI was 22.42 kg/m^2 (SD = 3.62), ranging from 16.6 to 36.3 kg/m^2, with the majority (67%) having a normal BMI. Only four participants (3.8%) reported having chronic diseases, and 93 participants

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(87.7%) did not engage in regular exercise. Additionally, 18 participants (17%) reported consuming caffeine regularly.

In terms of self-protection, most participants reported using personal protective equipment (PPE) at a high level (72.6%). Half of the participants (50%) expressed fear of COVID-19. Knowledge of COVID-19 prevention measures was reported to be high by 73.6% of participants. A majority (54.7%) had been in contact with COVID-19 patients, 31.1% had a history of COVID-19 infection, and 65.1% had received the second dose of the COVID-19 vaccine.

Table 1.
Demographics and Health-Related Factors of Participants (n=106)

Variables & Category	Mean ± SD / n (%)	Min-Max
Age (Year)	23.33 ± 1.81	21-30
Gender		
Male	20 (18.9)	
Female	86 (81.1)	
Semester		
1st	29 (27.4)	
2nd	77 (72.6)	
Residential Status		
Rent	73 (68.9)	
Home	23 (21.7)	
Other	10 (9.4)	
Relationship Status		
Single	46 (43.4)	
Taken	54 (50.9)	
Married	6 (5.7)	
Family Financial Stability		
Unstable	22 (20.8)	
Stable	84 (79.2)	
Tribe		
Minahasan	62 (58.5)	
Sanger Islands	14 (13.2)	
Others	30 (28.3)	
Religion		
Christian	102 (96.2)	
Others	4 (3.8)	
Level of Spirituality		
Low	4 (3.8)	
Medium	75 (70.8)	
High	27 (25.5)	
Reason to Study Nursing		
Self Decision	79 (74.5)	
External Direction	27 (25.5)	
BMI	22.42 ± 3.72	16.6-36.3
Underweight	13 (12.3)	
Normal	71 (67.0)	
Overweight	17 (16.0)	
Obese	5 (4.7)	

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Variables & Category	Mean ± SD / n (%)	Min-Max
Chronic Diseases		
No	102 (96.2)	
Yes	4 (3.8)	
Exercise		
No	93 (87.7)	
Yes	13 (12.3)	
Caffeine		
No	88 (83.0)	
Yes	18 (17.0)	
PPE Availability		
Moderate	42 (38.6)	
High	64 (60.4)	
Fear of COVID-19		
No	53 (50.0)	
Yes	53 (50.0)	
Knowledge and Prevention of COVID-19		
Moderate	29 (27.4)	
High	77 (72.6)	
History of Contact With COVID-19 Patients		
No.	48 (45.3)	
Yes	58 (54.7)	
History of Being Infected of COVID-19		
No.	73 (68.9)	
Yes	33 (31.1)	
COVID-19 Vaccination		
Vaccine 1	4 (3.8)	
Vaccine 2	69 (65.1)	
Booster	33 (31.1)	

Notes: BMI=Body Mass Index; PPE=Personal Protective Equipments.

Coping Strategies

Table 2 presents the scores for each coping strategy domain among the 106 participants. The engagement domain had a mean score of 27.61 (SD = 4.91), with scores ranging from 8 to 40. Similarly, the disengagement domain recorded a mean score of 27.16 (SD = 4.32), with a range of 8 to 36. The problem-focused engagement domain had a mean score of 13.17 (SD = 2.94), ranging from 4 to 20, while the problem-focused disengagement domain showed a mean of 14.01 (SD = 2.30), with scores between 4 and 19. The emotion-focused engagement domain had a mean score of 13.91 (SD = 2.88), ranging from 4 to 20. In contrast, the emotion-focused disengagement domain had a mean score of 13.51 (SD = 3.03), with an interval ranging from 4 to 19.

Table 2.
Description of Participants' Coping Strategies based on CSI-SF (n=106)

No.	Coping Strategies	Mean ± SD	Min-Max
1.	Making plan of action and implementing it	3.52 ± 0.81	1-5
2.	Looking for the silver lining or trying to look on the bright side of things	3.86 ± 0.76	1-5
3.	Spending time alone	3.64 ± 1.09	1-5
4.	Hoping the problem will take care of itself	3.20 ± 1.16	1-5

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No.	Coping Strategies	Mean ± SD	Min-Max
5.	Trying to let my emotions out	3.25 ± 1.08	1-5
6.	Trying to talk about it with a friend or family	3.25 ± 1.14	1-5
7.	Trying to put the problem out of my mind	3.68 ± 0.98	1-5
8.	Tackling the problem head on	3.64 ± 0.81	1-5
9.	Stepping back from the situation	2.97 ± 1.04	1-5
10.	Having a tendency to blame myself	3.13 ± 1.11	1-5
11.	Letting my feelings out to control the stress	3.54 ± 0.94	1-5
12.	Hoping for a miracle	3.65 ± 1.02	1-5
13.	Asking a close friend for help or advice	3.67 ± 1.05	1-5
14.	Trying not to focus about the problem	3.38 ± 1.05	1-5
15.	Having a tendency to criticize myself	3.02 ± 1.07	1-5
16.	Keeping my thoughts and feelings to myself	3.36 ± 1.12	1-5
Engagement		27.61 ± 4.91	8-40
Disengagement		27.16 ± 4.32	8-36
Problem-Focused Engagement		13.17 ± 2.94	4-20
Problem-Focused Disengagement		14.01 ± 2.30	4-19
Emotion-Focused Engagement		13.91 ± 2.88	4-20
Emotion-Focused Disengagement		13.51 ± 3.03	4-19

Perceived Social Support

Description of social support score and its subscales are portrayed in Table 3. The score of item 3 about family help was the highest among all questions regarding social support with a mean of 5.93 (SD=1.36). On the opposite, question number 12 regarding talk about problems with friends had the lowest score with a mean of 4.48 (SD=1.53). The family subscale had the highest mean score of 5.56 (SD=1.32), while the subscale of friends was the lowest with a mean score of 4.80 (SD=1.24). The mean score of the overall score of social support was 5.14 (SD=1.10). All domains and overall score had scores ranging from 1-7.

Table 3.
Description of Perceived Social Support among Participants (n=106)

No.	Social Support	Mean ± SD	Min-Max
1.	Special person who is around when in need	4.97 ± 1.47	1-7
2.	Special person with whom to share my joys and sorrows	5.05 ± 1.48	1-7
3.	Family really tries to help	5.93 ± 1.36	1-7
4.	Get the emotional help from family	5.73 ± 1.39	1-7
5.	Have a special person to comfort	5.11 ± 1.62	1-7
6.	Friends really try to help	4.96 ± 1.43	1-7
7.	Friends that can be trusted	4.72 ± 1.43	1-7
8.	Talk about problems with family	5.11 ± 1.71	1-7
9.	Have friends to share my joys and sorrows	5.08 ± 1.49	1-7
10.	Special person who cares about feelings	5.14 ± 1.53	1-7
11.	Family is willing to help in making decisions	5.50 ± 1.53	1-7
12.	Talk about my problems with friends	4.48 ± 1.53	1-7
Family subscale score		5.56 ± 1.32	1-7
Significant other subscale score		5.06 ± 1.40	1-7
Friends subscale score		4.80 ± 1.24	1-7
Social support		5.14 ± 1.10	1-7

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Anxiety

Description of anxiety and its category are depicted in Table 4. The score of item 1 about feeling anxious was the highest with a mean of 1.35 (SD=0.83). Whereas item 5 regarding being hard to sit still had the lowest score with a mean of 0.97 (SD=0.86). The mean of overall score of GAD-7 among nursing students was 8.38 (SD=4.93), ranging from 0-21, where most of participants had a mild anxiety (35.8%)

Table 4.
Description of Anxiety among Participants (n=106)

No.	Anxiety	Mean ± SD / n (%)	Min-Max
1.	Feeling nervous or anxious	1.35 ± 0.83	0-3
2.	Can not stop worrying	1.09 ± 0.87	0-3
3.	Worrying too much	1.25 ± 0.87	0-3
4.	Can not relax	1.34 ± 0.93	0-3
5.	So restless	0.97 ± 0.86	0-3
6.	Easily annoyed	1.07 ± 0.89	0-3
7.	Afraid of something awful will happen	1.31 ± 0.97	0-3
Anxiety		8.38 ± 4.93	0-21
1.	Minimal (0-4)	25 (23.6)	
2.	Mild (5-9)	38 (35.8)	
3.	Moderate (10-14)	33 (31.1)	
4.	Severe (15-21)	10 (9.4)	

The correlation between coping strategy, social support, and anxiety among nursing students

The correlation coefficients of the main variables are shown in Table 5. The coping strategy of engagement had a significant correlation with anxiety (r=0.192; p=0.049). Engagement as the first tier subscale of the coping strategy was correlated significantly with anxiety (r=0.192; p=0.049), as well as disengagement (r=0.264; p=0.006). Of 4 second-tier subscale of coping strategy, only 2 variables had significant relationship with anxiety i.e. emotion-focused engagement (r=0.222; p=0.022) and emotion-focused disengagement (r=0.325; p=0.001). Social support and its subscales were not correlated significantly with anxiety (r=-0,007-0.078; p>0.05).

Table 5.
Correlation of coping strategy, social support, and anxiety

Variables	Anxiety	
	r	*p*
Engagement	**0.192**	**0.049***
Disengagement	**0.264**	**0.006****
Problem-Focused Engagement	0.103	0.294
Problem-Focused Disengagement	0.069	0.485
Emotion-Focused Engagement	**0.222**	**0.022***
Emotion-Focused Disengagement	**0.325**	**0.001****
Family subscale score	-0.006	0.950
Significant other subscale score	0.147	0.132
Friends subscale score	-0.007	0.946
Social Support	0.078	0.427

*Notes: *p<0,05; **p<0,01.*

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DISCUSSION

This study revealed that nursing students were particularly affected, experiencing severe psychological stress and heightened anxiety due to the uncertainties and demands brought about by the pandemic.

The engagement domain had the highest score mean, then followed by the domain about disengagement, problem-focused disengagement, emotion-focused engagement, emotion-focused disengagement, and problem-focused engagement. Compared with a study conducted by Masha'al et al. (18) using Brief-COPE to measure coping strategies, it was found that anxiety was equally positively correlated with denial, behavioral disengagement, venting, and self-blame.

Huang et al. (19) reported that only problem-focused coping strategies affect anxiety and fears for nursing students. Li and Peng (20) determined that cognitive coping, emotional coping, and social support were effective in coping with anxiety experienced by students who have major in health during the COVID-19 pandemic. This study also indicated that social support was the most powerful predictor for reducing anxiety. In the study of Dolores et al. (21), the coping strategy most frequently used by students was problem-solving, followed by social support and cognitive restructuring.

The current study shows that family was the highest among all social support subscales. On the contrary, a study of of Aydın (22) found that the best subscale of social support is significant others/special person. This might be as a result of different group of participants, where older population tend to rely on their spouse.

The results of this study found that of 106 students, majority of them experienced mild anxiety. A study by Fitzgerald and Konrad (23) mentioned that most of nursing students felt anxious or overwhelmed during this pandemic. Due to the COVID pandemic, almost all academic institutions around the world are forced to use online learning. This has an impact on increasing anxiety among nursing students (24). Another study that discussed the similar issue found that the majority of nursing students were at high levels of anxiety during the ongoing COVID-19 pandemic (25).

The psychological impact of the COVID-19 pandemic on nursing students is extensive and profound because it has led to psychological symptoms such as anxiety, irritability, uncertainty, post-traumatic stress disorder (PTSD), depression, stress, and insomnia. These psychological problems can lead to delirium, self-healing, and the worst thing is suicide (26). Another finding showed that health workers have high levels of stress, acute depression, and symptoms of anxiety disorders. These symptoms significantly increased compared to before the COVID-19 pandemic. High levels of anxiety disorders were associated with a pandemic, namely the emergence of fear in health workers if they are infected, to cope with it, physical and mental toughness is needed, and strong social support (27).

Anxiety showed a significant relationship with various coping strategies. Engagement strategies, including both problem-focused and emotion-focused engagement, were found to be linked with anxiety, indicating that students actively attempt to manage their stress. On the other hand, disengagement strategies, such as avoidance or denial, were also significantly associated with anxiety, reflecting a maladaptive approach to coping when students face overwhelming stress. These findings suggest that nursing students utilize a range of coping behaviors in response to the unique challenges posed by the pandemic, particularly in high-pressure academic and clinical settings (28,29).

Interestingly, the study found no significant relationship between social support and anxiety. While social support is typically regarded as a buffer against stress, this

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disconnect could be attributed to the limited access to social networks during the pandemic due to restrictions and isolation measures. Furthermore, the intensity of anxiety experienced may have rendered social support insufficient to alleviate stress effectively. This highlights the need for more targeted mental health interventions focused on enhancing coping strategies rather than relying solely on external support systems (28–31).

There were some limitations found in the current study. Data were collected only from one school of nursing and most of the participants were in the second semester. This causes that these findings could not be generalized to the population in another areas. The study used a cross-sectional design that inhibits showing the causality between variables such as in the longitudinal study.

CONCLUSION

Nursing students in this study implemented a moderate to high coping strategy, received medium social support, and suffered from mild anxiety. Those who experienced poorer anxiety were trying to conduct more effective coping strategies. The study recommends enhancing coping strategy training for nursing students, strengthening social support systems, and providing tailored interventions for those with higher anxiety levels. Institutions should offer workshops on pyschological management and resilience, establish peer support and mentorship programs, and implement personalized anxiety relief measures. Additionally, integrating coping strategies into clinical practice through simulations and ongoing research will ensure interventions remain effective, ultimately supporting students' mental health and improving their academic and clinical performance.

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