

Caused Anxiety and Coping Strategies among Nursing Staff during COVID-19 Outbreak: A Systematic Review

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Abstract

Introduction: Coronavirus disease (COVID-19) pandemic has a significant impact on health services and a major psychological challenge for nurses. The aimed of this review was to explore anxiety and coping mechanisms of nurses who provide care to COVID-19 patients.

Methods: Search strategies were developed for the Scopus, CINAHL, Lancet, Sage and ProQuest database. The data sources were limited to articles published from 2019-2020. MeSH terms were combined with Boolean operators and used to search the databases. The study quality of each article was determined based on the quality analysis of the JBI guidelines and the study evaluation used PRISMA checklist. Review process; the titles and abstracts of the identified articles, general and specific characteristics from eligible articles were extracted and the quality of included trials were appraised by using a risk of bias assessment tool.

Results: The 25 articles provided data on 145 subjects that were randomly allocated to anxiety and coping. The results of this study are six studies (24%) showing the clinical manifestations of nurse anxiety, ten studies (40%) nurse coping mechanism, and nine studies (36%) causes of nurse anxiety. The results of the assessment of each study selected using the JBI Guidelines show that all studies score above 50%, which means it can be used as a reference for systematic review. Efforts to reduce anxiety can be done by implementing strict measures and protections to prevent contracting the COVID-19 virus.

Conclusion: This review suggests that the nurse coping mechanism is formed through the guarantee of protection as a health worker that must be fulfilled properly. Hospitals and professional organizations have an important role in supporting this implementation.

Keywords

anxiety; COVID-19; coping; depression; nurses; mental health

INTRODUCTION

Corona Virus Diseases (COVID-19) pandemic has a very broad impact, including on health services, namely increasing anxiety and

psychological disorders in health workers, especially nurses (Spoorthy, Pratapa, & Mahant, 2020). COVID-19 is a global problem and until now has not ended and has an impact on almost all sectors, especially in health services

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(Ozili & Arun, 2020). COVID-19 is a disease caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV2) which is a new type of coronavirus that attacks the respiratory system, causing interference with the system, severe lung infections and potentially death (Brophy, 2020; Kobayashi et al., 2020). The nurse interacts and treats COVID-19 patients directly, and this puts nurses at high risk for contracting the disease. Anxiety in nurses is obtained from increased workload, incomplete personal protective equipment (PPE), inaccurate media coverage about the pandemic, and feeling they do not have adequate support (Cai et al., 2020; Lee et al., 2018; Styra et al., 2008; Tam et al., 2004). Nurse anxiety requires special attention, given their current duties which are very much needed to handle the growing number of COVID-19 patients (Brophy, 2020).

Research conducted in China shows that 1,257 health workers experience psychological disorders when treating patients with COVID-19. Overall, as many as 50.4% of health workers experienced depression, 44.5% experienced anxiety, 34.0% experienced insomnia, and 71.5% experienced psychological stress. The majority of respondents were female nurses, aged 26 to 40 years and were married. Another study involving 230 health workers showed that 53 health workers had anxiety; 9% of health workers had severe anxiety, 21% moderate anxiety, and 71% mild anxiety. The incidence of psychological disorders is more experienced by nurses than doctors (J. Z. Huang, Han, Luo, Ren, & Zhou, 2020). In Singapore, out of 500 health workers, it was found 14% of health workers experienced anxiety, 8% experienced depression, 6% experienced stress, and 7.2% experienced post-traumatic stress disorder (PTSD) (J. Z. Huang et al., 2020). On April 22, 2020, as many as 24 doctors and 16 nurses were declared dead because of contracting COVID-19 from the patients they treated. It was also reported that, in Surabaya, a nurse who was four months pregnant died of respiratory failure, suspected of being exposed to COVID-19. This incident made nurses increasingly anxious, because if they were not careful, COVID-19 transmission was very easy to occur (Zhang, Zhang, Cao, & Hui, 2020).

Anxiety for nurses requires special attention, given their task, which is currently

very necessary to deal with the growing number of COVID-19 patients. Direct interaction with COVID-19 patients makes nurses unable to meet with family so as to prevent transmission of the virus to other family members (Lai et al., 2020). This adds to the mental burden of nurses, resulting in anxiety and emotional exhaustion. Community stigma is also a problem and makes nurses not welcome back in the neighborhood they live in (9–11). The stigma can cause stress on nurses, thus increasing the burden on them. Anxiety has a close relationship with coping mechanisms (Rahnama, Shahdadi, Bagheri, Moghadam, & Absalan, 2017). Coping mechanism is used by individuals in solving problems; in this context, nurses adjust to changes in working conditions and situations and respond to dangerous situations. Nurse coping mechanism can be realized in the form of cognitive, behavioral and environmental changes that aim to resolve the anxiety that is faced (Song et al., 2020). The cause of anxiety and stressor makes nurses unconsciously react to overcome the problem. Nurse coping anxiety and mechanism while caring for COVID-19 patients is an important concern because every nurse has different coping skills and not all hospitals have adequate resources (Kim & Choi, 2016a).

An understanding of anxiety and coping mechanisms is important so that nurses are able to manage anxiety and mental health, provide excellent service and mutual support. Based on the problems regarding anxiety and coping mechanisms in nurses in providing maximum nursing care, this study aims to review articles that discuss anxiety in nurses, especially those dealing with COVID-19 patients and the coping mechanisms used to prevent depression due to mental pressure while on duty, especially during this pandemic. The expected results of this review are to find out the causes of nurse anxiety, clinical manifestations of anxiety and coping mechanisms for nurses who provide care to COVID-19 patients.

MATERIALS AND METHODS

Comprehensive search strategies were established to identify studies for inclusion in the systematic review, and description of the methodology consisting of comprehensive step

search strategy to identify relevant study. The study quality of each article was determined based on the quality analysis of The Centre for Review and Dissemination and the Joanna Briggs Institute Guideline and the study evaluation used PRISMA checklist. In the review process, the titles and abstracts of the identified articles, general and specific characteristics from eligible articles were

extracted and the quality of included trials was appraised by using a risk of bias assessment tool.

Search strategy

Search strategies were developed for the Scopus, CINAHL, Lancet, Sage and ProQuest

Table 1. Keywords of systematic review

COVID	Emotion	Coping	Depression
COVID-19	Anxiety	Adaptation, psychological	Stress, psychological
OR	OR	OR	OR
Novel Coronavirus	Feeling	Emotional adjustment	Burnout, psychological
OR	OR		OR
COVID	Emotion	Coping	Depression
Coronavirus infections	Emotional regulation		Occupational stress

Table 2. Characteristics of articles during study selection

Resources language	Year	Database	N	Review	Type of study		
					Qualitative	Cross-sectional	Study Cohort
English	2020	Scopus	10	1	2	6	1
		Sage	32	5	10	15	2
		Lancet	33	2	15	14	2
		CINAHL	25	3	8	10	3
		Proquest	45	14	13	16	2
		Results	25	3	3	18	1

Table 3. The PICOS format of this study

PICOS framework	Inclusion criteria	Exclusion criteria
Population	Study that discusses nurses in hospitals that provide care for COVID-19 patients who have anxiety and know the coping mechanism of the nurse.	Studies that do not cover anxiety
Intervention	Studies that examine the possibility of interventions or potential methods for nurses to use to reduce anxiety so that they are able to adapt to the conditions of the work environment.	Studies that discuss the use of applications to reduce anxiety or improve nurse coping
Comparators	Research that discusses nurses who are able to overcome anxiety and coping mechanisms	There are no exclusive criteria
Outcomes	Studies that explain anxiety on nurses and coping mechanisms are carried out to reduce these anxieties.	Studies describing anxiety management at the community level or outside the hospital
Study Design and publication type	Phenomenology, qualitative research, cross-sectional study, and systematic review	There are no exclusive criteria
Publication years and Language	Post-2019 English and Indonesian	Pre-2019 Language other than English and Indonesian

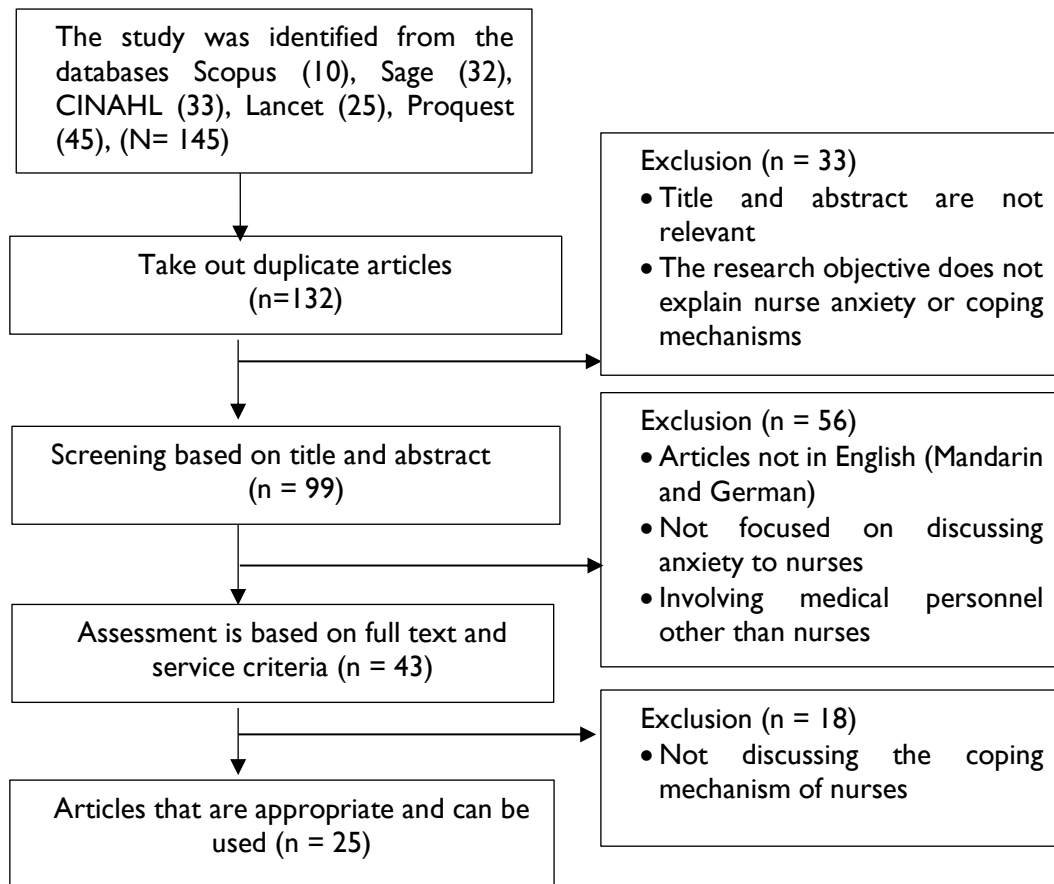


Figure 1. Flow chart of literature search adopted from PRISMA flow diagram

databases. The data sources were limited to articles published from 2019-2020. The quality of the study used in this study was obtained through a search strategy using the PICOS framework method. The researcher made a checklist sheet obtained from the PRISMA template to randomly check selected articles and make adjustments according to the guidelines. Studies are included for review if they meet the inclusion criteria, i.e., characteristics of the study including data on the age of the respondent, length of time the respondent worked in the hospital, and the location of the hospital in which the study was conducted, the role of nurses in providing services to patients, knowing physical and emotional impacts, and roles of hospitals in providing protection, both physically and emotionally, to nurses.

Searching for articles is carried out using keywords and Boolean operators (AND, OR NOT, or AND NOT) to specify the search, so that articles are found that match the research objectives. The keywords in this systematic

review are adjusted to Medical Subject Heading (MeSH) and as you can see at the table 1.

Study selection

Search results through five electronic databases found 145 articles using keywords tailored to MeSH (Figure 1). Researchers selected articles by removing one article with the same title, so that 132 articles remain. Screening based on titles and abstracts was then carried out by adjusting the theme of the systematic review, namely anxiety and coping mechanisms of nurses in providing care to COVID-19 patients and obtained as many as 99 articles. Abstract and title selection includes selection of research designs, so only qualitative, phenomenological, and cross-sectional research designs are chosen. A total of 43 articles was then selected that fit the eligibility criteria by considering the language of the article, the focus of the discussion, and the respondents involved in the study. The article was excluded again in a study that did not discuss the coping mechanism, so that 25

articles were obtained (as you can see at the picture 1).

Assessment of study quality and risk of bias

Studies with qualitative research designs were assessed using the JBI Critical Appraisal Checklist for Qualitative Research (Lockwood, Munn, & Porritt, 2015) and a cross-sectional design study conducted an assessment using the JBI Critical Appraisal Checklist for Analytical Cross Sectional Studies (Moola et al., 2017). On the checklist sheet there are a number of questions to assess the quality of research with 'yes', 'no', 'unclear' or 'not valid' answer choices, and each criterion with a 'yes' answer is given one value and zero otherwise, and at the end of the study are then added together. Assessment scores that reach a minimum of 50% then meet the critical appraisal with a cut-off point value agreed by the researcher. Researchers did not include studies that are worth below 50% to avoid bias in the results and discussion

Data extraction and analysis

Data were extracted from articles using standard data extraction forms from JBI Guidelines. Data extracted included the location of the study, the number of respondents, demographic data of the respondents (age, and length of work experience), data collection methods, and study findings. Some studies have data on other health workers, but only data for nurses were extracted. The research that is relevant for use has been tested by reviewing questions related to the author, country, year, background, theoretical framework, research objectives, educational content, research design, sample size, sampling method, participant description, reliability and validity, measurement instruments, analysis and statistical techniques, and analysis of results. A narrative approach with the main aim of gathering evidence about the effectiveness of interventions and developing a coherent textual narrative about similarities and differences was used.

RESULTS

Study characteristics

Studies on this systematic review are mostly carried out in China, as an early emergence of the COVID-19 pandemic. Coverage of the population includes hospitals, clinics, as well as the province. Some of the hospitals where the research is conducted in China are China Renmin Hospital in Wuhan, West China Hospital of Sichuan, Affiliated Hospital of Henan University of Science and Technology, and Hubei Cancer Hospital. The four provinces in China that were targeted by the study were the provinces of Hubei, Jiangsu, Anhui, and Hunan, which are located in the South of Central China, bordering Hubei province. Nurses in thirteen districts in the province were involved to fill in the questionnaire. The thirteen districts include Hunan, Changsha, Hengyang, Yueyang, Chenzhou, Shaoyang, Zhangjiajie, Huaihua, Xiangtan, Zhuzhou, Changde, Yongzhou, Loudi, and Jishou. Other countries used as the location of the study are South Korea, precisely at the special government hospital for COVID-19. Italy at National Health Service Hospitals in Sicily Spain and the United States, precisely in the City of New York, with New York-Presbyterian Hospital. The purpose of this study was to determine the causes, symptoms, levels and responses about and coping mechanisms of nurses who handle COVID-19 to prevent depression due to mental stress while providing services.

Causes of nurse anxiety that provides care to patients COVID-19

The results of the review indicate that anxiety in nurses is mostly caused by several factors. Three main factors causing anxiety based on review are the transmission of the virus from COVID-19 patients to nurses and the transmission of the virus from nurse to the family at home, the limited availability of Personal Protective Equipment (PPE) for health workers in the hospital, and the limitations to do health checks (Gómez-Salgado, Andrés-Villas, Domínguez-Salas, Díaz-Milanés, & Ruiz-Frutos, 2020). Nurses in the age group 31 – 40 years or already married are more worried if they can infect their families (Huynh et al., 2020; Maben & Bridges, 2020; Mo et al., 2020; Wu et al., 2020). The majority of nurses, especially with female sex, feel worried when interacting with families, especially with

children. The role of motherhood also increased because schools were closed, so children learned from home and needed the assistance of parents. The dilemma is felt by nurses, between working in a hospital or stopping work and caring for their families (Shechter et al., 2020b). On the other hand, they also need to fulfill their daily needs. The workload that increased with the increasing number of COVID-19 patients led hospitals to make new policies regarding shift management. This has an impact on the rotation of nurses from all units to work in the COVID-19 unit, especially the ICU. Nurses from other units who do not yet have ICU competence are given training on these competencies, but with limited training time and must deal with different patient conditions; nurses are anxious in providing care (Talaee et al., 2020).

Clinical manifestations of nurse in providing care for COVID-19 patients

Anxiety conditions experienced by nurses are manifested in physical and psychological forms. Initially the nurse feels anxious, then, if untreated, it can cause psychological and physical disturbance. All nurse respondents in the study experienced changes in emotional conditions in the first week when they began serving in the COVID-19 room. The increasing number of patients increases the workload of nurses by an average of 1.5 – 2 times the normal workload. Anxiety is always felt by the nurse and triggers other symptoms such as insomnia, feeling depressed, and depression (Chirico, Nucera, & Magnavita, 2020; Kim & Choi, 2016b; Li et al., 2020). The majority of respondents felt psychological distress which included excessive worry, fear of something, panic, feelings of helplessness and depression. In physical distress it is characterized by physical fatigue, difficulty sleeping (insomnia), and always feeling restless. Psychological distress of nurses begins with feelings of anxiety related to conditions faced at work. Feelings of anxiety that will lead someone to feel panicked and cause thoughts or speculation that may not even necessarily occur. Physical distress experienced by nurses can be a manifestation of psychological distress. Studies show that there is a reduction in sleep duration for nurses on duty in the COVID-19 unit (Ramaci, Barattucci, Ledda, & Rapisarda,

2020). Sleep disorders improve after nurses consult to discuss their problems and concerns with friends and family.

The nurse coping mechanism in providing care for COVID-19 patients

Based on studies included in the review, coping mechanisms performed by nurses focus on mental defense mechanisms. Based on Stuart and Sundeen (1998), components of coping mechanisms that are centered on emotions include denial, rationale, regression, identification, sublimation, repression, projection, compensation, distraction, formation reaction, dissociation, intellectualization, and introjection. In the context of nurses who deal with COVID-19 patients, nurses perform mental defense coping mechanisms, namely displacement, projection and suppression. Mental defense mechanism of displacement is done by nurses to transfer their emotions toward the workload to fellow nurse colleagues (WHO, 2020). The projection defense mechanism is carried out to transfer the thoughts and emotional feelings to the family or the closest person, and the mental defense mechanism is suppressed by nurses by not thinking about their worries while working and continuing their work until their work is finished.

DISCUSSIONS

The results of the systematic review over the past five years highlighted the anxiety and coping mechanisms of nurses in treating patients with COVID-19. The study results in selected articles indicate anxiety experienced by nurses, especially those who served in the COVID-19 unit. (Bruxelles, 2020; L. Huang, Xu, & Liu, 2020; Mo et al., 2020; Song et al., 2020; Taghizadeh et al., 2020; Talaee et al., 2020). This result is in accordance with research conducted by Hu et al. (2020) which states that nurses experience mental stress due to changing work environment conditions and many demands that must be met (Hu et al., 2020). This work demand comes from the number of patients entering the hospital with critical conditions increasing every day. This was followed by rising demands for care in the community, in hospitals, and mental health services. This demand must be met by

workers, including nurses, where the number of nurses is decreasing at this time because many are infected so they must isolate themselves, have family responsibilities by returning to family, and are not strong in the face of crisis (Liu et al., 2020).

The COVID-19 study that was conducted aims to support the health of nurses and protect their families. This is related to the task of nurses who have direct contact with potentially deadly viruses and cause anxiety (Khalid, Khalid, Qabajah, Barnard, & Qushmaq, 2016; Kim & Choi, 2016b). Other causes of anxiety are concerns about the shortage of nurses and personal protective equipment (PPE), the new policy of the care system, and the lack of organizational support to protect and guarantee the rights of nurses. In addition, psychological conflict between the responsibility of health workers to care for COVID-19 patients and the right of nurses to protect themselves from potentially deadly viruses is also a source of anxiety for nurses (Chen et al., 2020).

The results of the review article indicate that the manifestations of nurse anxiety are manifested in the form of psychological and physical stress. Psychological stress is the beginning of the emergence of physical stress. This is consistent with research conducted by Cui (2020) which shows that psychological stress on untreated nurses will trigger mental stress and impact on nurses' physical condition (Cui et al., 2020; Mo et al., 2020). Stress occurs when a person experiences pressure that exceeds his resources to make adjustments (Biggs, Brough, & Drummond, 2017; Lazarus, 1976). This means that stress conditions occur if there is a gap or imbalance between demands and abilities. A demand is something that, if not fulfilled, will have unpleasant consequences for the individual. So stress does not only depend on external conditions but also on the mechanism of cognitive processing of the conditions faced by the individual concerned (Fancourt, Warran, Finn, & Wiseman, 2019).

The majority of nurses choose to share their concerns with friends or family to reduce anxiety and reduce the perceived burden. This implies that nurses prefer to share their concerns with those closest to them rather than consultants provided by the hospital. This is in accordance with research conducted by Sun (2020) that the support provided by

families fosters positive energy and happiness for nurses. Coping mechanisms performed by nurses are removal, projection and suppression. Coping mechanism is the transfer of emotions that were originally aimed at a person or a particular object that is usually neutral or less threatening to the individual. This is associated with nurses who experience anxiety, who will pour out and express anxiety to fellow colleagues or family.

Nurses and members of the organization fight for the right of nurses to improve safety by conducting tests on nurses on the frontline. Failure to protect nursing staff causes anxiety and mental burdens and makes nurses feel insecure at work, even though nurses risk their health and are afraid of transmitting it to the family (World Health Organization, 2020).

CONCLUSION

This study highlights the causes of anxiety and the coping mechanisms of nurses in providing care to COVID-19 patients. Manifestations of nurse anxiety can be seen from the stress experienced by most nurses. Insomnia and physical and psychological stress are the main symptoms experienced by nurses. The nurse coping mechanism is mostly done is transfer, projection and suppression. This coping mechanism is formed through the guarantee of protection as health workers are well fulfilled. Hospitals and professional organizations have a major role in supporting this. The main protection is through the availability of Personal Protective Equipment (PPE), COVID-19 diagnostic tests, and the guaranteed fulfillment of nurses' rights while on duty to treat COVID-19 patients.

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Conflict of Interest

The authors declare that there is no conflict of interest in this study.

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