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FACTORS ASSOCIATED WITH BURNOUT AMONG NURSES DURING COVID-19 PANDEMIC: A SCOPING REVIEW

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Abstract

The current COVID-19 pandemic has become a serious threat and difficult challenge for global health. This detrimental condition increases nurses' workload, the risk of fatigue and can cause stress on nurses that can induce burnout. Untreated burnout must be examined thoroughly because it can lead to a decrease of nurses' performance and prompted to nursing errors that will affect the quality of health services and patient care outcomes. However study related to nursing burnout is still rarely performed. This scoping review aimed to identify several factors related to burnout in nurses during the COVID-19 pandemic. This study was conducted between January-March 2021 by searching and analyzing all eligible studies from several electronic databases including ProQuest, Science Direct, Scopus, and Springer Link for related articles published from 2019 to 2021. The following terms were used in the search: burnout, nursing burnout, cause of nursing burnout, and COVID-19. A systematic process using The Preferred Reporting Items for Systematic Reviews and a Meta-Analyses (PRISMA) guideline were carried out in the review process. A total of 10 article journals were finally selected of 343 studies. Sociodemographic factors (female, marriage, having child, education qualification, age, and ethnicity), psychological factors (depression, stress, anxiety, resilience, and self-efficacy), and also occupational factors (workload, job demands, working environment, working as a front line worker, direct contact with a COVID-19 patient, availability of personal protective equipment, and salary) were identified as factors that influenced burnout syndrome among nurses during the COVID-19 pandemic.

Keywords: *Nurse; Burnout; Covid-19; Pandemic; Nursing Manager*

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1. Introduction

Coronavirus Disease-19 (COVID-19) first appeared in Wuhan, China at the end of 2019. Initially, this virus spread from animals to humans, but over time there was a fairly massive transmission from person to person (CDC, 2019). Someone is said to be suspected of COVID-19 infection if they have the sign and symptoms such as the acute onset of fever, cough, or acute onset of any three or more of the following signs or symptoms: general weakness or fatigue, headache, sore throat, coryza, dyspnea, anorexia, nausea, vomiting, diarrhea, myalgia, anosmia, ageusia and altered mental status accompanied by epidemiological criteria such as working in an area with a high risk of virus transmission, traveling to an area with community transmission, working in any health care setting, and contact with the probable or confirmed case (WHO, 2020). Currently, many people infected by this virus reported experiencing happy hypoxia, which is a condition where oxygen saturation decreases below the normal level (<93%) without any symptoms. This is a very dangerous condition that can cause respiratory distress (Chauduri et al., 2020). Among various types of diagnostic procedures, Polymerase Chain Reaction (PCR) swab is still considered the gold standard for determining the diagnosis of this disease. Someone is said to be infected by COVID-19 if the PCR swab shows a positive result (WHO, 2020). This virus has continued to spread all around the world and is posing a serious threat to global health and economic development (Wan et al., 2020).

High rates of transmission, the large number of infected patients, mutations of the virus, and unclear viral pathophysiology have an impact on health workers both physically and mentally because of the large-scale public health challenge. One recent study conducted on health workers stated that the COVID-19 pandemic had various negative psychological impacts such as anxiety, insomnia, and stress (Huang et al., 2020). The increase in anxiety level, workload, fear, and stress can trigger burnout

especially in nurses (Fernandez, Garcia, & Galan, 2020). Nurses are health workers who often interact and have close contact while providing care to COVID-19 patients, so they have a high risk to be infected by this virus (Kang et al., 2020).

The current pandemic condition is causing stress on nurses and increases the risk of fatigue that can induce burnout. Burnout is an emotional, physical, and mental situation caused by excessive stress which is poorly managed (Moukkaddam et al., 2020). It is a professional phenomenon related to workspace stress (WHO, 2019). Burnout is characterized by increased emotional exhaustion, depersonalization, and decreased levels of personal achievement (Maslach & Leiter, 2016). Untreated burnout conditions can result in a decrease in nurse performance, contribute to nursing errors, cause job turnover, and increase the risk of suicide (Moukkaddam et al., 2020) which will affect the quality of service and patient care outcomes.

The involvement of nursing management in handling this condition is very important. Some previous research suggested that organizational support for health workers can reduce the feelings of emotional, hostility, and the possibility of conflict (Niu et al., 2019). Therefore, nursing managers in the hospital must take firm steps to prevent burnout in nurses during the COVID-19 pandemic. This review aimed to identify several factors that affected burnout among nurses related to this condition to provide input in decision-making for them.

2. Method

This scoping review was conducted to identify several factors related to burnout in nurses during the COVID-19 pandemic through several steps: determine research question, identifying and selecting relevant articles, charting the data, summarizing, analyzing, and reporting the result of critical review of selected articles related to this topic (Arksey & O'Malley, 2005). Relevant studies were searched in four online databases: ProQuest, Science Direct, Scopus, and Springer Link using the following keywords and terms: burnout, nursing burnout, and the cause of nursing burnout during COVID-19. Published between 2019 and 2021. The search process was conducted between January-March 2021.

The selection of the studies was done by inclusion criteria which included: involved practicing nurse as a sample, a quantitative study, and written in the English language. Exclusion criteria were studies conducted before the COVID-19 pandemic and non-scientific publications. The Preferred Reporting Items for Systematic Reviews and a Meta-Analyses (PRISMA) guideline was used as a guide in reporting the searching of identified studies. The identification and selection process was carried out using Excel worksheet. The two authors did the next process independently by reading and sorting the articles based on the title and abstract, then assessed for eligibility based on the inclusion and exclusion criteria. Disagreements about the selected articles were discuss and resolved together (Page et al., 2020).

Structured tables included the name of authors, publication date, location, study design, instrument use to measured burnout, number of samples, dimensions of burnout, respondents' information included gender and age were used to summarize the data from the selected studies. The Joanna Briggs Institute (JBI) critical appraisal tools were used to appraise the quality and rigor of the studies (Moola et al., 2020).

3. Results and Discussion

Initially, 343 studies were identified. Duplicates of the articles were removed then all titles and abstracts were screened based on the inclusion and exclusion criteria. Finally, 10 relevant papers were selected for further review. The selection process can be seen in Figure 1. The authors used the JBI checklist for analytical cross-sectional studies because all of the studies selected had a cross-sectional design. An article is said to have good quality and acceptable scientific rigor if it meets a minimum of 5 points out of a maximum of 9 points provided on the methodological quality appraisal tools checklist (Saunders & Julkunen, 2016). From the critical appraisal process that has been carried out, it is found that all studies that will be included for further review meet the minimum standards of methodological quality that have been determined and can be included in the analysis proses. Studies that were included for further review were conducted in Portugal, Italy, USA, Brazil, Sweden, Spain, Singapore, and Taiwan. The population of respondents ranged from 273-12.596 people, with an age range between 25-50 years old, and most of the studies had a cross-sectional design. Details of the data results of the reviewed studies are shown in Table 1.

The results from the screened articles were then classified into three main factors: sociodemographic, psychological, and occupational factors. Based on the socio-demographic aspects, 6 of 10 studies found that females had a higher burnout level than males (Duarte et al., 2020; Ramaci et al., 2020; Chen et al., 2020; Vitale et al., 2020, Moreno et al., 2020; Tan et al., 2020) and 1 study each found that burnout level was higher in people who are married and having a child (Duarte et al., 2020), higher education qualification and were Malay and Chinese ethnicities (Tan et al., 2020), and age was also identified to influence the level of burnout (Ramaci et al., 2020).

Several psychological factors may contribute to burnout. Three studies revealed that depression will increase the likelihood of burnout (Duarte et al., 2020; Moreno et al, 2020; Tan et al.,

2020). Three studies stated that better resilience power produced lower burnout levels (Duarte et al., 2020; Hu et al., 2020; Moreno et al., 2020), while 2 studies mentioned that the higher stress level resulted in a bigger prevalence of burnout compared to those who don't (Duarte et al., 2020; Moreno et al, 2020), 2 studies mentioned that the higher anxiety level the bigger burnout tendentious (Moreno et al, 2020; Tan et al., 2020), 2 studies found that people with high self-efficacy had a lower burnout level (Ramaci et al., 2020; Hu et al., 2020), and 1 study each stated that burnout level was also affected by social stigma (Ramaci et al., 2020) and life satisfaction (Duarte et al., 2020).

Related to occupational factors, 2 studies found that the higher the workload, the higher chance of burnout (Morgantini et al., 2020; Tan et al., 2020), 4 of 10 studies concluded that working environment conditions had a significant correlation to burnout (Tan et al., 2020; Sangal et al., 2020; Chen et al., 2020; Vitale et al., 2020), 2 studies found that burnout is affected by job demand (Morgantini et al., 2020; Ramaci et al., 2020), another 2 studies concluded that working as a front liner (Duarte et al., 2020; Hu et al., 2020) and having direct contact with a COVID-19 patient may result in a higher burnout level (Duarte et al., 2020; Firew et al., 2020). Also, 1 study each mentioned that the availability of Personal Protective Equipment (PPE) (Morgantini et al., 2020), Support system (Hu et al., 2020), and salary (Duarte et al., 2020) also impact on the occurrence of burnout syndrome. Details of the data results of the reviewed studies are shown in Table 2

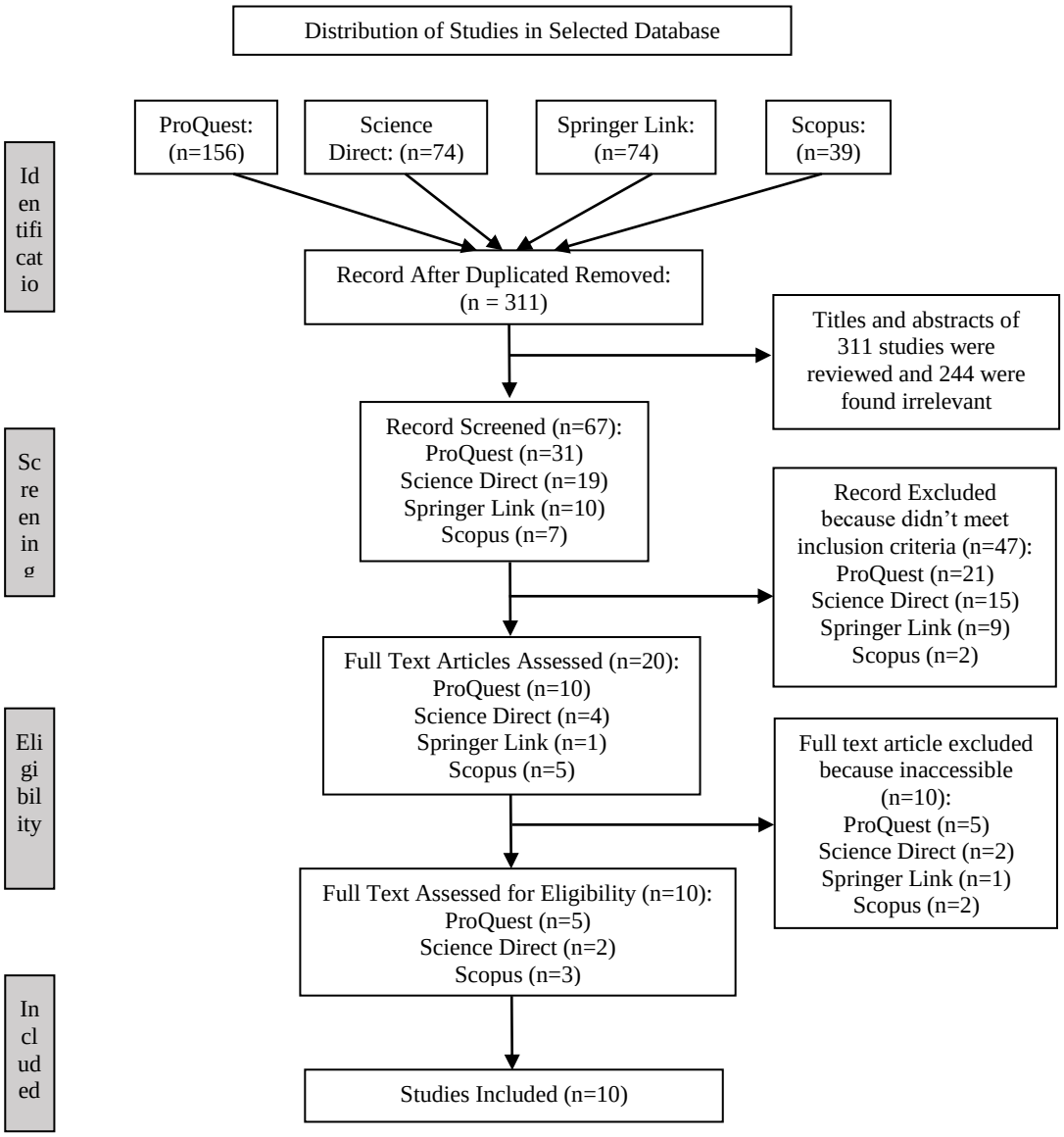

Figure 1. PRISMA flowchart for the stepwise screening of the studies.

Table 1. Data extraction of included studies

Author	Location	Study Design	Instrument Used to measure burnout	Number of Samples	Dimensions of Burnout	Respondent were included	Gender		Age (years)
							Male	Female	
Duarte et al., 2020	Portugal	Cross-sectional	the Copenhagen Burnout Inventory (CBI)-19 item	2008	personal burnout, work related burnout, client related burnout	Physicians, nurses, pharmacists, nutritionists, psychologists, other allied health professional and health care assistants.	330	1678	Mean: 38(SD±10)
Morgantini et al., 2020	60 countries (Brazil, Italy, USA, Sweden, other)	Cross-sectional	HCPs perceived burnout questionnaire-single item	2707	Emotional exhaustion	Physicians, Nurses, Other	NA	NA	NA
Firew et al., 2020	USA	Cross-sectional	Maslach Burnout Inventory (MBI)-single item	2040	NA	Physicians, nurses, emergency medical technician (EMT), non-clinical staff	594	1432	Mean: 39,50 (SD±10,11)
Moreno et al., 2020	Spain	Cross-sectional	Maslach Burnout Inventory: Human Services Survey (MBI-HSS)-22 item	1422	Emotional fatigue, depersonalization, personal accomplishment	Medical, Nurses, Assistant Nurses, caregivers, other	194	1228	Mean: 43,88 (SD±6,06)
Ramaci et al., 2020	Italy	Cross-sectional	the Professional Quality of Life Scale (ProQOL)	273	risk of compassion fatigue (CF), potential for compassion satisfaction (CS), and risk of burnout (BO)	Nurses, doctors	136	137	Mean: 46,67 (SD±8,36)
Tan et aL., 2020	Singapore	Cross-sectional	Oldenburg Burnout Inventory (OLBI)-16 item	3075	Disengagement, Exhaustion	Doctors, nurses, allied health professionals, administrative, and support staff	794 (82 Not stated)	2199	Mean: 36.84 (SD±9.95)
Hu et al., 2020	China	Cross-sectional	Maslach Burnout Inventory: Human Services Survey (MBI-HSS) for Medical Personnel (MP)	2014	Emotional exhaustion, Depersonalization, Personal accomplishment	Nurses	260	1754	Mean: 30,99 (SD±6,17)
Sangal et al., 2020	USA	Repeated cross-sectional study	The Copenhagen burnout inventory	327	Work related burnout, personal burnout, client related burnout	physicians, advanced practice providers, nurses, technicians, unit clerks and environmental service team members	NA	NA	NA
Chen et al., 2020	China and Taiwan	Cross-sectional	Maslach Burnout Inventory-General Survey (MBI-GS)-22 Item	12596	Emotional exhaustion, Depersonalization, Personal accomplishment	nurses	555	12041	Mean: 33,01 (SD±7,5)
Vitale et al., 2020	Italy	Cohort observational survey	Maslach Burnout inventory (MBI)-22 item	291	Emotional exhaustion, Depersonalization, Personal accomplishment	nurses	78	213	NA

NA: Not Available Information

Table 2. Factors associated with burnout among nurses during COVID-19 pandemic based on the reviewed studies

No	Authors	Factors Associated with Burnout																						Key Finding
		Sociodemographic						Psychological										Occupational						
		Sex	Marital status	Having Child	Education level	Age	Ethnicity	Stress	Resilience	Depression	Anxiety	Social stigma	Self-efficacy	Life satisfaction	Front line	Direct contact with Covid-19	Workload	PPE	Job demand	Support system	Working environment	Salary	
1	Duarte et al., 2020	V	V	V				V	V	V				V	V	V						V	Female, marriage, being parents, stress, depression, frontline worker, direct contact with Covid-19 patient, and salary reduction was associated with the increased level of burnout, higher levels of satisfaction with life, and resilience associated with a lower level of burnout.
2	Morgantini et al., 2020																V	V	V				Lack of adequate personal protective equipment (PPE), feeling push beyond training (an increase of workload), high time pressure, and making prioritizing decisions (an increase of Job demand) had a significant correlation with burnout.
3	Firew et al., 2020															V							Health workers who had direct contact with Covid19 patients reported a higher level of burnout
4	Moreno et al., 2020	V						V	V	V	V												Female, anxiety, depression, and post-traumatic stress contributed to high emotional fatigue and depersonalization that cause burnout. While resilience and personal accomplishment were protective variables
5	Ramaci et al., 2020	V				V						V	V						V				Females reported a higher level of burnout. Age, permanent worker (job demand), discrimination, acceptance, and fear (social stigma) had a significantly positive correlation with burnout. Self-efficacy slightly predicts burnout.

6	Tan et al., 2020	V	V	V	V	V			V	V				Females significantly approached exhaustion. Health care workers of Malay and Chinese ethnicities had significantly higher burnout scores compared to Indian ethnicity. Higher education qualification, longer working hours (workload), higher levels of anxiety and depression had a significant correlation with burnout levels. Redeployment was also associated with significantly higher Exhaustion and Disengagement scores.
7	Hu et al., 2020				V		V	V		V				Frontline workers with lower Self-efficacy, resilience, and support system (intra and extra family support), were significantly correlated with higher 2 dimensions of burnout (emotional exhaustion and depersonalization), and lower personal accomplishment.
8	Sangal et al., 2020											V		Good teamwork is a key buffering factor against burnout
9	Chen et al., 2020	V										V		Female, Working in the Intensive Care Unit, COVID-19 designated hospital and department related to Covid-19 (Working environment) were correlated to a higher level of emotional exhaustion and depersonalization. While female also factor which associated with lack of personal accomplishment
10	Vitale et al., 2020	V										V		A female nurse who works in an intensive care unit (Working environment) had a higher emotional exhaustion level which contributed to burnout

Among the sociodemographic characteristics, the analysis process resulted in six major factors associated with nurses' burnout, which are: Sex, Marital Status, Having Child, Age, Educational Level, and Ethnicity. Seven psychological factors related to burnout included: stress, resilience, depression, anxiety, social stigma, self-efficacy, life satisfaction, and there were eight occupational factors: front line worker, direct contact with COVID-19 patient, workload, availability of PPE, job demand, support system, working environment, and salary.

Sociodemographic Factors

A sociodemographic factor is defined as a personal characteristic in a particular population (Scott et al., 2020). Based on the conducted studies, it is known that females had a higher burnout level than males (Duarte et al., 2020; Ramaci et al., 2020; Chen et al., 2020; Vitale et al., 2020, Moreno et al., 2020; Tan et al., 2020). This might be caused by women having a double workload and multiple responsibilities in society. Their role in a profession and family life could result in a greater burden that can affect the occurrence of personal burnout (Duarte et al., 2020). The tendency of women to experience a greater sense of trauma than men after exposure to a challenging event also was considered a factor that contributes to this condition (Chen et al., 2020; Stefano et al. 2018; Jones et al. 2020; Olff et al. 2007).

Married people had a higher propensity to experience burnout than someone single, divorced, or widowed (Okwaraji & Aguwa, 2014), especially when they are parents and play a role as a primary caregiver for their children at home. It is related to the dual role that the individual must play. They must balance their roles as a parent and healthcare provider, try to always be professional in their job but also experience the fear of the threat of infection from this virus (Ramaci et al., 2020). If they do not implement their role properly it can result in the occurrence of work-family conflict and possibly infecting their family (Byron et al., 2005).

Tan et al. (2020) stated that Malay and Chinese ethnicities had a significantly higher burnout score compared to Indian ethnic groups. This is probably due to the lack of understanding of religious and cultural factors in their living place. These results are supported by a previous study from Al-Dubai et al. (2013) and Ang et al. (2016) who researched two different countries where Chinese and Malays were the largest ethnic groups in these countries and both of them showed the same results. The incidence of burnout tends to be found in people who have higher education levels. This finding may be related to the high responsibilities they have to bear, seniority, and work realities experienced by individuals who may not live up to their expectations (Tan et al., 2020).

Despite the sociodemographic factors above, the research conducted by Ramachi et al. (2020) showed that age also affects burnout. This statement was strengthened by previous research by Stanetic and Tesanotic (2013) which mentioned that the incidence of burnout varies according to the range of age, where the older the people and the longer the length of service as a health worker then the higher risk of experiencing burnout syndrome.

Psychological Factors

The COVID-19 pandemic causes increased pressure on nurses, not only physically but also psychologically. Psychological factors are interpreted as feelings and thoughts that are owned by someone which can influence their attitudes, behavior, and decision-making. The correlation between burnout and psychological dimensions has been identified in many studies (Koutsimani et al., 2019). High-pressure work, the feeling of fear to be infected by the virus and spreading it to their family, feeling discomfort when wearing PPE, emotionally demanding interactions, and uncertainty in the current pandemic era results in the appearance of stress and depression which might contribute to burnout syndrome (Duarte et al., 2020; Moreno et al., 2020; Tan et al., 2020). This condition can lead somebody to lose their immediate memory, cause difficulty to concentrate, reduce performance and productivity and also interfere with their welfare (Lipp, 2006). The higher anxiety, stress, and depression level, the higher prevalence of burnout (Moreno et al., 2020).

Prolonged psychological disturbances can result in the disruption of a person's function in carrying out their daily living (Cole, 2014). This condition is exacerbated by the negative stigma circulating in society today. Health workers often experience discrimination. Many people in the society are afraid to be close to the health care providers because they are considered to have frequent contact with COVID-19 patients, so they have a higher prevalence to be infected by this virus and transmitting it to the surrounding people (Ramaci et al., 2020). Some people even think that this pandemic is being used by health workers to seek financial benefits. Some evidence showed that someone who has good endurance and higher levels of resilience and satisfaction with life will have a lower tendency to experience burnout syndrome (Duarte et al., 2020; Hu et al., 2020). Resilience is described as a nurse's ability to bounce back from an adverse negative situation and integrate those events into the context of their practice (Sanders, 2015). It can mitigate the work-related stress experienced by the nurses and reduce poor psychological health outcomes (Delgado et al., 2017). Resilience was found to be a protective factor for preventing becoming over-stressed and against burnout (Duarte et al., 2020; Lee et al., 2019). Resilience becomes a

buffer for nurses against the negative impact of workplace stressors which is linked to good patient outcomes (Manomenidis et al., 2019). In addition to resilience, when there are perceived difficulties, having confidence in performing some behavior is often referred to as self-efficacy also affects burnout. The better self-efficacy and resilience, the fewer mental health problems experienced by the nurses (Hu et al., 2020). Furthermore, to improve the mental health problem, individual attributes and organizational resources should be addressed to build self-efficacy and resilience to reduce the prevalence of burnout (Badue et al., 2020).

Occupational Factors

Occupational factors are defined as all factors that contribute to work-related stress, such as job demand, job control, social interaction, and work environment (Tsai & Chan, 2010). In terms of occupational perspective, the increase of workload is reported to be a factor that induces the occurrence of burnout (Morgantini et al., 2020; Ramaci et al., 2020; Doolittle, 2020). During this COVID-19 pandemic nurses' task has become harder. The number of hospitalized patients creates work overload (Chen et al., 2013; Hu et al., 2020), the extension of a working hour more than it should be, overnight duty (Dyrbye et al., 2013), inflexibility of the schedule (Howard, 2013) which further results in an excessive workload. Job demands including accuracy and speed of the actions performed, administrative duties (Williams and Zipp, 2014), the complexity of the task (Howard, 2013), patient services per shift (Lamothe et al., 2014), and also high-pressure work can lead to physical and psychological overload at work (Ramaci et al., 2020) which will impact on the quality of care services.

Nurses working as a front line health worker (Hu et al., 2020) who has face to face and direct contact with COVID-19 patients reported experiencing a higher incidence of burnout compared to those who did not (Duarte et al., 2020). Those results were supported by the research conducted by Weilenmann et al. (2020) that found more symptoms were reported in health care workers who had direct contact with COVID-19 patients. The high burden they feel causes mental health stress (Xiang et al., 2020). This is exacerbated by the insufficient resources (Garcia et al., 2015) for example limited availability of PPE (Morgantini et al., 2020); a poor working environment (Sangal et al., 2020; Chen et al., 2020; Vitale et al., 2020) including lack of adequate comfortable restrooms and other facilities (Al-Dubai et al., 2013); obstacles in the communication process and non-cooperative colleagues as a team (Ciammela et al., 2013); inadequate support system, for example, lack of intra-family social support and extra-family social support (Hu et al., 2020), low organizational support (Jalili et al., 2013), and lack of supervisor support (Wu Liu et al., 2013). The frontline nurses' burnout was negatively correlated with social support which is very helpful for their mental health (Naushad et al., 2019). Salary reduction was also found to be a significant factor for personal burnout (Duarte et al., 2020). It correlates with the lack of rewards they received after the hard and high-risk work that they did, which then has a negative impact on their working motivation.

4. Conclusions and suggestions

Based on the reviewed studies, several factors were identified that influence the occurrence of burnout in nurses during the COVID-19 pandemic in terms of sociodemographic, psychological, and occupational aspects. Nursing managers have a main role in planning, organizing, directing, and controlling the implementation of nursing services and care, especially in this current dynamic pandemic condition. Nursing managers also have the power to determine policy, human resource allocation, and work arrangements.

Making modifications and managing the modifiable factors that have been identified can be some of the mitigating strategies to prevent burnout in nurses. These efforts can be a promising way for leaders in creating a healthy and supportive working environment to support nurses' well-being both physically and mentally during the COVID-19 pandemic. The affecting factors of nurses' burnout in this review should be put into consideration for the future study. In accordance with the implementation, further studies with more technical and sophisticated are needed to be the evidence-based of the nurse manager's roles to prevent burnout among nurses.

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