A Literature Review: The Mental Problem Caused by Nurses' Work Stress under the Impact of COVID-19

Yian Xiao[1,*]

[1] *University of Glasgow, Glasgow, G12 8QQ, UK*
[*]Corresponding author. Email:2542131X@student.gla.ac.uk

ABSTRACT

With the spread of COVID-19, the number of infected patients has increased rapidly, thus nurses as major roles during this period are coping with a heavy workload and experiencing a high level of work stress and the negative mental situations caused by job stress. Therefore, identifying and solving nurses' mental problems is significant to guarantee the cure and transmission of coronavirus disease. This article retrieved and dialectically analyzed studies regarding how work stress impacts the nurses' psychological health during the period of Covid-19. This literature review used Boolean search to collect the articles published from 2020 to 2022 and was carried out via Scopus and Web of Science. The descriptors used were "work stress", "occupational stress", "job stress", "nurse", and "health care workers". Many studies showed that work stress caused by COVID-19 had expanded fear, anxiety, depression, and burnout among nurses. Nurses are both suffering from physical and mental problems, which influenced their work performance, well-being, and turnover intention. Fortunately, many researchers have found that resilience could help nurses to reduce work stress and its damaging outcomes. Although many searchers suggested coping strategies of management (e.g., training, and prolonging test time), few studies analyzed the clinical treatment for nurses with mental problems, such as Cognitive behavioral therapy (CBT). Due to the persistence of the epidemic, nurses' workload might not be lightened, hence, future research should study more about the psychological treatment of how to build resilience.

Keywords: Work stress, Nurses, Mental health, COVID-19.

1. INTRODUCTION

The COVID-19 pandemic leads nurses to an enormous workload, which affected nurses' mental and physical fitness [1]. Nurses' psychological health is necessary to guarantee high-quality treatment to patients during the pandemic period [2]. Severe nurses' work stress might increase their anxiety, depression, and burnout [3,4]. Consequently, it is significant to manage nurses' work stress. Stress is defined as a circumstanced incentive that impacts persons and could induce bodily and mental stress reactions when individual endeavors are ineffective [5]. Stress includes positive stress and negative stress, while positive stress (normal stress) could inspire individuals to perform well on the task, bravely face the challenge, and obtain a sense of achievement [6]. Positive stress does not have any long-term effect, and if individuals successfully handle it, it could lead to a raised feeling of satisfaction, proficiency, and well-being, however, when the positive stress surpasses the optimal stress level, individuals will suffer from negative stress (harmful stress) [6]. Negative stress

can be divided into acute and chronic stages, if persons experience negative stress for a short time, the acute stress will not cause adverse effects on their representation, but if the negative pressure exists for a long time (chronic phase), it will harm their mental and bodily health [7].

Stress in the workspace could be called job stress, which is explained as a damaging pressure that happens when the demands of a job increase, and exceed the individual ability [8]. Occupational stress could cause not only mental and bodily problems, but also impact workplace organizations, such as burnout, high turnover, and low productivity [1]. With the infection of COVID-19, the account of patients has been increased rapidly, thus the workload of nurses has also been expanded. Many studies have proved that a high level of work stress could lead to severe fear, anxiety, depression, sleep disturbance, and burnout [9, 10]. Such mental problems have seriously impacted nurses' emotions, work performance, and well-being [11]. The nurses play a necessary role in treating and caring for the infected

patients, hence Cooper and other experiments proposed that building resilience could help nurses to avoid occupational stress and its negative outcomes [12]. Resilience is known as the ability to face challenges positively, and it could be obtained by training and CBT [13, 14]. Although there have been many searches finding that occupational stress would bring many negative mental effects on nurses during the COVID-19 era, fewer researchers have studied the clinical therapy for nurses and tested the feasibility of using those therapies in this period [14].

The purpose of the present article was to review the research on the work stress among nurses during COVID-19 infection and to explore the relevant influencing factors, negative outcomes, and moderate factors of nurses' occupational stress. As shown in Figure 1, anxiety, depression, and burnout are negative outcomes of occupational stress, and fear is an influencing factor that is positively related to work stress. Furthermore, resilience could moderate the correlation between work stress, influence factor, and negative outcomes. This review also included some coping strategies to overcome the fear, anxiety, depression, and burnout caused by work stress in order that nurses could positively perform and work in public health emergencies.
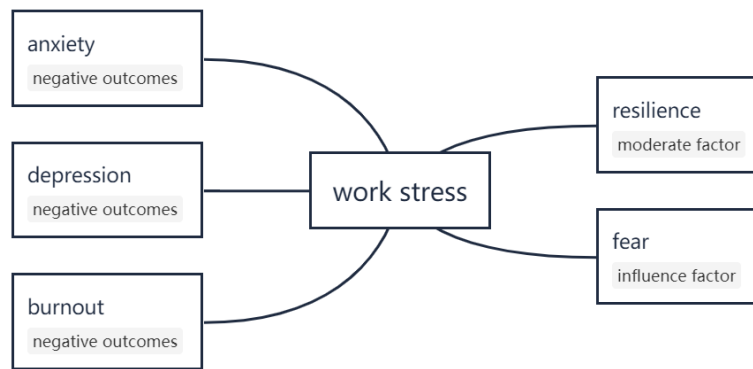

Figure 1 The structure of this review.

2. INFLUENCE FACTOR

Health care workers who work for diagnosing, treating, and caring for Covid-19 patients, are suffering from a high load of stress and mental problems resulting from the stress. During this pandemic period, working in the hospital is exceedingly stressful for those health care workers. Nurses who work on the frontline are facing a higher risk of infection and overcoming their fear of Covid-19 [15]. Said and El-Shafei analyzed that fear as a psychological factor of exposure to infection might take a large proportion of the source of stress among those nurses [16]. Ahorsu and his partners also reported that there is a positive relationship between the fear of COVID-19 and job stress [17]. Many kinds of research have reported that the fear and nervousness of Covid-19 is a common term among all nurses, in addition, the most general fear of nurses is transmission and the result of inflicting it on their patients [16-19]. Except for the infection among nurses themselves, they also suffer from emotional distress and fear at the worry of infecting others and their family members [9,10,15-21]. In Ahn and other experimenters' study, they found that married female nurses have a higher score of fear compared with single female nurses, and a probable reason for this high score of fear, anxiety, and depression among married nurses might be the worry and fear of carrying the virus and transferring it to the families [20]. Moussa and other

experimenters also confirmed this result [22]. Ahorsu found that the fear of Covid-19 could increase a load of work stress, emotional exhaustion, and depersonalization symptoms, meanwhile, personal accomplishment and mental health decreases, and such emotional exhaustion could increase the intentions of turnover among nurses [17]. This result is similar to that of labrague and Santos [13]. Therefore, it is significant to find the source of fear among nurses and try to help them overcome it. By overcoming nurses' fear of Covid-19, the problem of higher turnover intention decreased job satisfaction, and worth mental health might be resolved [13].

Khattak et al had shown that an increasing number of infected patients, rapid transmission, heavy workload, higher death ratio, quarantine, constantly changing Covid-19, and insufficient equipment could all deepen the nurses' fear, accordingly, leading to their worse emotions, mental health, and work performance, which had also been emphasized in De los Santos and Labrague's result [18,19]. Therefore, hospital authorities should provide adequate and available protective measures and other essential resources that could dispel the fear of nurses during the Covid-19 pandemic period. [17]. In addition, Labrague and Santos indicated that participating in the Covid-19 training could alley the fear of Covid-19 among nurses who treated the patients [13]. This result coincides with that of Wu et al, that nurses

who had attended the Covid-19 epidemic training had a lower score of fear than those who hadn't. Hence, offering professional epidemic training may be helpful for the nurses to face those infected patients [23].

3. NEGATIVE OUTCOMES

Work stress among nurses during the epidemic has produced many negative mental outcomes, including anxiety, depression, and burnout. Previous empirical searches found that those psychological problems could impact nurses' work performance, enthusiasm, well-being, and others.

3.1. Anxiety and depression

With the rapid spread of Covid-19, the higher workload and increased number of infected patients have aggravated nurses' anxiety, depression, and helplessness [1,11, 24, 25]. Mo et al, Hu et al, and Alnazly et al analyzed that work stress was positively correlated with anxiety and depression, which means that, nurses would feel more anxious and depressed when they experienced more work stress [9-11]. Wu et al, and Shirali et al also got the same result [23, 26]. The research undertaken by Hong and his colleagues also identified that nurses were suffering higher levels of anxiety and depression when they treated confirmed patients during the Covid-19 era, furthermore, increased anxiety and work stress led to higher depression with a low level of resilience [21]. In Hu et al.'s study, there are 40% to 45% of the frontline nurses suffered from anxiety and depression, with 11% to 14% experiencing severe anxiety or depression [9]. Nurses with high work stress experience anxiety, depression, and other emotional and mental problems [14-17, 27]. Anxiety is one of the most general mental obstacles among nurses. Especially, during the first phase of the COVID-19 pandemic, the health care worker in those departments close-treated the Covid-19 patients, such as the respiratory department and infectious diseases department had more mental problems and had almost double the risk of experiencing anxiety and depression than non-clinical workers [9]. As the health care worker is the main force during the Covid-19 era, hence, protecting the nursing workers' psychological health is necessary to control the transmission of coronavirus disease [27]. Thereinto, female health care workers have a higher risk of experiencing depression and anxiety, as female nurses might face different stressors including role pressure, the imbalance between work and life, and lack of enough support [20, 28]. In addition, their fear of bringing the coronavirus to family members could also increase the level of anxiety and depression [10, 20, 21, 29]. Ahn et al explained that a high level of anxiety was the result of higher concern for the health of the family among married nurses [20]. Many studies had shown that professional capability, sleep disturbance, stress, and self-efficacy were the main factors impacting the anxiety of nurses who cared for Covid-19 patients [20-25]. Mo emphasized that sleep problems and anxiety impact each other, which is consistent with Al Maqbali et al.'s result, that good sleep quality could develop physical function rapidly, reduce work pressure, and improve mental health. Health care workers should maintain their mental health for guaranteeing the quality of treating the patients [25, 30, 38].

Lack of support, long-term separation from family, no support for mental requirements, and no feedback from doctors, managers, and nurses had increased nurses' anxiety and depression, which infect their psychological health [28]. Hence, Labrague and Santos emphasized the significance of proving adequate organizational support when the level of work stress and anxiety is high [13]. Alnazy and other experiments also stated that social support helps decrease nurses' mental problems and provides positive emotions [10]. To decrease the anxiety caused by fear of infection, Mo et al., and Alnazy et al. suggested that the government should define COVID-19 infection as an occupational injury and enjoy the benefits of industrial injury insurance [10,11, 38]. Except for the support, Covid-19 training had also been proved that is necessary for alleviating nurses' anxiety [3, 40]. Mo et al proposed that Online platforms could share information on how to minimize the risk of infection [11]. Furthermore, Mo et al found that self-efficacy could help nurses maintain positive behavioral and psychological states, which could develop their confidence when facing work stress, and allay their anxiety and depression [38]. In consequence, training nurses' self-efficiency might also be helpful for their mental health [25, 30, 39].

3.2. Burnout

The health care workers exposed to COVID-19 patients were significantly more stressed and experienced greater burnout because of the pandemic, which affect their cognitive performance [1,9,14]. Hu et al revealed that increasing workload had aggravated nurses' burnout when they experienced a continuous period of exposure to the worsening situation with no end in sight [9]. Ahorsu et al illustrated that job stress was positively associated with burnout and its components (emotional exhaustion, low personal accomplishment, and depersonalization), which meant that increasing occupational stress could raise nurses' level of burnout [17]. Xie and other partners argued that emotional exhaustion was the strictest burnout key dimension among nurses and had the most obvious relationship with stress load [31]. However, no research right now has proved that emotional exhaustion was still the most severe burnout component among nurses during the Covid-19 era, as Murat et al. recognized that the health care workers who tested positive for Covid-19 suffered from depersonalization burnout [1]. In addition, Wu et al

demonstrated that nurses who worked in Covid-19 wards faced more burnout in the sense of personal success (Lower personal accomplishment) compared with nurses working in other departments, which is consistent with Zhang et al. study [3, 23]. Burnout is a normal syndrome of workers in human services [32]. Moreover, burnout may not only deteriorate their psychological fitness [17] but also decrease job satisfaction [21], low patient satisfaction [9], poor quality of care [2], and medical errors [33].

Ahorsu et al stated that fear of Covid-19, self-efficiency and the lack of social support is positively associated with nurses' burnout and job stress, which verified Hu et al. 's result that providing adequate personal protective equipment and other required sources might reduce burnout [9, 17]. Sultana and his colleagues suggested that developing and implementing practices could relieve burnout and emotional exhaustion, because of the uncertainty and sustaining Covid-19 pandemic [33]. Zhang et al. emphasized the significance of psychological assistance to help nurses build resilience and self-efficiency, which was also highlighted in Irfan et al article that CBT can be significant for enhancing resilience [3, 34]. Furthermore, Tan et al reported that both front-line and second-line nurses' burnout state should be paid attention to since the inadequate number of second-line nurses and increasing account of infected patients, the workload of second-line nurses has been expanded, consequently, second-line nurses also experienced considerable work stress and burnout [35].

4. MODERATE FACTOR

According to figure 1, resilience was defined as a moderate factor, which means that resilience ability could help nurses overcome the negative outcomes of work stress. Tan et al stated that building resilience could reduce the level of nurses' job stress, anxiety, and depression, moreover, Mohammadi et al found that resilience negatively affects burnout, as the high speed of transmission of Covid-19 had subjected nurses to negative physical and mental problems which affect adversely nurses' resilience [14,35]. Rapid transmission of Covid-19 and high workload have increased nurses' occupational stress and burnout, thereby decreasing their resilience. Hong and other experiments also indicated that nurses with high scores of depression got lower resilience scores, which raised the level of work stress and anxiety, which had been proved in Shirali et al.'s study, that resilience also has a negative relationship with job stress [21, 26]. Resilience is the ability to overcome difficulties quickly, and it could help nurses acclimatize positively themselves to occupational stress [36]. Resilience is also a necessary origin for recovering the work stress, and persons with a high level of resilience could maintain positive emotions and mental health even under stressful situations [13]. Hong et al commented that

resilience could be defined as an adaptive coping way, which might be significant to reveal health care workers' job stress and mental problem when they were caring for Covid-19 patients and protecting them from being infected during this pandemic era [21]. Furthermore, Park and Jung declared that resilience could help nurses change stressful situations by adapting the negative circumstance positively, thereby strengthening their well-being and decreasing vulnerability [36]. Shirali et al studied resilience would play a significant role in facing work environment challenges, which means that nurses could adapt actively to their work circumstances and maintain professional treatment for patients [26]. Therefore, high levels of resilience might be necessary for health care workers to reduce job stress during the Covid-19 era [12, 20].

In conclusion, nurses are suffering from different psychological problems such as depression, anxiety, and occupational stress during the pandemic ear. It is necessary to manage nurses mentally for their severe job stress and other resultant psychological problems. Hospitals and governments should execute a system for health care workers to develop their resilience as a coping ability [12, 21]. Meanwhile, Shirali et al recommended that available policies such as practices to decrease the risk of infection might improve the well-being and resilience ability among nurses [26]. Park and Jung proposed that resilience should be built by advancing professionalism as professional resilience is correlated with organizational, professional, and individual policies, and resilience could be obtained through training and education [36]. Labrague and Santos had suggested that providing specific active interventions, mental resources, and a positive nursing environment is necessary for nurses during the Covid-19 pandemic era since the nurses' resilience ability could be developed in various conditions and circumstances [13]. Consequently, designing programs and strategies for occupational stress management and defining proper nursing care is imperative in this period. In addition, Hu et al. highlighted that establishment of social support and assistance hotline workers was useful for frontline nurses' mental health and building their resilience and self-efficiency [9]. Hong et al also declared that organizing a psychological management program for nurses who are at high risk of developing depression. Psychologically, Muhammad et al suggested cognitive behavior therapy (CBT)-based intervention to help nurses build resilience and treat mental psychological health [14,21].

5. IMPLICATION

Most research used the NSS questionnaire to test nurses' stress levels, however, COVID-19 has brought other factors that also increase nurses' occupational stress. Therefore, Abuatiq and Borchardt increased 6

items in the NSS questionnaire: 1). Being assigned to a COVID-19 patient; 2). Communicating with family members of COVID-19 patient; 3). Access to adequate personal protective equipment; 4). Performing hand hygiene frequently since the start of the COVID-19 pandemic; 5). always Wearing a face mask in the hospital setting; 6). Feeling anxious at work due to fear of COVID-19 [4, pp. 603]. The result showed that "Wearing a face mask at all times in the hospital setting" was associated with higher stress, which had also been proved in Zhang et al.'s research, that prolonged wearing of protective equipment was one of the main stressors [3].

The research of Zhang et al on frontline nurses in China indicated that loneliness, unsureness about the time of the severe working load, fear of getting infected, and skin damage caused by prolonged wearing of protective equipment were the main stressors [3]. A qualitative study by Arnetz on nurses from the United States shew that getting infected, transmitting the coronavirus to others, and the death of patients or their family members were the main problems reflecting factors of job stress in the early period of the pandemic [37]. There're many other factors that impact nurses' job stress during the COVID-19 pandemic era without being included in the NSS questionnaire. Consequently, future studies should design a nurses' work stress questionnaire with situations that only occurred during the COVID-19 period, such as wearing masks and isolation management [4].

Additionally, some studies just suggested coping strategies but did not test whether those coping strategies could be managed successfully and how those solutions work for reducing work stress and its negative effect [14]. In this review, resilience has been mentioned in many articles that could be built and would relieve nurses' stress, however, fewer experimenters tested the reliability and availability of those methods during this pandemic period. For example, it has been reported that wearing masks and other protective equipment could increase nurses' occupational stress, however, it is not impossible to ask nurses not to wear that protective equipment. Hence, whether building nurses' resilience ability to overcome those challenges is useful should be studied in future research.

6. CONCLUSION

Mental problems caused by work stress have been proved in many articles. This review suggested that fear could increase the level of work stress and cause other psychological problems. Additionally, the scores of fears among female and married nurses were higher than among single and male nurses, which is a specific situation during the COVID-19 period. Anxiety, depression, and burnout are also common mental problems in this period, but there's less search to analyze whether those negative outcomes are more general than

in the time before COVID-19. Although resilience has been certified that it could reduce job stress, fear, anxiety, depression, and burnout, there are few studies that researched the availability and effect of those ways to build resilience. Future studies should focus on whether clinical psychology treatment works for building resilience and do more studies on work stress among second-line nurses.

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