Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.

Archives of Psychiatric Nursing 35 (2021) 358–363

Contents lists available at ScienceDirect

Archives of Psychiatric Nursing

journal homepage: www.elsevier.com/locate/apnu

The experience of frontline nurses four months after COVID-19 rescue task in China: A qualitative study

Xi Zhang, Qingqing Sheng, Xinyu Wang, Chunfeng Cai *

School of Health Sciences, Wuhan university, Wuhan, Hubei, China

ARTICLE INFO

Keywords:
Experience
Rescue task
Post the COVID-19 epidemic
Frontline nurses
Qualitative study

ABSTRACT

Aims: The study was to explore the experience of frontline nurses four months after COVID-19 rescue task.
Background: Frontline medical staff are prone to follow-up mental health problems and different feeling after COVID-19 rescue task. However, the experience of frontline nurses after COVID-19 rescue task has not been well described.
Methods: The study used a qualitative study design with semi-structured interview guide. Individual semi-structured face-to-face interviews were conducted with 15 frontline nurses who were involved COVID-19 rescue task from two tertiary-A hospitals in Hefei, China from July 10, to August 28, 2020. We followed the consolidated criteria for reporting qualitative research (COREQ) checklist.
Results: Four main themes emerged from the interviews: recurring involuntary memories about the experience, feeling guilty and depressed, cultivation of occupational ability, increased professional pride and happiness.
Conclusion: The study demonstrated that frontline nurses had both positive and negative experiences four months after COVID-19 rescue task. It is necessary to long-term follow up and attention to the experience of the frontline nurses after COVID-19 rescue task. These insights provide a specific direction for the psychological reconstruction of frontline nurses and the construction of nursing team.
Relevance to clinical practice: Nursing managers should formulate psychological reconstruction plan according to the experience of frontline nurses after COVID-19 rescue task, so as to relieve the psychological stress and promote the mental health of nurses. At the same time, we should strengthen the disaster rescue ability training of nurses should be strengthened to better respond to future rescue task.

Introduction

At the end of December 2019, a number of pneumonia patients of unknown origin have been found in Wuhan, Hubei Province, China (Li et al., 2020; Liu et al., 2020), which was called as the Coronavirus Disease 2019 (COVID-19). In the face of the rapid COVID-19 outbreak, medical and health institutions throughout the country immediately dispatched clinical medical personnel to the frontline of the fight against the COVID-19 epidemic (Pan et al., 2020; Xu et al., 2020).

Nurses have played an important role in infection prevention and control. It is estimated that a total of 28,600 nurses had been sent to Hubei Province to fight against COVID-19 infection, accounting for nearly 70% of all frontline clinical medical personnel (Government of Hubei Province, China, 2020). Studies have shown a series of psychological problems that may appear after long-term exposure to abnormal dangers or terrorist events (Maercker et al., 2013; Wang et al., 2020). As the main force in the fight against the epidemic, nurses shoulder an arduous task. The severity of the COVID-19 epidemic is far beyond our imagination, nurses are on the frontline of care and more vulnerable to life threatening situations. This makes the nurse's physical and psychological state highly stressful during the COVID-19 epidemic outbreak, even appear some mental health problems post the COVID-19 epidemic (Cheng et al., 2004; Mak et al., 2009; Su et al., 2007). Contrast with the overwhelming evidence of negative experiences by participating in public health emergencies, Honey and Wang's (2013) studies have shown that the positive experience response to traumatic events, as well as career growth and self-identity after participating in disaster emergency events.

In recent years, infectious diseases and other disasters occur frequently all over the world. As one of the main participants in disaster relief, health care providers are always the frontline personnel, nurses, in particular, play a key role in the frontline care and treatment of

* Corresponding author at: School of Health Sciences, Wuhan University, Donghu Road, Wuhan, Hubei 430072, China.
E-mail address: 1660433132@qq.com (C. Cai).

https://doi.org/10.1016/j.apnu.2021.05.007
Received 17 January 2021; Received in revised form 30 March 2021; Accepted 8 May 2021
Available online 17 May 2021
0883-9417/© 2021 Elsevier Inc. All rights reserved.

patients (Pourvakhshoori et al., 2017). Due to the nature of their work, the frontline nurses involved in the fight against the epidemic often have different experience (Foli et al., 2020). Previous studies have shown that when nurses participate in the fight against epidemics like SARS (Chung et al., 2005), MERS-Cov (Kim, 2018), Ebola (Liu et al., 2019), they would suffer from anxiety, fear, sleep disturbances, and other physical and mental health problems. At the same time, some studies have also proved the positive experience brought to nurses by participating in the frontline epidemic rescue task (Liu & Liehr, 2009; Wong et al., 2008). Therefore, it is necessary to identify the nurses' experience after frontline rescue task. Particularly, a study of the overall experience, including not only negative experiences, but also positive experiences.

With the COVID-19 epidemic under basic control of our country, nurses may have different experience about participating in COVID-19 rescue task after returning to normal life. However, most of the previous studies only focused on frontline nurses' experience during the COVID-19 epidemic outbreak, besides over relied on quantitative methodology. Fewer studies have implemented on the experience of frontline nurses post the COVID-19 epidemic. Therefore, this study aims to track and understand the experience of frontline nurses after the COVID-19 rescue task through qualitative research method. Uncovering nurses' experience after frontline rescue task is importance for nurses' psychological reconstruction and the development of future disaster relief work and projects, so that nurses can participate in future activities with confidence.

Methods

Study design

In this study, we utilized a qualitative phenomenological approach to analyse nurses' experience after frontline rescue task. Research question: What is the experience of frontline nurses four month after COVID-19 rescue task?

Phenomenological approach requires that researchers identify participants' experience and perception on a certain content in order to comprehensively and profoundly reveal the nature and meaning of the experience (Cypress, 2018). We followed the consolidated criteria for reporting qualitative research (COREQ) checklist (Tong et al., 2007).

Participants

A purposeful sampling method was used to recruit the nurses who involved in first-line rescue task against the COVID-19 epidemic from two tertiary-A hospitals in Hefei city, Anhui Province. The tertiary-A hospital rounds up the list as comprehensive or general hospital at the city, provincial or national level with a bed capacity exceeding 500. It refers to the highest level of hospital classification in China. Nurses involved in first-line COVID-19 rescue were selected from different professional backgrounds and departments, they participated in a two-day first-aid training, including the use of first-aid equipment, first-aid knowledge, and disinfection and isolation measures for COVID-19 patients, etc. The inclusion criteria included (1) involved in frontline rescue task for more than one week; (2) completed the frontline rescue task for at least four months; (3) have good communication skills and expressive ability so that the participant can fully express the real psychological experience; and (4) volunteered to participate in this study and signed an informed consent form. Participants were excluded if they were diagnosed with mental illness and disturbance of consciousness.

We determine the required sample size by interviewing nurses who met inclusion criteria and exclusion criteria until information was saturated and no new themes emerged during data analysis. A total of 17 nurses participated in this qualitative study. Finally, the 15 interviews were efficacious because the first two pre-interviews were not included in the data analysis. We enlisted 11 females and 4 males between 26 and 42 years old (M = 33.27; SD = 4.88). Experience in nursing field ranges from 2 to 21 years (M = 8.53; SD = 5.90). Table 1 shows the specific demographic characteristics of the participants.

Data collection

Data were gathered through face to face semi-structured, open-ended interviews from July 10, to August 28, 2020. This period is called the 'post COVID-19 epidemic period' that the epidemic situation has been basically controlled and medical staff have returned to normal work. A preliminary interview guide developed by reading extensive literature review, seeking psychologist's opinion (Foli et al., 2020; Liu et al., 2019). Then the interview outline was formed after discussion, negotiation, and revision between the team members and experts with relevant experience, besides we selected two nurses for pre-interview. The two nurses who participated in the pre-interview were able to accurately understand and answer the interview questions without any other psychological discomfort. The formal interview guide is presented in Table 2.

The first author conducted all the face-to-face interviews to collected data. In order to facilitate the implementation of the research, the first author was anteriority trained in qualitative interview methods. Before the interviews, the purpose and significance of this study was explained to interviewees, and signed informed consent forms. After obtaining the consent of the interviewee, the interviewee chooses the appropriate time and place to conduct interviews based on the principle of convenience for the interviewee. Only the interviewee and the first author were present at the interviews. During the interviews, the interviewee used non-verbal communication skills to timely clarify and confirm the content of the interviewee's statement, rather than giving inducement and guidance, so as not to affect the interviewee's personal thoughts. Meanwhile, the interviewee's nonverbal behavior such as expressions and movements were simultaneously documented in the interviewer's field notes. If participants showed emotional agitation or depression and other problems during the interview process, immediately stopped the interview and provided adequate free of cost psychological counseling to prevent psychological trauma. Fortunately, none of the participants had this situation. Also, they were given the option to withdraw from the study for any reason at any time. For each participant, at least 2 face-to-face interviews were arranged as needed to ensure the follow-up of data information at different time points. All interviews were audio-recorded by mini-recording equipment and ranged in length from 30 min to 45 min.

Table 1
Characteristics of participants (N = 15).

Participant number	Gender	Age (years)	Education	Years in nurse service
N1	Male	35	Bachelor's degree	8
N2	Female	28	Bachelor's degree	4
N3	Female	31	Master's degree	5
N4	Female	38	Higher Secondary, Diploma	15
N5	Male	38	Bachelor's degree	10
N6	Female	29	Bachelor's degree	4
N7	Male	33	Bachelor's degree	8
N8	Female	40	Higher Secondary	19
N9	Female	26	Bachelor's degree	2
N10	Female	36	Higher Secondary, Diploma	13
N11	Female	30	Bachelor's degree	5
N12	Female	34	Master's degree	6
N13	Female	27	Bachelor's degree	3
N14	Female	42	Higher Secondary	21
N15	Male	32	Bachelor's degree	5

N, nurse.

Table 2
Interview guide.

No.	Question
1	What changes have taken place in your mind four months after the frontline COVID-19 rescue task? Can you tell me more about that?
2	Can you talk about your experience four months after the frontline COVID-19 rescue task? Can you explain it in detail?
3	What's your feeling now that four months after the frontline COVID-19 rescue task?
4	What do you think of participating in the frontline COVID-19 rescue task?
5	Do you have anything else to talk to us?

Date analysis

Within 24 h of each interview, the recording was analyzed based on the phenomenological methodology suggested by Colaizzi (1978). In the first step, the researchers repeatedly read the transcribed text material to obtain an overview of the content, and checked the content with research team members. Then significant phrases and statements related to the research purpose were extracted, simplified them, and then summarized them in general terms. In the third step, the researchers encoded the important statements of the interviewees, and then reasonably categorized them to find out the connections between the categories, and refined meaningful statements. In the fifth step, similar codes and meaningful statements were grouped into categories, and categories were gathered into themes. In the next step, the researchers linked the theme to the research object, determined the basic narration of psychological experience, and formed the essential structure of the phenomenon. In the last step, the final analysis results were returned to the participants to verify the essence of their psychological experiences and authenticity of the content.

Rigor of study

The credibility, transferability, confirmability, and dependability of the study were used to promote trustworthiness of study findings (Tong et al., 2007). To maintain credibility, multiple long-time interviews were conducted to accurately follow up and understand the psychological experience of the participants at different points in time. And the interviewer had been trained in qualitative interview methods in advance. After the interview, the results would be returned to the interviewee to verify the accuracy of the information. Transferability was established through detailed and clear description of research background, research participants, data collection, analysis methods and saturation of data collection. In addition, a detailed description of participants' characteristics is provided. To enhance the confirmability, the interview outline was confirmed with repeated discussion and consulted with psychologists in related fields. Additionally, two researchers independently completed the recording transcription and allowed other researchers to discuss the conclusion. To ensure the dependability of the study, the research design and its implementation, data collection and data analysis were provided in detail.

Ethical considerations

Ethical approval was obtained from the relevant hospital and the University Human Research Ethics Committee prior to commencement of the study. All participants volunteered to participate in this study and signed informed consent. The participating nurses were informed of their rights, including confidentiality and withdrawal from the study at any time, without reason. They were also assured that the obtained data were confidential and all relevant data related to the study were kept in a double password computer. Used code names (i.e. nurse, N1, N2, etc.) to replace their real names. Not disclose participants' personal information and conversation content to the irrelevant personnel.

Results

Through the data analysis process, four themes were emerged: recurring involuntary memories about the experience, feeling guilty and depressed, cultivation of occupational ability, increased professional pride and happiness. These categories are listed and described below, and selected quotations are given to illustrate the categories.

Theme 1. Recurring involuntary memories about the experience

Due to the highly contagious and serious nature of the COVID-19, many patients died without effective treatment during the outbreak. Unfortunately, some medical staff were also infected with close contact with the patients. Nurses expressed recurring involuntary memories about the experience during the fight against the COVID-19 epidemic, such as fear of virus, patients' death scene, isolated ward.

> "At that time, everyday have patients died. There are too many patients, the nursing work is too busy, I don't have time to think about it…. Now, I recall patient's death scene. I am feeling like somebody's sitting on my chest, I can't breathe when I recall it."
>
> (N8, Female)

> "The scenes at that time would keep appearing in my mind…we wear personal protective equipment (PPE) and try to fight the virus…. I remember everything we did as if it was yesterday and I can never forget it. "
>
> (N14, Female)

Participants expressed unable to sleep at night after COVID-19 rescue task, and often have involuntary memories of that time in their minds. Physical discomforts before and during sleep were often described.

> "The scenes at that time would keep appearing in my mind, I would be unable to fall sleep all night, and sometimes nightmares would appear."
>
> (N1, Male)

Theme 2. Feeling guilty and depressed

Due to the high-intensity nursing work and psychological pressure during the COVID-19 epidemic period. It was always in a tension state. Suddenly returned to the normal work, many nurses appeared depression, guilty and other negative emotions.

> "Sometime, I feel sad and depressed without reasons, especially in a quiet environment with no one here…. I feel like I'm still on the frontline fight against COVID-19."
>
> (N10, Female)

> "I was still feeding the patient water…after a while, the patient died…. As a nurse, I feel guilty that I can't save the patients."
>
> (N2, Female)

Unable to live up to their own treatment expectations, participants felt guilty and depressed, and some even resisted other social activities.

> "I don't get down on a lot of things, I don't know what happened to me…. It's so sad to see so much death and so much misery, and not be able to do anything about it."
>
> (N5, Male)

In the interview, some nurses revealed their regrets about nursing work during the COVID-19 rescue task, and felt self-blame and guilty for being unable to participate in the treatment of some patients due to lack

of professional skills in some aspects.

"Some instruments, such as high flow nasal cannula oxygenation systems instrument, are not used in our daily work. At the beginning, I can't manipulate it when the patient needs to use it."

(N15, Male)

Theme 3. Cultivation of occupational ability

Novel coronavirus pneumonia has become a new research topic as a global epidemic disease. Nurses have shown that their nursing skills and knowledge have been strengthened through participating in the front-line COVID-19 epidemic rescue task.

"After finishing COVID-19 rescue task, I found that my first aid knowledge increased, especially the nursing points of patients with severe infection, I can do very well now."

(N13, Female)

"Now when I meet emergency patients, I don't feel panicked and flustered…, I can quickly prepare first aid supplies."

(N4, Female)

The nurses had reflected on their experiences during the COVID-19 rescue task and after rescue task, which for some had improved their communication skills and professional confidence.

"Nursing operational skills, personal ability and feeling as if you are in a better place than what we were say four months ago…. I rack my brains to say something, but I really learn a lot of professional knowledge from that rescue work and get growth."

(N8, Female)

Through participating in the frontline COVID-19 rescue work, and facing the high-intensity work under high pressure. Nurses said that their psychological quality has been effectively trained, so they have confident in handling similar emergency situations properly and have the ability to be competent for future rescue task.

"For me, I really gain a lot from this COVID-19 rescue task…. This is my first time to participate in the rescue work. I learn a lot of clinical skills and related knowledge. This rescue experience make me more confident to participate in the rescue work in the future."

(N9, Female)

Theme 4. Increased professional pride and happiness

Many participants said they had a sense of professional pride in being on the front line to fight COVID-19 and actually doing something for patients. Through participating in the frontline COVID-19 rescue task, nurses deeply experienced the duty of medical staff to heal the wounded and rescue the dying, and their sense of pride and happiness were enhanced.

"As a male nurse, I used to feel embarrassed. But now I feel like an armored warrior who fight to virus. When the COVID-19 suddenly broke out, I was proud to be a male nurse."

(N7, Male)

"I saw that the patient's breathing was stable, and the vital signs slowly returned to the normal range. I was really happy for them, and my heart felt inexplicably a sense of accomplishment."

(N12, Female)

At the same time, nurses were recognized by all walks of life for COVID-19 rescue task, which enhanced their recognition of nursing profession.

"There is a better understanding of our profession of nursing, and no longer the idea that we just give shots and take pills… My niece has just taken the college entrance examination and she is going to apply for the nursing major…"

(N3, Female)

Participants said that seeing the basic control of the COVID-19 situation in various parts of China, medical staff played an important role in the prevention and control of the COVID-19. As a nurse who participated in the frontline rescue task, they expressed their pride as a nurse and the happiness that their value was affirmed.

"You can't imagine how happy it is to see the patient you are in charge of is cured and leaved the hospital. After the COVID-19 rescue task, I admired my fellow nurses and health care workers. In the meantime, I am proud of my career choice at that time."

(N8, Female)

Discussion

The findings indicate that the first-line nurses have some negative psychological effects, four months after COVID-19 rescue task, such as recurring involuntary memories about the experience, feeling guilty and depressed. On the other hand, it also improves the occupational ability and increases the sense of pride and happiness as a nurse.

One of the most important findings of this study was the negative experience of frontline nurses four months after COVID-19 rescue work that is, repeated unconscious memory, guilt, despair, insomnia and other emotions. Similar to post-traumatic stress disorder (PTSD), it refers to an abnormal mental reaction to severe stress factors such as trauma, which is a delayed and persistent psychosomatic reaction. Its clinical manifestations are characterized by re-experience of trauma, accompanied by depression and avoidance behavior (Carmassi et al., 2020; Guo et al., 2017). Such experience affects the normal work of nurses, as well as mental health of nurses (Guo et al., 2020; Martins & Robazzi, 2009; Tan et al., 2020). The COVID-19 as a new infectious disease on a global scale (Interpretation of pneumonia diagnosis and treatment scheme for novel coronavirus infection, 2020). As an important group in the fight against the COVID-19 epidemic outbreak, nurses play a significant role in infection prevention, infection control, isolation, patient care (Chen et al., 2020; Mo et al., 2020). Previous studies have shown that in the sudden epidemic events such as SARS (Severe Acute Respiratory Syndrome), Middle East Respiratory Syndrome (MERS), nurses who fight on the frontline often need to deal with diseases caused by unknown causes and pathogens (Wang & Wang, 2020; Wu et al., 2009). High-intensity work and stress can lead to mental health problems, and when the epidemic is over and life gets back on normal track, psychological problems would erupt intensively (Chua et al., 2004; Kornhaber & Wilson, 2011). Similarly, Lee et al. (2018) study about MERS found that nurses performing one month after MERS-related tasks were at higher risk for psychological problems even after time had passed. This study also showed the negative experience and post-traumatic stress reaction of the first-line nurses, even four months after COVID-19 rescue task. Frontline nurses experienced profound social, death cognition and behavioral challenges during the COVID-19 epidemic outbreak. Most nurses indicated that tragic scenes and disaster relief process always appear in mind within a long time of completing COVID-19 rescue task. In addition, they have probably suffered from physically and mentally pressures due to the death of patients and colleagues of COVID-19 infection (Carmassi et al., 2020; Lai et al., 2020; Shahrour & Dardas, 2020). For all these results, paying attention

to the nurses' psychological pressure in time in order to alleviate the negative experience requires the formulate of specific intervention strategies by nursing managers. Such strategies must be based on a careful investigation of the risk and recovery factors that may be playing a role in nurses and should take into account the nurses' different experiences post the COVID-19 epidemic.

Many studies have shown that the frontline rescue task may cause some negative experience for nurses and some follow-up psychological problems (Carmassi et al., 2020; Chen et al., 2020; Wang et al., 2020; Wu et al., 2009). Our findings suggest that, to the contrary, the experience of frontline COVID-19 rescue task had a positive impact on them, and most nurses got professional and psychological growth under pressure. Nurses participated in self-worth reflection and found positive forces, such as enhancing professional pride, developing professional ability and improving professional identity, which was consistent with the research of Sheng et al. (2020). The nurses acknowledged they become more confident in their profession due to their frontline rescue experience. When they returned to normal nursing work, they were better able to deal with acute emergencies in clinical practice. Others also felt that they were more able to express their emotions, meanwhile, their emergency knowledge was enriched. The words that nurses used to describe their experiences, such as 'pride', 'happiness', 'accomplishment' and 'ability improvement' showed the positive impact of these experiences on them.

Previous studies have shown that nurses who have participated in frontline disaster relief have significantly improved their professional identity and professional ability compared with non-participants (Johal & Mounsey, 2015; Sheng et al., 2020; Sun et al., 2020). In this study, we found that nurses had positive experience four months after COVID-19 rescue task. The positive experience may be related to the following two factors. Firstly, most nurses perceived that the frontline COVID-19 rescue task promoted their practical ability and first-aid knowledge, and self-confidence was also improved. On the other hand, the selfless dedication of nursing workers during the COVID-19 rescue task has been recognized and understood by the public. It enhances people's professional identity with nurses. Meanwhile, when the frontline rescue nurses returned to their normal jobs, they were valued by the leaders and respected and treated well by the society. Therefore, nursing managers should improve the theoretical system of rescue nursing and provide relevant skills training. Moreover, they could pay attention to the nurses' inner feelings in daily work, and comprehensively improve the professional well-being.

Limitations of this study

This study has some limitations. Firstly, it is a single center study, which may have sample bias. Large multicenter studies may be needed to further validate these findings. Furthermore, some nurses refused to participate in this study. These potential participants may provide additional information about experiences of frontline nurses after COVID-19 rescue task. Another limitation of this study was that the results only come from the context of rescue in China and may not be applicable to the experience of nurses in other countries.

Conclusion

This study comprehensively explored the experience of frontline nurses four months after COVID-19 rescue task. We found that nurses had both positive and negative experiences four months after COVID-19 rescue task. The results suggested that the COVID-19 epidemic prevention and control has entered the stage of normalization in china, most frontline nurses have returned to normal work and life, but it is still necessary to continue to pay attention to the psychological problems of them. At the same time, it is significant to improve the skills training and professional ability of public health rescue nursing, which is helpful to improve the overall well-being and professional rescue level of nurses. Under the guidance of national policies, nursing managers should pay close attention to the experience of frontline nurses after COVID-19 rescue task, provide psychological support and consultation according to their stressors, and do a good job in psychological reconstruction.

Implications for clinical nursing

This study results emphasize the importance of continuing to pay attention to the experience of nurses who have worked in the frontline fight the COVID-19 epidemic, not only during the COVID-19 outbreak, but also after it is all over. Therefore, healthcare institutions should strengthen efforts to pay attention to the experience of this group and provide psychological and social support services for them. First of all, medical healthcare institutions can organize professional psychological assistance teams to provide psychological support to nurses with psychological problems through the internet, counseling rooms, psychological outpatient clinics and other types of psychological services, and to promptly guide bad psychological experiences. Of importance, nurse managers should pay attention to the mental health of nurses in time. They can take a leading role in implementation of nurses' decompression strategy through providing continuous rest days, carrying out mental health activities and arranging support services.

In addition, nursing managers should pay attention to nurses' daily nursing theoretical knowledge, psychological knowledge and skills training, and carry out emergency plan drills appropriately. At the same time, the training content and training methods should be innovated continuously to improve nurses' professional quality and psychological endurance of nurses, and enhance their ability to deal with public health emergencies.

Sources of funding

No.

CRediT authorship contribution statement

Study design: CC, XZ
Data collection: XZ, QS, WX
Data analysis: CC, XZ, QS, WX
Study supervision: CC
Manuscript writing: CC, XZ, QS.

Declaration of competing interest

No.

References

Carmassi, C., Foghi, C., Dell'Oste, V., Cordone, A., Bertelloni, C. A., Bui, E., & Dell'Osso, L. (2020, Jul 20). PTSD symptoms in healthcare workers facing the three coronavirus outbreaks: What can we expect after the COVID-19 pandemic. *Psychiatry Research, 292*, Article 113312. https://doi.org/10.1016/j.psychres.2020.113312.

Chen, H., Sun, L., Du, Z., Zhao, L., & Wang, L. (2020, Aug 5). A cross-sectional study of mental health status and self- psychological adjustment in nurses who supported Wuhan for fighting against the COVID-19. *Journal of Clinical Nursing*. https://doi.org/10.1111/jocn.15444.

Cheng, S. K., Wong, C. W., Tsang, J., & Wong, K. C. (2004). Psychological distress and negative appraisals in survivors of severe acute respiratory syndrome (SARS). *Psychological Medicine, 34*, 1187–1195. https://doi.org/10.1017/S0033291704002272.

Chua, S. E., Cheung, V., Cheung, C., McAlonan, G. M., Wong, J. W., Cheung, E. P., … Tsang, K. W. (2004). Psychological effects of the SARS outbreak in Hong Kong on high-risk health care workers. *Canadian Journal of Psychiatry, 49*, 391–393. https://doi.org/10.1177/070674370404900609.

Chung, B. P., Wong, T. K., Suen, E. S., & Chung, J. W. (2005, Apr). SARS: Caring for patients in Hong Kong. *Journal of Clinical Nursing, 14*(4), 510–517. https://doi.org/10.1111/j.1365-2702.2004.01072.x.

Colaizzi, P. (1978). *Psychological research as phenomenologist views it. Existential phenomenological alternatives for psychology*. New York: Oxford University Press.

Cypress, B. (2018, Nov/Dec). Qualitative research methods: A phenomenological focus. *Dimensions of Critical Care Nursing, 37*(6), 302–309. https://doi.org/10.1097/DCC.0000000000000322.

Foli, K. J., Reddick, B., Zhang, L., & Krcelich, K. (2020, Jun). Nurses' psychological trauma: "They leave me lying awake at night". *Archives of Psychiatric Nursing, 34*(3), 86–95. https://doi.org/10.1016/j.apnu.2020.04.011.

Government of Hubei Province of China. (2020). 28,600 nurses supporting Hubei Province played an important role in treatment. Available at: http://www.hubei.gov.cn/zhuanti/2020/gzxxgzbd/qfqk/202003/t20200301_216 4990.shtml.

Guo, J., He, H., Fu, M., Han, Z., Qu, Z., Wang, X., & Guan, L. (2017). Suicidality associated with PTSD, depression, and disaster recovery status among adult survivors 8 years after the 2008 Wenchuan earthquake in China. *Psychiatry Research, 253*, 383–390. https://doi.org/10.1016/j.psychres.2017.04.022.

Guo, Q., Zheng, Y., Shi, J., Wang, J., Li, G., Li, C., Fromson, J. A., et al. (2020, Aug). Immediate psychological distress in quarantined patients with COVID-19 and its association with peripheral inflammation: A mixed-method study. *Brain, Behavior, and Immunity, 88*, 17–27. https://doi.org/10.1016/j.bbi.2020.05.038.

Honey, M., & Wang, W. Y. (2013). New Zealand nurses perceptions of caringfor patients with influenza A (H1N1). *Nursing in Critical Care, 18*, 63–69. https://doi.org/10.1111/j.1478-5153.2012.00520.x.

Interpretation of pneumonia diagnosis and treatment scheme for novel coronavirus infection (trial version 8) [EB/OL]. Available at: http://www.nhc.gov.cn/xcs/fkdt/202008/475d0199d34c4cac840eb7998fad444f.shtml, (2020)–. (Accessed 19 August 2020).

Johal, S. S., & Mounsey, Z. R. (2015, Nov). Finding positives after disaster: Insights from nurses following the 2010-2011 Canterbury, NZ earthquake sequence. *Australasian Emergency Nursing Journal, 18*(4), 174–181. https://doi.org/10.1016/j.aenj.2015.09.001.

Kim, Y. (2018, Jul). Nurses' experiences of care for patients with Middle East respiratory syndrome-coronavirus in South Korea. *American Journal of Infection Control, 46*(7), 781–787. https://doi.org/10.1016/j.ajic.2018.01.012.

Kornhaber, R. A., & Wilson, A. (2011, Jul–Aug). Building resilience in burns nurses: A descriptive phenomenological inquiry. *Journal of Burn Care & Research, 32*(4), 481–488. https://doi.org/10.1097/BCR.0b013e3182223c89.

Lai, J., Ma, S., Wang, Y., Cai, Z., Hu, J., Wei, N., … Hu, S. (2020). Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. *JAMA Network Open, 3*, Article e203976. https://doi.org/10.1001/jamanetworkopen.2020.3976.

Lee, S. M., Kang, W. S., Cho, A. R., Kim, T., & Park, J. K. (2018). Psychological impact of the 2015 MERS outbreak on hospital workers and quarantined hemodialysis patients. *Comprehensive Psychiatry, 87*, 123–127. https://doi.org/10.1016/j.comppsych.2018.10.003.

Li, Q., Guan, X., Wu, P., Wang, X., Zhou, L., Tong, Y., Feng, Z., et al. (2020). Early transmission dynamics in Wuhan, China, of novel coronavirus-infected pneumonia. *The New England Journal of Medicine*. https://doi.org/10.1056/NEJMoa2001316.

Liu, C., Wang, H., Zhou, L., Xie, H., Yang, H., Yu, Y., … Zhang, X. (2019, Mar 8). Sources and symptoms of stress among nurses in the first Chinese anti-Ebola medical team during the Sierra Leone aid mission: A qualitative study. *International Journal of Nursing Sciences, 6*(2), 187–191. https://doi.org/10.1016/j.ijnss.2019.03.007.

Liu, H., & Liehr, P. (2009). Instructive messages from Chinese nurses'stories of caring for SARS patients. *Journal of Clinical Nursing, 2009*(18), 2880–2887. https://doi.org/10.1111/j.1365-2702.2009.02857x.

Liu, Y. E., Zhai, Z. C., Han, Y. H., Liu, Y. L., Liu, F. P., & Hu, D. Y. (2020, Jul 17). Experiences of front-line nurses combating coronavirus disease-2019 in China: A qualitative analysis. *Public Health Nursing*. https://doi.org/10.1111/phn.12768.

Maercker, A., Brewin, C. R., Bryant, R. A., et al. (2013). Diagnosis and classification of disorders specifically associated with stress: Proposals for ICD-11. *World Psychiatry, 12*, 198–206. https://doi.org/10.1002/wps.20057.

Mak, I. W., Chu, C. M., Pan, P. C., Yiu, M. G., & Chan, V. L. (2009). Long-term psychiatric morbidities among SARS survivors. *General Hospital Psychiatry, 31*, 318–326. https://doi.org/10.1016/j.genhosppsych.2009.03.001.

Martins, J. T., & Robazzi, M. L. (2009). Nurses work in intensive care units: Feelings of suffering. *Revista Latino-Americana de Enfermagem, 17*(1), 52–58. https://doi.org/10.1590/s0104-11692009000100009.

Mo, Y., Deng, L., Zhang, L., Lang, Q., Liao, C., Wang, N., … Huang, H. (2020). Work stress among Chinese nurses to support Wuhan for fighting against the COVID-19 epidemic. *Journal of Nursing Management*. https://doi.org/10.1111/jonm.13014 (Advance online publication).

Pan, Y., Guan, H., Zhou, S., Wang, Y., Li, Q., Zhu, T., & Xia, L. (2020). Initial CT findings and temporal changes in patients with the novel coronavirus pneumonia (2019-nCoV): A study of 63 patients in Wuhan, China. *European Radiology*. https://doi.org/10.1007/s00330-020-06731-x.

Pourvakhshoori, N., Norouzi, K., Ahmadi, F., Hosseini, M., & Khankeh, H. (2017). Nurse in limbo: A qualitative study of nursing in disasters in Iranian context. *PLoS One, 12*(7), Article e0181314. https://doi.org/10.1371/journal.pone.0181314.

Shahrour, G., & Dardas, L. A. (2020, Aug 7). Acute stress disorder, coping self-efficacy, and subsequent psychological distress among nurses amid COVID-19. *Journal of Nursing Management*. https://doi.org/10.1111/jonm.13124.

Sheng, Q., Zhang, X., Wang, X., & Cai, C. (2020). The influence of experiences of involvement in the COVID-19 rescue task on the professional identity among Chinese nurses: A qualitative study. *Journal of Nursing Management*, (Aug 8)https://doi.org/10.1111/jonm.13122. Online ahead of print.

Su, T. P., Lien, T. C., Yang, C. Y., Su, Y. L., Wang, J. H., Tsai, S. L., & Yin, J. C. (2007). Prevalence of psychiatric morbidity and psychological adaptation of the nurses in a structured SARS caring unit during outbreak: A prospective and periodic assessment study in Taiwan. *Journal of Psychiatric Research, 41*, 119–130. https://doi.org/10.1016/j.jpsychires.2005.12.006.

Sun, N., Wei, L., Shi, S., Jiao, D., Song, R., Ma, L., … Wang, H. (2020, Jun). A qualitative study on the psychological experience of caregivers of COVID-19 patients. *American Journal of Infection Control, 48*(6), 592–598. https://doi.org/10.1016/j.ajic.2020.03.018 (Epub 2020 Apr 8).

Tan, R., Yu, T., Luo, K., Teng, F., Liu, Y., Luo, J., & Hu, D. (2020, Jul 13). Experiences of clinical first-line nurses treating patients with COVID-19: A qualitative study. *Journal of Nursing Management*. https://doi.org/10.1111/jonm.13095 (Online ahead of print).

Tong, A., Sainsbury, P., & Craig, J. (2007). Consolidated criteria for reporting qualitative research (COREQ): A 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care, 19*, 349–357. https://doi.org/10.1093/intqhc/mzm042.

Wang, C., & Wang, X. (2020). Epidemic of novel coronavirus infection, hospital infection and psychological prevention. *Chinese General Practice Nursing, 18*(3), 309–310. https://doi.org/10.12104/j.issn.1674-4748.2020.03.02.

Wang, Y. X., Guo, H. T., Du, X. W., Song, W., Lu, C., & Hao, W. N. (2020, Jun 26). Factors associated with post-traumatic stress disorder of nurses exposed to corona virus disease 2019 in China. *Medicine (Baltimore), 99*(26), Article e20965. https://doi.org/10.1097/MD.0000000000020965.

Wong, T. Y., Koh, G. C., Cheong, S. K., Lee, H. Y., Fong, Y. T., Sundram, M., … Koh, D. (2008, Feb). Concerns, perceived impact and preparedness in an avian influenza pandemic: A comparative study between healthcare workers in primary and tertiary care. *Annals of the Academy of Medicine, Singapore, 37*(2), 96–102.

Wu, P., Fang, Y., Guan, Z., Fan, B., Kong, J., Yao, Z., Hoven, C. W., et al. (2009). The psychological impact of the SARS epidemic on hospital employees in China: Exposure, risk perception, and altruistic acceptance of risk. *Canadian Journal of Psychiatry, 54*(5), 302–311. https://doi.org/10.1177/070674370905400504.

Xu, X., Chen, P., Wang, J., Feng, J., Zhou, H., Li, X., … Hao, P. (2020, Mar). Evolution of the novel coronavirus from the ongoing Wuhan outbreak and modeling of its spike protein for risk of human transmission. *Science China. Life Sciences, 63*(3), 457–460. https://doi.org/10.1007/s11427-020-1637-5.