



ORIGINAL ARTICLE

Nurses' mental health and coping strategies throughout COVID-19 outbreak: A nationwide qualitative study

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ABSTRACT: *This qualitative exploratory study explored nurses' mental health and coping strategies working with suspected and confirmed COVID-19 patients in Brunei Darussalam. Eleven focus group discussions were conducted between October 2020 and January 2021, involving 75 participants. Three themes emerged: 'COVID-19 roller-coaster transitional journey' explained the different psychological responses of the journey of the nurses from merely hearing about COVID-19 from far to the invasion of the virus and community outbreak in the country; 'Mind my mind and heart' share experiences of the nurses in terms of their mental health and emotional responses; and 'the psychosocial system' described the coping mechanisms of the nurses throughout the COVID-19 pandemic. Nurses' mental health and coping strategies during the COVID-19 pandemic influenced how they provided care and performed other tasks, which should not be taken for granted. Nurses employed psychosocial coping methods at the different phases of the COVID-19 pandemic and support from family, friends, the public, and the governmental level. This research is fundamental as a basis for other countries to design psychological interventions during this yet unsettled COVID-19 pandemic.*

KEY WORDS: *Brunei, coping, COVID-19, mental health, nurse.*

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INTRODUCTION

The novel coronavirus disease 2019 (COVID-19) caused a significant health crisis worldwide. As of today (4 May 2022), the total number of COVID-19 cases around the world is 341 thousand cases daily, a cumulative number of nearly 512 million, and the death of approximately 6.2 million people (World Health Organization [WHO] 2022). The sharp increase of cases daily has strained the already overburdened healthcare systems worldwide. Healthcare workers play a crucial role in response to the COVID-19 outbreak, and nurses, in particular, are working around the clock

providing care and meeting the needs of COVID-19 patients and their families. The unprecedented nature of the disease and the growing number of cases and death are likely to cause anxiety among nurses. Working in extraordinary circumstances requiring them to wear personal protective equipment (PPE) further instigated them to feel under pressure and stress, which is additionally cultivated by the rapid spread of the disease that put them at risk of getting infected as they are exposed to COVID-19 more often than others in the community (Maben & Bridges 2020). The nurses' mental well-being is affected which warrants research to identify sources of adverse mental health such as anxiety, stress, and depression so that appropriate organizational strategies and interventions may be established.

BACKGROUND

Studies on healthcare workers' mental health during the previous pandemics, such as the severe acute respiratory syndrome (SARS), have shown that they have experienced mental health problems such as depression and anxiety (Khee et al., 2004; Chan & Huak 2004). Similar results were also found in South Korea during the Middle East respiratory syndrome coronavirus (MERS-CoV) (Park et al. 2018) and in Greece during the H1N1 outbreaks (Goulia et al. 2010). Likewise, a survey in England indicated that over 38% of nursing staff and 35.1% (350 countries) worldwide experience high stress levels in hospitals (NHS 2018). COVID-19 pandemic further challenged the nurses and intensified stress. To name a few, the challenges include rapid disease transmission, which leads nurses to have a high workload due to shortages of staff (Shorey & Chan 2020). Additionally, the unexpected changes from mild to severe conditions instigated dire needs for intensive care requiring nurses to be skilful in handling machines. Furthermore, wearing PPE for long hours and high infection risks also increases the psychological pressures faced by nurses even more, which eventually causes them to experience burnout (Shorey & Chan 2020). There have also been some concerning reports of suicide among nurses who were caring for COVID-19 cases in countries such as Italy and India (; Montemurro 2020).

An overview of the literature on COVID-19 tends to focus on epidemiological investigations, prevention and control, diagnosis, and treatment of the disease. An example is Cascella et al. (2022), who highlighted the aetiology and epidemiology, expected clinical features

and radiological findings, and the latest available treatment, including different vaccines to prevent COVID-19. Other quantitative studies encompassing the prevalence of adverse mental health during the COVID-19 pandemic are inadequate in qualitative depth. This is evident in recent quantitative research on COVID-19 in Pakistan (n = 297) that front-line nurses experience varying degrees of depression, anxiety, and stress during the COVID-19 outbreak (Nadeem et al. 2021). A systematic review and meta-analysis conducted by Al Maqbali et al. (2021) that looked into the prevalence of psychological symptoms among nurses caring for COVID-19 patients in 93 studies (N = 93 112) revealed that 35% of nurses in 62 studies experienced depression, 43% in 40 studies experienced stress, and 37% in 73 studies experienced anxiety. In the same vein, a study done by Chew et al. (2020) among healthcare workers (N = 906), including nurses (n = 355) who cared for COVID-19 patients in India and Singapore, reported depression (5.3%), anxiety (8.7%), and stress (2.2%). Similarly, a quantitative study in Indonesia by Marthoenis et al. (2021) also found the prevalence of depression (8.5%) and stress (6.3%) but a slightly higher prevalence of anxiety (20.6%) among 491 nurses. Regardless of the varying degrees of prevalence, and despite the quantitative nature of the studies, the findings distinctly pointed to adverse psychological experiences.

Across the globe, there are shortages of specialized nurses in infectious disease prevention and control or at least who have experience in caring for patients with contagious diseases. It is not uncommon for nurses from other specialities to be deployed to the infectious disease unit during a pandemic (Yin & Zeng 2020). As a result, the high number of nurses who care for COVID-19 patients has little to no experience caring for patients with infectious diseases. Caring for patients with highly contagious diseases requires complex skills, and this novel and complicated experience of caring for COVID-19 patients heightens the non-specialized nurses' level of stress and anxiety (Yin & Zeng 2020). These findings indicate that nurses working on the front-line during infectious disease outbreaks are vulnerable to developing mental health problems, affecting their quality of life and the nursing care they provide to patients (Park et al. 2018).

Various coping strategies are employed to manage the psychological distress of working during a pandemic. These include such as COVID-19, where the majority of nurses use physical forms of coping strategies such as sleep, increasing food intake, and exercise to relieve themselves from the negative emotions (Sun

et al. 2020). Psychological forms of coping, such as distraction techniques (Zhang *et al.* 2021) and normalization (Kackin *et al.* 2020), are often used. Strong social support also seems to be the most effective coping mechanism for nurses (Zhang *et al.* 2021).

A qualitative analysis was conducted on responses to an open-ended question embedded in a cross-sectional study on nurses ($N = 695$) in the United States (Arnetz *et al.* 2020). This study found that nurses are concerned with their exposure to COVID-19, being infected and infecting others. Due to the unknown nature of the disease and limited equipment supplies, they also experienced the feeling of inadequacy or helplessness in facilitating the patients' recovery from the illness. They also voiced their unpreparedness to care for the COVID-19 patients due to their limited skills and training. The findings were derived from a qualitative analysis of written answers for an open-ended question that does not exclusively constitute a qualitative research design. The depth of the results may be compromised, which requires further in-depth exploration with the nurses.

Another qualitative study conducted on nurses in Wuhan, China, that examines the psychological change process of front-line nurses during the COVID-19 outbreak identified three main stages: being ambivalent, emotional exhaustion, and energy renewal (Zhang *et al.* 2020). Being the epicentre of the COVID-19 pandemic, China experienced a sudden influx of COVID-19 cases without any prior warning. This experience is unique to China. Despite other countries, including Brunei Darussalam (henceforth: Brunei), being able to learn from China's experiences, there are salient differences in the sociocultural, political, and healthcare systems.

There is a need to qualitatively explore the mental health of front-line nurses in other countries, including Brunei, to study whether the experiences will be similar and support the existing body of knowledge, compare the differences, if any, and contribute to the new body of knowledge. The findings from this study may potentially support national, organizational, and workplace efforts in developing strategies to reduce nurses' adverse psychological experiences during the various COVID-19 waves, endemic phase, and future pandemics. It is also hoped that sharing evidence from our study will inform other countries internationally in advancing future research and improving practices and policies in this area. This research explores the Brunei nurses' mental health experiences and coping strategies throughout the COVID-19 pandemic.

The study context

Brunei is a sultanate in East Asia and the Pacific region located on the Island of Borneo between Sabah and Sarawak with a population of 437 483, an adult literacy rate of 97.1%, and a high-income country with a GDP of USD 12.01 billion in 2020 (World Bank, 2020). It has a well-developed healthcare system, an infant mortality rate of 9.0/1000 live births, and a life expectancy at birth of 77.5 years (ASEAN Statistical Yearbook 2019). Citizens and residents receive universal health coverage from the Government, providing health services that are easily accessible and available nationwide, including the provision of 14 comprehensive health centres, four health clinics, two air medical services, and three mobile clinics (Hayat 2019).

METHODS

Design

A qualitative exploratory study was used, as it is the most suitable to explore a research topic that is limited in investigation and not fully understood (Lewis 2015). Previous studies were mainly quantitative and lacked an in-depth explanation of the mental health status of nurses. The qualitative exploratory design enabled in-depth exploration of nurses' experiences, specifically their mental health, sources of stress, and coping strategies.

Study participants and sampling strategy

A purposeful sampling method was employed, guided by coherent inclusion criteria. The first criterion was the study included only nurses with two or more years of experience. This is to ensure they have ample work experience, hence are anticipated to be able to consolidate their experiences in the provision of confirmed and suspected COVID-19 patients. The second criterion was to include nurses who provided nursing care or 'hands-on' to either confirmed or suspected COVID-19 patients in the COVID-19-related clinical facilities, namely the National Isolation Centre (NIC), swabbing centres, flu centres, and sudden acute respiratory infection (SARI) centres throughout Brunei. The principles underpinning data saturation were employed, where the data are considered adequate, indicated by width, depth, and redundant data and no newer data were acquired (Guest *et al.* 2020). At 50 participants, it was observed that the data were saturated as data

collections were conducted parallel to analysis. To confirm saturation, the research team decided to perform two more focus groups (FGs) ($n = 19$) where some new themes still emerged related to the sources of stress. The researchers further continued with another additional FGs session ($n = 6$), and there were then no more new themes identified.

Data collection

Data were collected between October 2020 and January 2021. The research team met the Heads of Nursing Administration of the study sites and briefed them about the eligibility criteria and research procedures. The research team was provided with a private room and a list of participants' names and dates for the data collection. At least two research team members conducted each focus group. Potential participants were given a sheet containing information about the study, explained verbally before all the FGs. They were encouraged to ask questions, and any doubts were answered. Written consent was signed by participants only when they were satisfied with the information given. Participants were informed that the FGs would be audio-recorded. A series of open-ended and semi-structured questions designed by the research team from the literature review was used to guide the data collection (Guest *et al.* 2020).

Ethical considerations

Full ethics clearance was received on 27 October 2020 with reference number: ERN: UBD/PAPRSBIHSREC/2020/49 from the joint-ethics committee of the Pengiran Anak Puteri Rashidah Sa'adatul Bolkiah (PAPRSB), Institute of Health Sciences Research Ethics Committee (IHSREC), Universiti Brunei Darussalam, and the Medical and Health Research and Ethics Committee (MHREC) of the Ministry of Health, Brunei Darussalam. Permission to conduct the study was also obtained from the Director-General of Medical and Health services (DGMHS), Ministry of Health Brunei Darussalam. The ethical principles underpinning this study followed the Declaration of Helsinki (World Medical Association Declaration of Helsinki 2013).

Debriefing

A debriefing session was identified as fundamental after each FG with an informal chat on how participants felt about their contributions during the FGs – allowing

them to express their feelings, whether negative or positive and shall they require any psychological medical attention. Three mental health nurses are among the research team who can conduct the debriefing sessions. No participants in this study require further psychological medical attention or referral to mental health services.

Data analysis and rigour

The recordings of the FGs were transcribed and analysed using thematic analysis by two researchers. Open coding was initially done to identify words with similar meanings. Focus coding was then conducted, which grouped codes that sounded and felt the same and eventually led to categorizing or formulating preliminary themes. Data from the same transcript and other transcripts were constantly checked and compared until all data were accounted for during coding and categorizing. This process is called constant comparative methods of data analysis (Kolb 2012), which eventually led to the finalization of themes. The research team rechecked the themes. Any discrepancies and disagreements on the themes were discussed until an agreement was reached. Such procedures ensure conformability – a method of triangulation that contributed to the trustworthiness of the qualitative study (Charmaz 2015). To ensure credibility, memos regarding sampling procedure, data collection, and data analysis were continuously written throughout the study as a basis for analytical decisions. Data verification was attained through reflexivity processes, such as writing memos and reflective journals, and by referring to the literature to explore whether the analysis provided a new conceptual rendering of the data. In addition, other researchers were engaged in cross-checking the themes to reduce research bias and ensure the findings, conclusions, and recommendations were braced by the data collected and the interpretation of the data was meaningful and relevant to the study (Charmaz 2015).

FINDINGS

Table 1 shows the sociodemographic characteristics of the nurses who participated in the FGs. A pseudonym is given to every participant to ensure their anonymity. Their ranks and workplaces are not reported as Brunei is a small country, and they can easily be identifiable. Eleven FGs were conducted, and 75 participants volunteered: 65 were staff nurses, five assistant nurses,

TABLE 1 Sociodemographic of the participants

Number of Participants	Pseudonym [†]	Gender	Age	Marital Status	Years of working experience
1	Sarah	Female	40	Married	22 years
2	Zainab	Female	30	Married	12 years
3	Timah	Female	40	Married	25 years
4	Ayu	Female	49	Married	27 years
5	Zaitun	Female	47	Married	25 years
6	Azizah	Female	24	Single	2 years
7	Saloma	Female	26	Single	4 years
8	Zaleha	Female	44	Married	22 years
9	Ramlah	Female	42	Married	22 years
10	Katy	Female	32	Married	12 years
11	Rina	Female	31	Single	9 years
12	Ratna	Female	37	Married	15 years
13	Rosa	Female	52	Married	30 years
14	Ali	Male	40	Married	18 years
15	Aminah	Female	24	Single	2 years
16	Tuah	Male	36	Married	14 years
17	Talib	Male	50	Married	30 years
18	Suria	Female	38	Married	16 years
19	Abadi	Female	43	Married	21 years
20	Mila	Female	40	Divorce	20 years
21	Abu	Male	24	Married	2 years
22	Usman	Male	48	Married	26 years
23	Sameon	Female	45	Married	23 years
24	Fida	Female	44	Married	22 years
25	Aini	Female	59	Married	39 years
26	Ricci	Female	30	Married	12 years
27	Adra	Female	40	Single	18 years
28	Desi	Female	49	Married	27 years
29	Tengah	Male	34	Married	14 years
30	Talita	Female	57	Married	37 years
31	Faiha	Female	24	Single	2 years
32	Lisa	Female	46	Married	24 years
33	Tika	Female	33	Single	11 years
34	Susan	Female	30	Married	8 years
35	Michael	Male	39	Married	17 years
36	Jordan	Male	40	Married	18 years
37	Ruby	Female	43	Married	22 years
38	Nor	Female	49	Married	27 years
39	Hjh Ros	Female	50	Single	28 years
40	Balqis	Female	39	Single	17 years
41	Aziq	Male	49	Married	27 years
42	Dinda	Female	54	Married	33 years
43	Fany	Female	24	Single	2 years
44	Imah	Female	39	Married	17 years
45	Jessie	Female	50	Married	28 years
46	Regine	Female	58	Married	36 years
47	Hani	Female	34	Married	12 years
48	Hasnah	Female	25	Single	3 years
49	Haidah	Female	39	Single	17 years
50	Hawa	Female	55	Married	35 years
51	Normah	Female	40	Single	22 years
52	Zatul	Female	39	Married	17 years
53	Naila	Female	39	Married	17 years

(Continued)

TABLE 1 (Continued)

Number of Participants	Pseudonym [†]	Gender	Age	Marital Status	Years of working experience
54	Sidek	Male	35	Married	12 years
55	Amad	Male	34	Married	12 years
56	Wana	Female	35	Married	13 years
57	Nor	Female	55	Married	35 years
58	Tipah	Female	40	Married	28 years
59	Wani	Female	44	Married	22 years
60	Adib	Male	35	Married	13 years
61	Matin	Male	24	Single	2 years
62	Umi	Female	35	Married	13 years
63	Lujna	Female	50	Married	33 years
64	Zuri	Female	54	Married	34 years
65	Japar	Male	33	Single	11 years
66	Sinah	Female	49	Married	27 years
67	Sanah	Female	35	Married	13 years
68	Jijah	Female	44	Married	22 years
69	Nana	Female	49	Married	27 years
70	Barbara	Female	54	Married	34 years
71	Crystal	Female	35	Married	13 years
72	Olga	Female	59	Married	39 years
73	Glen	Female	35	Married	13 years
74	Jen	Female	24	Single	2 years
75	Fenny	Female	44	Married	22 years

[†]A pseudonym is assigned to every participant in order to maintain their anonymity.

and five nurse managers. The average age of the participants was 40.7 years old, and the average working experience was 19.3 years.

Three major themes emerged: 'COVID-19 roller-coaster transitional journey'; 'mind my mind and heart' and 'the psychosocial system'. The relational dynamics of these themes and subthemes are illustrated in Table 2. These themes and subthemes are exemplified by participants' quotes. The brackets '[']' indicate the full descriptions of abbreviations used by participants, and the brackets '(')' explain the words used by the participants.

Theme 1: COVID-19 roller-coaster transitional journey

The invasion of COVID-19 in the whole world and Brunei is like a roller-coaster journey. ... Initially, we just heard about it (COVID-19) from far away, the very far country from Brunei. For all we knew, then it suddenly became a destructive disease in our neighbouring countries...in Singapore... Malaysia...Thailand...but when it (COVID-19) consumed Brunei and the

TABLE 2 Relational dynamics of themes and subthemes

Theme 1: COVID-19 Roller-coaster transitional journey	Theme 2: Mind my mind and heart	Sources of adverse mental health	Theme 3: The psychosocial support system
Stage 1 – The afar echo of COVID-19	Subtheme 1	<ul style="list-style-type: none"> • Constant updates and changes in information • Not confident with wearing PPE • Care of suspected COVID-19 cases • Uncertainties • Fear of infecting self and others • Wearing of PPE • Constant changes in standard operation procedure • Threat from patient • Stigma • Being away from family • Increased number of discharged patients • Effective COVID-19 management • Decrease in number of COVID-19 cases • No community outbreak (only imported cases) 	Subtheme 1
Stage 2 – The spread of COVID-19 regionally	<ul style="list-style-type: none"> • Emotionally apprehensive • Anxiety 		<ul style="list-style-type: none"> • Self-care Management • Spiritual, e.g. Yoga • Religious, e.g. prayers
Stage 3 – The first imported case	Subtheme 2		Subtheme 2
Stage 4 – The community outbreak	<ul style="list-style-type: none"> • Emotional turbulence • Fear • Workload Stress • Sleep Disturbances • Loneliness • Exhaustion • Burnout 		<ul style="list-style-type: none"> • Venting out mechanisms • Pantry • Writing journal
Stage 5 – The containment period	Subtheme 3		Subtheme 3
Stage 6 – Subsiding COVID-19 cases	<ul style="list-style-type: none"> • Emotional recovery • Increased Confidence • Relieved • Calm • Relaxed 		<ul style="list-style-type: none"> • Collaborative support • Family support • Public support • Management support • Government Support
Stage 7 – No local cases			

substantial multiplication of cases in Brunei, we were forced to face the reality of life. . . .

A metaphor provided by the nurses representing their work-life during the COVID-19 pandemic was interpreted as riding a roller coaster where the ride was fast, full of sudden ups and downs with sharp left and right turns. As the passengers of this ride, nurses had no choice but to hold on to their seats, adapt as best as they could and force themselves to bravely go through the fast ride from the time they were caring for suspected cases (pre-COVID-19 outbreak) to the first confirmed case which then quickly rose to a hundred cases within two weeks (community outbreak stage) until finally, the ride slowed down when there were no more local cases found in the country (post-heightened COVID-19 outbreak stage). This ‘roller-coaster’ journey, extracted from the participants’ accounts of their experience, is best illustrated in the seven stages below. The participants’ quotes representing each stage can be found in Table 3.

Stage 1 – The afar echo of COVID-19

When China was first affected by the novel coronavirus, the whole world was absorbed by the uproar that it had caused to their healthcare system. Participants reported the virus was a constant topic of

conversation both at work and at home. They were intrigued by how a virus with the same symptoms as the common flu could be fatal. More than half of the participants stated that none anticipated Brunei would be affected by the COVID-19 virus as it seemed too far away to reach the country.

Stage 2 – The spread of COVID-19 regionally

When countries in Southeast Asian regions, such as Malaysia and Thailand, became affected by the virus, most of the nurses in the study reported feeling apprehensive. They stated that they began to realize that there was a possibility the virus could reach the country since Brunei had not closed its borders yet during that time. Participants mentioned that hospitals began to conduct in-house training for nurses, especially on the wearing and removing Personal Protective Equipment (PPE) and mask fitting.

Stage 3 – The first imported case

The first confirmed COVID-19 case in Brunei was reported on 9 March 2020. The patient was a recent traveller from Malaysia who did not develop any flu symptoms upon arrival back to Brunei. Most participants said they were shocked when they first received the news and felt they were not prepared well enough,

especially in terms of knowledge and skills, to carry the heavy burden of caring for patients who had contracted such a highly infectious disease.

Stage 4 – The community outbreak

Positive COVID-19 cases quickly rose day by day following the first imported local case. Almost all participants unanimously said that working during the heightened period of COVID-19 was one of the busiest and most chaotic working experiences they ever had. There were a lot of uncertainties during this period where management protocols, standard operating procedures (SOP), duty rosters, and place of work underwent constant changes.

Stage 5 – The containment period

In response to the first imported local case in the country, Brunei immediately implemented several containment measures to control the epidemic and preserve its healthcare system.

Stage 6 – Subsiding COVID-19 cases

The containment measures taken by the Brunei Government showed a positive impact when the last local positive COVID-19 case in Brunei was recorded on 7 May 2020. Hospitals' policy of minimizing the risk of cross-contamination between patients, and staff was carried out well, and the front-liners' dedication to carrying out their duties also significantly contributed to this success. According to the participants, COVID-19 has helped change the public's perception of the nursing profession. Nurses and nursing as a profession are now more respected and valued than before.

Stage 7 – No local cases

All participants believed that Brunei has responded to the pandemic crisis very well. From the middle of May 2020 until the end of August 2021, all new COVID-19 cases the country received were travellers who were immediately quarantined upon arrival to the country, which prevents any local transmission. The participants are now redeployed back to their respective hospitals.

Theme 2: Mind my mind and heart

This theme represents participants' internal struggle during the pandemic and how they hoped to be heard. Working during the pandemic has led the participants to experience unexpressed psychological distress and other mental health symptoms, grouped into three

subthemes: 1) Emotionally apprehensive; 2) Emotional turbulence; and 3) Emotional recovery.

Emotionally apprehensive

Participants revealed anxiety occurred at every stage of the COVID-19 outbreak, and it began as early as when they first cared for suspected COVID-19 cases. However, participants who did not receive adequate training on the proper use of Personal Protective Equipment (PPE) when caring for both suspected and confirmed COVID-19 cases seemed to report a higher level of anxiety by their use of the word such as 'very' than those who received adequate training beforehand.

Please... please... mind my mind and heart... I was so anxious in my heart and so worried in my head... there was one patient who was suspected of having COVID-19; I was very... very anxious...as we were not confident with the training on PPE that I have had yet...I was worried if my mask was also well fitted ...

Hasnah

Emotional turbulence

The most narrated emotion that participants experienced when caring for confirmed positive COVID-19 cases was fear:

...I felt really scared, really petrified. Like...really terrified...even though I've experienced working with H1N1 before, this COVID-19 is nothing like it...it's a new strain of virus...

Zaleha

This fear mainly stemmed from the thought of getting themselves infected and possibly becoming carriers of the virus to their family and others, which made them take multiple showers before meeting their family members.

..So some of us took a shower twice – here, and when we reached home, we took another shower. I felt almost like having an obsessive-compulsive disorder.

Dinda

Consequently, some participants decided to isolate themselves from their families, which caused many to feel lonely during the pandemic.

...When we received the positive case, I felt scared... terrified...I decided to isolate myself from my family...For about three months, I stayed at the hostel provided by the government... I isolate myself from them (the family)...we only do video calls (during those times)...but even so, I still feel lonely.

Hawa

TABLE 3 Examples of quotes for theme 1: COVID-19 roller-coaster transitional journey

Stages	Descriptions	Examples of quotes
Stage 1	The afar echo of COVID-19	'No feeling at all when we first heard about COVID-19 affecting China, but there is always an update every day. Thus we just keep ourselves updated with everything about COVID-19...from reliable sources such as the CDC [Centre for Disease Control – United States] and WHO [World Health Organization] website..' – Ali
Stage 2	The spread of COVID-19 regionally	'There were already confirmed cases in Malaysia and Thailand...at that time I remember I felt intimidated upon hearing the news...But Brunei has not closed borders except to China...so there were still many people coming in and out of the country, and we were lacking confidence in wearing PPE [Personal Protective Equipment Suit]...' – Tuah
Stage 3	The first imported case	'Probably we underestimated... we take for granted... we thought we were already prepared to deal with COVID-19... However, facing the fact that there was a first case of COVID-19 in Brunei challenged us. We were really worried and anxious...' – Suria
Stage 4	The community outbreak	'During this time, the community outbreak was felt fierce; there were multiplication of cases each day...we worked round the clock providing care to the increasing number of patients being admitted...while our management protocol and SOP [standard operating procedure] kept on changing...it was very chaos' – Ros
Stage 5	The containment period	'At that time, our Ministry of Health was swift to issue measures to contain the virus in their effort to flatten the COVID-19 curve, calling all people in Brunei to practice sanitising and hand washing, social distancing, and they also implement measures like contact tracing, the closing of schools, mosques and restriction of mass gathering and so on...the nation's borders were also closed, restricting non-essential travels in and out of the country.' – Regine
Stage 6	Subsiding COVID-19 cases	'When COVID-19 subsides, and many cases were cured... People are more appreciative of nursing as a profession... now, they see us as a hero...A Hero that saved their lives...' – Abu
Stage 7	No local cases	'Right now, I am back to my (former workplace) clinic...Even though we have no local cases now, I think it's still important always to be cautious...' – Adib

Other than the virus itself, another source of fear the participants recalled was uncooperative patients who displayed threatening behaviours in the ward.

... The patient brought a pocket knife to him, and he threatened to throw it at certain nurses whom he seemed to have a grudge on...I was petrified of the patient.

Nana

On top of feeling fear, participants also expressed the heightened stress they felt due to the constant uncertainties and unknowns they had to face daily during the pandemic. This ranges from limited information about the virus itself to the constant changing of the Standard Operating Procedure (SOP) in the management of COVID-19, the PPE guidelines, and the frequent changes in their duty roster and places of duty.

It was only my second day of work at the NIC (National Isolation Centre) when I suddenly received a call very early in the morning and was told to open a

new ward...to expand the current bed capacity in NIC.

Sarah

The overwhelming workload and inadequate staffing, especially during the first two weeks of the outbreak, were also a great source of stress for most of the participants.

Everything was chaos during those two weeks, we have so many things to do, but our manpower was not enough. We can only take a short break if we are lucky

Lisa.

Wearing the PPE for long hours restricts the nurses from going to the bathroom, eating, and drinking, which adds further stress.

During the first two weeks of the outbreak, we were exhausted, we were not able to eat or drink properly during our shift and had to stay like that until the end (of our shift)...it was just so stressful.

Aminah

Outside of the hospital, nurses also shared their stressful experience of being avoided and stigmatized by the public, especially their close family and friends, as they were viewed as the potential carriers of the virus.

When my relatives and friends found out that I was working at the NIC, they were afraid of getting near me, they said 'don't come near us', they treated me like somebody who is carrying this deadly virus... it made me so upset. Crystal

Emotional recovery

Most participants reported a gradual increase in positive emotions as the outbreak started to de-escalate. Almost all participants consistently reported feelings of relief and calm during the post-heightened COVID-19 outbreak period.

Seeing the faces of patients finally discharged from the hospital and uniting with their beloved ones brought a strong sense of relief from all the stresses we felt. I feel more relaxed now... more calm. Sidek

Knowing that they had successfully gone through the worst period of the outbreak, the participants expressed that despite the difficulties they faced while working during the height of the pandemic, they gained a lot of valuable experience and self-confidence in handling any future imported COVID-19 cases.

... my confidence level has definitely increased... Whenever I am told, a new positive (imported) case will be admitted...I look forward to receiving the case... Ruby

Theme 3: The psychosocial system

Participants in this study used several coping strategies which encapsulated a complete psychosocial system to relieve themselves from the distress they experienced primarily at the height of the COVID19 outbreak. The coping strategies are classified into three main groups described below.

Self-care management

It was found that spiritual coping emerged as one of the most common self-care managements employed by participants in dealing with their emotional turbulence. This was manifested as spiritual practices such as prayer or reciting Zikr (holy verses), reading Al-Qur'an for Muslims, and praying and reading the Bible for Christians.

... I never stop reciting prayers because going to work can make me feel anxious... Reading Qur'an at night and reciting prayers help to calm me down. Ratna

More than half of the participants said performing exercise and yoga also significantly reduced the psychological distress they experienced.

... we can still do indoor exercises or physical activities outside our house or yoga, it's a good way for me release my stress... Usman

Venting out mechanism

Another common coping mechanism the majority of the participants found to help reduce their emotional distress is using the pantry as a place to socialize or just talk to each other during break time or after their shift.

Usually, during break time or after our shifts, we would sit together with our colleagues at the pantry outside the ward, have our meals together and just talk about our day... it felt good to talk, and it helps to release all the tensions that I felt... Timah

Interestingly, a few participants found that writing down their experiences in a diary or journal helps them reflect on their day and appreciate their work in helping the COVID-19 patients.

I love to write. Thus I write in my diary... It's like a reflective journal for me... Therefore, I can remember and help me to voice out my feelings...This also helped me to be critical and learn from my experiences. Faiha

Support system

A large number of participants in this study mentioned the social support they received collectively and collaboratively from their family, colleagues, friends, and members of the public helped buffer the emotional distress they felt during the height of the pandemic. The support from colleagues promoted a strong sense of solidarity between the front liners that made the challenges more bearable.

Even though not much can be done by our management to help alleviate our stress, our team spirit helps us to push through all the challenges. Tika

...my family often asked how I was doing, and they kept sending their prayers to me. It was very comforting... Jordan

The participants were also thankful for the support they received from their nursing management when

the duration for nurses to spend inside the ward was shortened to four hours instead of eight at a time, so nurses would not spend such long hours in PPE.

I am thankful when our management shortened the number of hours we spent in the ward to 4 hours. They deployed more nurses to make this happen... Michael

The heart-warming support from the public and government also made the participants feel more motivated to work harder despite their challenges.

I was awed by the generous support that we received from the public...the extra allowance from the government...I felt so appreciated. Aziq

DISCUSSION

To date, Brunei has experienced three waves of COVID-19 outbreak. The first wave occurred between March and May 2020, the second was from the end of August 2021 to December 2021, and the third wave commenced in January 2022 until the present day. This study was conducted following the first wave of the COVID-19 pandemic in Brunei. To the best of our knowledge, this is the first comprehensive and in-depth qualitative study investigating nurses' mental health and coping strategies throughout the COVID-19 outbreak. The pandemic outbreak period in Brunei from pre-, during to post-COVID-19 has led to a natural transformation of nurses' psychological processes that are dynamic, initially erratic, and gradually adaptive. Nurses in this study did not report any high-intensity emotional reactions when COVID-19 initially hit the world in late 2019. They started to feel a sense of apprehensiveness when the COVID-19 cases began to spread regionally and when they began to care for suspected COVID-19 cases. Adverse mental well-being quickly intensified when the nurses started to receive confirmed COVID-19 patients in the hosp. As the number of cases decreased, so did the decrease in intensity of nurses' negative mental health effects. The adverse mental well-being was unsettled even after the end of the first wave, given the anticipated consecutive waves of the COVID-19 pandemic, which is unpredictable.

The study findings concurred with the current evidence that nurses experience a high level of stress during the pandemic (Arnetz *et al.* 2020; Park *et al.* 2018; Shorey & Chan 2020) and are consistent with the qualitative study conducted by Zhang *et al.* (2020). Zhang *et al.* (2020) pointed out that nurses experienced three

main stages of psychological changes when working during the COVID-19 pandemic. The stages are 1) Being ambivalent: the early stage, where nurses' mainly felt ambivalent when they were first informed, they were going to be deployed to Hubei province; 2) Emotional exhaustion: the middle stage, where the emotions they felt developed into stronger negative emotions such as anxiety, depression, and fear; and 3) Energy renewal: the later stage, where the psychological adaptation began to occur. Our findings further expanded these stages into seven and pinpointed that nurses experience psychological changes before, during, and after the COVID-19 outbreak. Unlike the linear process explained by Zhang *et al.* (2020), the current study highlighted the nurses' mental health and psychological experiences in providing care during the COVID-19 pandemic resembled a 'roller-coaster' ride. The stages are unpredictable, back and forth, and oscillating feelings experienced by the nurses, which impacted their mental health state and coping mechanisms at the time.

Nurses experience a gradual increase in positive emotions as the number of positive COVID-19 cases decreases. Still, their intense fear, anxiety, and stress persist, which is conflicting with the findings from a similar study in Taiwan (Chong *et al.*, 2004). Their findings identified that the healthcare workers' fear and anxiety during the outbreak of SARS was sharp at the initial stage, but decreased afterwards despite the number of cases continuing to surge. Interestingly, these healthcare workers had depression and post-traumatic stress disorder that lasted for a long time (Wu *et al.* 2009). Similarly, studies in Indonesia (Marthoenis *et al.* 2021), Singapore (Chew *et al.* 2020), and Croatia (Salopek-Ziha *et al.* 2020) also found a lower incidence of mental distress among nurses caring for COVID-19 cases in a long term, which are inconsistent with the current study findings. Perhaps the possible reasons for the differences are due to the nurses in previous studies having already experienced a recurrence of several pandemic/COVID-19 waves. By contrast, at the time of our research, Brunei was in a settled first wave of the COVID-19 pandemic. Some other possible reasons that explain the discrepancy of findings on the yet high intensity of fear and anxiety among nurses in our study despite the absence of local cases are 1) awareness that in other countries, the COVID-19 pandemic has caused death among healthcare workers (Keles *et al.* 2021); 2) the possible recurrence of yet several waves of COVID-19 pandemic (Post *et al.* 2021) in

Brunei; and 3) the unprecedented nature of COVID-19 pandemic.

It is essential to know how nurses felt during the pre-deployment period that would facilitate the nursing administrations to plan for appropriate training, especially on the needs of the front-line nurses at the earliest stage. Early training and support from nursing leaders and management help improve nurses' readiness and willingness to work during a pandemic (Aoyagi *et al.* 2015) and their ability to cope during the highly challenging pandemic (Yip *et al.* 2021). Such information would assist nursing administrations and policymakers plan and design appropriate interventions and training as part of their health emergency programmes in preparation for any future pandemics. Strong support from nursing leaders and management by the nurses is crucial during a pandemic due to the highly challenging nature of their job (Sun, 2020).

Factors contributing to nurses' psychological distress when working at the height of COVID-19 cases were identified in this study, for examples, the discomfort of wearing PPE, increased workload, reduced rest periods, and being stigmatized. These findings are consistent with past studies such as during SARS (Maunder *et al.* 2003), H1N1 (Matsuishi *et al.* 2012), and the COVID-19 pandemic (Arnetz *et al.* 2020), which is a concern as studies have shown exposure to long periods of psychological distress is detrimental to both the physical and mental health of nurses (Rabie *et al.* 2018). Anxiety and fear are two of the most repetitively narrated emotional distress nurses experienced during the COVID-19 pandemic. The first anxiousness relates to unpreparedness to handle infectious diseases, including infection prevention and control practice. For example, nurses who did not receive appropriate training or lack confidence in wearing PPE shared they are emotionally distressed. Such a finding is consistent with previous studies that found participants who did not receive adequate training on infection control practices before the pandemic reported a higher level of perceived stress and anxiety (Cui *et al.* 2021). Additionally, the lack of workforce during the peak period of COVID-19 cases in the country further aggravates the feelings of anxiety, stress, and physical exhaustion. Nurses spent longer working hours wearing full PPE and increased workloads with only short breaks. The staff shortage does not come as a surprise, as the nursing profession globally faced shortages even before the pandemic (Turale & Nantsupawat 2021). Staff shortages should be anticipated during pandemic outbreaks due to absenteeism and

increased demand for services, and a plan should be put in place to address this shortage (Poortaghi *et al.* 2021). One of the actions taken by health authorities in China to support the shortage of nurses in the fight against COVID-19 disease was to deploy nurses from other provinces with lower infection rates to the province with higher COVID-19 cases (Zhu *et al.* 2021). Findings from previous studies and the current study pointed out that assumption should not be made that all nurses are skilful in providing care for COVID-19 patients. These findings may inform nursing managers on providing appropriate training and education to support, especially those deployed from non-pandemic or non-infectious diseases specialization clinical settings.

Another finding from this study that could add to the current body of knowledge is how patients could also be a source of fear for nurses, especially those who display threatening and unpredictable behaviours. In Brunei, during the first wave of COVID-19, all patients are isolated at the NIC, including those who are asymptomatic, for a minimum of 2 weeks and will only be discharged after they receive three consecutively negative COVID-19 test results. The long period of isolation may contribute to patients' psychological distress ranging from frustration, depression, and even anger, which may explain the aggressive behaviours they displayed as narrated by the participants in this study, which is consistent with previous findings (Labrague & Santos 2020). The safety of the healthcare workforce should always be hospital managers' utmost priority, even more so during a pandemic when access to wards is restricted, which consequently delays help from arriving faster. Safety workforce planning needs to be constantly reviewed and improved to ensure all healthcare workers, especially nurses, are protected from harm and immediate help can be received as soon as required. Future research should also focus on COVID-19 patients' perspectives of being infected and hospitalized.

Overall, it can be concluded from this study that COVID-19 is an unprecedented event that caused expeditious changes and demands a rapid response from the healthcare system for effective management. These include the need for adequate staff to work in COVID-19 care because of increasing daily cases; nurses specializing in infection prevention and control to facilitate the containment of COVID-19 widespread; and nurses who specialize in intensive and critical care, especially those with mastery in technology to provide care for seriously ill COVID-19 patients requiring life

support machine. Worldwide, the existing nursing workforce that has already faced shortages has no choice other than to deploy nurses who do not have specific skills and expertise in communicable diseases to the COVID-19 care (Yin & Zeng 2020). The world has to cope with the diminishing nursing workforce. Aside from this, the need for PPE and all related items in caring for COVID-19 patients is depleting due to rapid rises in cases. All of these together contributed negatively to the psychological and mental health of the nurses. The government, authorities, and managerial nurse leader indeed acknowledged these dire needs but is limited in ability to possibly accommodate the entire multiple demands.

The unique finding in this study pointed out that the nurses could adopt several coping strategies to overcome their distress. Self-care management appeared to be the most adopted strategy, which involves using spiritual coping, physical exercise, and yoga. Self-care is essential for nurses as a lack of it during times of stress will affect their ability to provide care and be compassionate to patients (Mills *et al.* 2015). Moreover, neglecting self-care during times of stress increases the risk of engaging in maladaptive coping strategies (Lloyd & Campion 2017). Self-care can be viewed as a means to empower self through the ability 'to promote, maintain health, prevent disease, and to cope with illness with or without the support of a healthcare provider' (World Health Organization 2013, p.15). Self-care is often emphasized for patients with non-communicable diseases such as hypertension and diabetes. As evident from the current study, in view of the broad scope, self-care can play an important role as a strong coping strategy for nurses to preserve their mental health, not only restricted during the pandemic but beyond and in many other situations.

Responsible individuals and organizations such as nurse managers, the healthcare system, authorities, the government, and even the country are confronted with shortcomings caused by the COVID-19 pandemic that may lead to nurses experiencing adverse mental health. This current study implied that like patients, nurses too need to have strong determination and be empowered to preserve their health. The practice of self-care should be encouraged among nurses. Encompassing the broad aspects may prove beneficial. They should take charge of their mental health, learn from their current experiences, reflect, analyse, and identify self-care strategies that suit them. Some of the strategies mentioned in this study include religious and spiritual practices, exercising, relaxation, yoga, supportive care

from families, friends, and work colleagues, and talking to each other to vent out their stress. If the COVID-19 pandemic is here to stay and now most countries are entering the endemic phase, prolonged stress may result in burnout (Galanis *et al.* 2021). Self-care is not a natural process for everyone, and not everyone is born with self-care ability. The healthcare system may prepare nurses better for self-care by educating them about self-care, the self-care strategies, and conducting regular workshops and refresher programmes to disseminate self-care. This may be a way forward, and nurses can be empowered for their health.

Strengths and limitations

This study includes many different rank nurses from diverse COVID-19-related areas; hence, the study findings are from a heterogeneous group. As this study is qualitative, the findings are an in-depth representation of nurses' experiences. This study's findings are relevant for designing interventions for implementation during the recurrence of the COVID-19 community outbreak at the second and ongoing third waves. A limitation is that the study was conducted when participants were already at the post-heightened stage of the COVID-19 outbreak for several months. At this stage, participants were already in the emotional recovery phase, and therefore, there might be a few recall biases of the experiences.

CONCLUSIONS

This study provided a comprehensive and in-depth understanding of the nurses' experiences who provided care to suspected and confirmed COVID-19 patients in Brunei. Nurses experienced seven interconnected stages of the COVID-19 outbreak and interweaved with various emotional reactions and coping strategies. Policymakers and nursing administration are recommended to actively support the psychological needs of front-line nurses, especially from the beginning of the outbreak to its peak, to ensure front-line nurses stay resilient during these challenging times. Psychological preparation as the wall of defence against adverse mental health conditions during pandemics is deemed important. It mandates nursing administration to provide nurses with adequate education on infection prevention and control practice. Furthermore, increasing awareness and knowledge of the importance of practising self-care among nurses should begin at the educational level and be emphasized throughout their

nursing profession. Future research should explore the COVID-19 patients' experiences so that challenges and issues encountered by nurses in providing care to them can further be investigated and strategies for enhancing their mental health could be established.

RELEVANCE FOR CLINICAL PRACTICE

Nurses' mental health and coping strategies during the COVID-19 pandemic influenced their attitude and performance in providing care and completing other tasks, which should not be overlooked. Nurses must be supported psychologically by enhancing positive coping strategies, such as talking to each other, relaxation, and spirituality. Nurses should also be made aware there are negative coping strategies, and these should be avoided to prevent detrimental effects on their mental health. Psychosocial ways of coping should continue to be employed by nurses along with the enhancement of collective and collaborative support from family, friends, the public, and at the governmental level. Knowledge and skills of infection prevention and control practices must be integrated into the nursing curriculum, which is regularly refreshed upon graduation. Standardized operation procedure guidelines should be produced to facilitate nurses' preparedness for the recurrence of COVID-19 waves and future pandemics.

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CONFLICT OF INTEREST

The are no conflict of interest to declare.

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DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

REFERENCES

- Al Maqbali, M., Al Sinani, M. & Al-Lenjawi, B. (2021). Prevalence of stress, depression, anxiety and sleep disturbance among nurses during the covid-19 pandemic: A systematic review and meta-analysis. *Journal of Psychosomatic Research*, *141*, 110343. <https://doi.org/10.1016/j.jpsychores.2020.110343>
- Aoyagi, Y., Beck, C. R., Dingwall, R. & Nguyen-Van-Tam, J. S. (2015). Healthcare Workers' willingness to work during an influenza pandemic: A systematic review and meta-analysis. *Influenza and Other Respiratory Viruses*, *9* (3), 120–130. <https://doi.org/10.1111/irv.12310>
- Arnetz, J. E., Goetz, C. M., Arnetz, B. B. & Arble, E. (2020). Nurse reports of stressful situations during the COVID-19 pandemic: Qualitative analysis of survey responses. *International Journal of Environmental Research and Public Health*, *17* (21), 8126. <https://doi.org/10.3390/ijerph17218126>
- ASEAN Statistical Yearbook (2019). Available from URL: https://www.aseanstats.org/wp-content/uploads/2020/01/ASYB_2019.pdf. [Cited 4 May 2022].
- Casella, M., Rajnik, M., Aleem, A., Dulebohn, S. C. & Di Napoli, R. (2022). Features, evaluation, and treatment of coronavirus (COVID-19) [Updated 2022 May 4]. In *StatPearls [Internet]*. Treasure Island (FL): StatPearls Publishing. Available From: <https://www.ncbi.nlm.nih.gov/books/NBK554776/>
- Charmaz, K. (2015). Teaching theory construction with initial grounded theory tools. *Qualitative Health Research*, *25* (12), 1610–1622. <https://doi.org/10.1177/1049732315613982>
- Chan, A. O. M. & Huak, C. Y. (2004). Psychological impact of the 2003 severe acute respiratory syndrome outbreak on health care workers in a medium size regional general hospital in Singapore. *Occupational Medicine*, *54* (3), 190–196. <https://doi.org/10.1093/occmed/kqh027>
- Chew, N. W. S., Lee, G. K. H., Tan, B. Y. Q. *et al.* (2020). A multinational, multicentre study on the psychological outcomes and associated physical symptoms amongst healthcare workers during COVID-19 outbreak. *Brain, Behavior, and Immunity*, *88*, 559–565. <https://doi.org/10.1016/j.bbi.2020.04.049>
- Chong, M.-Y., Wang, W.-C., Hsieh, W.-C. *et al.* (2004). Psychological impact of severe acute respiratory syndrome on health workers in a tertiary hospital. *British Journal of Psychiatry*, *185* (2), 127–133. <https://doi.org/10.1192/bjp.185.2.127>
- Cui, S., Jiang, Y., Shi, Q. *et al.* (2021). Impact of COVID-19 on anxiety, stress, and coping styles in nurses in emergency departments and fever clinics: A cross-sectional survey. *Risk Management and Healthcare Policy*, *14*, 585–594. <https://doi.org/10.2147/rmhpc.s289782>
- Galanis, P., Vraka, I., Fragkou, D., Bilali, A. & Kaitelidou, D. (2021). Nurses' burnout and associated risk factors during the COVID-19 pandemic: A systematic review and meta-analysis. *Journal of Advanced Nursing*, *77* (8), 3286–3302.

- Goulia, P., Mantas, C., Dimitroula, D., Mantis, D. & Hyphantis, T. (2010). General hospital staff worries, perceived sufficiency of information and associated psychological distress during the a/H1N1 influenza pandemic. *BMC Infectious Diseases*, 10 (1), 1–11. <https://doi.org/10.1186/1471-2334-10-322>
- Guest, G., Namey, E. & Chen, M. (2020). A simple method to assess and report thematic saturation in qualitative research. *PLoS One*, 15 (5), 1–17. <https://doi.org/10.1371/journal.pone.0232076>
- Hayat, H. (2019). Universal health coverage is every individual's right: Minister. Borneo Bulletin Digital. <https://borneobulletin.com.bn/universal-health-coverage-is-every-individuals-right-minister/#:~:text=%E2%80%9C%20Alhamdulillah%2C%20Brunei%20Darussalam%20is%20for%20tunate%20that%20all,two%20air%20medical%20services%20and%20three%20mobile%20clinics.> [Cited 4 May 2022].
- Kackin, O., Ciydem, E., Aci, O. S. & Kutlu, F. Y. (2020). Experiences and psychosocial problems of nurses caring for patients diagnosed with COVID-19 in Turkey: A qualitative study. *International Journal of Social Psychiatry*, 002076402094278, 158–167. <https://doi.org/10.1177/0020764020942788>
- Keles, E., Bektumur, G. & Baydili, K. N. (2021). COVID-19 deaths among nurses: A cross-sectional study. *Occupational medicine (Oxford, England)*, 71 (3), 131–135. <https://doi.org/10.1093/occmed/kqab035>
- Khee, K. S., Lee, L. B., Chai, O. T., Loong, C. K., Ming, C. W. & Kheng, T. H. (2004). The psychological impact of SARS on health care providers. *Critical Care and Shock*, 100–106.
- Kolb, S. M. (2012). Grounded theory and the constant comparative method: Valid research strategies for educators. *Journal of Emerging Trends in Educational Research and Policy Studies*, 3 (1), 83–86.
- Labrague, L. J. & Santos, J. A. (2020). Fear of COVID-19, psychological distress, work satisfaction and turnover intention among frontline nurses. *Journal of Nursing Management*, 29 (3), 395–403. <https://doi.org/10.1111/jonm.13168>
- Lewis, S. (2015). Qualitative inquiry and research design: Choosing among five approaches. *Health Promotion Practice*, 16 (4), 473–475. <https://doi.org/10.1177/1524839915580941>
- Lloyd, C. & Campion, D. P. (2017). Occupational stress and the importance of self-care and resilience: Focus on veterinary nursing. *Irish Veterinary Journal*, 70 (1), 1–7. <https://doi.org/10.1186/s13620-017-0108-7>
- Maben, J. & Bridges, J. (2020). Covid-19: Supporting nurses' psychological and mental health. *Journal of Clinical Nursing*, 29 (15-16), 1–23. <https://doi.org/10.1111/jocn.15307>
- Marthoenis, M., Fathiariani, L. & Nassimbwa, J. (2021). Investigating the burden of mental distress among nurses at a provincial COVID-19 referral hospital in Indonesia: A cross-sectional study. *BMC Nursing*, 20 (1), 1–8. <https://doi.org/10.1186/s12912-021-00596-1>
- Matsuishi, K., Kawazoe, A., Imai, H. et al. (2012). Psychological impact of the pandemic (H1N1) 2009 on general hospital workers in Kobe. *Psychiatry and Clinical Neurosciences*, 66 (4), 353–360. <https://doi.org/10.1111/j.1440-1819.2012.02336.x>
- Maunder, R., Hunter, J., Vincent, L. et al. (2003). The immediate psychological and occupational impact of the 2003 SARS outbreak in a teaching hospital. Available from: URL: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC154178/>. Accessed May 4 2022.
- Mills, J., Wand, T. & Fraser, J. A. (2015). On self-compassion and self-care in nursing: Selfish or essential for compassionate care? *International Journal of Nursing Studies*, 52 (4), 791–793. <https://doi.org/10.1016/j.ijnurstu.2014.10.009>
- Montemurro, N. (2020). The emotional impact of COVID-19: From medical staff to common people. *Brain, Behavior, and Immunity*, 23–34. <https://doi.org/10.1016/j.bbi.2020.03.032>
- Nadeem, F., Sadiq, A., Raziq, A. et al. (2021). Depression, Anxiety, and Stress among Nurses during COVID-19. *JMDH Journal of Multidisciplinary Healthcare*, 14, 3093–3101. <https://doi.org/10.2147/JMDH.S338104>
- NHS England (2018). NHS England publishes latest NHS staff survey results. <https://www.england.nhs.uk/2018/03/nhs-england-publishes-latest-nhs-staff-survey-results/>. Accessed May 4 2022.
- Park, J., Lee, E., Park, N. & Choi, Y. H. (2018). Mental health of nurses working at a government-designated hospital during a MERS-CoV outbreak: A cross-sectional study. *Archives of Psychiatric Nursing*, 32 (1), 2–6. <https://doi.org/10.1016/j.apnu.2017.09.006>
- Poortaghi, S., Shahmari, M. & Ghobadi, A. (2021). Exploring nursing managers' perceptions of nursing workforce management during the outbreak of COVID-19: A content analysis study. *BMC Nursing*, 20 (1), 1–10. <https://doi.org/10.1186/s12912-021-00546-x>
- Post, L. A., Lin, J. S., Moss, C. B. et al. (2021). SARS-COV-2 wave two surveillance in East Asia and the Pacific: Longitudinal trend analysis. *Journal of Medical Internet Research*, 23 (2), 1–15. <https://doi.org/10.2196/25454>
- Rabie, T., Wehner, M. & Koen, M. P. (2018). Experiences of partners of professional nurses venting traumatic information. *Health SA Gesondheid*, 23, 1–7. <https://doi.org/10.4102/hsag.v23i0.1083>
- Salopek-Ziha, D., Hlavati, M., Gvozdanovic, Z. et al. (2020). Differences in distress and coping with the COVID-19 stressor in nurses and physicians. *Psychiatria Danubina*, 32 (2), 287–293. <https://doi.org/10.24869/psyd.2020.287>
- Shorey, S. & Chan, V. (2020). Lessons from past epidemics and pandemics and a way forward for pregnant women, midwives and nurses during COVID-19 and beyond: A meta- synthesis. *Midwifery*, 90, 102821. <https://doi.org/10.1016/j.midw.2020.102821>
- Sun, N., Wei, L., Shi, S. et al. (2020). 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>
- Turale, S. & Nantsupawat, A. (2021). Clinician mental health, nursing shortages and the COVID-19 pandemic: Crises within crises. *International Nursing Review*, 68 (1), 12–14. <https://doi.org/10.1111/inr.12674>
- World Bank (2020). The World Bank Country Data. Accessible. Available from: URL: <https://data.worldbank.org/country/brunei-darussalam> (Cited 4 May 2022).
- World Health Organization (2013). *Self Care for Health. A Handbook for Community Health Workers and Volunteers*. New Delhi: World Health Organization, Regional Office for South-East Asia.
- World Health Organization (2022). *WHO COVID-19 Dashboard*. Geneva: World Health Organization. <https://covid19.who.int/>
- World Medical Association Declaration of Helsinki (2013). World Medical Association Declaration of Helsinki: ethical principles for medical research involving human subjects. *Jama*, 310 (20), 2191. <https://doi.org/10.1001/jama.2013.281053>
- Yin, X. & Zeng, L. (2020). A study on the psychological needs of nurses caring for patients with coronavirus disease 2019 from the perspective of the existence, relatedness, and growth theory. *International Journal of Nursing Sciences*, 7 (2), 157–160. <https://doi.org/10.1016/j.ijnss.2020.04.002>
- Wu, P., Fang, Y., Guan, Z. *et al.* (2009). The psychological impact of the SARS epidemic on hospital employees in China: Exposure, risk perception, and altruistic acceptance of risk. *The Canadian Journal of Psychiatry*, 54 (5), 302–311. <https://doi.org/10.1177/070674370905400504>
- Yip, Y.-C., Yip, K.-H. & Tsui, W.-K. (2021). The transformational experience of junior nurses resulting from providing care to COVID-19 patients: From facing hurdles to achieving psychological growth. *International Journal of Environmental Research and Public Health*, 18 (14), 7383. <https://doi.org/10.3390/ijerph18147383>
- Zhang, M. M., Niu, N., Zhi, X. X. *et al.* (2021). Nurses' psychological changes and coping strategies during home isolation for the 2019 novel coronavirus in China: A qualitative study. *Journal of Advanced Nursing*, 77 (1), 308–317. <https://doi.org/10.1111/jan.14572>
- Zhang, Y., Wei, L., Li, H. *et al.* (2020). The psychological change process of frontline nurses caring for patients with COVID-19 during its outbreak. *Issues in Mental Health Nursing*, 41 (6), 525–530. <https://doi.org/10.1080/01612840.2020.1752865>
- Zhu, P., Liu, X., Wu, Q., Loke, J., Lim, D. & Xu, H. (2021). China's successful recruitment of healthcare professionals to the worst-hit city: A lesson learned. *International Journal of Environmental Research and Public Health*, 18 (16), 8737. <https://doi.org/10.3390/ijerph18168737>