Original Article

Lived Experience of Nurses in COVID-19 Units - A Phenomenological Study from Eastern India

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Abstract

Introduction: Nurses are the frontline workers who had to play multiple functions like in acute care, community, etc. but, it was stated that COVID-19 has caused immense trauma to nurses globally.

Methods: A descriptive phenomenological study to explore the lived experience of nurses working in COVID-19 units was conducted among nine senior nursing officers recruited by purposive homogenous sampling and interviewed with an open-ended interview guide by ensuring data saturation. COREQ guideline were adopted for this qualitative study.

Results: Qualitative data were analysed using Giorgi's framework, and themes and sub-themes were derived. The major themes that emerged in the present study were "Reactions and preparation", "Feelings and satisfaction in active duty", "Role of a helping hand", "Working experience in PPE", and "Pandemic and socialization". Each theme had further sub-themes to classify the verbatims.

Conclusion: Most of the nurses had anxiety and prepared themselves to play with fire, had unrealistic hope, and mixed emotions, kept their family away and intentionally concealed information to reduce family's fear, were satisfied with training and preparation, and had unpleasant experiences with PPE, had to restrict their social activities and felt social stigma. It also concludes with the recommendation that warrants the need to improve their professional quality of life and working conditions by safeguarding nurses' physical and mental health.

Introduction

India may not have been one of the first countries to get affected by COVID-19, but eventually, it was hit severely in the late 2020s to the early months of 2021.[1] In India, the first case of SARS-CoV 2 infection was reported in a medical student who returned from Wuhan, in the southern state of Kerala on January 27, 2020.[1] Even from the early days of the pandemic, India remained to have been a very high-risk country, due to various reasons, high population density, high prevalence of diabetes,[2] and hypertension,[3] and a huge proportion of children with stunting, malnutrition, and other communicable diseases.[4]

During the first wave of the pandemic, the International Council of Nurses (ICN) reported a rise of 60% to 80% in mental health issues among nurses around the world.[5] In a profession where the shortage of manpower is already profound (up to 10 million short), and an additional loss of 10-15% due to absenteeism or leave was evident as an impact of COVID-19, the deficit in the workforce was even more devastating as it eventually impacted the health system globally.[5] This was also evident in an online survey conducted among 1080 undergraduate nursing students of Fujian Medical University, China, which enquired regarding perceived turnover intention and its associated factors. The results showed that the majority of nursing students had a moderate level of fear, such as fear of infecting family, and fear of death and many students reported severe mental disturbances. It was also seen that students of older age and with better grades showed more fear than others. The significance of the study was seen when almost 50% of the students reported that they would not choose a nursing course or will not pursue nursing practice in the future. These findings showed the alarming potential loss of almost half of the prospective nurses from entering the nursing workforce. This warrants the need for immediate action by mental health agencies thereby ensuring mental health services and also dissemination of updated information on COVID-19 for addressing the fear and anxiety among nursing students.[6]

Nurses had to face various challenges as the frontline warrior in the recklessly spreading COVID-19. Nurses' work is based on sound scientific inquiry and evidence,

as the COVID-19 was presented with none of those, and work-related anxiety and psychological issues were out of control.[7] Nurses had to be educated on the proper use of protective gear and COVID-19 infection control practices for effective control of the pandemic.[8] Moreover, this protective equipment was inadequate throughout the world, as no health system was equipped for a pandemic of such magnitude. This led to multiple exposures and illnesses leading to continued absence in a health profession already scarce in manpower.[9] Limited and insufficient manpower in the times of the COVID-19 pandemic, added to a more dangerous situation as the nurses were required to overwork, and nurses who were without experience in working with infectious diseases had to play the part.[10] Moreover, the demanding situation of this pandemic along with these challenges at the forefront resulted in the outbreak of uncertainties, distress, and anxiety among the nurses.[11]

The rapidly evolving protocols and emerging new evidence now and then were another significant issue faced by the nursing workforce. There was an evident change of focus from individual care to public health, along with changing styles of leadership, and changing working hours which were all contributing stressors for nurses who were constantly adapting to the new environment.[12,13] All these challenges combined with the barriers to maintaining the optimal standards of care due to the fear of contracting the infection predisposed the nurses to a significant decrease in the professional quality of care.[14,15] Decreased professional quality of life and impaired moral distress among nurses would often distance them from bedside care.[16] A cross-sectional, correlational survey to explore the factors associated with moral distress among nurses after the 2020 pandemic attack in two academic centers of the north-eastern USA, showed a higher frequency of COVID-specific morally distressing situations daily. Distress-producing events were identified as a risk of transmission, caring for clients without their families, and the death of clients in absence of their families.[17] Poor communication from leaders has also been found to be anxiety-provoking. This was also evident from a study done during the 2002-04 SARS attack in the USA where the key elements in managing fear and anxiety were trust and transparency among the health workers.[18] With these circumstances, the healthcare workers, especially nurses along with lots of physical, psychological, social, professional, and even spiritual challenges, are on the frontline to tackle this pandemic of epic proportions.

In its basic form, phenomenology attempts to study subjective phenomena in the belief that critical truths about reality are grounded in people's lived experiences. Although phenomenology seeks to be scientific, it does not attempt to study consciousness from the perspective of clinical psychology or neurology. Instead, it seeks through systematic reflection to determine the essential properties and structure of experience.[19]

Nurses were deeply impacted in many aspects by the sudden exposure to the pandemic with an already profound shortage of nurses was severely affected by the physical and mental health and absenteeism during the pandemic. Nurses' quality of life was quite affected during the pandemic but the good mental preparation and resilience of nurses might help them to overcome the issues. Thus, this Phenomenological study aims to explore the lived experience of nurses, from the moment they realised that they are at the forefront of fighting this unprecedented pandemic.

Materials and Methods

A Qualitative research approach with a descriptive phenomenological design was adopted to explore the lived experience of the nurses working at a dedicated COVID-19 Hospital in Eastern India (All India Institute of Medical Sciences (AIIMS), Patna). Formal administrative approval was obtained from Institutional Ethics Committee, AIIMS, Patna (AIIMS/Pat/IEC/2020/473). The study was carried out by the guidelines laid by the Indian Council of Medical Research (ICMR) (2017).[20] The Report was prepared and presented as per the Consolidated Criteria for Reporting Qualitative Research (COREQ) guideline.[21]

A total of 9 Senior Nursing Officers were recruited for the study based on the purposive homogenous sampling technique. Among the various purposive sampling techniques used in qualitative studies proposed by Patton, Teddlie, and Tashakkori as reported by Polit and Beck,[19] in the present study, homogenous sampling was considered which is a type of sampling for representativeness in the qualitative study and meant the opposite for maximum variation sampling which deliberately reduces maximum variation and permits a more focused inquiry.[19] Since homogenous sampling was used, the sample size comprised 9 Senior Nursing Officers working in COVID-19 units at a dedicated COVID-19 hospital. All the participants had similar qualifications, type of service, and designation. The Open-ended interview guide was used to explore their lived experience in COVID-19 units. Data enrichment was achieved after interviewing 8 study participants with the initial analysis but to ensure that the enrichment had been achieved one more participant was recruited for the study to explore the possibility of any new information. Written informed consent were obtained. All the participants consented to the interview and none of them refused or dropped out of the study. Initially, the tool and interview were pilot tested with one participant before proceeding with a final set of study participants. Before starting the data collection, the researcher conducted pre-interview interaction sessions for the establishment of rapport with participants to ensure prolonged engagement in the field. Study participants were provided with a participant information sheet containing researchers' details and study goals, assured of confidentiality and anonymity, and based on which informed consent was

obtained from them for an interview and audio recording. Sample characteristics data were collected by self-report (self-administered questionnaire) which was followed by an open-ended interview as per the interview guide. Participants were asked to have a look at items of the interview guide before proceeding with the interview to avoid any misunderstanding, to understand the nature of the questions, and what the items of the interview guide are exactly meant to explore. The main focus of the interview guide was on the overall lived experience of nurses in COVID-19 units. There were six items in the interview guide such as 1) What were their reactions; when they realized that they were being posted to the COVID-19 unit (Probs-Emotional and work aspects), 2) What were their feelings while on active duty (Probs-Positive and negative feelings), 3) Experience about support from family and friends (Probs-Psychological conditions of self, family and friends), 4) Preparedness and support from the employer (Probs-Training, protocol and resources), 5) Working in a personal protective equipment (PPE) (Probs-Restrictions, needs, risks and complaints), and 6) Changes in personal, family, social and other areas of life (Probs-Social activities, relationship issues). Data collection alone was phased for the duration of three months from July to September 2020. Each interview lasted for 20-45 minutes and the single investigator conducted all the interviews to ensure data saturation and to maintain a reflexive journal. The interviewer was a male (PS) who had a qualification of Master's degree in the field of psychiatric nursing and had previous experience in conducting qualitative studies on the psychological phenomenon. Field notes were made immediately after the interview. The duration of the interview and probs used varied from one participant to another. Additional probs such as 'hmmm…', 'Anything else', 'Would you like to add', 'You can tell me later if you wish', 'Would you like to talk more', 'Would you like to elaborate more' and so on also were used. All the interviews were face-to-face and one-to-one interviews, audio recorded, and conducted in a dedicated room at the workplace, which was feasible for the participants at their convenient time. All the interviews were one time and the no-repeat interview was conducted. Collected data were coded, transcribed, and translated by three investigators (KM, KJ, AJ) other than the one who was involved in interviewing the participants. Firstly, the audio recordings were transcribed in original, cross-checked for their correctness, and then translated verbatim into English (participant-wise and item-wise as well). Then the translated data was checked for originality by two language experts qualified with master's degrees in English and Hindi literature respectively, which were then used for the generation of themes and sub-themes to proceed with the narrative analysis.

According to Polit and Beck, 'Reliability refers to the accuracy of measurement', is the concept used by positivists that have been termed by the constructivist as 'Trustworthiness'.[19] The Rigor/Trustworthiness/Quality enhancement strategies of the present study data were ensured by applying Lincoln and Guba's model suggested five criteria for developing the trustworthiness of a qualitative inquiry including Credibility, Dependability, Confirmability, Transferability, and Authenticity.[19] In the present qualitative inquiry, the rigor was ensured by the following strategies: 1) *Credibility* by reflexivity, prolonged engagement, and peer debriefing. 2) *Dependability* by inquiry or external audits. 3) *Confirmability* by investigator triangulation and inquiry audits. 4) *Transferability* by saturation, thick description, and documentation of quality enhancement efforts. 5) *Authenticity* by similar other credibility strategies from the data generation phase to the dissemination.

Data analysis for the qualitative data in this descriptive phenomenology was guided by Giorgi's framework.[22] Giorgi's method of analysis aimed to uncover the meaning of a phenomenon as experienced by a human through the identification of essential themes, the basic outcomes of this model are the description of the meaning of an experience often through the identification of useful themes.[22-24] Themes are the way of describing large quantities of data in a condensed manner and it is a recurring regularity emerging from an analysis of qualitative data.[19] The manual, non-software thematic analysis was considered. Based on the concept of the thematic analysis approach suggested by Giorgi's method of phenomenological analysis, it was carried out in the following steps;

1. Red the entire set of protocols or translated verbatims to get a sense of the whole: Both participants and item-wise protocols and translated verbatims were read to understand the completeness of their lived experiences.
2. Discriminated units from participants' description of lived experiences in COVID-19 units: Meaning units were derived from participants' description of the phenomenon, and a total of thirty meaning units were identified initially and then ended up in twenty-four.
3. Articulated the psychological insights in each of the meaning units: All the meaning units were analysed for deep psychological insights before clustering them into themes.
4. Synthesized all of the transformed meaning units into a consistent statement regarding participants' experiences: All the derived meaning units were clustered as per the psychological meanings into various themes. A total of six themes were formed by clustering the identified twenty-four meaning units.

The themes and sub-themes that emerged from the analysis of qualitative data based on the above-mentioned steps are depicted in Figure 1.

Results

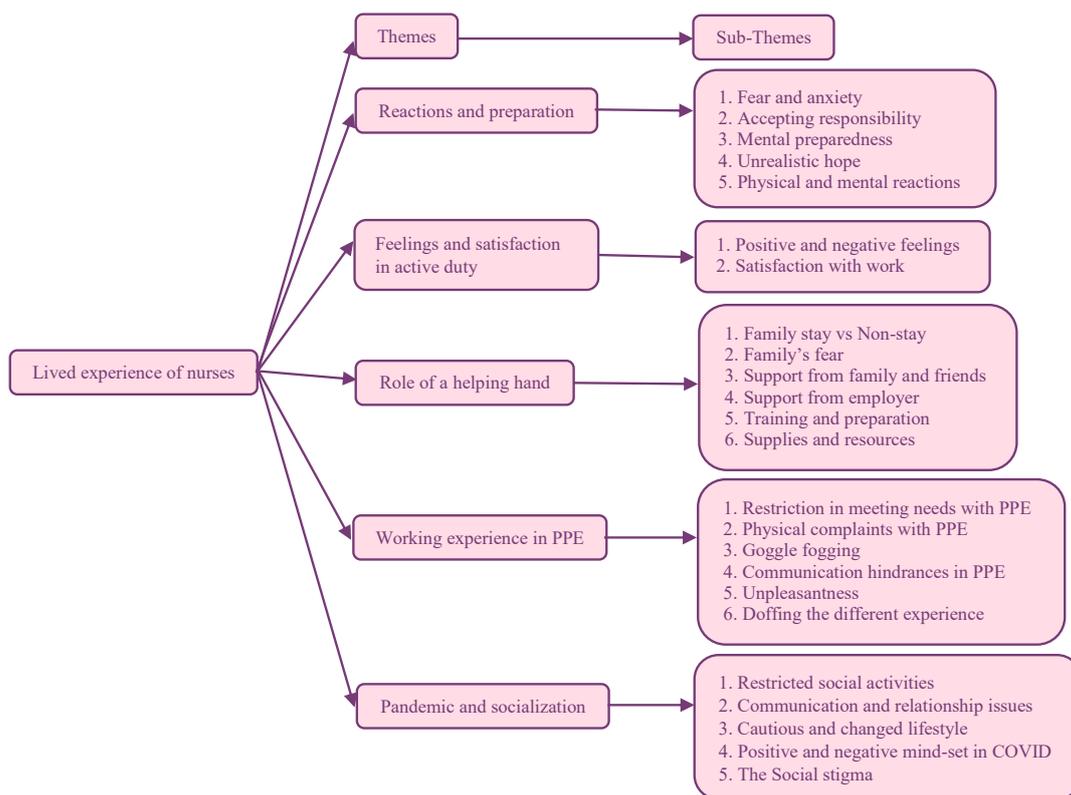Frequency and percentage distribution, mean and

Figure 1. Themes and sub-themes

standard deviation with regard to socio-demographic profile of the study participants are shown in Table 1.

Quality enhancement strategies used in the study are shown in Table 2.

Themes and sub-themes that emerged from Giorgi's method of phenomenological analysis (see Figure 1) are elaborated as follows:

Lived Experience of Nurses Working in COVID-19 Units
A. Reactions and Preparation

The sub-themes that emerged under this theme include fear and anxiety, accepting responsibility, mental preparation, unrealistic hope, and physical and mental reactions.

1. *Fear and anxiety:* In this regard, some of the participants verbalized that:

"Of course, fear was there, with people… with everybody fear was there, like, at the time of sample collection, earlier a team of doctors was collecting oropharyngeal or nasopharyngeal swab samples, suddenly we came to know that nurses are supposed to do the sample collection." (P1)

"First time, I was posted in the non-COVID ward... so, a phone call came to me that I have to do my duty there (COVID unit)… and then there was a little anxiety." (P4)

In contrast:

"First time, I was very happy. It was happy, in the sense, because we are going to a new environment and we will be

Table 1. Socio-demographic profile of study participants

Variables	Age in years	Gender	Marital status	Qualification	Type of service	Designation	Clinical experience in years	History of positive case of COVID in family
P1	32	Male	Married	BSc nursing	Fulltime/Regular	Senior nursing officer	8	No
P2	32	Female	Married	BSc nursing	Fulltime/Regular	Senior nursing officer	8	No
P3	33	Male	Married	BSc nursing	Fulltime/Regular	Senior nursing officer	10	No
P4	29	Male	Married	BSc nursing	Fulltime/Regular	Senior nursing officer	6.5	No
P5	31	Male	Married	BSc nursing	Fulltime/Regular	Senior nursing officer	8	Yes
P6	30	Male	Married	BSc nursing	Fulltime/Regular	Senior nursing officer	6.5	No
P7	33	Male	Married	BSc nursing	Fulltime/Regular	Senior nursing officer	9	No
P8	30	Female	Unmarried	BSc nursing	Fulltime/Regular	Senior nursing officer	6	No
P9	30	Female	Unmarried	BSc nursing	Fulltime/Regular	Senior nursing officer	7	Yes
Mean (SD)	31.11 (1.45)	-	-	-	-	-	7.66 (1.29)	-

Table 2. Quality enhancement strategies used in the study

Strategy	Lincoln and Guba (1994)					Activities
	Dependability	Confirmability	Transferability	Credibility	Authenticity	
Throughout the inquiry						
Reflexivity				x	x	Reflexive journals were maintained throughout
Data generation phase						
Prolonged engagement				x	x	Investment of sufficient time in collecting data to have an in-depth understanding in the field of inquiry was carried out by rapport building sessions
Audiotaping and verbatim transcription				x	x	Interviews were audiotaped and transcription was done in the original language
Saturation of data			x	x		Data was collected till saturation of data
Data coding & analysis phase						
Investigator triangulation		x		x		Coding and analytic decisions were taken by four investigators
Peer debriefing		x		x		Sessions with peers to review and explore various aspects of the inquiry was done from preliminary findings to later stage
Inquiry audit	x	x				Scrutiny of the data and supporting documents by an external reviewer was done
Presentation of findings phase						
Documentation of quality enhancement efforts			x	x		The present study elaborated Rigor strategies adopted for the quality enhancement in detail
Thick description			x	x	x	Investigators provided rich descriptions of data with verbatim to permit judgments abouts contextual similarity

x: Criteria fulfilled by the strategy adopted.

wearing PPE and everything, it was a new experience… and at that time, it was all over social media and everything, we are all fond of social media...everybody is using the PPE and they put their photographs…they need to, in the sense, it was to put a PPE and put it in the social platform, it was a wonderful experience, the first time." (P3)

The majority of the participants verbalized that they had fear and anxiety as their major concern at the beginning and attributed it to unawareness and lack of knowledge about the illness, wearing PPE during work, and sampling procedures.

2. *Accepting responsibility:* In this regard, some of the participants verbalized that

"Yes, Of course, little stress was there, that by chance if I get… but it was also there that if I don't do my duty then somebody else would have to do and then it would happen to him." (P1)

"First time when you are working you had to wear the PPE and who knows something would happen to you, like that it was both emotional as well as physical…but once patients started coming in, then it became very busy… then after that nothing that sort thinking came to our mind. We were adjusted to that environment." (P4)

The majority of the participants verbalized their sense of responsibility towards the job at the beginning itself despite facing anxiety associated with COVID-19.

3. *Mental preparation:* In this regard, some of the

participants verbalized that:

"Earlier when… when we knew this pandemic is here and it is going on everywhere, we certainly knew that cases would come to our institute as well, so our mind was already prepared for this thing." (P1)

"When this was reported initially in China, that day itself my husband had told this will come to India and there will be lockdown here. My husband told me on the first day, see it will happen here and there will be a lockdown here as well and cases will also increase here like it is in China. So, I was mentally prepared from the beginning." (P2)

"Firstly, we know that COVID-19 is a pandemic situation, came to India, recently…late in comparison to China, I got to know some information regarding the COVID-19 that was updated in W.H.O. website, so I had some idea about the COVID-19." (P7)

Most of the participants verbalized that they had some information, prediction, or certainty that it would be striking India sooner or later and anticipated and prepared themselves mentally to play with the fire.

4. *Unrealistic hope:* In this regard, some of the participants verbalized that:

"All the time, when I enter the hospital, I feel very much distressed, that when this will get over… and hopefully, it will take 3-6 months and we are expecting and praying to God, to get a vaccine." "And every day, I pray to God and I am a believer… I do pray for my patients also, who are

in the ward, but what we can do..." (P3)

In contrast:

"*Till December January we were only learning about COVID-19, and we were just gathering basic information… when we experienced it, we got more information and as we have seen the patients' condition, sign, and symptoms and their recovery and we got confidence that the patients could get better and even get discharged from here as well.*" (P9)

Most of the participants were finding hope spiritually and had hoped from medical sciences too that this would get over sooner or later and that complete recovery from COVID-19 was possible.

5. *Physical and mental reactions:* In this regard, some of the participants verbalized that:

"*Physically, we get tired a lot…even when we are thinking of duty itself, we feel tired.*" (P2)

"*The first shift was a 12-hour shift and that was a night shift and it was hectic…because I just wore the PPE for the entire shift, and I didn't take any break… so, I felt the duty was very tough…felt very difficult on the first day.*" (P7)

In contrast:

"*I didn't feel much, in the beginning, I just felt bad, but now I am used to it. I don't feel any emotions… I don't feel any emotions because it has become normal as we have seen in a critical situation like if the patient goes to a ventilator, we can never recover them… most of the time.*" (P3)

Most of the participants verbalized their physical and psychogenic tiredness during their initial period of postings in COVID-19 duty to which they might have adjusted later on but the concern was heaviness, toughness, and tiredness both physically and mentally.

B. Feelings and Satisfaction in Active Duty

The sub-themes that emerged under this theme include positive and negative feelings and satisfaction with work.

1. *Positive and negative feelings:* In this regard, some of the participants verbalized that:

"*When we do continuous duty, it is in our mind that we have to work with a lot of precautions that means, sanitizing again and again… if we touched one patient with our gloves, we have to take precaution for the other patient. The main thing is gloves should be changed no matter what… if by chance we are infected then we put our family also at risk…*" (P1)

In contrast:

"*I was posted in OT for the last 2 and half years, ok, so I don't have that much critical area experience and now I have learned a lot of things. It is wonderful now as a learning experience, it is a good way of learning everything. Now we could learn a lot of things and procedures and what are all the things in the ward and ICU. On the whole, I feel, something good has happened." (P3)*

Outlier:

"*It is just like regular previous ward duties; we had to do our duty and do patient care. So, no any special feeling came because later we had to do continuous duty, we had to do patient care.*" (P4)

Most of the participants had negative feelings of fear of acquiring an infection during the care and were preoccupied with a lot of precautions, on the other hand, few participants had positive feelings of availability of opportunities for novel learning experiences.

2. *Satisfaction with work:* In this regard, some of the participants verbalized that:

"*Whenever I have worked in COVID-19 ward or unit for last 4 months, approximately from May or April…to be exact, from March 28th my duty had started there… since then, the duty would keep on changing from ward to ICU to holding area, and sometime in corona positive area too…there were frequent changes.*" (P1)

"*When you are working in a team, in what level you work, so you may expect everybody to work at that level. So, when you don't receive like that… when you don't get such a team… because of that, most works get delayed.*" (P2)

In contrast:

"*Our shift's duty must be done perfectly because patients are in need. We cannot run from it. We have to do our duty perfectly with 100%...that is how much you can do, at your level, with the support of all staff.*" "*I get satisfaction. When you finish your work and leave… you feel like you have done something. You have done something, that satisfaction itself is a huge thing.*" (P2)

Most of the participants felt the duty hectic and frequent changes in the posting area and inadequate team spirit made them feel unsatisfactory but few participants felt satisfied with the work that has been done.

C. Role of a Helping Hand

The sub-themes that emerged under this theme include family stay vs non-stay, family's fear, support from family and friends, support from employer, training and preparation, and supplies and resources.

1. *Family stay vs Non-stay:* In this regard, some of the participants verbalized that:

"*They (family) are still with me… when I finish my duty and come home after 6 hours or 12 hours, so at least, I used to get my things from my home, like for eating or drinking…and if we get our food and drinks properly, maybe even if we get corona, that could help us fight it. But if you live alone, it is difficult.*"

"*I would talk about my family., in my family, I, my husband and my little daughter are there. Due to this fear of corona, I sent my daughter to her grandparents.*" (P2)

"*Now I am staying alone, so it is cool…now we are tension-free, no barriers for us, it is an easy thing to do the duty. But, if the family members are staying with us, it makes us worried while going home after duty and we*

will not be calm and quiet or peaceful the mentality will be changed. So, now it is ok." (P5)

Outlier:

"We (couple) have two rooms…as soon as COVID came, we started living separate, so that one doesn't give it (infection) to other… we work in a hospital so it is possible… so, we should not spread between each other. So, from the beginning itself, I separated her and lived in two rooms as an isolation type." (P4)

Few participants expressed that staying with family is comfortable, at least they can get hygienic food and remain healthy during the pandemic. Whereas few of the participants felt that staying with family is a mental turmoil as they can transmit infection quickly to significant others and that would predispose them to more distress than before.

2. *Family's fear:* In this regard, some of the participants verbalized that:

"We are living very far from our home, I mean, here only wife and children are staying and parents are in the home, very far from here. I belong to XX…so, parents are like that, they don't understand about the medical line as their profession is different…so, usually they are more scared". "They also say leave all this now, leave it, leave it…but leaving is not possible as it is our work, so I cannot leave this." (P1)

"We didn't tell our father and mother that I am working here in COVID duty because they would get tensed and anxious… So, we did not tell them." (P4)

"First of all, I didn't inform that I started working in COVID area. I didn't inform my family because they may be stressed, they're also 65 above and they will be worried." (P7)

The majority of the participants verbalized that intentional concealment of information about their posting in the COVID-19 unit was their strategy to prevent the exaggeration of fear among their family members.

3. *Support from family and friends:* In this regard, some of the participants verbalized that:

"I am getting support from my family, and I have received the support completely." (P1)

"But I receive 100% support from my husband. If you call it intimacy or that as love, care, understanding, patience, whatever it is, I receive 100%, and it's positive from my friends too. They say we have to do this, this too shall pass. But all my friends are not like that when we talk to them, they share negative thoughts. So, overall, it is alright. Support is there, from family and friends, full support is there." (P2)

"Made a WhatsApp group who are close friends. Daily video calling them, talking to them, sharing our experience, by which we get a positive outcome. Daily used to tell that if you feel out of mind, or mood is not good, or anxious, immediately we phone call." (P6)

"My elder brother is an ambulance driver, he's also working with the COVID, so I can share some emotion

with my brother and he can too. He sometimes shares his emotions regarding PPE and difficulties associated with transporting the patients and all." (P7)

Most of the participants verbalized that they received adequate support from their parents, spouses, family members, and friends whereas few of them had people from similar professions who could able to connect through various communication modes and share their emotions.

4. *Support from employer:* In this regard, some of the participants verbalized that:

"I feel in my opinion, that whatever one hospital should give to their employees or should get from one hospital in this pandemic, that they have done for us." (P9)

"If there are any shortage of training or resources, and if we are giving a complaint, or suggesting for training…we received things then and there…the authorities also have a positive side." (P5)

In contrast:

"Negativity happens when we are giving our 100%, then we expect some kind of support from every side. So, at that time, negativity is that when a person has been doing all the work but not getting the proper equipment, staff or manpower and then we had to fight for this, makes the person feels like not doing anything. Better than that is just to come quietly, 'time-pass' like few others… but it doesn't go like that." "Further, inside the donning area so many clothes are hung together, and definitely if anybody else is infected then I also will get infected. So, the arrangement in that area is also not proper." (P1)

Most of the participants expressed that employer had supported them throughout by whatever possible means but few of them felt that work and duty schedule, in the beginning, was not so consistent and required to do a lot of paperwork.

5. *Training and preparation:* In this regard, some of the participants verbalized that:

"Training is alright. In our nursing college itself one training on stress management happened, that is still going on. That I attended, and received a little bit of support." (P2)

"Our hospital has been very good that, during the COVID, and even before the COVID good training was given to everybody…and prepared us mentally as well as physically." (P4)

In contrast:

"When the first patient got admitted to this hospital, there was no SOP, there was no protocol and even the route for the transfer of patients was not mentioned properly. So, at that time all were confused. Once the patient had to go, which lift or which stairs has to be used, there was nothing. So, there was less clarity regarding this matter initially." (P5)

Almost all participants felt that they received adequate infection control training and mental health training before and in the initial phase of the COVID-19 pandemic

but one of the participants verbalized that SOP was not clear regarding admission protocols in the beginning.

6. *Supplies and resources:* In this regard, some of the participants verbalized that:

"*Whatever resources we have in our institute…and if we compare with anywhere else, then maybe our hospital itself is great, we have more resources.*" (P1)

"*Resources are also very good in our hospital. Resources are made available… Our hospital administration is nicely supporting us… and sometimes there is a problem in the quality of PPE, but only sometimes…and later it got resolved.*" (P4)

In contrast:

"*When we need the manpower other than nursing staffs, then we just keep on asking for them…we were trying to find them, we have to look around for them. So, this is one negative part in resources, whatever manpower is there for us, that is till now not managed well, I think.*" (P1)

"*We have an adequate supply of everything… PPE and everything. But sometimes, the PPE we get is of bad quality, that we had to replace because it is fully plastic only, how can I put a plastic cover to work.*" (P3)

Most of the participants conveyed that they received adequate and satisfactory provision of supplies and resources throughout but at the beginning few of them felt that there were issues in manpower arrangement and had bad experiences, especially with the quality of PPE provided for them during COVID-19 duty.

D. Working Experience in PPE

The sub-themes that emerged under this theme include restriction in meeting needs with PPE, physical complaints with PPE, Goggle fogging, and communication hindrances in PPE, unpleasantness, and doffing the different experience.

1. *Restriction in meeting the needs with PPE:* In this regard, some of the participants verbalized that:

"*We cannot drink water properly…we are not drinking water.*" (P1)

"*We will be feeling thirsty…and elimination needs are also very much disturbed while wearing a PPE…what we can do, we can't help it.*" (P3)

"*Once we put on the PPE, we can't drink water, we can't use the washroom, we can't even touch our face, and we can't even wash our face…*" (P5)

Highlight:

"*So, in the beginning, when I started my duty, my concept was to use a diaper, but later dropped this idea due to this heat using diaper would also be an irritation… it's an added irritation…Because of that, I started drinking less water so I will not urinate frequently.*" (P2)

Outlier:

"*We drink sufficient water from home and for next 6 hours water is not needed. We are adjusting and we never feel to eat or drink here (hospital), and we eat sufficiently before coming here*" (P4)

Most of the participants experienced the restriction in intake and output while wearing PPE and few of them suggested compensatory practices to face the difficulties.

2. *Physical complaints with PPE:* In this regard, some of the participants verbalized that:

"*The quality of the PPE that was provided, was different each time, and working in those PPE was very difficult because the material it was made of irritates the skin a lot. As there is no intake of water the urine is mostly yellow…and temperature of the body feels very high in PPE*" (P1)

"*Before donning itself, we are sweating, the temperature is so high outside, on top of that we are not using the AC, and when you start to drink less water before and throughout the complete duty, you will get urine infection, on top of that sometimes it feels like dizziness also.*" (P2)

"*Then…we will talk particularly about the bad quality PPE, we get, it was a suffocating experience.*" (P3)

"*We get so much sweating after wearing PPE.*" (P3, P4, P5, P7, P8)

"*There has been a lot of irritation in the body, skin problems, rashes, loose motion, and dehydration all these things were also felt.*" (P9)

Almost all the participants had physical discomforts such as sweating, skin irritation and skin rashes, hyperthermia, and change in urine color with the use of PPE.

3. *Goggle fogging:* In this regard, some of the participants verbalized that:

"*The goggle we are getting here, fogs easily and it is very much so… and it is difficult to see…because of wearing masks, these "wrappers" completely go inside these goggles, and we cannot see. About 90% of staff wear their goggles above their forehead…these people do not wear them, because of fog. What work will you do, if they cannot see anything?*" (P1)

"*If you are putting on goggles, we can't see anything… and the moisture that accumulates inside the goggles feels like rain. We can't see anything and here the thing is for each and everything, we have to depend on the system (computer)…so, once we put on this and sit in front of the system, it is white, nothing extra.*" (P5)

"*While working with the goggles, we cannot see anything after one hour, it's nothing but only mist comes. Sometimes we have to remove it for cannulation or any other procedures…and when you remove the goggles you understand that there is a breach.*" (P7)

Most of the participants felt that wearing goggles was meant for protection but fogging and moisture attributed to it caused interference in vision and nursing care and few participants felt working in front of the system (computer) for data entry also got hampered by using goggles.

4. *Communication hindrances in PPE:* In this regard, some of the participants verbalized that:

"*If anyone saying something behind us, we can't hear, we have to go nearby them…even doctors, if they are calling, sometimes we never hear. We never hear whether anyone*

is calling or is he telling us something. Even the patients, if they are calling us, we just can't hear because it (ear) is already numb and at the same time, after covering all the parts, it is so horrible to do duty in PPE." (P5)

"When we wear our PPE, our ears are blocked and when we talk lightly, people cannot hear you, so we have developed a habit of talking loudly. So, after talking loudly, for us personally also it started happening that I would yell out everything." (P9)

Almost all the participants had issues with communication while wearing PPE. They were not able to hear or people could not hear them or even patients lost interest in talking and few of the participants felt that they started speaking loudly even after removing PPE.

5. *Unpleasantness:* In this regard, some of the participants verbalized that:

"We cannot hear, we cannot see. It was the first-time using PPE, it was a suffocating experience. I don't feel it is a good experience to wear PPE." (P3)

"In night duty, when we feel to drink water, we just cannot as we could not change the PPE. Almost after 6-7 hours only we can change, and that is when we would drink water…and night duty is a bit too long in PPE, so that is a bit uncomfortable." (P4)

"I could say, it is horrible, to do duty… to do work in a PPE, it's horrible, we are not at all comfortable, we just can't do anything. So, comfort level, I could say, it is zero" (P5)

"I am, being a female, if anybody gets periods and all, it is very difficult." (P8)

Highlight:

"If someone tells me, on this date, that do you wish to work without PPE or with PPE… maybe I am so tired, I will work without PPE and tell that I would work without PPE even if I get corona, it doesn't make any difference. PPE… that is now mandatory that's why people are wearing, otherwise, we are so fed-up wearing PPE. That is all!!" (P2)

Almost all the participants had an unpleasant and horrible experience but, a few of the participants expressed that though it protects us if they were given the option then they would choose to work without PPE. They were ready to face risk rather than using it continuously and few of them questioned why did they get into this profession.

6. *Doffing the different experiences:* In this regard, some of the participants verbalized that

"Once you remove the PPE after duty, the relaxation what we get, it's like we have reached the heavens, I mean, that's how it feels and that's how the feeling is…" (P2)

In contrast:

"When we remove it (PPE), it's quite a dangerous experience. It would affect our hydration also." (P3)

"But doffing, it is a question mark. If you are not doing the proper doffing, there is a high risk of getting exposed to this disease and the virus…my personal experience is that, if the doffing is not right, there is more chance to get

exposed." (P5)

Most of the participants expressed that extra caution should be taken into consideration during doffing and improper adherence to the protocol could result in a high risk of contracting the infection.

E. Pandemic and Socialization

The sub-themes that emerged under this theme include restricted social activities, communication and relationship issues, cautious and changed lifestyle, positive and negative mindset in COVID, and the Social stigma.

1. *Restricted social activities:* In this regard, some of the participants verbalized that:

"Going around in the neighborhood, relationships, everything is stopped. Social life is like going out or going to park or going to garden everything is stopped." (P1)

"So earlier we used to meet, go to each other's room, used to party, used to meet and talk, and make groups. But now stopped!!" (P2)

"If we feel bad, we used to go outside, eat out or watch a movie or any other entertainment…everything is lost. We can go only with family or friends' circle…, but we have to think twice to go to any crowd. We have lost our festivals and everything." (P3)

Highlight:

"We just can't meet friends, even we can't go to other's room. Everything is restricted, so we are tied or there is a locked chain, but no key. We just can't open and go. We are tied with that chain and got locked. So, all the movements are restricted…. only thing we are getting is mobile and food, if you are in a room, what else you are getting… nothing. How long you can depend on this mobile. So, if you are using this mobile phone continuously, this may end up in some other problem." (P5)

Almost all the participants experienced that there was a severe restriction in social activities such as they couldn't go out with family for recreation and a few participants felt that it made them confine themselves in their rooms and resulted in increased usage of mobile phones.

2. *Communication and relationship issues:* In this regard, some of the participants verbalized that:

"I mean, for family also, first the children used to come and meet me, immediately as I reach home, but now as I reach home first…I have to keep my clothes separate, then take a bath, and then only I can touch my family members or my children. Even for children… last four months, they have not stayed like that… like before we used to play and work with our children… now distance is maintained." (P1)

"If I talk about family, I have a daughter…she was 2 and half years when I left her with her grandparents and for the last six months, I haven't talked to her, not seen her. It is not that I don't want to see her or in between, I don't get time, it's because of the fear…and now, we don't see our next-door or our front-door neighbors also for weeks. Distance has become so much that, when we want to talk

to each other, then also we would only talk important things, I mean, a type of weird "thought paralysis" has happened." (P2)

Highlight:

"My brother was marrying; I couldn't go there at that time. I was on COVID-19 duty, so I couldn't go over their party or his marriage. If I go there, they also would get affected. So, I have prepared the mind, you have to be safe, and for others to be safe, I kept that in mind." (P7)

Most of them conveyed that the existing COVID-19 had affected their relationship with their family members and friends; few participants had to sacrifice the significant events of their close ones, majorly they lost their usual relationships with family, friends, and neighbors.

3. *Cautious and changed lifestyle:* In this regard, some of the participants verbalized that:

"When it comes to food, we used to buy them without any fear and eat it easily after washing it. Now it has to be properly cleaned…after bringing the vegetables home, we have to wash it thoroughly and then you have to use some chemical on it and keep it dipped for some time and later, on the second day we can use it." (P1)

"In my personal life, there is no proper schedule of sleeping, eating, or doing household activities." (P2)

"And yes… lifestyle also has changed. Food and drink have also changed… In eating and drinking, earlier we used to eat just like that, but now we have to eat a balanced diet, like juice and stuff and need to take nutritious diet." (P3)

Highlights:

"The hygiene needs we need now, that we could not have known their importance before… because we knew everything but the practice was not there, but after COVID-19, I am sure, most of the people will practice even after it goes down." (P8)

Most of them felt that their usual pattern of life has been changed to the new extreme where cautious purchase and handling of things are incorporated into their daily routine and the rest of them felt that COVID-19 has taught them all new lifestyles and brought a lot of good and hygienic practices in their lifestyles which was not followed previously.

4. *Positive and negative mindset in COVID:* In this regard, some of the participants verbalized that:

"But… my mind is completely occupied with corona and duty. That is why I have left my daughter with her grandparents so that I can concentrate on my duty. I have set my mind that till there is the corona, I will do my duty wearing the PPE." (P2)

"It will be a good experience, if we get a vaccine and everything, if we could find it, we can go to our normal life, as normal life has been severely affected." (P3)

"I got the confidence that if this pandemic happens again, or we have to go through this again, so we are confident that we can do it… we can handle this… we are not that much weaker." (P9)

In contrast:

"If we see a person who is planning about future and is trying to do his prediction that I will buy anything for future, those things have stopped at once. Everybody is like, let this COVID-19 get over, then after that, we will decide." (P1)

Almost most of the participants had a positive mindset to overcome COVID-19 and about their future by exploring their confidence to live through pandemics again but few felt that they stopped thinking about their future now.

5. *The Social stigma:* In this regard, some of the participants verbalized that:

"…and one more thing is also there, those Nursing officers and Senior nursing Officers, wherever they are living or residing on rent have faced problems…I mean, some people are there, they are showing one type of social stigma towards them that they were medical professionals." (P1)

"And the social stigma… if anyone is identified as a nurse or doing duty in a positive area, that becomes a barrier. So, he will be isolated from society. When I was buying things for my room, for myself, they asked, 'if there is anyone positive in your block or in your flat'… so, if I am saying yes, that will become a problem, for me also. So, I do… I hide the fact, I said no…" (P5)

Most of the participants expressed the social stigma because of being a health care workers at their residence and they had to hide their known COVID-19 status from others to avoid experiencing discrimination.

Discussion

This qualitative study explored the lived experiences of nurses working in COVID-19 units of a dedicated COVID-19 Hospital in eastern India. Researchers have identified five main themes depicting the nurses' experiences related to nursing care activities during the COVID-19 pandemic. Overall, the findings of the study revealed that the majority of the nurses experienced adversities, especially in the initial days of the pandemic, and gradually developed preparedness for providing better patient care in addition to a wide range of experiences.

In this study, a major concern for nurses at the beginning was fear and anxiety which were attributed to unawareness and lack of knowledge about the illness and wearing PPE during work. This negative emotion of fear and anxiety could negatively influence the physical and psychological well-being of the frontline nurses.[25,26] It was consistent with the findings of the study conducted that a lack of appropriate knowledge and training in emergency disaster and rescue can predispose the nurse to increased fear.[27,28] It was also consistent with the findings of the other studies that fear was related to the contagious nature of the virus and the risk for self-infection[29] and fear and anxiety can hamper the quality of patient care.[30]

Nurses working in COVID-19 units were showing readiness and willingness to provide care despite being

aware of the risk of getting infected. This was supported by the findings of the study in which nurses were willing to provide care to the patients with COVID-19.[31] Nurses felt that the care to be given is a part of their job and their role in the need of this hour is also vital, which was consistent with other studies conducted and reported similar findings.[29,32] Most of the nurses received adequate support from their employer, but some of them expressed their displeasure towards the inconsistency in work and duty schedule in the beginning and issues in the manpower requirement which is in contrast with the study conducted where nurses were able to work together with minimal conflicts despite knowing the other team members for less than six months.[33] Nursing leaders play a key role in recognizing and developing the sense of belongingness and team spirit among nurses.[29]

In the present study, long working hours with PPE resulted in various physical discomforts such as sweating, skin irritation, and skin rashes; visual disturbances such as goggle fogging, suffocation, dizziness, and unpleasantness among nurses. These findings were consistent with the study conducted in which nurses reported physical discomfort related to PPE.[34] Several other studies also reported wearing PPE resulted in visual disturbances and dermatitis.[29,35,36] In contrast to the present study findings, some physical symptoms such as chest pain, anoxia, and facial pressure injuries were also reported.[37,38] Nurses shared their experiences regarding the bad quality of PPE which was consistent with findings of a study conducted in which recommendation was given for maintaining the consistency in the quality of PPEs.[29,36]

In the present study, nurses who were living with their families believed that they might be the source of infection to their loved ones and wanted to keep them isolated. The study results were consistent with the other study conducted where nurses intentionally deprived themselves of their families to prevent any physical contact during COVID-19 duties.[32,39]

Another interesting finding of the present study is the presence of unrealistic hope (both spiritually and from the medical profession regarding the termination of this pandemic), a mix of both positive and negative emotions among the nurses, intentional concealment of information from the family members to reduce the fear of their family members, receipt of adequate support from the family and friends to deal with this pandemic, communication hindrances while caring for the patient working with PPEs, restricted social activities due to the risk of infection and social stigma felt by the nurses from their living places. Altogether, the pandemic has changed the lifestyle of nurses who are working in COVID-19 units.

The present phenomenological study explored the lived experiences of nurses working in COVID-19 units of a dedicated COVID-19 Hospital in Eastern India. About the limitations of the study, it is limited in scope due to the interview of 9 nurses in a single dedicated COVID-19

care hospital which might affect the generalization but the homogenous purposive sampling could help in focusing its generalization on the specific target group. As the interview was conducted a few months after the outbreak of the pandemic and phased for three months, responses might have varied during the outbreak and later period.

Conclusion

The present study concluded with regard to the lived experiences of nurses in COVID-19 units that most of the nurses had anxiety and prepared themselves to play with fire, had unrealistic hope, mixed emotions, kept their families away, and intentionally concealed the information to reduce family's fear, they were satisfied with training and preparation and had an unpleasant experience with PPE, had to restrict their social activities and experienced social stigma. Further, it concludes with the recommendation that, it is well understood that the amount of time spent in caring for patients with COVID-19 by nurses is the greatest in comparison to any other health care professional which makes nurses the most significant frontline warriors. Hence, adequate measures should be taken by the government and employers to improve their professional quality of life and working conditions by safeguarding the physical and mental health of these frontline warriors i.e. nurses.

Authors' Contributions
RN, SSH, BK: Conception and design; KM, KJ, PS, AJ: Data extraction, analysis and interpretation; KM, KJ, PS, AJ: Drafting of the article; RN, SSH, BK: Critical revision of the article for important content; PS: Conducted all the interviews; RN, KM, KJ, PS, AJ, SSH, BK: Final approval of article.

Research Highlights

What is the current knowledge?
- Nurses were deeply impacted in many aspects by the sudden exposure to the pandemic.
- Already profound shortage of nurses was severely affected by the physical and mental health issues added with absenteeism in the pandemic.

What is new here?
- Though there was a positive mindset among the nurses, they are the ones who faced a lot of emotional challenges while caring for the COVID-19 patients and their quality of life was quite hampered.
- Even though the nurses are experiencing low quality of life professionally due to stress and burnout after the outbreak of a pandemic, the preparedness, willingness, and resilience of nurses helped them to cope.

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Data Accessibility

Since it is a qualitative study, the narrations include confidential details which need to remain only with investigating team, and the data was used for analysis by authors to generate themes and subthemes which will be made available from the corresponding author on reasonable request.

Ethical Issues

This study research was approved from the Ethics. Formal administrative approval was obtained from Institutional Ethics Committee, AIIMS, Patna (AIIMS/Pat/IEC/2020/473).

Conflict of Interests

None.

References

1. Andrews MA, Areekal B, Rajesh KR, Krishnan J, Suryakala R, Krishnan B, et al. First confirmed case of COVID-19 infection in India: a case report. Indian J Med Res. 2020; 151 (5): 490-2. doi: 10.4103/ijmr.IJMR_2131_20

2. Sharma NC. Prevalence of Diabetes in India. Delhi: Government of India; 2019. Available from: https://www.livemint.com/science/health/government-survey-found-11-8-prevalence-of-diabetes-in-india-11570702665713.html. Accessed August 20, 2022.

3. Gupta R, Gaur K, CV SR. Emerging trends in hypertension epidemiology in India. J Hum Hypertens. 2019; 33 (8): 575-87. doi: 10.1038/s41371-018-0117-3

4. Laxminarayan R, Jameel S, Sarkar S. India's battle against COVID-19: progress and challenges. Am J Trop Med Hyg. 2020; 103 (4): 1343-7. doi: 10.4269/ajtmh.20-0992

5. International Council of Nurses (ICN). The COVID-19 effect: world's nurses facing mass trauma, an immediate danger to the profession and future of our health systems. Geneva: ICN; 2021. Available from: https://www.icn.ch/news/covid-19-effect-worlds-nurses-facing-mass-trauma-immediate-danger-profession-and-future-our. Accessed August 6, 2022.

6. Lin Y, Hu Z, Danaee M, Alias H, Wong LP. The impact of the COVID-19 pandemic on future nursing career turnover intention among nursing students. Risk Manag Healthc Policy. 2021; 14: 3605-15. doi: 10.2147/rmhp.s322764

7. Khalid I, Khalid TJ, Qabajah MR, Barnard AG, Qushmaq IA. Healthcare workers emotions, perceived stressors and coping strategies during a MERS-CoV outbreak. Clin Med Res. 2016; 14 (1): 7-14. doi: 10.3121/cmr.2016.1303

8. Aldohyan M, Al-Rawashdeh N, Sakr FM, Rahman S, Alfarhan AI, Salam M. The perceived effectiveness of MERS-CoV educational programs and knowledge transfer among primary healthcare workers: a cross-sectional survey. BMC Infect Dis. 2019; 19 (1): 273. doi: 10.1186/s12879-019-3898-2

9. Olu O, Kargbo B, Kamara S, Wurie AH, Amone J, Ganda L, et al. Epidemiology of Ebola virus disease transmission among health care workers in Sierra Leone, May to December 2014: a retrospective descriptive study. BMC Infect Dis. 2015; 15: 416. doi: 10.1186/s12879-015-1166-7

10. Musau J, Baumann A, Kolotylo C, O'Shea T, Bialachowski A. Infectious disease outbreaks and increased complexity of care. Int Nurs Rev. 2015; 62 (3): 404-11. doi: 10.1111/inr.12188

11. Chen SC, Lai YH, Tsay SL. Nursing perspectives on the impacts of COVID-19. J Nurs Res. 2020; 28 (3): e85. doi: 10.1097/nrj.0000000000000389

12. Parekh de Campos A, Daniels S. Ethical implications of COVID-19: palliative care, public health, and long-term care facilities. J Hosp Palliat Nurs. 2021; 23 (2): 120-7. doi: 10.1097/njh.0000000000000735

13. Rosser E, Westcott L, Ali PA, Bosanquet J, Castro-Sanchez E, Dewing J, et al. The need for visible nursing leadership during COVID-19. J Nurs Scholarsh. 2020; 52 (5): 459-61. doi: 10.1111/jnu.12587

14. Xiang YT, Yang Y, Li W, Zhang L, Zhang Q, Cheung T, et al. Timely mental health care for the 2019 novel coronavirus outbreak is urgently needed. Lancet Psychiatry. 2020; 7 (3): 228-9. doi: 10.1016/s2215-0366 (20)30046-8

15. Sun N, Wei L, Shi S, Jiao D, Song R, Ma L, et al. A qualitative study on the psychological experience of caregivers of COVID-19 patients. Am J Infect Control. 2020; 48 (6): 592-8. doi: 10.1016/j.ajic.2020.03.018

16. Ness MM, Saylor J, DiFusco LA, Evans K. Leadership, professional quality of life and moral distress during COVID-19: a mixed-methods approach. J Nurs Manag. 2021; 29 (8): 2412-22. doi: 10.1111/jonm.13421

17. Lake ET, Narva AM, Holland S, Smith JG, Cramer E, Rosenbaum KEF, et al. Hospital nurses' moral distress and mental health during COVID-19. J Adv Nurs. 2022; 78 (3): 799-809. doi: 10.1111/jan.15013

18. Spalluto LB, Planz VB, Stokes LS, Pierce R, Aronoff DM, McPheeters ML, et al. Transparency and trust during the coronavirus disease 2019 (COVID-19) pandemic. J Am Coll Radiol. 2020; 17 (7): 909-12. doi: 10.1016/j.jacr.2020.04.026

19. Polit D, Beck C. Resource Manual for Nursing Research: Generating and Assessing Evidence for Nursing Practice. 11th ed. New Delhi: Wolters Kluwer India Pvt Ltd; 2020.

20. Mathur R. National Ethical Guidelines for Biomedical and Health Research Involving Human Participants. Delhi: Indian Council of Medical Research (ICMR); 2017. Available from: https://ethics.ncdirindia.org/asset/pdf/ICMR_National_Ethical_Guidelines.pdf. Accessed September 6, 2022.

21. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. Int J Qual Health Care. 2007; 19 (6): 349-57. doi: 10.1093/intqhc/mzm042

22. Giorgi A. Phenomenology and Psychological Research. Pittsburg: PA: Duquesne University Press; 1985.

23. Giorgi A. The phenomenological movement and research in the human sciences. Nurs Sci Q. 2005; 18 (1): 75-82. doi: 10.1177/0894318404272112

24. Koivisto K, Janhonen S, Väisänen L. Applying a phenomenological method of analysis derived from Giorgi to a psychiatric nursing study. J Adv Nurs. 2002; 39 (3): 258-65. doi: 10.1046/j.1365-2648.2002.02272.x

25. Espinola M, Shultz JM, Espinel Z, Althouse BM, Cooper JL, Baingana F, et al. Fear-related behaviors in situations of mass threat. Disaster Health. 2016; 3 (4): 102-11. doi: 10.1080/21665044.2016.1263141

26. Harper CA, Satchell LP, Fido D, Latzman RD. Functional fear predicts public health compliance in the COVID-19 pandemic. Int J Ment Health Addict. 2021; 19 (5): 1875-88. doi: 10.1007/s11469-020-00281-5

27. Labrague LJ, de Los Santos JAA. Fear of COVID-19, psychological distress, work satisfaction and turnover intention among frontline nurses. J Nurs Manag. 2021; 29 (3): 395-403. doi: 10.1111/jonm.13168

28. Liu YE, Zhai ZC, Han YH, Liu YL, Liu FP, Hu DY. Experiences of front-line nurses combating coronavirus disease-2019 in China: a qualitative analysis. Public Health Nurs. 2020; 37 (5): 757-63. doi: 10.1111/phn.12768

29. Liu Q, Luo D, Haase JE, Guo Q, Wang XQ, Liu S, et al. The experiences of health-care providers during the COVID-19 crisis in China: a qualitative study. Lancet Glob Health. 2020; 8 (6): e790-e8. doi: 10.1016/s2214-109x (20)30204-7

30. Karimi Z, Fereidouni Z, Behnammoghadam M, Alimohammadi

N, Mousavizadeh A, Salehi T, et al. The lived experience of nurses caring for patients with COVID-19 in Iran: a phenomenological study. Risk Manag Healthc Policy. 2020; 13: 1271-8. doi: 10.2147/rmhp.s258785

31. Nashwan AJ, Abujaber AA, Mohamed AS, Villar RC, Al-Jabry MM. Nurses' willingness to work with COVID-19 patients: the role of knowledge and attitude. Nurs Open. 2021; 8 (2): 695-701. doi: 10.1002/nop2.674

32. Lee N, Lee HJ. South Korean nurses' experiences with patient care at a COVID-19-designated hospital: growth after the frontline battle against an infectious disease pandemic. Int J Environ Res Public Health. 2020; 17 (23):9015. doi: 10.3390/ijerph17239015

33. Jassar AS, Perkins KE, Sundt TM. Teamwork in the time of coronavirus: an MGH experience. J Card Surg. 2021; 36 (5): 1644-8. doi: 10.1111/jocs.15036

34. Xiao H, Zhang Y, Kong D, Li S, Yang N. The effects of social support on sleep quality of medical staff treating patients with coronavirus disease 2019 (COVID-19) in January and February 2020 in China. Med Sci Monit. 2020; 26: e923549. doi: 10.12659/msm.923549

35. Atay S, Cura Ş. Problems encountered by nurses due to the use of personal protective equipment during the coronavirus pandemic: results of a survey. Wound Manag Prev. 2020; 66 (10): 12-6. doi: 10.25270/wmp.2020.10.1216

36. Shoja E, Aghamohammadi V, Bazyar H, Moghaddam HR, Nasiri K, Dashti M, et al. COVID-19 effects on the workload of Iranian healthcare workers. BMC Public Health. 2020; 20 (1): 1636. doi: 10.1186/s12889-020-09743-w

37. Bruyneel A, Gallani MC, Tack J, d'Hondt A, Canipel S, Franck S, et al. Impact of COVID-19 on nursing time in intensive care units in Belgium. Intensive Crit Care Nurs. 2021; 62: 102967. doi: 10.1016/j.iccn.2020.102967

38. Ong JJY, Bharatendu C, Goh Y, Tang JZY, Sooi KWX, Tan YL, et al. Headaches associated with personal protective equipment - a cross-sectional study among frontline healthcare workers during COVID-19. Headache. 2020; 60 (5): 864-77. doi: 10.1111/head.13811

39. Kackin O, Ciydem E, Aci OS, Kutlu FY. Experiences and psychosocial problems of nurses caring for patients diagnosed with COVID-19 in Turkey: a qualitative study. Int J Soc Psychiatry. 2021; 67 (2): 158-67. doi: 10.1177/0020764020942788