

# A Qualitative Study to Assess the Psychological Experiences of Staff Nurses Who Worked During Covid-19 Outbreak in Selected Hospital of Jaipur

Mr. Bahadur Singh Choudhary<sup>1</sup>, Prof. (Mr.) Ravindra Choudhary<sup>2</sup>

<sup>1,2</sup>M.Sc. Nursing, Department of Medical Surgical Nursing,

<sup>1</sup>Rajasthan University of Health Science, Jaipur, Rajasthan, India

<sup>2</sup>Institute of Medical Technology & Nursing Education, Jaipur, Rajasthan, India

## ABSTRACT

The psychological experience of staff nurses caring for COVID-19 patients can be summarized into 4 themes. First, negative emotions present in early stage consisting of fatigue, discomfort, and helplessness was caused by high-intensity work, fear and anxiety, and concern for patients and family members. Second, self coping styles included psychological and life adjustment, altruistic acts, team support, and rational cognition. Third, we found growth under pressure, which included increased affection and gratefulness, development of professional responsibility, and self reflection. Finally, I showed that positive emotions occurred simultaneously with negative emotions.

**KEYWORDS:** Covid-19, Knowledge

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## INTRODUCTION

The severe acute respiratory syndrome corona-virus 2 (SARS-CoV-2) is a newly discovered ribonucleic acid corona virus that causes COVID-19, which was first identified as a pneumonia-like illness in Wuhan, China, in December 2019. Before it was named by the International Committee of Viral Classification on 12 February, 2020, it was called 2019-nCoV. SARS-CoV-2 mainly causes respiratory and digestive tract symptoms, with symptoms ranging from mild self-limited disease to severe pneumonia, acute respiratory distress syndrome, septic shock, and even systemic multiple organ failure syndrome. The infection source of corona virus disease 2019 (COVID-19) is mainly patients with SARS-CoV-2 infection. Asymptomatic infected patients may also become the source of infection, mainly via aerosols from the respiratory tract, but also through direct contact. Elderly people with underlying diseases are more likely to be infected

with the virus and develop severe disease and children and infants are also at risk.

The World health Organization declared a public health emergency in January of 2020, and in March 2020 the United States declared a national emergency. Areas of Europe and the United States became epicenters of the disease. Information about the pathophysiology, prevention, and treatment of, as well as recovery from, COVID-19 continues to emerge.

Symptoms of COVID-19 are variable but can be flu-like, including fever, cough, shortness of breath, fatigue, gastro intestinal disturbances, and the loss of taste and smell. Evidence is emerging about how COVID-19 affects populations differently, specifically more vulnerable populations such as older adults, racial and ethnic minority groups, and children's. Notably, children younger than 12 years

who contract COVID-19 are particularly vulnerable to multisystem inflammatory syndrome, a cluster of symptoms mimicking those of Kawasaki disease. Clotting disorders, indicated by increased D-dimer level and high prothrombin time, seem to contribute to increased mortality rates among adults diagnosed with COVID-19.

New protocols for combating COVID-19 are also being shared daily. Prone positioning is known to improve oxygenation in patients with acute lung conditions. During the pandemic, evidence supporting the practice of placing awake patients in the prone position has been used to validate prone positioning as an intervention to prevent intubation and improve oxygenation. Protocols for social distancing in communal areas such as schools, workplaces, and hospitals were put in place in order to mitigate the spread of virus. Across the United States, intensive care units (ICUs) that usually actively support open visitations have closed to family members. The environment in which nurses practice has been well studied, research has found that the work environment impacts nurses' psychosocial wellbeing and interpersonal relationships, and the quality of patient care. It also contributes to the incidence of burnout and job satisfaction among nurses, as well as patient mortality. Nurses working in critical care environments have experienced some of the quickest changes to date in response to COVID-19.

Overall, nurses have high rates of exposure to infectious diseases. Personal protective equipment (PPE) standards are in place to protect nurses from disease transmission. Evidence remains mixed, however, on how best to remove soiled PPE and to train health care workers in the proper application of PPE. During the COVID-19 outbreak, nurses and other health care providers have been facing global shortage of PPE, and institutions have implemented unconventional practices to conserve and reuse PPE.

In the context of these rapid changes and the promotion of practices that were once unheard of, nurses face the potential for not only physical but also psychological distress. More specifically, moral distress occurs when nurses cannot provide compassionate care to patients, and it contributes to nursing burnout and compassion fatigue. In addition to the reuse of PPE, other factors such as the influx of high acuity patients, the lack of the presence of family members, and high patient censuses have contributed to increased moral distress among nurses. Psychological stressors related to caring for patients who are terminally ill and have COVID-19 test nurses' resilience.

### **NEED OF THE STUDY:**

As of August 17, 2020, there have been 21,901,102 laboratory-conformed corona virus cases, including 774,299 deaths worldwide according to Johns Hopkins University. The International Council of Nurses (ICN) reported that more than 600 nurses around the world have died from COVID-19 until 3 June 2020.

According to the ministry of health, in Ethiopia there were 31,336 COVID-19 reported cases and 544 (1.74%) deaths in Ethiopia until August 17, 2020.

The pandemic not only affects physical health but also mental health and well being. Mental health and psychosocial consequences of the COVID-19 pandemic may be particularly serious for health professionals because of a higher level of exposure.

A poorly known contagious disease outbreak, like COVID-19, leads to unavoidable stress, fear, and anxiety that can be profound among the higher-risk groups, such as health care professionals including nurses. The mental well-being of health care professionals can be negatively affected by fear of being exposed to the COVID-19 cases in hospitals, being separated from families, and confronting the death or illness of patients from COVID-19.

Due to the sudden outbreak of the epidemic, nurses from the Department of Infectious Diseases had to enter the negative pressure ward to care for the patients after only undergoing a brief training on COVID-19. Nurses from other departments were required to go through 3 training stages before starting nursing duties for patients with COVID-19: pre job training, adaptive training by nursing other patients in the infection department, and negative pressure ward training. This process occupied about 1 week. Nurses who entered the negative pressure ward would work for 0.5-3 months before being transferred to other non-anti-epidemic positions.

Because COVID-19 is a new disease and the medical system and culture of different countries varies, further research is needed on the psychological experience of frontline nurses fighting against COVID-19.

A recent survey examined nurses' perceptions of working during the early stages of the pandemic in the U.S. and found that more than 50% of respondents experienced symptoms of depression and anxiety and close to one-third had symptoms of post-traumatic stress disorder. Lack of adequate PPE was significant risk factor for all three mental health outcomes. While important, it is unlikely the lack of adequate PPE is the only factor, and that other

experiences are likely impacting nurses' mental health symptoms.

## **OBJECTIVES-**

### **Objectives of the study**

1. To assess the psychology of staff nurses caring for COVID-19 patients.
2. To assess corona virus disease related psychological stress in staff nurses.
3. To assess prevention practices against COVID-19 infections in the staff nurses.

## **OPERATIONAL DEFINITION:**

### **PSYCHOLOGICAL:**

Psychological is something that relates to the mind or mental actions.

### **EXPERIENCE:**

Experience is "perceptions of the world, which originate from feelings and attitudes".

### **STAFFNURSE:**

A staff nurse is a person either male or female who has undergone three years of training in general nursing and one year of training in midwifery or a four-year comprehensive course.

### **COVID-19:**

COVID-19 is the infectious disease caused by the most recently discovered corona virus. This new virus and disease were unknown before the outbreak began in Wuhan, China, in December 2019.

### **OUTBREAK:**

Occurrence of more cases of disease than expected in a given area among a specific group of people over a particular period of time.

### **HYPOTHESIS:**

**Hypothesis 1:** Workload is negatively associated with nurses' intention to care for patients with COVID-19.

**Hypothesis 2:** Quality of supervision is positively associated with nurses' intention to care for patients with COVID-19.

**Hypothesis 3:** Extra-role behavior is positively associated with nurses' intention to care for patients with COVID-19.

## **RESEARCH DESIGN**

Polit and Hungler (1997) describe a research design as the researcher's overall plan for obtaining answers to the research questions or for testing the research hypothesis. The researcher chose a qualitative, exploratory, descriptive and contextual design to explore the meaning of the phenomenon of interest, namely staff nurses' experience of working in Hospital of RUHS, College of Medical Sciences in Jaipur. Qualitative research is concerned with

subjective meanings of phenomena as revealed by participants in their naturalistic setting (Kenworth, Snowley & Gilling). In this study, the participants' naturalistic setting was the hospital where they work. The study was exploratory because the researcher had an interest in the participants' experience of working in Hospital of RUHS, College of Medical Sciences in Jaipur.

The researcher adopted a qualitative research design that is explorative, descriptive and contextual in nature. The three aspects of the research design are discussed in detail below, starting with the qualitative research aspect.

## **RESEARCH SETTING**

The study was conducted at Hospital of RUHS, College of Medical Sciences in Jaipur. The hospital is situated in Pratap Nagar, Jaipur, Rajasthan.

## **POPULATION**

A population is the entire set of individuals or elements that meet the sampling criteria. All the staff nurses working in Hospital of RUHS, College of Medical Sciences in Jaipur constituted the population for this study. In this study, the population refers to the entire population of staff nurses employed in Hospital of RUHS, College of Medical Sciences in Jaipur used for this particular study.

## **SAMPLE SIZE**

The researcher used her knowledge of the population to select a purposive sample of participants. Only staff nurses working in Hospital of RUHS, College of Medical Sciences in Jaipur with at least one year's working experience were asked to participate. Those who were willing to participate voluntarily were selected. The size of the sample was determined by data saturation.

## **CRITERIA FOR SAMPLE SELECTION**

### **Criteria for sample selection**

Once a population has been identified the researcher has to decide what criteria will be used to select a sample for the study. To be included in this study, the respondents had to be male or female professional nurses-

- With at least one year's working experience in hospital.
- Both male and female were acceptable, because the public hospitals in Jaipur employ people as staff nurses of both sexes.
- Only staff nurses are included in this study.
- Staff nurses who are aged between 21 to >50 years.

All the prospective participants who met the above eligibility criteria were included in the sample.

## **VARIABLES:**

Variables are qualities, properties or characteristics of person, things or situation that change or vary.

### **Independent Variables:**

It is a stimulus or activity that is manipulated or varied by the research to create the effect on the dependent variables.

The independent variables in the present study was demographic variables of staff nurses who worked during COVID-19 outbreak.

### **Dependent Variables:**

Dependent variables is often referred to as the consequence or the presumed effect that varies with a change in the independent variable. (Basavanthappa B.T., 2007).

The dependent variable in the present study was psychological experience of staff nurses who worked during COVID-19 outbreak.

## **DESCRIPTION OF DEVELOPMENT OF TOOL:**

This questionnaire consists of 2 sections.

Section-A: It consists of demographic characteristics of seven items which were used to collect the sample characteristics. The characteristics included were age in years, gender, marital status, number of children, professional qualification, total years of experience, staff nurses worked in wards for caring people with COVID-19.

Section-B: Semi-Structured questionnaire rated on a five-point Likert scale to assess the psychological experience of staff nurses. Kindly fill the questionnaire below based on your experience during COVID-19 outbreak. It consist of 25 items.

### **SCORING CRITERIA**

Scoring instructions for the questionnaire to assess the psychological experience of staff nurses during COVID-19 outbreak.

For Section B, each item has 5 options. Except for items 1, 5, 15, 17, 19, 24, 25, the items are scored as given below:

5=Always (more than 90% times).

4 =Mostly (approx. 75% times).

3=Commonly (approx. 50% times).

2=Occasionally (approx. 25% times).

1 =Rarely (less than 10% times).

The items 1, 5, 15, 17, 19 are scored inversely as:

1=Always, 2=Mostly, 3=Commonly, 4=Occasionally and 5=Rarely. The item 24 and 25 are scored as:

5=Never, 4 =Once, 3= Twice, 2=Thrice, 1=More than three times.

### **VALIDITY OF THE TOOL:**

Validity refers to the degree to which an instrument measures, what it is supposed to measure. To determine the content validity, It's refers to the adequacy of the sampling of the domain being studied (Suresh K. Sharma, 2007).

The content validity of the demographic variable, semi-structured questions, likert scale validated in consultation with the guide and field experts are (doctors, nurse specialists). The tool was modified according to the suggestions and recommendations of the experts.

### **RELIABILITY OF THE TOOL:**

Reliability of an instrument is the degree of consistency with which it measures the attribute it is supposed to be measuring (Polit and Hungler, 2000).

Reliability of the tool was tested or analysis by Colaizzi's seven step method. The semi-structured questionnaire was administered to staff nurses by analyzing the stability. The reliability of the likert scale done by adopting five- point rated method, so the likert scale was found to be reliable.

The researcher used her knowledge of the population to select a purposive sample of participants. Only staff nurses working in Hospital of RUHS, College of Medical Sciences in Jaipur with at least one year's working experience were asked to participate. Those who were willing to participate voluntarily were selected. The size of the sample was determined by data saturation.

### **MAJOR FINDINGS:**

This phenomenological inquiry involved 50 participants, aged between 21 to >50 years. The purpose of this study was to explore staff nurses' psychological experience of working in Hospital of RUHS, College of Medical Sciences in Pratap Nagar, Jaipur during COVID-19 outbreak in order to highlight the psychological experience and to make appropriate recommendations to overcome psychological problems. I assessed the psychological experience of staff nurses with COVID-19 patients using phenomenological methods. I found four themes that are summarized below. Exemplar quotes for each theme are displayed in the following table, table 5.1 presents themes that emerged during data collection and analysis:

**Table - CHARACTERISTICS OF PARTICIPANTS**

Partici Pants	Age (Years)	Gen Der	Marital Status	No. of Child Ren	Proff. Qualif.	Wo RK EX P. (Yea Rs)	Wor Ked in War D
Nurse 1	52	Female	Married	Two	GNM	32	ICU
Nurse 2	50	Female	Married	Two	GNM	28	ICU
Nurse 3	32	Female	Married	One	GNM	7	ICU
Nurse 4	30	Female	Married	One	B. Sc. Nursing	6	ICU
Nurse 5	29	Female	Married	One	GNM	5	ISOLATI ON Ward
Nurse 6	27	Female	Single	None	GNM	4	PEDIATRI C Ward
Nurse 7	25	Female	Married	None	PostBasic B.Sc. Nursing	7	ICU
Nurse 8	21	Female	Single	None	GNM	1	ICU
Nurse 9	41	Male	Married	Two	GNM	13	Isolation Ward
Nurse 10	40	Male	Married	Two	GNM	15	ICU
Nurse 11	38	Male	Married	Two	M.Sc. Nursing	8	Pediatric Ward
Nurse 12	35	Male	Married	Two	GNM	6	Isolation Ward
Nurse 13	32	Female	Married	One	GNM	10	ICU
Nurse 14	30	Male	Married	None	GNM	10	ICU
Nurse 15	29	Male	Married	One	GNM	6	ICU
Nurse 16	27	Male	Married	One	GNM	10	ICU
Nurse 17	25	Male	Single	None	GNM	3	ICU
Nurse 18	24	Female	Single	None	GNM	2	ICU
Nurse 19	22	Female	Single	None	GNM	2	Isolation Ward
Nurse 20	49	Male	Married	Two	GNM	10	Medical Ward
Nurse 21	48	Female	Married	Two	B.Sc. Nursing	15	ICU
Nurse 22	46	Male	Married	Two	B.Sc. Nursing	16	Medical Ward
Nurse 23	45	Male	Married	Two	GNM	17	Isolation Ward
Nurse 24	21	Male	Single	None	GNM	2	GERIATRIC Ward
Nurse 25	41	Male	Married	Two	GNM	13	Medical Ward
Nurse 26	40	Female	Married	Two	GNM	10	Pediatric Ward
Nurse 27	38	Female	Married	Two	GNM	13	Isolation Ward
Nurse 28	35	Female	Married	Two	M.Sc. Nursing	10	ICU
Nurse 29	32	Female	Married	One	GNM	10	ICU
Nurse 30	30	Male	Single	None	GNM	7	ICU
Nurse 31	29	Female	Single	None	GNM	10	Medical Ward
Nurse 32	27	Female	Single	None	Post Basic B.Sc. Nursing	3.5	Medical Ward
Nurse 33	25	Male	Single	None	GNM	3	Medical Ward
Nurse 34	24	Male	Single	None	GNM	3	ICU
Nurse 35	22	Male	Single	None	GNM	2	ICU

Nurse 36	21	Male	Single	None	GNM	1	Isolation Ward
Nurse 37	41	Female	Married	Two	GNM	10	Isolation Ward
Nurse 38	40	Male	Married	Two	GNM	10	ICU
Nurse 39	40	Male	Divorced	Two	GNM	10	ICU
Nurse 40	38	Male	Married	Two	GNM	10	ICU
Nurse 41	35	Male	Married	Two	M.Sc. Nursing	5	Medical Ward
Nurse 42	32	Female	Single	Two	GNM	10	Medical Ward
Nurse 43	30	Male	Single	None	GNM	7	Geriatric Ward
Nurse 44	29	Female	Married	One	GNM	6	ICU
Nurse 45	27	Female	Married	One	GNM	3.5	ICU
Nurse 46	25	Male	Single	None	Post Basic B.Sc. Nursing	1	ICU
Nurse 47	24	Male	Single	None	M.Sc. Nursing	1	Isolation Ward
Nurse 48	23	Female	Single	None	GNM	1	Isolation Ward
Nurse 49	22	Female	Single	None	GNM	2	Pediatric Ward
Nurse 50	21	Male	Single	None	GNM	1	Isolation Ward

## FINDINGS:

### Theme1: Significant amount of negative emotions in the early stage

All study subjects experienced a significant amount of negative emotions in the first week, especially in the period from the first pre-job training to the first time they entered the negative pressure ward.

As the number of patients continued to rise, the workload of all nurses increased proportionally with 1.5 - 2 times normal work hours and workloads. Staff nurses were required to conserve protective clothing by reducing the number of times they wear it since protective equipment was in short supply, resulting in fatigue and discomfort. Failing to meet physical and psychological needs brought a sense of helplessness.

As with any emerging infectious disease, work processes and nursing routines need to be explored while working. Most of the participants felt different levels of anxiety. Under the challenges of changes in working environment and team members, 50% of nurses said they felt anxious.

Most staff nurses in this study were between 21 and >50 years old. Some came from a single-child family and have elderly and children in their family. All staff nurses expressed concern about the impact of the

outbreak on the health of their families. They also said that their families were also worried about their health. Those who did not live with their parents choose to hide the fact that they work in isolation ward from their parents. After separation from their families, they felt helpless and guilty. The nurses with the elderly and children at home were particularly worried of their families.

### Theme2: Coping and self-care styles

All staff nurses activated psychological defence mechanisms, such as speculation, isolation, depression, distraction, self-consciousness, humour, rationalization, etc.

Staff nurses used existing knowledge and new knowledge of psychological decompression communicated by colleagues or the internet to adjust themselves and actively or passively used psychological techniques, such as writing diary and letters, breathing relaxation, mindfulness, music meditation, and emotional expression and venting.

Some staff nurses took the initiative to process information and use medical knowledge for analysis. Their attitudes were calm and rational. Staff nurses also took the initiative to compare situations, find favourable information, and encourage themselves.

### **Theme3: Growth under pressure**

All participants mentioned their gratitude for the support from colleagues, relatives, friends, and all sectors of society. They also realized the importance of health and family. Most staff nurses said that they would work and live with a state of appreciation and gratitude in the future.

More than 70% of the participants mentioned the professional responsibility prompted them to participate in the mission to contain the epidemic. Most staff nurses reviewed the value of the nursing profession and identified more with their chosen profession.

Half of the staff nurses conveyed that although the epidemic prevention work was hard, they started to self-reflect. For example, they strengthened their will, discovered their potential, and increased their courage to face life.

### **Theme 4: Positive emotions occurred simultaneously or progressively with negative emotions**

Despite difficult conditions and challenges in the fight against the disease, 60% of the staff nurses reported feeling happy. Firstly, the staff nurses felt the patient's goodwill, respect, active cooperation, and gratitude. Secondly, family and team support brought happiness. Contact with family was a key factor in our study. In addition, the hospital has a reward and welfare system in place to support and motivate staff nurses. The encouragement of colleagues also brought happiness to staff nurses. Other forms of social support were important to the staff nurses' feeling of appreciation.

### **DISCUSSION:**

This study explored the psychological experience of staff nurses of patients with COVID-19 using phenomenological methods and I summarized findings into four themes: significant amounts of negative emotions at an early stage, self-coping styles, growth under stress, and positive emotions that occur simultaneously or progressively with negative emotions.

The staff nurses caring for COVID-19 patients felt extreme physical fatigue and discomfort caused by the outbreak, intense work, large number of patients, and lack of protective materials, which was consistent with the studies on the outbreak of MERS- CoV and Ebola. In this study, staff nurses' concerns about family members were consistent with the study of Lee et al., especially those with elderly and children in the family. The physical exhaustion, psychological helplessness, health threat, lack of knowledge, and

interpersonal unfamiliarity under the threat of epidemic disease led to a large number of negative emotions such as fear, anxiety, and helplessness, which have been reported by several studies. I showed that nurses' negative emotions are more pronounced in the first week when entering pre-job training and negative pressure ward for the first time. Therefore, early psychological intervention is particularly important to staff nurses in an epidemic.

Many studies have shown that epidemic outbreaks can cause psychological trauma for staff nurses. In contrast, the results of this study demonstrate that most staff nurses grew psychologically under pressure. Staff nurses partook in self-reflection of their own values and found positive forces such as expressing more appreciation for health and family and gratitude for social support, which was consistent with study of Shih et al.. The sense of responsibility brought by professional ethics in an epidemic, encouraged staff nurses to actively participate in anti-epidemic tasks and boosted their professional identity and pride, in line with previous reports. Therefore, actively guiding and inspiring staff nurses to realize their own psychological growth during an epidemic may play a positive role in psychological adjustment.

In this study, findings of the existence of positive emotions in staff nurses such as confidence, calmness, relaxation, and happiness, which simultaneously or gradually appeared with negative emotions, was in contrast to the results several studies that describe only the presence of a large amount of negative emotions during outbreak stress. However, other studies report similar findings. In the case of an outbreak, confidence in safety, early training, and confidence in professional skills are all factors that promote staff nurse's willingness to actively participate in anti-epidemic work. Physical and mental rewards to staff nurses from work units are also important supporting factors. Participants of this study generally believed that positive emotions were related to the multi-dimensional support of patients, family members, team members.

### **CONCLUSIONS:**

This study provided a comprehensive and in-depth understanding of the psychological experience of staff nurses who caring patients with COVID-19 through a phenomenological approach. I found that during the epidemic, positive and negative emotions of frontline staff nurses against the epidemic interweave and coexist. In the early days, negative emotions were dominant and positive emotions appeared simultaneously or gradually. Self-coping style and psychological growth are important for staff nurses to maintain mental health. This study provided

fundamental data for further psychological intervention.

More than two-thirds, more than half, and nearly one-fifth of the staff nurses had anxiety, depression, and stress in response to the COVID-19 outbreak respectively. This prevalence is high and staff nurses are highly affected psychologically during the pandemic which suggests psychological health interventions like psychological counseling and group meeting sessions.

#### **IMPLICATIONS:**

The researcher identified the following implications in this study.

#### **IMPLICATIONS FOR PRACTICE:**

Staff nurses were clear that their stress, frustration, and feelings of anger were all related to not having evidence-based practice recommendations for caring for patients with COVID-19. The lack of data and research on COVID-19 protocols and practice guidelines was coupled with and magnified by the almost daily changes in hospital protocols. I recommend timely and transparent communication in future practice and during times of uncertainty.

#### **IMPLICATIONS FOR RESEARCH:**

In the subsequent waves of the pandemic, follow-up studies would be beneficial to allow further understanding of the level of resiliency and the experiences of staff nurses working through this unprecedented time. Investigating the impact of social support and social circles, whether they are in person or virtual, may benefit our understanding of resilience and coping. Scientifically rigorous studies of the use of self-care methods and restorative practices to prevent burnout, such as those in creative arts and others mentioned in recent studies of critical care nurses, are needed to instill a sense of fulfillment. Our field also needs more high-quality qualitative and mixed methods research both conducted by and focusing on inter-professional teams.

#### **LIMITATIONS:**

The researcher identified the following limitations in the study.

#### **RECOMMENDATIONS:**

##### **Provide in tense education and training for nurses**

I provide adequate education to nurses, and training content includes the use of personal protective equipment (PPE), hand hygiene, ward disinfection, medical waste management, and sterilization of patient-care devices and management of occupational exposure. The PPE sets include (listed in the order they are to be put on) a disposable work hat, an N95 respirator, inner gloves, a protective eye mask,

protective clothing, disposable waterproof shoe covers, disposable isolation gowns, outer gloves, and a face shield. Due to the complicated procedure of putting on and removing the PPE, I recorded a teaching video and sent it to a We Chat group where all nurses could review the operation details any time.

##### **Prioritize nurses and other HCWs for COVID-19 vaccines**

Frontline HCWs are at particular risk of occupational exposure to COVID-19 and are the first responders in this pandemic. They are essential to keep our health systems and emergency response running. Governments should commit to prioritizing COVID-19 vaccination for HCWs, once available

##### **Ensure HCWs have access to and are prioritized for COVID-19 testing**

Testing is crucial to detect both symptomatic and asymptomatic COVID-19 infection in HCWs. In order to minimize the transmission of COVID-19 in healthcare settings and reduce risk for the most vulnerable groups of patients, governments should be moving to routine, regular COVID-19 testing for all HCWs, including both symptomatic and asymptomatic cases.

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