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Convalescent Ward as a Turning Point in the Care and Treatment of COVID-19 Patients: A Qualitative Study

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Abstract

Background: Understanding the experiences of the healthcare staff during the coronavirus pandemic is essential. Accordingly, this study aimed to explore these experiences regarding providing care to COVID-19 patients.

Methods: This is a conventional qualitative content analysis study was conducted from March to July 2020 at a designated COVID-19 referral hospital in Tehran, Iran. Data were collected through individual interviews with ten nurses and physicians selected via purposive sampling. The collected data were analyzed using conventional content analysis.

Results: Data analysis led to the identification of five stages including *screening in the convalescent ward*, *transfer to the hospital*, *treatment in the hospital*, *discharge from the hospital and admission to the convalescent ward*, and *discharge from the convalescent ward and follow-up*. The first and fifth stages were positioned at the macro level, forming the outer surface of the model. Besides, admission, treatment, and discharge from the hospital constituted the micro level. The space between these two stages formed the hypothetical meso level, which connected the macro and micro levels. The meso level represented an opportunity for empowerment activities for healthcare centers and staff across various domains.

Conclusion: Comprehensive service delivery for COVID-19 patients requires the effective implementation of multiple stages, from screening and hospital admission to discharge from the convalescent ward and subsequent follow-ups. The preventive role of the convalescent ward, represented at the macro level of the model, is significantly important as it serves as a buffer between the community and the hospital at infection transmission and recurrence stages.

Keywords: COVID-19, Convalescent, Experiences, Healthcare, Qualitative research

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Introduction

The first case of coronavirus disease was detected in Iran following the outbreak in China in December 2019 (1). The disease spread rapidly in society due to widespread transmission, lack of definitive treatments, and the inherent nature of the virus (2). As the prevalence of COVID-19 increased, a larger number of nurses and physicians engaged in the battle against the disease, responding to the heightened demand for specialized treatments in hospitals (3,4).

To prevent the spread of the virus, certain conditions need to be fulfilled alongside the efforts of medical staff. Infection control is paramount, which requires the appropriate use of protective equipment and the fostering of team spirit among healthcare workers (5).

Organizing hospitalization wards is vital to prevent disease transmission among healthcare providers. Effective and rapid communication among treatment groups, as well as training and management of high workloads—particularly during patient resuscitation—are also essential (6). Understanding the experiences of medical staff is essential for managing treatment and evaluating methods. While most studies have focused on the physical and mental challenges faced by healthcare providers caring for COVID-19 patients (7-10), there is a notable lack of research evaluating the treatment process from the perspective of the medical staff.

The history of convalescent homes in England shows how they transformed healthcare and provided a vital link between hospitals and patient recovery. Convalescent homes offered a peaceful and supportive environment, allowing patients to continue their recovery after being discharged from the hospital. Receiving specialized care and attention, patients were able to regain their strength and independence before returning home. This model of care became an essential component of the healthcare system, bridging the gap between acute medical treatment and long-term rehabilitation (11). The increase in the number of elderly cardiac patients led to the establishment of convalescence cardiac units, focusing on specialized

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care for those discharged early. These units provide monitoring, medication management, and rehabilitation services, ensuring a smooth transition for patients and their families, thereby improving outcomes and quality of life (12). The opening of Glasgow Children's Hospital revealed some children needed longer recovery times and returning them to poor living conditions could hinder their progress. Thus, rural recovery centers were established to support their healing (13). A study titled, "An integrated hospital-to-home transitional care intervention for older adults with stroke and multimorbidity" found the intervention to be feasible and well-received, despite no significant changes in health outcomes. However, there was observed a notable reduction in health service utilization and costs per person (14).

In response to the need to control the transmission of the disease and care for patients with a history of disease after discharge, a referral hospital established a 1000-bed convalescence ward. In this ward, specialized medical personnel provided treatment plans, daily infection monitoring, physiotherapy, individual attention, and nutritious meals. Patients were transferred from hospital rooms to this ward for their recovery period (15). These experiences can inform interventions in similar crises. Moreover, qualitative studies offer valuable insights into the experiences of medical staff working with COVID-19 patients. Accordingly, this study aimed to explore these experiences.

Methods

This a conventional qualitative content analysis study was conducted at a COVID-19 referral hospital in Iran from March to July 2020. A total of 10 nurses and physicians were selected via purposive sampling.

The inclusion criteria were having a minimum of one year of experience and working as a healthcare staff member during the COVID-19 pandemic. All nurses were in permanent and full-time positions. The exclusion criteria included holding simultaneous positions at other healthcare facilities and a lack of willingness to participate in the interviews.

Participants were selected to ensure diversity in terms of service background and gender. In addition, interviews were conducted with other medical staff, such as clinical supervisors, to facilitate data triangulation.

The primary researcher (M.S.M.), a female nursing instructor with over 20 years of experience, conducted face-to-face semi-structured interviews. She had taught in clinical wards during the COVID-19 outbreak and had considerable experience in qualitative research. Before the interviews, participants were briefed on the study objectives and signed informed consent forms. Initially, participants were asked to provide demographic information, such as age, work experience, education level, and current job status. The interviews were conducted in quiet locations in medical and recovery units, with the timing determined by mutual agreement between the healthcare providers and the researcher. The duration of the interviews varied based on the participant's willingness to share their experiences.

To ensure consistency, guiding questions were prepared for all sessions. Each interview began with open-ended questions, developed after reviewing relevant literature and conducting pilot interviews with two healthcare staff from the COVID-19 ward. The interviews typically lasted 15 to 55 minutes, focusing primarily on the perceptions and experiences of nurses and physicians about the services and treatments provided to COVID-19 patients. Initially, general and open-ended questions were asked including "Could you please describe a working day during the coronavirus outbreak while providing services to COVID-19 patients?", "What barriers did you encounter in providing treatment?", and "What positive or noteworthy experiences occurred in this process?" Afterward, exploratory questions were asked with more caution, based on the responses to previous questions, to enhance comprehension. Furthermore, non-verbal responses, movements, and changes in body position were taken into account when formulating the next questions. Data saturation was reached after seven interviews and three additional interviews were conducted for verification. It is worth noting that none of the participants were excluded from the study.

The interviews were transcribed verbatim and analyzed via MAXQDA10 software using the conventional content analysis in three stages including preparation, organization, and reporting (16). This process led to the extraction of semantic units from sentences related to the research objective. In the preparation stage, the interview texts were repeatedly reviewed to gain a general understanding of the data, and sentences were analyzed line by line to extract codes. Field notes as well as the latent and meaningful content of gestures and sentences were also assessed. In this regard, semantically similar groups were categorized and then assigned to the main category. The main category was finalized and approved through discussions in the research and review team.

To ensure the accuracy and trustworthiness of the data, a diverse set of participants was used for data triangulation to confirm the results. Interview texts were repeatedly reviewed and compared with the recorded audio to ensure data credibility. Selected excerpts from participants' statements were quoted to illustrate how the main categories were extracted. Moreover, the coded interviews were evaluated and validated by a colleague outside the research team, and the transcripts were returned to the participants for their confirmation.

Results

The majority of participants in this study were male (80%),

with a mean age of 40.1 ± 9.2 years. Besides, the mean work experience of the participants was 14.7 ± 8.2 years (Table 1). A total of 640 codes were identified which were then summarized and divided into five main categories and 15 subcategories. The main categories included *screening in the convalescent ward*, *transfer to the hospital*, *treatment in the hospital*, *discharge from the hospital and admission to the convalescent ward*, and *discharge from the convalescent ward and follow-up* (Table 2).

Moreover, based on the results, the researchers developed a model for providing services to COVID-19 patients at three macro, meso, and micro levels (Figure 1).

The details of the categories and the final model are presented below.

First stage: Screening in the convalescent ward

The initial insights gained from analyzing the experiences of healthcare staff dealing with COVID-19 patients were categorized into three subcategories:

Table 1. Participant demographic characteristics

Participant	Age	Gender	Education level	Work experience	Job
1	42	Female	Bachelor's degree	18	Nurse
2	57	Male	Bachelor's degree	33	Nurse
3	52	Male	Specialist degree	22	Doctor
4	40	Male	Master's degree	12	Supervisor
5	34	Female	Bachelor's degree	10	Nurse
6	36	Male	Associate's Degree	15	Nurse
7	31	Male	Bachelor's degree	9	Nurse
8	29	Male	Bachelor's degree	5	Nurse
9	34	Male	Master's degree	10	Supervisor
10	46	Male	Specialist degree	13	Doctor

Confusion in service delivery due to the severity of the crisis

One of the first experiences of the medical staff was confusion at the onset of the COVID-19 crisis. Participant 1 noted, *"I think the crisis was so severe and everything happened so fast that everyone was confused in the beginning. I have seen many crises during my 27 years in this field, but I have never experienced this level of severity"*.

Creating a suitable space for patient screening

A necessary measure for providing suitable and safe services was establishing a separate space dedicated to patient screening. Participant 3 remarked, *"The missing link for admitting patients to the hospital was that patients had to visit the convalescent ward first. We had to deploy all the necessary facilities for effective screening"*.

Providing personal protective equipment

The rapid transmission of the disease made the use of protective equipment essential for treatment. Participant 2 mentioned, *"We changed gowns in March to make them fit. In the end, protective equipment and masks were the most important tools to provide for the staff"*.

Second stage: Transfer to the hospital

The second category focused on the patient transfer to the hospital and included three subcategories:

Standardization of the patient admission process

Participants highlighted challenges related to the high number of patients and the lack of a specific process or flowchart for prioritization in the admission process. Participant 4 expressed, *"We had a high patient load and we were not supposed to admit and hospitalize all of them. We had to prioritize patients based on their symptoms"*.

Table 2. Categories, subcategories, and hypothetical levels

Levels	Main Categories	Subcategories
Macro level	Screening in the convalescent ward	Confusion in service delivery due to the severity of the crisis
		Creating a suitable space for patient screening
		Providing personal protective equipment
		Family support measures
	Discharge from the convalescent ward and follow-up	Patient follow-up
		Patient education
Meso level	Transfer to the hospital	Standardization of the patient admission process
		Implementation of prevention protocols in the hospital
		Caregivers accompanying patients
	Discharge from the hospital and admission to the convalescent ward	Convalescent ward as a turning point in disease control
		Ambiguity in the construction of the convalescent ward
Micro level	Treatment in the hospital	Recruiting high-quality human resources
		Providing structural services
		Positive and negative psychological complications
		Conscientious care

Figure 1. Three-level of serving COVID-19 patients of Healthcare Staff's experience

Implementation of prevention protocols in the hospital

To minimize the spread of the disease, it was crucial to develop and implement protocols that defined personnel duties precisely. Participant 5 mentioned, *"The most important discussion was about patient overlap … We had shared lab and imaging wards with one path for patients, meaning those without respiratory problems were examined in the same place"*.

Caregivers accompanying patients

The involvement of caregivers in diagnostic procedures led to certain problems in the diagnosis and treatment process. Participant 2 noted, *"They would send patients for CT scans accompanied by their caregivers who were not wearing protective equipment"*.

Third stage: Treatment in the hospital

This critical stage of the process comprised four subcategories:

Recruiting high-quality human resources

The competence of the healthcare staff was pivotal in delivering effective healthcare services. This subcategory was further divided into the following: *poor human resource management*, *competent healthcare staff*, and *receiving related training as the treatment priority*.

1. Poor human resource management

Critical conditions, rapid changes in the work environment, instant decisions, and a shortage of workforce led to instability in human resource deployment. Participant 6 described, *"When we entered the ward in the morning, we realized that we have been moved to a new ward. There were not enough healthcare providers. We developed three plans to provide standard care in the end"*.

2. Competent healthcare staff

One of the priorities in planning was attempting to employ competent human resources. Participant 1 stated, *"We considered several factors to ensure the workforce was efficient, worked longer hours, and had fewer shifts"*.

3. Receiving related training as the treatment priority

The unknown nature of the disease emphasized the need for training the healthcare staff. Participant 4 expressed, *"Unfortunately, I have seen many individuals come to work in the ward with no previous education. What do you think could happen? This could intensify the crisis for healthcare staff"*.

Providing structural services

Coping with the crisis requires not only structural changes in medical equipment but also the development of proper scientific standards and treatment protocols, as well as both physical and mental support for healthcare staff working in COVID-19 wards. This subcategory was further divided into three subclasses:

1. Structural and infrastructural requirements for essential treatment needs

Patients with COVID-19 particularly needed oxygen therapy, provision of which posed some challenges.

Participant 9 noted, *"The most important issue was the central FiO2 pressure drop in the hospital, which was expected to supply oxygen to 700 patients. We only had one oxygen generator, which could not meet the high demand in the hospital"*.

2. Chaos in treatment

The lack of definitive treatments and formulation of various hypotheses for treating patients led to the development of numerous treatment methods and drug regimens. Participant 10 expressed, *"The treatment process varied across wards and even changed daily, depending on the person in charge of the ward that day. There were different approaches and no decision-making body. Therefore, everyone would claim a treatment to be effective"*.

3. Support for the healthcare staff

Nurses were the group most involved in the direct treatment of patients. Participant 7 pointed out, *"When they talked about supporting nurses, their slogan was that nursing is important. They felt overwhelmed and emotional. Our situation is similar, but have the nursing working conditions changed?"*

Positive and negative psychological complications

Healthcare staff experienced significant psychological distress. This subcategory was classified into three subclasses:

1. High stress levels among healthcare staff

One of the problems of healthcare staff dealing with patients with COVID-19 working at the front line of the battle against the disease was psychological complications. Participant 1 remarked, *"I was really anxious and nervous, constantly worrying about what would happen to me and my family"*.

2. The heavy burden of death and severe illness

The lack of effective treatments for critically ill patients has resulted in a high mortality rate. Participant 5 explained, *"Once, the ward was filled with patients who all expired. Then, it was filled again with patients who were all dying. We could not resuscitate them. We simply performed CPR, which had a severe psychological impact on us. I still feel deeply upset when I remember that time"*.

3. Spirit as an improvement factor

Boosting patients' spirits was crucial to overcoming the acute phase of the disease. Participant 7 stated, *"Oxygen saturation significantly increased in those who were calmed by talking. We were able to reduce their stress"*.

Conscientious care

Healthcare provision rooted in ethical standards prevented staff from deviating from their professional commitments. This subcategory included three subclasses:

1. Professional commitment

Providing care under such circumstances necessitated professional commitment, which entailed self-sacrifice and dedicated service. Participant 2 noted, *"I think the managers acted properly. I saw the head of the hospital visiting the emergency department at 2:30-3:00 a.m."*

2. Devoted care

The healthcare staff demonstrated unwavering dedication by offering healthcare services throughout the crisis. Participant 9 reflected, *"We administered different medications to patients daily, yet they were ineffective!! However, the nursing staff really showed we could help the patients. Nurses supported each other without any expectations"*.

3. Recalling values

In today's fast-paced world, values and beliefs have often eroded. The outbreak of this deadly virus reminded many of a superior power that controls this world. Participant 1 explained, *"The disease reminded us that the power of God is more than anything, and even a small virus can cause chaos in the world. This really reinforces one's worldview"*.

Fourth Stage: Discharge from the hospital and admission to the convalescent ward

Using convalescent wards to continue supportive treatment and helping patients through the transmission period presented a proper opportunity for completing treatment and preventing disease spread in society. This stage included two subcategories:

Convalescent ward as a turning point in disease control

Establishing a convalescent ward with specialized healthcare staff was a crucial and scientifically informed measure during the COVID-19 pandemic. Participant 8 commented, *"Our hospital was the first to establish a convalescent ward and transferred discharged patients to this center. Fortunately, we were able to transfer patients to the convalescent ward using equipped ambulances and competent personnel"*.

Ambiguity in the construction of the convalescent ward

Despite the intended benefits of convalescent wards, staff reported that their capacity has not been utilized effectively for various reasons. Participant 9 noted, *"One of the problems in the convalescent ward was the self-discharge of patients, even though the center provided part of their treatment. We should not allow discharges if patients are still infected and may spread the disease during recovery"*.

Fifth Stage: Discharge from the convalescent ward and follow-up

Patients were discharged from the convalescent ward if they showed no problems after the quarantine period.

This category was further divided into three subcategories:

Family support measures

Plans for patient discharge included providing guidelines for the safe transfer of patients to home and ensuring safety in the family. Participant 8 stated, *"However, a discharged patient would be treated like a normal person if they provided consent. We had a case where a patient discharged himself and later transmitted the disease to his wife. He complained that we should not have allowed him to leave and believed that we had to call the police"*.

Patient follow-up

The healthcare staff deemed it essential to follow up on patients after discharge to effectively manage the disease and assess treatment outcomes. Participant 2 stated, *"We had to conduct follow-ups at this stage. We had so many students and one telephone line. If we had worked efficiently, we would not have inaccurate statistics"*.

Patient education

An important aspect of follow-up involves educating patients about their condition. Participant 9 explained, *"It is true that there has been a decline in the severity of the disease, and you are in the recovery stage. However, you are still a carrier. Therefore, please continue with all tasks we have taught you to do and remain vigilant"*.

Based on the analyzed results, a process model for providing healthcare services to COVID-19 patients was outlined at three macro, meso, and micro levels. At the macro level, the convalescent ward played a critical role in controlling and preventing the transmission of infection. Screening and re-screening patients upon discharge from the convalescent ward formed the macro level. The protective role of the convalescent ward was explained in two phases. The hypothetical line between the macro and micro levels of the model formed the meso level. This line indicated the timeframe required for developing and promoting the medical staff and the hospital. The micro level of the model consisted of admission, treatment, and discharge from the hospital.

Discussion

This qualitative study explored the experiences of the medical staff in providing healthcare services to COVID-19 patients. The results were organized into five stages including *screening in the convalescent ward*, *transfer to the hospital*, *treatment in the hospital*, *discharge from the hospital and admission to the convalescent ward*, and *discharge from the convalescent ward and follow-up*. Establishing screening centers was a crucial measure to initiate treatment and isolate infected individuals from the wider community. There was an urgent need to standardize these centers based on protection protocols and standards of care, especially during the first days of the crisis, considering the increasing number of individuals visiting the center. Moreover, priority was given to providing sufficient equipment and infrastructure for patient screening and ensuring social distancing to mitigate disease transmission (17).

The establishment of screening centers not only reduced the need for personal protective equipment for medical staff but also created a safe environment for patients, particularly through the installation of negative pressure systems (18). Using the convalescent ward for screening played a vital role, turning the center into a "community protection fence" and serving as a bridge between the hospital and the public.

Medical center managers prioritized providing adequate equipment for staff during hospital admissions, especially amid the crisis. Studies indicate that securing protective gear remained a top concern for healthcare workers. Additionally, the risk of transmitting infections to family members due to inadequate protective measures was a significant concern (19-21). However, it was necessary to use other strategies to decrease medical staff exposure to the virus. To further minimize medical staff exposure to the virus, strategies were implemented to limit staff visits to the hospital and direct interactions with COVID-19 patients, consistent with the findings of this study (22).

Indicators in the third stage focused on competent human resources, structural services, psychological complications, and conscientious care. One significant challenge for personnel during the crisis was the simultaneous admission of many patients requiring oxygen, some facing immediate death. Officials encountered serious issues in this regard during the early stages of the crisis. In line with these findings, a study highlighted the need for oxygen and equipment while also raising concerns about whether all medical staff can effectively manage critically ill patients (23). In the present study, the competency of healthcare staff was given priority over increasing their number. A study showed that focusing on therapeutic interventions without competent medical staff was ineffective (24).

Psychological complications, morale, devotional care, and professional commitment were pointed out in other studies as well. Chinese nurses displayed remarkable responsibility and teamwork and showed resilience despite physical and mental fatigue stemming from overwork, lack of personal protective equipment, fear of infection, and inability to care for patients (7,25,26). A critical factor influencing the medical staff's motivation was the perception of support from local or national authorities (27). Prolonged treatment limited the medical staff's ability to handle issues, exacerbating complications (28). Furthermore, healthcare workers needed peace and were worried about infecting their families as silent carriers (29).

The fourth stage involved discharge from the hospital

and transfer to the convalescent ward, which served as a protective barrier. Challenges in this stage included patients' reluctance to stay in the ward and improper facility utilization. Many patients also pointed to a lack of information about free hospitalization as a reason for not staying longer (29). In a study, the convalescent ward was recognized as a place to mitigate physical, psychological, social, and spiritual anxiety in patients. Moreover, the ward is better equipped to meet both short- and long-term patient needs compared to patients' home environments (30).

One of the main tasks undertaken in the center was conducting follow-ups and assessing treatment outcomes and complications affecting both patients and their families (31,32).

Based on the findings from this study, a model was developed for providing healthcare services to COVID-19 patients. The model included two macro and micro levels and a hypothetical meso level, emphasizing the important role of the convalescent ward as a protective fence in the community.

This study had several limitations stemming from its qualitative approach, its focus on a limited geographical area in Tehran, Iran, and the absence of insights from other healthcare professionals.

Conclusion

Effective and comprehensive service provision for COVID-19 patients requires the proper implementation of various stages, from screening and hospital admission to discharge from the convalescent ward and follow-ups, based on accurate protocols. Disruptions in these processes can lead to adverse treatment outcomes. Moreover, the preventive role of the convalescent ward, as described in the macro level of the developed model, was of paramount importance, serving as a barrier between the hospital and the community in the stages of infection transmission and recurrence.

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Authors' Contribution

Conceptualization: Malihe Sadat Moayed, Amir Vahedian Azimi.
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Competing Interests

There are no competing interests to declare.

Ethical Approval

This study was approved by the Ethics Committee IR.BMSU.REC.1398.440. Written informed consent was obtained from all participants, their data were confidentially managed, and they had the right to unilaterally withdraw from the study.

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