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The Unseen Shift: A Phenomenological Study of Mothering Experiences in Nurses During COVID-19

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Abstract

Background

Infectious disease outbreaks and pandemics constitute a major global public health challenge, exerting profound adverse effects on healthcare workers who are mothers and on their children. This study aimed to describe and interpret the lived experiences of mothering among nurses caring for young children during the COVID-19 pandemic.

Methods

This qualitative hermeneutic phenomenological study explored the lived experiences of 12 female nurses caring for infants or toddlers, purposively recruited in 2025 from hospitals affiliated with Ardabil University of Medical Sciences in Iran. Individual semi-structured interviews (40–60 minutes each) were conducted by the principal investigator via telephone or videoconference to explore participants' experiences of caring for young children during the COVID-19 pandemic. Data collection continued until saturation was reached. Data were analyzed using Diekelmann's hermeneutic phenomenological method.

Results

Thematic analysis of the qualitative data revealed four main themes: 1) role conflict and existential exhaustion, (2) motherhood behind masks and infection control measures, (3) social isolation and the collapse of support networks, and (4) the lifeworld of fear, guilt, and resilience.

Conclusions

The findings revealed that participating nurses experienced motherhood through the formidable barriers of alcohol-based disinfectants, double-layered masks, hospital corridors, and isolation rooms, all while enduring profound social isolation. Despite these overwhelming challenges, they demonstrated remarkable self-sacrifice and resilience, persistently striving to safeguard their families' health and well-being.

Introduction

The emergence and re-emergence of infectious diseases continue to pose a major global public health challenge [1]. Over the past two decades, outbreaks of severe acute respiratory syndrome (SARS), the H1N1 influenza, Middle East Respiratory Syndrome coronavirus (MERS-CoV), the Ebola virus disease, and COVID-19 have placed unprecedented demands on healthcare systems worldwide [2, 3]. Among these, the COVID-19 pandemic profoundly disrupted healthcare delivery, resulting in more than

700 million confirmed cases and over 7 million deaths worldwide [4]. In Iran, more than 7.6 million confirmed cases and over 146,000 deaths were reported during the pandemic, while placing extraordinary pressure on healthcare professionals, particularly frontline nurses [5].

As the largest group of frontline healthcare workers, nurses play a pivotal role in responding to infectious disease outbreaks [6]. During pandemics, they experience increased workloads, prolonged exposure to infected patients, heightened occupational risks, and considerable psychological distress [7–9]. These challenges extend beyond the workplace and may adversely affect nurses' physical health, emotional well-being, family relationships, and overall quality of life [10]. For nurses caring for young children, professional responsibilities coexist with maternal obligations, creating unique challenges that extend across both their personal and professional lives [11].

Motherhood during infectious disease outbreaks differs substantially from motherhood under ordinary circumstances and presents women with unprecedented emotional, psychological, and social challenges [12, 13]. Infection prevention measures, prolonged working hours, social isolation, and concerns about transmitting infection to family members may profoundly influence maternal well-being and parenting experiences [13, 14]. Nurses caring for young children must continuously balance their responsibilities as healthcare professionals with their maternal role while striving to protect both their patients and their families. This dual responsibility may result in role conflict, emotional exhaustion, fear, and disruption of family life [15–17].

Previous studies conducted during the SARS, H1N1 influenza, Ebola, MERS, and COVID-19 outbreaks have consistently reported elevated levels of stress, anxiety, occupational burden, and fear of infecting family members among healthcare workers [2, 7–9, 16, 18]. Some nurses intentionally limited physical contact with their children or lived separately from their families to reduce the risk of disease transmission despite the considerable emotional consequences of these decisions [16]. Although previous qualitative studies have provided valuable insights into the psychological experiences of healthcare workers during pandemics, most have primarily focused on occupational stress, mental health, stigma, or coping strategies rather than on the meaning of motherhood as lived and experienced by frontline nurses caring for young children [16, 17, 19, 20].

Understanding the lived experience of motherhood among frontline nurses requires moving beyond the measurement of psychological outcomes to explore how women interpret, negotiate, and make meaning of simultaneously being mothers and healthcare professionals during a public health emergency. Such knowledge is essential for informing family-centered organizational policies and developing psychosocial support strategies that address the needs of nurses with caregiving responsibilities during future infectious disease outbreaks. Therefore, this phenomenological study aimed to describe and interpret the lived experiences of nurses caring for young children during the COVID-19 pandemic.

Material and Methods

Study design and setting

This qualitative study employed a hermeneutic phenomenological approach to explore and interpret the lived experiences of mother nurses caring for young children during the COVID-19 pandemic. Participants were recruited in 2025 from five general hospitals affiliated with Ardabil University of Medical Sciences, Ardabil, Iran.

Study participants

Purposive sampling was used to recruit 12 clinical nurses were recruited from various hospital wards and healthcare facilities. This approach captured a broad range of professional backgrounds and maternal experiences, thereby enriching the depth and diversity of the collected data.

Eligible participants were female clinical nurses aged 20–50 years who held at least a bachelor's degree in nursing and had been caring for an infant or toddler (younger than 3 years of age) during the COVID-19 pandemic. Additional eligibility criteria included current employment at an affiliated hospital and access to the internet, a computer, and a smartphone to facilitate participation in virtual interviews. Nurses who were unwilling to participate or withdrew their consent at any stage of the study were excluded.

Data Collection

Following ethical approval and obtaining written informed consent, the potential participants were invited to participate in the interviews. Because of nurses' demanding workloads and staffing shortages across hospital wards, all interviews were conducted remotely via telephone or secure web-based videoconferencing.

During the initial contact, the researcher explained the study objectives and interview procedures and invited the potential participants to reflect on their experiences of caring for their young children during the COVID-19 pandemic before the interview. Each interview was scheduled at a mutually convenient time and conducted by the principal investigator.

Data were collected through individual semi-structured interviews lasting approximately 40–60 minutes. Interviews began with the broad, open-ended question: *“Please talk about your experience of caring for your child during the COVID-19 pandemic?”* Participants were encouraged to describe their experiences freely and in their own words. Subsequent questions were guided by participants' narratives, while probing and clarifying questions were used to explore emerging meanings, deepen understanding, and clarify ambiguities. Additional follow-up questions were asked whenever necessary to obtain rich and comprehensive descriptions of the phenomenon under investigation [21]. Data collection and analysis proceeded concurrently and were sustained until data saturation was achieved, that is, when no additional meanings or themes emerged from later interviews.

Trustworthiness

The trustworthiness of the study was established according to the criteria of credibility, transferability, dependability, and confirmability proposed by Lincoln and Guba [22]. Credibility was enhanced through prolonged engagement with the data, repeated reading of interview transcripts, collaborative data analysis by the research team, independent coding by experienced qualitative researchers, and iterative discussions to reach consensus on emerging themes and subthemes. The researchers continuously moved between individual narratives and developing interpretations to ensure that the findings faithfully reflected participants' lived experiences. Transferability was strengthened by purposively recruiting participants from different hospital wards and healthcare settings using maximum variation sampling. Rich descriptions of the participants, study context, data collection procedures, and findings were also provided to enable assessment of applicability to other settings. Dependability was promoted by maintaining consistency throughout the research process. All interviews were conducted by the same researcher using a semi-structured interview guide, and methodological decisions during data collection and analysis were systematically documented. Confirmability was ensured by digitally audio-recording all interviews, preserving verbatim transcripts, and maintaining an audit trail including field notes, coding records, analytical decisions, and theme development. Throughout the study, interpretations remained grounded in participants' narratives to minimize researcher bias and enhance the objectivity of the findings [23].

Data Analysis

Data analysis was conducted concurrently with data collection using the seven-step hermeneutic phenomenological method developed by Diekelmann and colleagues [22]. This iterative interpretive approach enabled the researchers to move continuously between individual narratives and the emerging understanding of the phenomenon, consistent with the principles of the hermeneutic circle.

The analytical process comprised the following steps [23]:

1. Immediately after each interview, audio recordings were transcribed verbatim and supplemented with field notes. Transcripts were read repeatedly to gain a holistic understanding of each participant's lived experience.
2. An interpretive summary was prepared for each transcript, and significant statements and meaning units reflecting participants' experiences were identified and extracted.
3. Extracted meaning units and preliminary interpretations were independently reviewed and discussed by the research team until consensus was reached regarding the emerging concepts.

4. When discrepancies or ambiguities arose, researchers returned to the original transcripts and re-examined participants' narratives. Where necessary, clarification was sought from participants to ensure that interpretations reflected their intended meanings. This iterative movement between parts and whole was guided by the hermeneutic circle.
5. Conceptually related meaning units were compared, integrated, and organized into subthemes. These subthemes were then synthesized into broader overarching themes capturing the essential structure of the phenomenon.
6. A comprehensive interpretive statement was developed to explain the relationships among the identified themes and subthemes and provide a coherent description of the lived experience of motherhood among nurses caring for young children during the COVID-19 pandemic.
7. Finally, the preliminary thematic structure, interpretive summaries, and representative quotations were critically reviewed by the research team and an independent qualitative researcher with expertise in phenomenological methodology. Feedback was incorporated into the final interpretation to enhance the rigor, credibility, and interpretive consistency of the findings.

Results

Twelve female registered nurses employed at hospitals affiliated with Ardabil University of Medical Sciences, Iran, participated in this study. All participants held a bachelor's degree in nursing. At the time of the interviews, participants ranged in age from 34 to 47 years (mean: 37.92 ± 3.96 years), whereas their ages during the COVID-19 pandemic ranged from 28 to 41 years (mean: 32.00 ± 3.88 years). During the pandemic, participants had a mean of 1.58 ± 0.52 children. Their children ranged in age from 6 months to 2 years, with a mean age of 1.33 ± 0.62 years. Regarding spouses' educational attainment, one spouse (8.3%) had completed high school, whereas eleven (91.7%) held a university degree. Four spouses (33.3%) were self-employed, and eight (66.7%) were salaried employees (Table 1).

Table 1
Demographic Characteristics of the Study Participants

Participant ID	Current Age (years)	Age During the COVID-19 Pandemic (years)	Number of Children During the COVID-19 Pandemic	Child's Age During the COVID-19 Pandemic (years/months)	Spouse's Educational Level	Spouse's Job
P1	34	29	2	2 years	Associate degree	Employee
P2	34	28	1	2 years	Bachelor's degree	Employee
P3	40	34	2	9 months	Bachelor's degree	Employee
P4	47	41	2	1 year	Associate degree	Self-employed
P5	35	29	2	1.5 years	Bachelor's degree	Employee
P6	37	31	2	2 years	Bachelor's degree	Employee
P7	35	29	1	1.5 years	Bachelor's degree	Employee
P8	43	37	2	1.5 years	Master's degree	Self-employed
P9	39	33	1	9 months	Bachelor's degree	Self-employed
P10	37	31	2	1 year	High school diploma	Self-employed
P11	35	29	1	9 months	Doctor of Veterinary Medicine (DVM)	Employee
P12	39	33	1	2 years	Bachelor's degree	Employee

Analysis of the interview data generated four overarching themes and twelve interrelated subthemes that captured the lived experiences of motherhood among nurses caring for young children during the COVID-19 pandemic. The four overarching themes were: (1) role conflict and existential exhaustion; (2) motherhood behind the refuge of masks and disinfection; (3) social isolation and the collapse of support networks; and (4) the lifeworld of fear, guilt, and resilience (Table 2).

Table 2
Main Themes and Subthemes of Lived Experiences of Nurses Caring for Young Children During the COVID-19 Pandemic

Main Theme	Subthemes
Role Conflict and Existential Exhaustion	Heavy Workloads, Intensive Shifts, and Staffing Shortages
	Physical Exhaustion and Diminished Maternal Capacity
	Conflict Between Professional Duty and Maternal Responsibility
Motherhood Behind Masks and Disinfection	Rituals of Re-entering the Home: Creating a Safe Maternal Space
	Physical Distancing and the Loss of Maternal Intimacy
	Living Through Disinfection: Safety at the Cost of Self
Social Isolation and the Collapse of Support Networks	Stigma and Social Exclusion
	Raising Young Children Without Reliable Support
	The Added Vulnerability of Living Away from Home
The Lifeworld of Fear, Guilt, and Resilience	Fear and Guilt in the Face of Family Infection
	Choosing Separation to Protect Loved ones
	Reclaiming Control Through Protective Practices

Although some subthemes were conceptually interconnected, each represented a distinct dimension of participants' lived experiences. Together, the themes illustrate how nurses negotiated the competing demands of frontline clinical practice and motherhood while striving to protect both their families and their patients during the COVID-19 pandemic. The findings for each theme are presented below.

Theme 1. Role Conflict and Existential Exhaustion

This main theme captures participants' profound tension in reconciling their professional commitment as frontline nurses with their maternal responsibilities to young children. The dual demands of caring for critically ill patients in hospital while protecting their own children generated persistent role conflict, which over time evolved into existential exhaustion marked by emotional depletion, physical fatigue, moral burden, and perceived inadequacy in both roles.

Subtheme 1.1: Heavy Workloads, Intensive Shifts, and Staffing Shortages

Participants consistently described overwhelming workloads, prolonged working hours, staff shortages, and the suspension of routine leave during the COVID-19 pandemic. These organizational demands substantially limited their ability to fulfill their maternal responsibilities and intensified the conflict between their professional and family roles.

Participant 2 explained: *“There was no difference between single and married nurses; leave policies remained the same as under normal circumstances.”*

Participant 3 described the relentless workload:

We had extremely intensive shifts. Even during the New Year holidays, we were not granted leave. For nearly three years, we hardly had any time off.

Similarly, Participant 4 emphasized the loss of legally protected maternal rights:

Legally, I was entitled to breastfeeding breaks, but I still had to work regular shifts in the wards. I wasn't granted leave. I worked the afternoon shift on the first day of the New Year and was also on duty during Holidays.

Subtheme 1.2: Physical Exhaustion and Diminished Maternal Capacity

Beyond psychological distress, participants described profound physical exhaustion that persisted after demanding clinical shifts. Many returned homes with insufficient physical and emotional resources to care for their young children, often sacrificing their own sleep, recovery, and personal well-being in order to continue fulfilling their maternal role.

Participant 2 reflected: *“The hospital was almost always crowded, and every bit of my energy was drained during each shift. I had no energy left to take care of my child, but I had no choice. I was alone and had to look after my baby, so I usually gave up my own rest.”*

She further added: *“My only physical activity was work. I didn't have the energy or motivation to exercise.”*

Participant 3 similarly stated: *“I worked many shifts, and the workload during those shifts was extremely heavy. I was completely exhausted.”*

These narratives suggest that physical exhaustion not only affected participants' own well-being but also diminished their perceived capacity to engage in the emotionally demanding work of motherhood.

Sub-theme 1.3: Conflict Between Professional Duty and Maternal Responsibility

Participants also described a profound moral conflict arising from their simultaneous commitment to patient care and responsibility for protecting their children from infection. Rather than viewing these roles as complementary, many experienced them as incompatible, creating ongoing moral distress and emotional tension.

Participant 7 explained:

I couldn't stop working because my professional conscience wouldn't allow it. I continued working, but I was constantly afraid that my family members would become infected.

Participant 11 similarly stated: *"Because my baby was breastfed, I experienced tremendous stress. That was why I requested unpaid leave, but my request was denied."*

These accounts demonstrate that participants' professional identity as nurses remained inseparable from their maternal identity. Their commitment to caring for patients was accompanied by persistent fear that fulfilling one responsibility might inadvertently place the other at risk, intensifying the emotional burden of motherhood on the frontline.

Theme 2: Motherhood Behind Masks and Disinfection Measures

This theme illustrates how participants reconstructed everyday motherhood through rigorous infection-control practices intended to create a symbolic and physical boundary between the hospital and home. Returning home was no longer a routine transition but a carefully orchestrated process aimed at protecting their children from potential infection. Masks, alcohol-based disinfectants, showers, and distancing became more than preventive measures; they represented expressions of maternal responsibility in the face of uncertainty and invisible danger.

Sub-theme 2.1: Rituals of Re-entering the Home: Creating a Safe Maternal Space

Participants described transforming their return home into a highly structured decontamination ritual. Many divided their homes into "contaminated" and "clean" spaces and believed that re-entering their maternal role required passing through multiple stages of cleansing before interacting with their children.

Participant 1 explained:

After my shift, I went straight into the bathroom wearing my work clothes and only entered the house after taking a shower.

Participant 3 similarly stated:

I changed my clothes in the hallway. I took a shower every day, and only after showering would I hold my child.

Participant 4 described an even more elaborate routine:

When I came home, the first thing I did was take a shower. I left my clothes in the hallway and sprayed them with alcohol. I had even placed a clothes rack in the hallway specifically for that purpose.

Similarly, Participant 10 reported:

When I arrived at the apartment building, I took off my clothes in the parking area before entering the house, and then I immediately went to take a shower.

These narratives demonstrate that infection prevention extended beyond the hospital setting and became deeply embedded in participants' domestic lives. The threshold of the home was transformed into a symbolic boundary separating the perceived risks of the clinical environment from the safety of motherhood.

Sub-theme 2.2: Physical Distancing and the Loss of Maternal Intimacy

Perhaps the most emotionally distressing experience described by participants was the deliberate restriction of physical affection toward their young children. Actions that ordinarily define motherhood—hugging, kissing, holding, and sleeping beside a child—were intentionally withheld to reduce the perceived risk of infection transmission.

Participant 2 recalled:

My child couldn't understand and always wanted to come into my arms before I had changed my clothes or taken a shower. That made me extremely anxious.

Participant 6 described the emotional consequences of maintaining physical distance:

Most of the time, I tried not to have close contact with my children because I wanted to avoid face-to-face exposure. I even wore a mask at home... During the COVID-19 pandemic, I didn't even hold my children, and they kept asking me why I wouldn't hug them.

Participant 11 similarly stated:

I wore a mask even inside the house. At night, I slept wearing a mask—sometimes I even wore two masks.

These accounts reveal that protecting children from infection often required mothers to suppress their natural expressions of affection. Consequently, physical distancing became not merely an infection-control strategy but an emotionally painful redefinition of maternal closeness.

Sub-theme 2.3: Living Through Disinfection

Participants described extensive reliance on alcohol-based disinfectants and other sanitizing agents as an ongoing effort to regain a sense of control over an unpredictable threat. Although these practices provided psychological reassurance, they frequently resulted in unintended physical discomfort and damage to personal belongings.

Participant 3 stated:

I constantly cleaned my phone with alcohol wipes. Eventually, I had to replace it because it was damaged from being disinfected so frequently.

Participant 6 explained:

I used a lot of alcohol-based disinfectants. I preferred dealing with the side effects of alcohol to the risk of COVID-19. Even though I developed coughing and allergies, I continued using alcohol-based disinfectants.

Theme 3. Social Isolation and the Collapse of Support Networks

This theme illustrates how the COVID-19 pandemic disrupted the social and familial support systems on which participants had previously relied. Beyond the fear of infection, nurses experienced social exclusion because of their professional role, while simultaneously losing access to the practical support that enabled them to balance motherhood and clinical responsibilities. The collapse of these support networks intensified their emotional distress, caregiving burden, and sense of isolation.

Sub-theme 3.1: Stigma and Social Exclusion

Participants described being perceived as potential sources of infection because of their profession. This perception extended beyond strangers to include relatives, friends, and neighbors, leading to experiences of social rejection, avoidance, and stigmatization.

Participant 1 stated:

No one would allow us to visit their home.

Participant 7 similarly explained:

Even our family members and relatives were afraid to interact with us. They wouldn't come to our house.

Participant 12 described how this stigma extended into everyday social interactions:

Many of our relatives and friends stopped contacting us and refused to visit because they were afraid of catching COVID-19 from me... On several occasions, taxi drivers asked me to get out of the taxi after they learned that I was a nurse working in a hospital.

Sub-theme 3.2: Raising Children Without Reliable Support

The closure of childcare facilities, combined with fear of infection, disrupted participants' usual sources of childcare. As a result, many mothers were forced to rely on elderly parents, spouses, older siblings, or, in some cases, leave their children without adequate supervision.

Participant 1 stated:

My child stayed home alone. There was no one to help.

Participant 8 described another difficult situation:

I had hired a babysitter, but after the COVID-19 outbreak, she stopped coming. My older child had to take care of my younger child, who was under two years old. My children were often left alone.

Sub-theme 3.3: The Additional Vulnerability of Living Away from Home

For participants whose families lived in other cities, the absence of nearby relatives further intensified the challenges of motherhood during the pandemic. Without immediate family support, they faced childcare responsibilities largely on their own while continuing to work on the frontline.

Participant 2 stated:

At that time, I had a child under the age of three, and I was living away from my hometown. My parents and the rest of my family were in another city.

Participant 8 similarly explained:

Because I was living away from my hometown and had a child younger than two years old, the situation was extremely difficult.

Theme 4. The Lifeworld of Fear, Guilt, and Resilience

This theme reflects the emotional world through which participants navigated motherhood during the COVID-19 pandemic. Their lived experiences were characterized by persistent fear of infecting loved ones, overwhelming guilt when family members became ill, and continuous efforts to regain a sense of control and preserve hope despite prolonged uncertainty. Rather than existing as separate emotional states, fear, guilt, and resilience were experienced as interconnected dimensions of everyday motherhood on the frontline.

Sub-theme 4.1: Fear and Guilt in the Face of Family Infection

Participants consistently described the possibility of transmitting COVID-19 to their children or spouses as their greatest source of psychological distress. When family members became infected, many experienced intense guilt, believing that their professional role may have exposed their loved ones to harm.

Participant 1 recalled:

My children contracted COVID-19... My husband was hospitalized because of COVID-19 and later developed complications, including diabetes and depression.

Participant 5 described the emotional impact of her children's illness:

My children became infected with COVID-19. I was already under tremendous stress, but it became much worse after they got sick. The infection had affected their lungs, and I was terrified.

Participant 10 similarly stated:

I wore a mask even inside the house. I was under so much stress that I had to take medication for anxiety.

Sub-theme 4.2: Choosing isolation to Protect Loved ones

Several participants described making the painful decision to remain physically separated from their families for extended periods in an effort to reduce the risk of transmitting infection. Although this strategy was intended to protect vulnerable family members, it also resulted in prolonged emotional separation from their children and intensified feelings of loneliness.

Participant 10 explained:

During the early months of the pandemic, I didn't go home for three or four months. I stayed either at a friend's house, where she lived alone, or in the hospital residence because my older daughter had kidney disease.

Sub-theme 4.3: Recovering Control Through Protective Practices

Despite the uncertainty surrounding COVID-19, participants actively sought ways to protect themselves and their families. Maintaining a healthy diet, using nutritional supplements, and strengthening immunity became meaningful strategies for coping with uncertainty and restoring a sense of control over an otherwise unpredictable situation.

Participant 3 stated:

To strengthen our immune systems, we took multivitamins and vitamin D every two weeks. I also gave my young child liquid multivitamin drops.

Participant 4 explained:

“We tried to eat healthy and nutritious foods as much as possible, such as carrot juice, fresh fruit juices, vegetables... We ate a lot of soup, especially turnip soup.”

Participant 6 remarked:

“We took vitamin D, magnesium, omega-3, and vitamin C. During the COVID-19 pandemic, I also used effervescent vitamin C and N-acetylcysteine to support lung health.

Discussion

This hermeneutic phenomenological study provides an in-depth understanding of how hospital nurses experienced motherhood during the COVID-19 pandemic. The findings demonstrate that frontline motherhood involved continuous negotiation between professional commitment and maternal responsibility, resulting in profound emotional, psychological, and physical challenges. Participants described persistent fear of transmitting infection to their children, guilt when loved ones became ill, social stigma and isolation, prolonged separation from family, and relentless physical and emotional exhaustion.

Protecting their children emerged as the dominant concern. To reduce household transmission, many mothers adopted extraordinary protective measures, including physical separation from their children, strict decontamination routines, and reliance on relatives or other caregivers. In some cases, limited support networks left children without adequate parental care. Although these strategies were intended to protect families, they imposed a considerable emotional cost. Participants described profound longing for their children, while perceiving confusion, emotional distress, and a strong desire for maternal closeness among their children. These findings suggest that during infectious disease pandemics, motherhood extends beyond physical care and becomes a continuous balance between protection, emotional connection, and professional responsibility under prolonged uncertainty.

A central finding was the profound role conflict experienced by nurse mothers as they reconciled professional obligations with maternal responsibilities. Heavy workloads, prolonged shifts, staff shortages, and continuous frontline pressure extended beyond routine occupational stress and contributed to persistent emotional and existential exhaustion. Similar experiences have been reported among frontline nurses during infectious disease pandemics, where increased workloads and workforce shortages intensified psychological distress and work–family conflict [24, 25]. Previous qualitative studies have likewise identified prolonged separation from children, emotional exhaustion, and moral conflict among nurses caring for patients with COVID-19 [18, 26, 27]. However, the present findings extend this evidence by showing that, among mothers of very young children, occupational demands

were perceived not merely as professional challenges but as threats to maternal identity. Participants continuously negotiated two equally important moral responsibilities: caring for patients while protecting and nurturing their children. This dual responsibility generated an existential burden that has received relatively limited attention in previous qualitative research.

Another important finding was that motherhood became reconstructed through infection-prevention practices. Strict decontamination rituals, physical distancing, and reliance on disinfectants were not simply forms of adherence to public health recommendations but symbolic expressions of maternal responsibility. Participants attempted to establish a protective boundary between hospital and home through repeated cleansing, masking, and avoidance of physical contact with their children. Similar concerns were reported by Evgin et al., who emphasized the need for adequate personal protective equipment, reduced workloads, and childcare support to alleviate nurses' fear of transmitting infection to family members [17]. Ukoli et al. likewise observed widespread frequent hand disinfection among women during the COVID-19 pandemic [28]. However, the present findings extend previous research by demonstrating the emotional meaning of these practices. Infection-control measures became integral to maternal identity and often required mothers to sacrifice physical intimacy with their children to fulfill their perceived maternal duty. This interpretation is further supported by the caregiving challenges, separation, and longing described by Evgin et al. and Sun et al. [17, 26].

The study also highlights the disruption of social support systems as an important dimension of nurses' maternal experiences. Participants described stigma, avoidance by relatives and friends, childcare difficulties, and increased dependence on elderly family members or spouses. For nurses living away from their hometowns, the absence of nearby family further intensified practical and emotional challenges. These findings are consistent with previous studies reporting social stigma, isolation, and avoidance toward healthcare workers during COVID-19 [19, 20, 27]. Similarly, Simsek et al. found that many nurses voluntarily remained away from home or lived in temporary accommodation to protect their families while facing considerable childcare challenges [16]. The present study further demonstrates that the disruption of support networks extended beyond practical childcare difficulties: the erosion of social relationships deprived participants of emotional support when it was most needed, intensifying loneliness, vulnerability, and maternal burden.

Participants' emotional experiences further showed that fear, guilt, and resilience were closely interconnected. Fear of transmitting infection to children was consistently the greatest concern, and when family members became infected, it often developed into profound guilt and psychological distress. Similar relational consequences were reported by Rezaei et al., including changes in maternal roles, restricted interpersonal relationships, and guilt associated with maternal employment during the COVID-19 pandemic [15]. Participants also attempted to regain control through healthy eating, nutritional supplements, and other immunity-enhancing practices. Comparable adaptive behaviors have been reported by Mortazavi et al. and other investigators, including increased consumption of healthy foods, nutritional supplements, and traditional remedies during the pandemic [29–31]. Although the

effectiveness of many of these practices remains uncertain, the narratives suggest that they primarily functioned as coping strategies that restored a sense of agency and hope during prolonged uncertainty.

Several findings differed from previous literature. Lavoie-Tremblay et al. and other investigators reported that occupational burnout, inadequate preparedness, and workplace stress increased nurses' intentions to leave their jobs and the nursing profession during infectious disease outbreaks [32–35]. In contrast, none of the participants in the present study expressed an intention to leave nursing despite severe psychological distress, overwhelming workloads, and prolonged separation from their children. Instead, they described a strong sense of professional responsibility and ethical commitment that compelled them to continue providing care despite personal risk. This discrepancy may reflect differences in professional values, cultural expectations regarding caregiving, or healthcare-system characteristics. Similarly, although previous research suggested that having multiple children increases nurses' intention to leave the profession during pandemics [36], participants in the present study remained committed to their professional roles regardless of caregiving responsibilities. Furthermore, unlike Mortazavi et al., who identified WhatsApp-based peer-support groups as an important source of resilience [29], participants rarely emphasized formal social support mechanisms; resilience instead appeared to emerge primarily through individual sacrifice, adaptation, and commitment to protecting patients and family. Likewise, whereas Yip et al. reported that some mothers viewed the pandemic as an opportunity to spend more time with their infants [37], nurse mothers in the present study described the opposite experience, with demanding clinical responsibilities limiting meaningful interaction with their children. Finally, although spirituality and prayer have been identified as important coping strategies during infectious disease pandemics [38], none of the participants spontaneously described religious coping, suggesting that their experiences were shaped primarily by professional obligations, family responsibilities, and practical survival strategies.

The findings should also be interpreted within the broader organizational context of healthcare delivery during infectious disease pandemics. During COVID-19, hospitals rapidly reorganized clinical services by establishing dedicated isolation and COVID-19 units and reallocating nurses to meet unprecedented workforce demands. Although necessary, these responses substantially increased occupational burden. Previous studies similarly reported prolonged shifts, excessive workloads, physical exhaustion, fear, anxiety, and emotional distress among frontline nurses working in specialized COVID-19 units [27, 39, 40]. The present findings suggest that, for nurse mothers, these organizational pressures extended beyond the workplace and profoundly affected family life, maternal identity, and psychological well-being.

Another important finding was the pervasive experience of social stigma and self-imposed isolation. Participants often avoided relatives and friends because they feared being perceived as sources of infection. Although this behavior reflected responsibility toward protecting others, it intensified loneliness and emotional isolation. Similar experiences have been reported among healthcare workers during infectious disease outbreaks, where fear of contagion and public misunderstanding contributed to social rejection and discrimination [19, 41]. Stigma should therefore be recognized not only as a social

phenomenon but also as an occupational health concern that can amplify the psychological burden of frontline healthcare professionals.

The persistence of stigma may partly reflect inadequate public understanding of infectious disease transmission and widespread misinformation. Previous studies have highlighted the influential role of traditional and social media in shaping public perceptions during COVID-19 [42]. While timely communication is essential, inaccurate or sensationalized information may reinforce fear, discrimination, and negative attitudes toward healthcare workers. These findings underscore the importance of coordinated public health communication that provides accurate, evidence-based information while addressing the psychological and social consequences of stigma [43].

The profound guilt described by participants is another clinically important finding. Nurse mothers frequently blamed themselves when family members became infected or when professional responsibilities prevented sufficient time with their children. Maternal guilt therefore appeared to extend beyond an immediate emotional response and become an enduring psychological burden that may affect maternal well-being and family functioning after the acute phase of the pandemic. Previous research similarly indicates that persistent guilt and disrupted parent–child interactions may adversely affect maternal mental health and children's emotional development [15, 44]. These findings highlight the importance of maternal psychological well-being as a component of family-centered pandemic preparedness.

Collectively, the findings have important implications for nursing management and healthcare policy. Preparedness for future infectious disease outbreaks should extend beyond infection-control measures to include support for nurses' psychological well-being and family responsibilities. Psychological counseling, family-centered support services, flexible childcare, and structured stress-management programs may help reduce emotional distress among nurse mothers. Regular education and simulation-based training in crisis management, resilience-building, and appropriate PPE use may also strengthen nurses' confidence and preparedness while improving quality of care and quality of life during future public health emergencies [19].

Taken together, these findings suggest that during infectious disease pandemics, motherhood among frontline nurses is not simply a social role but a continuously negotiated moral identity shaped by competing professional obligations, family responsibilities, and the constant threat of infection.

Implications for practice and policy

Future qualitative and quantitative studies should include diverse groups of healthcare professionals across different geographical and cultural settings and evaluate organizational, psychological, and family-centered interventions designed to support healthcare workers during future infectious disease outbreaks. Such research may contribute to the development of evidence-based policies that strengthen psychological well-being, family functioning, workforce retention, and the resilience of healthcare systems.

4.2. Strengths and Limitations

A major strength of this study is its hermeneutic phenomenological approach, supported by purposeful maximum-variation sampling and rigorous qualitative procedures, which enabled a rich and in-depth understanding of frontline nurses' lived experiences of motherhood during the COVID-19 pandemic. Remote interviews facilitated participation despite demanding work schedules, while data collection after the acute phase allowed participants to reflect more deeply on their experiences. However, the study was limited by recruitment from hospitals affiliated with a single university, which may restrict transferability. The inclusion of only female nurses with young children also limits the diversity of perspectives. In addition, retrospective reporting may have introduced recall bias, and the relatively small sample inherent to phenomenological research limits statistical generalizability, although it was appropriate for achieving an in-depth understanding of lived experiences.

1. **Conclusion**

This study demonstrates that the lived experience of nurse mothers during the COVID-19 pandemic was characterized by "quarantined motherhood in the liminal space between professional duty and fear." Nurse mothers experienced a profound paradox: while working as frontline nurses to protect society, they also perceived themselves as potential sources of infection for their own children. As a result, motherhood was often expressed through physical distancing, decontamination, masking, and constant vigilance rather than physical closeness and affection.

The findings further show that professional commitment, maternal responsibility, and fear of infection became closely intertwined, creating a continuously negotiated moral identity. Nurse mothers were required to repeatedly sacrifice emotional closeness, social relationships, and personal well-being to protect both their patients and families. These findings highlight the need to recognize motherhood as an integral dimension of frontline nursing. Healthcare organizations and policymakers should therefore incorporate family-centered policies, psychological support, flexible childcare services, and supportive workplace practices into pandemic preparedness strategies. Such measures can help nurses balance their professional and maternal responsibilities while strengthening their well-being and the resilience of healthcare systems during future public health emergencies.

Abbreviations

COVID-19
Coronavirus disease 2019
H1N1
Influenza A (H1N1)
MERS-CoV
Middle East respiratory syndrome coronavirus
PPE
Personal protective equipment

SARS
Severe acute respiratory syndrome

Declarations

Ethics approval and consent to participate

Ethical approval was obtained from the Ethics Committee of Ardabil University of Medical Sciences (Approval No. IR.ARUMS.REC.1402.280). All participants were informed about the purpose and procedures of the study, and their participation was entirely voluntary. Written informed consent was obtained from all participants before data collection. Participants were assured that their personal information and responses would be kept confidential and used solely for research purposes. They were also informed of their right to withdraw from the study at any time without any consequences.

Consent for publication

Not applicable

Availability of data and materials

The data set collected and analyzed during the current study is available from the corresponding author upon reasonable request.

Competing interests

The authors declare that they have no competing interests

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Authors' contributions

M.Z. participated in designing the study, conducting the data analysis, and was a major contributor to writing the manuscript. A.M. participated in designing and managing the study, in data collection, and in writing the manuscript. M.Sh. participated in designing and managing the study, conducting the data analysis, and writing the manuscript. All authors read and approved the final manuscript.

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