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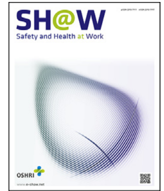

Original article

Surviving Covid-19 Diagnosis Among Registered Nurses: Reactions, Consequences, and Coping Mechanisms

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ABSTRACT

Background: To mitigate the spread of Covid-19, nurses infected with the virus were required to isolate themselves from their families and community. Isolated patients were reported to have experienced mental distress, posttraumatic stress disorder symptoms, and suicide. Though studies have reported the psychological impact of the Covid-19 pandemic, less is known about the lived experiences of nurses who survived Covid-19 infection in sub-Saharan Africa.
Methods: A descriptive phenomenological approach was used to study the lived experiences of registered nurses who survived Covid-19 disease**.** In-depth interviews were conducted among nurses diagnosed with Covid-19 from two hospitals in Kenya between March and May, 2021. Purposive and snowball sampling were used to recruit registered nurses. Data were analyzed using Giorgi's steps of analysis.
Results: The study included ten nurses between 29 and 45 years of age. Nurses' experiences encompassed three themes: diagnosis reaction, consequences, and coping. Reactions to the diagnosis included fear, anxiety, and sadness. The consequence of the diagnosis and isolation was stigma, isolation, and loneliness. Nurses coping mechanisms included acceptance, creating routines, support, and spirituality.
Conclusion: Our findings aid in understanding how nurses experienced Covid-19 infection as patients and will provide evidence-based content for supporting nurses in future pandemics. Moreover, as we acknowledge the heroic contribution of frontline healthcare workers during the Covid-19 pandemic, it is prudent to recognize the considerable occupational risk as they balance their duty to care, and the risk of infection to themselves and their families.
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1. Background

Coronavirus disease (Covid-19) presents an unparalleled occupational hazard for frontline healthcare workers [1]. The World Health Organization (WHO) officially recognized the gravity of this crisis by declaring Covid-19 a public health emergency of international concern (PHEIC) on 30 January 2020. As of May 2023, when the public health emergency of international concern concluded, the global death toll from Covid-19 surpassed a staggering 7 million [2], with the precise count of healthcare workers (HCWs) affected and lost to the virus remaining elusive. Nonetheless, WHO estimates reveal a harrowing reality: between March 2020 and May 2021, approximately 115,800 HCWs paid the ultimate price, succumbing to Covid-19 infections [1]. This distressing statistic underscores the profound risks and sacrifices endured by those at the forefront of healthcare during this unparalleled health crisis.

Kenya recorded its first case on March 13, 2020, and as of February 2023, Kenya had reported over 342,000 confirmed Covid infections and 5688 deaths [3]. Nurses and midwives are the largest health workforce at the frontlines of the ongoing Covid-19 pandemic [4]. Their pivotal role placed them in close and prolonged contact with symptomatic and asymptomatic patients, inevitably heightening their risk of infection. While estimates have suggested high infection rates among healthcare workers in Africa, data on infected and deceased Kenyan nurses and midwives remain unknown, leaving a significant knowledge gap.

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Early reports indicated that healthcare workers accounted for over 20% of hospitalizations during the pandemic's onset, mainly due to inadequate infection control, personal protective equipment shortages, and overcrowding [5–7]. Fear of infecting loved ones added to their burden. The pandemic also strained healthcare systems, especially in low- and middle-income countries (LMICs), with personal protective equipment shortages, increased workloads, higher mortality rates, and insufficient support exacerbating the mental toll on healthcare workers. Those exposed to Covid-19 without protection were mandated to isolate or quarantine, further impacting their mental well-being [8,9].

Quarantine and isolation, vital for disease control, imposed profound emotional burdens. Both entailed loss of freedom, separation from families, and emotional distress, including anxiety and depression [9–11]. Findings from research studies during the Covid-19 pandemic and previous pandemics show that HCWs quarantined or isolated reported symptoms of acute stress disorder, posttraumatic stress disorder, burnout, detachment, anxiety, irritability, insomnia, poor concentration, and poor work performance [12–16].

In the initial year of the pandemic, the Kenyan government's guidelines mandated that individuals exposed to Covid-19 patients complete a 14-day self-quarantine away from their families and friends [17]. Those who tested positive were directed to undergo isolation in government-designated facilities or within their own homes [18]. HCWs, particularly those with small children, resorted to renting separate accommodations or utilizing hotels during quarantine—an arrangement that induced feelings of isolation, loneliness, frustration, anger, stress, anxiety, and worry [19,20]. Moreover, outpatient hospital visits were declined due to movement restrictions, the healthcare system's shift towards prioritizing emergency and acute care, and the management of Covid-19 patients [21,22]. This economic uncertainty placed nurses, particularly those paid hourly, in a precarious financial situation, resulting in reduced incomes. Consequently, this added financial strain compounded the emotional burden experienced by nurses during the pandemic [23].

Quantitative research has shown that the psychological impact of quarantine and isolation has significant mental health implications [9,11]. Additionally, for healthcare workers, isolation contributes to psychological distress and has implications for patient care and human resources for health. While existing qualitative studies have delved into the extensive psychosocial experiences of nurses throughout the pandemic [24], a noticeable gap persists in the literature regarding the specific experiences of nurses subjected to isolation due to Covid-19, particularly within LMICs.

Comprehending the nuanced experiences of nurses is paramount, as it lays the foundation for developing targeted interventions aimed at supporting essential workers navigating the inherent occupational risks presented by disasters and pandemics. Consequently, the present study is dedicated to exploring the lived experiences of nurses who received a Covid-19 diagnosis in Kenya, with the aim of shedding light on their unique challenges and providing valuable insights for future preparedness and support initiatives.

2. Methods

2.1. Design

A descriptive phenomenological approach was used to study the lived experiences of registered nurses who survived Covid-19 infection in two hospitals in Kenya. A phenomenological design was used as there is limited data on nurses' experiences as Covid-19 patients. Nurses eligible to participate worked in the selected hospitals, tested positive for Covid-19, and had undergone isolation.

2.2. Participants and recruitment

Purposive and snowball sampling methods were used to recruit registered nurses from two private hospitals in Nairobi and Mombasa in Kenya. The two hospitals were chosen since they were approved Covid-19 hospitals by the Ministry of Health in Kenya. Information about the study was disseminated through fliers in nursing departments. The flyers contained information on the study purpose, inclusion criteria, and the researcher's telephone number and email address. Those who agreed to participate were emailed an informed consent and participant information sheet form for review. Participants were given ample time and opportunity to ask questions in a follow-up telephone call.

2.3. Data collection

Interviews were conducted between March and May, 2021. In-depth individual interviews were conducted face-to-face with nurses in Nairobi. Due to the lockdown restrictions related to Covid 19, participants from Mombasa were interviewed via Zoom. Prior to beginning the interview, participants' questions about the study were answered. Participants in Nairobi signed the consent form in person, while those in Mombasa emailed a signed copy. Five participants were recruited from each study site for a total of 10 participants.

A semi-structured interview guide with open-ended questions was used to interview the nurses. Demographic data were also collected from participants. We explored their experience after testing positive for Covid-19 and being isolated, how they felt after testing positive, during the isolation period, the impact of isolation on their psychological well-being, if there was any support they received from the government/employer/family, or friends during this period, their coping strategies during the isolation period, feelings after the isolation period was over, and other experiences they wished to share. The duration of the interviews was approximately 45 minutes. All interviews were conducted in English and digitally recorded.

2.4. Data analysis

The interviews were transcribed verbatim and were analyzed using the steps proposed by Giorgi [25]. The investigators listened to the interviews and read the transcripts several times to ensure accuracy and to familiarize themselves with the data. Meanings from statements pertaining to the phenomenon under study were extracted. The units of meaning were then transformed into themes pertaining to the participants' experiences. The meanings of statements and the fit of quotes within the themes were discussed, and a consensus was reached among team members. One overarching theme was revealed, and three themes and nine subthemes were identified, as shown in Fig. 1 below.

2.5. Trustworthiness

Lincoln & Guba's credibility, dependability, confirmability, and transferability criteria were used to ensure trustworthiness [26]. Credibility was ensured through purposive sampling, which captured the participants' social reality of surviving Covid-19. Dependability was ensured by capturing participants' experiences in broad and detailed descriptions. This established an audit trail of the analysis, ensuring confirmability through a detailed report

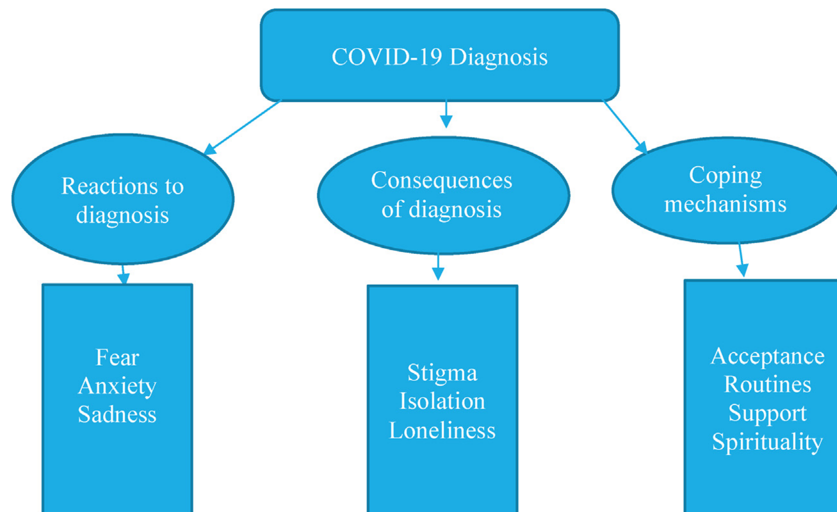

Fig. 1. Themes and sub-themes.

illustrating how decisions were made. Reflexivity was accomplished through memos that captured our biases and conceptual lenses.

2.6. Ethical approval

The institutional ethics and research board approved this study. All participants consented to participate in the study. Codes were used to de-identify participants.

3. Results

3.1. Participant demographics and characteristics

Ten participants were interviewed for the study. Eight were females and two were males. Their ages ranged between 29 years and 45 years. Five participants were married. Seven participants had no children, three participants had two children each, and one had one child. Participants in this study had 6 to 21 years of nursing experience.

3.2. Themes and sub-themes

Registered nurses' experience with Covid-19 disease in Kenya was characterized by the process of reactions, consequences, and coping mechanisms. The study revealed three themes and nine sub-themes, as illustrated in Fig. 1 below and Table 1 for sub-themes, descriptors, and illustrative quotes.

3.3. Theme one: reaction to diagnosis

This theme has three sub-theme names: fear, anxiety, and sadness.

3.3.1. Fear

The experiences of registered nurses grappling with Covid-19 infection were profoundly marked by pervasive fear, encompassing apprehensions associated with their diagnosis, the potential progression of the disease, the risk of transmitting it to others, the looming specter of mortality, and the disconcerting prospect of confronting death in isolation. This apprehension assumed heightened significance for those with family members in their households. For instance, one registered nurse faced the virus challenges while caring for her four-month-old infant, thereby accentuating the complexities of her predicament. Notably, among the RNs who participated in our study, half were responsible for families that included dependent children, amplifying the gravity of their concerns.

Furthermore, the fear of mortality was significantly intensified when nurses bore witness to the demise of other Covid-19 patients. Sharing hospital wards with individuals whose conditions deteriorated to the point of death compounded the anticipation of their own mortality, as elucidated in the following excerpt:

> *"Sometimes it was scary because you're in a room, you're with patients there, some are sick, but not that critical, but they have more symptoms that are worrying than yours. Then you hear that patient has been taken to HDU (High Dependency Unit). Then the following day, you hear that patient has passed on." RN10*

3.3.2. Anxiety

During their convalescence from Covid-19, registered nurses revealed a prevalent theme of anxiety in their accounts. Notably, a significant number of participants conveyed concerns about the potential reactions of their family members upon receiving the news of their positive Covid-19 diagnosis. Consequently, a considerable proportion of nurses made the deliberate choice to withhold this information from their families, placing particular emphasis on shielding their elderly parents from this potentially distressing knowledge. The following excerpt effectively highlights this prevalent pattern:

> *"I could not tell them, and we kept this as secret with my husband. No one in the family knew. No one apart from me and my husband. My mom, my father, my siblings, we opted not to tell anyone, even our neighbors, even church members." RN09*

3.3.3. Sadness

A subset of registered nurses grappled with a profound sense of despondency following their Covid-19 diagnosis. They characterized this moment as deeply somber, acutely aware of the disease's trajectory and the associated prognosis, as conveyed in the following statements by RNs:

> *"You are a person who understands the cytokine storm; you're someone who knows it can kill you. So, every day you wake up as a*

Table 1
Themes and sub-themes

Surviving Covid-19 among registered nurses in Kenya		
Theme: reactions to diagnosis		
Sub themes	Descriptors	Illustrative quotes
Fear	Registered nurses' experience with Covid-19 infection was characterized by fear. Fear of Covid-19 diagnosis, fear of worsening disease, fear of infecting others, fear of death, and fear of dying alone.	"This was a disease that we did not know much about. …. it was a lot of fear, like fear of the unknown, fear of what would happen to me." RN07 "The feeling of fear … I think it came in waves, all 8 days there was some degree of fear, but the first 3 or 4 days were the hardest." RN02 "… because I was so scared of infecting other people, I didn't even step out of my door. I remember I used to throw out my trash in the evening when everyone is already in bed hopefully. I think it was mostly fear of the unknown." RN06 "It was just a roller coaster of emotions. Everyday had its fears. And every day had its sad times. When you get a new chest pain that you didn't have yesterday." RN06 "I just didn't want to get worse, but when I started having difficulty in breathing, I was honestly scared. I was fearing for the worst." RN05 "My baby was one year, five months. So, I was so scared because I was breastfeeding. There's a time I came across a patient admitted in the ward and she turned out to be Covid positive. So, I was even scared to go home. I was crying." RN06 "Sometimes it was scary because, you're in a room, you're with patients there, some are sick, but not that critical, but they have more symptoms that are worrying than yours. Then you hear that patient has been taken to HDU. Then the following day, you hear that patient has passed on." RN10
Anxiety	Registered nurses reported experiencing anxiety during COVID-19 convalescing period. Anxiety was attributed to uncertainty regarding the course of the illness, disclosure of diagnosis, government follow-up procedures, what will happen to their families if they die, and the legacy they will leave behind after their death.	"I could not tell them, and we kept this as secret with my husband. No one in the family knew. No one apart from me and my husband. My mom, my father, my siblings, we opted not to tell anyone, even our neighbours, even church members." RN09 "It was my darkest time, I felt like I was going to die, I didn't have any symptoms, but once I was told I have COVID I started feeling all those symptoms, I think it was anxiety, ….it was quite scary I would say." RN01 "The government office is calling you every now and then asking questions. I think that is what was giving me a lot of anxiety, and I didn't have any symptoms that needed any medical attention, I think I was okay. That's why I did not tell anyone because I did not want to worry my family." RN01 "I was anxious about not meeting the targets that I have for myself, then I was also anxious about who would take care of my family, especially my mother. I was anxious that if I died what would happen to her, who'd take care of her?" RN02 "Everything used to come in waves. There were times I was really, really, anxious about how things would turn out. And then there were times I was kind of oblivious." RN05 "I am the first born in my family and the only daughter. And we are a close-knit family. So, I felt telling them I have COVID in these early stages of this disease, and with the little knowledge people had out there, it would kill them. They would never give me peace to even rest or do anything. Because I wanted to give them that peace, I didn't tell them until I was out of it. It was just a way of protecting them from all these fears and anxieties." RN 06
Sadness	Registered nurses described their Covid-19 experience as a sad moment. The sadness was attributed to the positive diagnosis, the anticipation of being in Covid-19 isolation ward, and the loss of freedom that came with the disease. Knowing how the disease progressed and how it kills made the sadness worse,	"When I was called to be told it was positive, I was so emotional, I won't lie. I felt sad and I felt angry at the same time." RN07 "The same people you're working with, would not even come to see you because you have COVID. People came to see you and they left their gifts at the door. They don't want even to get close to you. They won't even get to see your face. Eventually it made me sad." RN03 "You're a person who understands the cytokine storm, you're someone who knows it can kill you. So, every day you wake up as a healthcare provider who has this disease is a scary day, is a sad day, is an emotional day for you." RN05 "When I was in isolation it was a crazy time because it's the same time, I realized I was also pregnant. It was a bad ordeal because I was worried. There was not much research on COVID and pregnancy. So, you wouldn't know what if it affects the baby, and the fact that you can't even be given most of the medications because you're pregnant. I had a lot of mixed reactions. To me it was one of the worst times." RN03
Theme: consequences of diagnosis		
Stigma	RNs reported extrinsic and intrinsic stigma. They faced discrimination in community and from their colleagues. Intrinsic stigma resulted in non-disclosure of Covid-19 diagnosis.	"First time there was a lot of discrimination. Most of the people would not even want to integrate with you. And even if you met with someone, they don't come close to me." RN06 "I felt it is stigma being that they are colleagues, they are people I work with and interact with. I felt if this is coming from the people who should be understanding of what I'm going through, then I should be expecting much more from the community." RN07 "… someone does not say hi to you, but he or she asks, did you recover from COVID? You see, that is stigma." RN07 "… to tell you the truth, my next-door neighbour, my next gate neighbour didn't know I had COVID. … because of fear, stigma, and all that, even my church members. I only told my pastors. Wisdom was to keep it to myself." RN06
Isolation	RNs reported that they experienced isolation during their Covid-19 recovery journey. The sense of isolation came about due to	"The isolation ward was not a conducive environment because it looked like a prison. It is like you are imprisoned in a cell. So, you are just there to be given food, you're given medicine, you take it, and then, you sleep." RN05 "I was self-isolated away from my children, I think it would have been worse. When I'm in my room and I watch through the window and I can see them outside, I had peace. But let me tell you, they the longest days, the longest nights, the longest minutes that you can ever experience." RN09

	lack of social connections and the fact that they needed to be alone. For most RNs, being alone was initially a difficult experience. However, some found a way to enjoy their own company.	"You don't see any person. The only people you see, they stand outside the door. You can never open the door unless somebody is coming to clean the room or take the samples. You'd eat cold food." RN01 "Because food is usually served in plastic paper plates, by the time it gets to you it's cold, and it can never go out to get warmed. As I said at that point nobody knew exactly how this disease is. So, people were really very cautious. So, you end up taking food as it comes. Then, the cleaning of the room would only happen once a day, so whatever food remains is kept inside the room, there are flies and stuff." RN03 "The moment you're in isolation room and the door is locked that's the time you realize having freedom and being healthy is the best thing in this world. I never knew that until when that door was locked, and you see people peeping through the glass on the window. They can't come in." RN02 "The fact that you have no freedom to move around, no freedom to see people, no freedom to own personal space, I learnt to enjoy my own company, to change my thoughts …" RN03
Loneliness	RNs reported that they experienced loneliness during isolation and recovery period of Covid-19 disease. Loneliness was aggravated by being far away from family members and living alone.	"I felt lonely. Because in that room, the only person who could come in maybe the nurse and the doctor. They come and say hi. They come and update you on the ongoing plans or procedures, and then they leave. Now you're left there alone. You don't have anybody to talk to. You don't have anybody to encourage you." RN05 "I felt that I was all alone. And the only people who cared are my immediate family members. But friends, no." RN06 "I was quarantined alone, in a city where I did not grow up in. I just moved here, so isolation made it more apparent that I was not in my hometown. I really felt like I was not at home, I felt very alone. That's what I remember from that period. Just feeling alone." RN02 "It's not easy being in the house all alone. You can only speak to yourself and probably if you are speaking to other humans, it is through the phone. You really don't know what tomorrow holds." RN08
Theme: coping mechanisms		
Acceptance	After going through the phases of fear, anxiety and sadness, RNs eventually accepted the Covid-19 diagnosis, to allow themselves to start the healing journey.	"The only thing that helped me cope was to accept that I was sick. My family members really supported me in terms of encouraging me that I'm going to be okay. And checking if am doing well on daily basis." RN06 "I couldn't accept it. I couldn't accept I had COVID-19. Eventually I accepted and I went shopping in preparation for my isolation." RN08
Creating a routine	RNs reported that after accepting the Covid-19 diagnosis, they had to figure out how to get through the 14 days of isolation. This necessitated them to develop a routine that enabled them to get through the isolation period.	"I would wake up and I start doing some home workouts, things that I never used to do like a jump rope. I also had a few books I wanted to go through, but I didn't even read that much. I mostly watched a lot of movies and worked out. And then tried recipes that I hadn't tried in a while just to get through the day." RN02 "I used to write a journal, not every day but especially the days that were really hard. If I took a pen and started writing in my journal, it would get better." RN06 "When we were getting better, we started having sessions where we would play scrabble, we would make stories, we would watch movies, because at least I had him in the house. And occasionally, we would go out for a walk at the beach and just come straight home. That's what we used to do." RN05
Support	RNs reported that they received support from their employers, colleagues, family members and the government.	"I got calls from them (government nurses) twice or thrice. The first one was to tell me about my status. About the outcome of my tests. At that time, I can say the systems were operational because I would get calls from a few nurses from the public health care. They used to check on me like how are you feeling today? Are you feeling any better? I got like three to five calls before I got better. So, yes, I got government support. I was lucky." RN05 "Actually they (government officials) were the one who were stressing us with constant phone calls, the same question would be asked by different people, I know it was about getting information, trying to trace people you've been in contact with, but it was just too much." RN01 "They used to call me daily, and asked how I was, how my symptoms were, and they told me if I needed any help, like if I was getting worse, I could call them. I was actually impressed. I did not think the government would call people individually." RN02 "The government … I clearly don't think I got any support from them." RN03 "I can say the hospital was very supportive to their staff. When you were tested and you turned out to be positive, they would facilitate your treatment online, you'd get a doctor and speak to them, and they would send medicines by motorbike, to your place, at home. So, the motorbike brings it home, and for a duration of 2 weeks, you had to stay at home for self-isolation." RN04 "From the hospital I can say yes, I was supported because they paid my bills. I never paid even a single penny. That is number one. And the bill was amounting to USD 8600. Number two, let me say both the doctors and nurses supported me. Then after being discharged, I came in for the review. I also never paid for anything. And let me say my manager was also calling me at home to find out how am I doing. Even the hospital occupational therapy office, they were calling me every now and then to find out whether I am doing well or not." RN06 So, in terms of a hospital support, I got my support from my boss, the doctors, the nurses, the cards they sent me, the foods they sent me, the calls, etc." RN08 "I got a lot of support from my colleagues in the department. But as of the hospital, all they did was call me and ask me for my SPO2s. And even after getting well, all they did was to harass me to get their gadgets back." RN08

(*continued on next page*)

Table 1 (*continued*)

Surviving Covid-19 among registered nurses in Kenya		
Theme: reactions to diagnosis		
Sub themes	Descriptors	Illustrative quotes
		"I expected better support from occupational health because they could get you a vehicle and get somebody to come and take the swabs from the children. But they told me I have to pay for the test. I've been exposed in my place of work, in the line of duty …. I just want a test so that I can plan and organize how we can best fight this. But you're telling me now that I have to pay and that is the time they had slashed salaries from the employees. So, to me the hospital didn't support" RN09 "My family was very supportive. In fact, I called them I told them I have covid. And my dad said ah, now we understand COVID is just like common flu or pneumonia. But you just try keep yourself safe so that you understand how you're feeling and if you think you're not feeling better, just call for help." RN07 "But the support from the nursing leadership was the best at that time. So, they kept on calling me, motivating me, telling me do this and do that …" RN07 "I got very great support from my colleagues in my department. Everybody did a video call with me, including the doctors. I was the first person to get COVID in the unit. So, for them, they were so worried, but they really supported me. Though they could not visit me." RN10 "From the word go, I had to sit down with my children and explain to them because I live with my two children. I think I've not seen family cohesive, family care, family love, family praying, family turning to God, like I did that time." RN09
Spirituality	Spirituality was used by RNs as a way of coping with the disease. Spirituality was in the form of prayers and faith.	'I'm a man who believes in God, and I've have grown up in faith. That really helped me cope." RN10 "I believe that their prayers, their presence, their calls and everything. They were more than enough." RN07

healthcare provider who has this disease is a scary day, is a sad day, is an emotional day for you." RN05

3.4. *Theme two: consequences of diagnosis*

This theme has three sub-themes, namely stigma, isolation, and loneliness.

3.4.1. *Stigma*

Stigmatization manifested itself through instances of discrimination and rejection experienced by the registered nurses. They recounted feeling marginalized and ostracized, a sentiment that persisted even after their recovery and return to work, as they continued to be regarded with suspicion. This stigma further compelled some RNs to conceal their Covid-19 diagnosis from their families, friends, and neighbors.

3.4.2. *Isolation*

Registered nurses (RNs) shared their experiences of profound isolation during their Covid-19 recovery process, which resulted from limitations on personal freedom and a marked absence of physical interactions. While some RNs endured isolation within their own homes, the necessity of separating from family members was a particularly distressing aspect of this ordeal. Furthermore, RNs isolated within hospital isolation wards reported suboptimal conditions. They recounted instances of receiving cold meals, as kitchen staff left them at the ward door instead of inside their rooms. Room cleaning proved to be irregular, with dirty dishes often remaining unattended until the following day.

3.4.3. *Loneliness*

RNs reported that they experienced loneliness during the isolation and recovery period of Covid-19 disease. Loneliness was aggravated by being isolated away from family members. This is exemplified in the excerpts below.

"I was quarantined alone in a city where I did not grow up in. I just moved here, so isolation made it more apparent that I was not in my hometown. I really felt like I was not at home, I felt very alone. That's what I remember from that period. Just feeling alone." RN02

3.5. *Theme three: coping mechanisms*

This theme has four sub-themes: acceptance, routine creation, support, and spirituality.

3.5.1. *Acceptance*

Some participants went through a period of denial but eventually came to terms with the diagnosis. This sentiment is illustrated in the following excerpt.

"I couldn't accept it. I couldn't accept I had Covid-19. Eventually, I accepted, and I went shopping in preparation for my isolation." RN08

3.5.2. *Creating a routine*

Following their acceptance of Covid-19 diagnosis, RNs faced the challenge of navigating the 14-day isolation period. They implemented various coping strategies, including engaging their minds through reading and journaling, keeping occupied with household chores, and incorporating exercise into their routines.

"I used to write a journal, not every day but especially the days that were really hard. If I took a pen and started writing in my journal, it would get better." RN06

3.5.3. Support

The registered nurses (RNs) conveyed that they received support from multiple sources, including their employers, colleagues, family members, and the government. Notably, government support was initiated at the outset of the pandemic. However, as the pandemic persisted, there was a noticeable reduction in the level of support provided by the government, eventually dwindling to no support at all.

> *"They used to call me daily and ask how I was, how my symptoms were, and they told me if I needed any help like if I was getting worse, I could call them. I was actually impressed. I did not think the government would call people individually." RN02*

Some employers provided support in the form of treatment, payment of hospital bills, psychological support, and transport home after the Covid-19 diagnosis. However, some RNs lamented that their employers did not extend the same support to their nuclear families.

3.5.4. Spirituality

Several RNs employed spirituality as a coping mechanism during their illness. For some, their faith served as a source of strength and resilience, as illustrated by the following excerpt:

> *"I'm a man who believes in God, and I have grown up in faith. That really helped me cope." RN10*

4. Discussion

Surviving Covid-19 diagnosis and isolation is a traumatic experience due to the adverse physical and psychological experiences a patient must endure during diagnosis, treatment, and recovery. In this phenomenological study, we explored the experiences of nurses diagnosed with Covid-19 and isolated while recovering from the infection. While many studies have focused on the experiences of nurses as caregivers during the pandemic [27–29], few have focused on nurses as Covid-19 patients [30–32]. To the best of our knowledge, our study is unique because it explores the lived experiences of nurses who survived Covid-19 infection in a sub-Saharan African country. The overarching theme that emerged is surviving Covid-19 and three subthemes: the reaction to the diagnosis, the consequences of the diagnosis, and how the nurses coped with the diagnosis and isolation measures. Most salient, our findings provide contextual evidence supporting empirical evidence and anecdotal accounts of the psychological effect of Covid-19 diagnosis during the height of the pandemic.

As the first case of Covid-19 emerged on March 13, 2020, it marked the onset of a new and unsettling chapter in society, characterized by an undercurrent of fear, anxiety, and uncertainty [33]. These emotions were further exacerbated by the prevailing negative perceptions and attitudes towards individuals afflicted by the virus. In the course of our study, nurses candidly shared their experiences of feeling stigmatized not only by their own family members but also by their colleagues. This is consistent with the previous findings during SARS and Ebola, where community members avoided quarantined HCWs [11]. Regrettably, the very measures put in place to mitigate the spread of the virus, such as quarantine, isolation, and public health surveillance, including contact tracing, inadvertently contributed to the stigmatization of those exposed or unwell. Adding to this complex web, historical precedent from past pandemics, like SARS, has shown that healthcare workers tend to bear a heavier burden of stigmatization than the general public [34].

In our study, nurses shared their anxieties, which encompassed a spectrum of fears, including the dread of being diagnosed with Covid-19, the apprehension of the disease worsening, the fear of death, and the haunting prospect of facing their final moments alone. These sentiments echo the experiences of nurses in Turkey who, while grappling with Covid-19 themselves, expressed similar fears concerning the unknown, mortality, and the potential transmission of the virus to others [30]. Significantly, more than half of the nurses' apprehension stemmed from a deep concern for the safety of their own family members, a sentiment corroborated by previous research [35]. It is well-documented that fear and stigmatization can significantly hinder disease response efforts, including the crucial task of contact tracing [36]. In our study, nurses reported keeping their diagnoses a secret, even from family members. This revelation underscores the potential consequences of such secrecy—a hindrance to identifying, testing, and appropriately quarantining close contacts, and thereby impeding the efforts to curb the disease's spread. These findings resonate with the experiences witnessed in previous emerging disease outbreaks and the course of the Covid-19 pandemic [37].

Stigma may also increase psychological suffering, preventing individuals with symptoms from timely care and resulting in poorer outcomes [38]. For nurses on the frontlines, delivering direct care to Covid-19 patients, this burden may also lead to emotional and ethical distress [39,40]. Hence, it is incumbent upon healthcare organizations to foster supportive environments that enhance the resilience of their healthcare workers, recognizing the multifaceted challenges they face in confronting not just a pandemic but also the fear and stigma accompanying it.

Isolation and quarantine, fundamental in controlling infectious diseases like SARS, Ebola, MERS, and Covid-19, serve as crucial public health measures. Isolation involves confining diagnosed individuals while separating them from the uninfected. Nurses in Kenya who tested positive for Covid-19 during this wave of the pandemic were required to isolate for at least ten days after the onset of symptoms, and isolation precautions stopped if the fever was resolved in at least 24 hours [41]. A study examining psychological symptoms among HCWs quarantined during SARS reported symptoms of acute stress disorder, anxiety, irritability, insomnia, detachment, and avoidance of patients with SARS like symptoms [42]. Our findings indicate that nurses in isolation were distressed about restriction and felt lonely. These findings also collaborate with cross-sectional studies examining the mental health outcomes among nurses during Covid-19 in Kenya, which reported symptoms of depression, anxiety, distress, and burnout [23].

In our study, nurses adopted various coping strategies in response to their Covid-19 diagnoses, including acceptance, establishing routines, drawing upon spirituality, and seeking familial support. A study involving community-based residents in the USA also identified acceptance as a coping mechanism among its participants [43]. Acceptance-based coping allows participants to avoid fear-related rumination but to co-exist with their fears adaptively [44]. Furthermore, participants reported deriving strength and hope from their faith and prayer practices, aligning with previous research highlighting the use of faith-based coping strategies by nurses and other Covid-19 patients during the pandemic [45,46].

In a global study examining how healthcare workers coped with mental health challenges during the Covid-19 crisis, participants drew support from their families as a key coping mechanism in dealing with stress [47]. In Wuhan, nurses even encouraged patients to utilize smartphones and WeChat to garner emotional support from their friends and families, aiming to mitigate psychological distress [48]. While some employers in our study were reported to be supportive, offering free treatment, psychological assistance, and private transportation to prevent disease transmission, these benefits did not extend to the families of infected

nurses. Additionally, due to revenue losses during the pandemic, nurses experienced wage reductions, mirroring findings from a Nigerian study where nurses expressed concerns over the lack of financial support [49].

4.1. Strengths and limitations

Although our study was conducted in two private hospitals in two different geographical regions, the findings from both settings were similar, which may give credibility to transferability to similar settings. However, as the hospitals were private, the transferability of findings may only be possible and generalized within these settings. This study was implemented during the second wave of the Covid-19 pandemic in Kenya. As the pandemic unfolds, some disease dynamics may no longer hold. However, that notwithstanding, our study yield insights that can be used to develop evidence-based guidelines for nurses working for future pandemics in Kenya.

4.2. Conclusion

In conclusion, our findings shed light on the challenging journey nurses who contracted Covid-19 have had to navigate, along with the hurdles they faced when resuming their duties. Nurses, being one of the largest and most vital professions on the frontlines of infectious disease outbreaks, consistently find themselves at the forefront, offering care to infected patients in close and prolonged contact. Their unwavering dedication and sacrifices are nothing less than heroic. Yet, it is paramount to recognize their substantial occupational risks as they delicately balance their duty to provide care with the inherent risk of infection to both themselves and their families.

To safeguard the well-being of nurses in future pandemics, proactive measures must be instituted to mitigate the psychological and ethical challenges they endure. Moreover, comprehensive and rigorous research is warranted to ascertain the long-term effects of Covid-19 among nurses. The insights derived from this study should inform evidence-based continuing education initiatives for nurses across healthcare institutions in sub-Saharan Africa. Furthermore, our findings underscore the critical need for policymakers to balance the benefits of mandatory isolation as a vital public health measure and its potential adverse effects on the invaluable healthcare workforce. In honoring the resilience and commitment of nurses, we must commit to ensuring their physical and mental well-being in the face of future healthcare crises.

Author contributions

Conceptualization: GM, DM, RK. Data collection: GM. Data analysis: GM, DM, SS. Writing: GM, DM, SS, RK.

Ethical statement

Aga Khan University Institutional Ethics and Research Board approved this study (Ref: 2020/IERC-75(3), and a research permit was issued by the National Commission for Science, Technology, and Innovation (Ref: 944805). All participants consented to participate in the study. Codes were used to de-identify participants.

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Conflicts of interest

All authors declare no conflicts of interest related to this work. All authors declare that they have no financial or professional interest that would constitute a conflict of interest for the scientific integrity or the interpretation of any data related to this research. This includes employment and consulting activities, individual and institutional research support, and other financial or non-financial interests (e.g., public statements and positions related to the subject of the research).

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