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ORIGINAL RESEARCH: EMPIRICAL RESEARCH - QUALITATIVE

Confronting the unknown—Nursing surveillance of COVID-19-infected patients through remote telephone calls and in an on-site urgent clinic

Katrín Blöndal[1] | Sólveig H. Sverrisdóttir[1] | Anna Hafberg[1] | Erla Dögg Ragnarsdóttir[1] | Brynja Ingadóttir[1,2] | Elín J. G. Hafsteinsdóttir[1] | Sigríður Zoëga[1,2] | Helga Jónsdóttir[1,2]

[1]Landspitali, The National University Hospital of Iceland, Reykjavik, Iceland

[2]Faculty of Nursing, School of Health Sciences, University of Iceland, Reykjavik, Iceland

Correspondence
Helga Jónsdóttir, Faculty of Nursing, School of Health Sciences, University of Iceland, Eirberg, Eiríksgata 34, 107 Reykjavík, Iceland.
Email: helgaj@hi.is

Abstract

Aim: To describe nursing surveillance of coronavirus disease 2019 (COVID-19)-infected patients through remote telephone calls and in an on-site urgent clinic during the first wave of the pandemic as experienced by nurses providing the care.

Design: Qualitative descriptive study.

Methods: Data were collected through seven semi-structured, audio-recorded, focus group interviews with 24 nurses. Interviews were conducted in May and June 2020, transcribed and analysed using deductive and inductive content analysis into an overarching category, main categories and subcategories. Reporting followed the COREQ guidelines.

Results: Nurses relied on intensive listening when assessing and caring for COVID-19-infected patients. They realized that the patients had complex needs for nursing and healthcare which was beyond the scope of a tentatively prescribed assessment scheme. They designed their care to ensure holistic care, reflected in the overarching category, 'Confronting an unfamiliar health condition in unprecedented circumstances' and the categories: 'Digging into the unknown' and 'Ensuring holistic nursing care'. The category 'Contributing to averting catastrophe' reflects the wealth of knowledge, support and experience that the nurses used to independently deliver care, albeit in interdisciplinary collaboration, working to their greatest potential. They were proud of the significance of their work.

Conclusion: Novel nursing surveillance through remote telephone calls and in an on-site urgent care clinic delivered to COVID-19 patients self-managing at home resulted in holistic nursing care during the first wave of the pandemic. This has relevance for professionalism in nursing.

Impact: Findings give a unique insight into nursing surveillance of COVID-19-infected patients provided through telephone calls and in on-site urgent care clinics. The

potential of intensive listening as conducted in the study suggests that it may be feasible to assess and holistically take care of COVID-19-infected patients, and other patient groups as well, with this form of healthcare. This has relevance for healthcare beyond crisis management during pandemics.

Patient or Public Contribution: There was no patient or public contribution as the study only concerned the providers of the service, i.e. the nurses themselves.

KEYWORDS
ambulatory care, Coronavirus disease 2019, COVID-19, nursing, outpatient clinics, pandemics, qualitative research, telemedicine, triage, urgent care

1 | INTRODUCTION

The coronavirus disease 2019 (COVID-19) pandemic has led to rapid and massive reorganization in healthcare worldwide. In Iceland, a key aspect of these reforms was the establishment of an outpatient clinic for COVID-19-infected patients at Landspitali—The National University Hospital of Iceland (LUH) to serve patients diagnosed with the disease all over the country. The hospital, which is situated in the capital region, organised and provided care for COVID-19-infected patients nationwide as well as inpatient care in the capital area (Jónsdóttir et al., 2022). The outpatient clinic started as a remote telephone risk assessment service in March 2020 to provide timely and appropriate care, minimize hospitalization and morbidity, preserve the quality of life and minimize infection transmission (Helgason et al., 2020). It quickly expanded into providing comprehensive care to patients in self-isolation, aiming to support and guide them during their illness. Before long, an on-site urgent care clinic was added to the telephone calls where patients with severe symptoms were addmitted for examination, observation and treatment, e.g. intravenous fluid and medications or hospitalization as necessary. Patients also had a hotline from which they could seek help 24/7. Various collaborations were created amongst public services to support the care of the patients, e.g. with the primary healthcare, the city ambulance service and the Red Cross. Research suggested the service in the outpatient clinic had been very effective during the first wave of the pandemic (Helgason et al., 2021).

The interdisciplinary healthcare in the COVID-19 outpatient clinic at LUH was launched with minimal preparation and in a situation of emergency. The novelty of the care and the unique role that the nurses took on have international relevance for other complicated health problems. This inspired nurse managers to seek collaboration with a group of nurse researchers to study these endeavours. Although not organized from a distinct theoretical perspective, we place the study in the context of nursing surveillance. The aim of this study was to describe nursing surveillance of patients infected with COVID-19 provided through remote telephone calls and in an on-site urgent care clinic located in an outpatient hospital clinic and the nurses' experience of delivering the care during the first wave of the pandemic.

2 | BACKGROUND

The COVID-19 pandemic has accelerated the use of telehealth to remotely deliver nursing and healthcare worldwide. Telehealth is referred to as 'the entire spectrum of activities used to deliver care at a distance–without direct physical contact with the patient'. It can take place synchronously, e.g. using telephone and video, asynchronously, e.g. using portal messages, via virtual agents and employing wearable devices (Wosik et al., 2020, p. 957). Telehealth became an absolute necessity to provide high-quality care with minimal risk of infection transmission in healthcare for COVID-19-infected patients. The literature contains general guidelines on telehealth which have relevance for healthcare for COVID-19-infected patients (see e.g. Wosik et al., 2020; WHO, 2019) and there were specific tentative guidelines to treat and deliver healthcare for COVID-19-infected patients (CDC, 2020; Greenhalgh et al., 2020; NIH, 2021; WHO, 2020).

Telehealth is potentially vital in disaster management procedures such as triage (Keshvardoost et al., 2020; Nejadshafiee et al., 2020). In a systematic review and metaanalysis Speyer et al. (2018) compared telehealth and face-to-face interventions in rural and remote areas showing nonsignificant differences between their effectiveness. Woods et al. (2019) conducted a systematic mixed studies review on nurse-led post-discharge telephone follow-up calls showing that the strongest positive outcome was on patient satisfaction. Some other suggestive positive outcomes were post-discharge problems, patient information and communication needs, self-management and follow-up appointment attendance. Studies, therefore, seem to suggest that the use of telehealth is equally effective and, in some cases, might even lead to better care than that provided to comparison groups which are often face-to-face care (Hashiguchi, 2020; WHO, 2019), supporting the abrupt utilization there was of telehealth in the unprecedented COVID-19 pandemic.

Some studies have been published on the successful use of telehealth services of various forms for COVID-19-infected patients (Annis et al., 2020; Blazey-Martin et al., 2020; Crane et al., 2020; Lam et al., 2020). Driver et al. (2021) described the implementation of primarily nurse-driven telehealth service, mainly using the telephone, to monitor and support COVID-19-infected high-risk veterans. The authors argued that 85% of the patients were safely managed and concluded that the care was effective.

Nursing surveillance is 'a distinct process in patient care' (Giuliano, 2017 p. 34) that is potentially useful in telehealth services. It consists of behavioural and cognitive processes, through which nurses monitor, evaluate and act on emerging indicators of a change in patients' condition (Dresser, 2012). It ensures quality patient care through timely identification of signs of change through appropriate assessment, interpretation and synthesis of clinical data and information from other sources, to guide rapid, appropriate and individualized patient care (Kelly and Vincent, 2011). Nursing surveillance alerts to both foreseen and unforeseen changes in a patient's condition to guide decisions enabling prompt actions. Such actions may include 'modifications to the care plan, communication with other members of the healthcare team, and mobilisation of resources to address emerging clinical needs' (Giuliano, 2017, p. 36). Key elements of nursing surveillance are thus ongoing observation, recognition, interpretation and decision-making (Giuliano, 2017). Interpretation has been highlighted as an overarching concept of nursing surveillance. In the context of telephone surveillance, it translates data from the patient into healthcare information and then again converts that information into language that the patient understands (Greenberg, 2009). Greenberg further outlines the interpreting process into three consecutive phases gathering i.e. information, cognitive processing and output. However, although such standardized approaches for high-quality patient assessment by telephone, including triage for in-person care are already available, few if any studies on telehealth have been conducted in general in Iceland and none from a nursing perspective. Furthermore, it is not clear if such approaches can be done efficiently and effectively by nurses in the context of an unfolding pandemic.

3 | THE STUDY

3.1 | Aim

The aim of this qualitative descriptive study was to study nursing surveillance, in an outpatient clinic for COVID-19 patients, as experienced by nurses providing the care during the first wave of the pandemic. The surveillance was remotely provided through telephone calls and in an on-site urgent clinic in interdisciplinary collaboration, particularly with physicians.

3.2 | Design and reporting

This study has a qualitative descriptive design and follows conventions of naturalistic inquiry (Green & Thorogood, 2014). This design can be employed when clinical processes are investigated with the aim of identifying and influencing interventions for improvement. It is also relevant when little knowledge exist about the phenomenon and time is limited, (Bradshaw, Atkinson & Doody, 2017; Sullivan-Bolyai, Bova & Harper, 2005; Caelli, Ray, & Mill, 2003) as was the case in the current situation of the Covid-19 pandemic. To create rich and thorough data, we chose focus group interviews for data collection. This data collection method has possibilities for creative interaction between participants where they collectively developed a meaningful understanding of the nursing care that they had previously participated in establishing and providing. The data collection took place towards the end of the first wave of the COVID-19 pandemic. The consolidated criteria and checklist for qualitative research (COREQ) were used for reporting the study (Tong et al., 2007).

3.3 | Setting and context

The study was conducted in an outpatient hospital clinic, a new and at the time, potentially temporary outpatient clinic for COVID-19-infected patients receiving healthcare through telephone calls and in an on-site urgency clinic. Patients became automatically registered in the outpatient clinic after testing positive for the SARS-CoV-2 virus. They were subsequently contacted by a physician who informed them about the disease, conducted health assessment and triage and ordered self-isolation. Triaging patients was based on a colour coding system—red, yellow, green—which indicated the patient's severity of disease and was used to prioritize the care of the patients. The nurses were pivotal in developing this system (Jónsdóttir et al., 2022). The already available computer-based patient-record system allowed the nurses to contact and consult each other. During the isolation period, the patients were followed up daily, or less frequently depending on their condition, by a nurse and occasionally by a physician. The nurses notified the physicians if the patients' condition notably worsened, which could then lead to a referral to the on-site urgent clinic or hospitalization. In the on-site urgent care clinic, patients with severe symptoms were received for examination, observation, and treatment, e.g. intravenous fluid or hospitalization as needed. When patients' isolation could be terminated, a physician was notified and subsequently discharged them from the outpatient care. The discharge criteria were that 14 days had passed from being tested positive and being symptom-free for 7 days. The majority are self-isolated at home (Helgason et al., 2020).

Nurses from a variety of inpatient and outpatient hospital clinics were temporarily relocated to the COVID-19 outpatient clinic. Nurses from a contingency pool, organized by the government, were recruited to the clinic as well (Jonsdottir et al., 2022). They worked from a few specially designated areas in the hospital or their home. On-site training from the nurses who established the telephone service was required at the outset, including learning to use the electronic registration system and the procedural handbook and talking with patients over the telephone about their condition and situation. The onsite training in the telephone centre was mainly one-on-one training. The new nurse observed another nurse make phone calls with patients and document the communication in their records. Then the nurses made a few phone calls themselves under supervision. In the on-site clinic a nurse from the Department of Infection Control held a training session about isolation and how to put the personal protective equipment on. All

nurses were able to use the closed electronic chatroom for communication and those who were located within the hospital could collaborate in person.

The first wave of the COVID-19 pandemic ranged roughly from the second week of March to the first week of May 2020. When the wave was at its peak around the middle of April there were 87 nurses working in the outpatient clinic, of whom 22 were in the on-site urgent care clinic. On May 7 when the first wave had abated, there were 1762 patients who had been served via telephone with the medium of nine phone calls per patient. Between March 27 and May 7, 212 patients were seen at the on-site urgent care clinic in 362 visits. Of those, 47 were admitted to the hospital. None of the patients treated in the on-site urgent care clinic died (Helgason et al., 2021).

3.4 | Participants

Potential participants were nurses who had worked in the COVID-19 outpatient clinic during the first wave of the pandemic. A researcher (KB) and one of the nurse managers (EDR) identified those whom to invite from the list of staff based on if they fulfilled either of the two following inclusion criteria: i) having taken care of adult patients for more than 12 shifts (minimum six hours each) in the remote telephone service or ii) having worked in the on-site urgent care clinic and sometime in the remote telephone service. The nurses were first infomed about the study by their nurse manager and then one of the researchers KB invited all potential nurses fulfilling the inclusion criteria, to participate by e-mail or phone after informing them about the study. All nurses who agreed to participate were included. Five researchers (BI, EJGH, SZ, HJ, KB), working at the hospital, led the research which is a part of a larger project on nursing care in the COVID-19 pandemic.

3.5 | Data collection

Data were collected with seven audio-recorded focus group interviews with two to five nurses in each group. Attempts were made to group together those who were clinical nurse specialists and those who worked in the same workstation. The tight working schedule, however, did not allow for this. The interviews were conducted in a non-clinical facility at the hospital in May and June 2020 and transcribed verbatim. The goal of the interviews was to create a setting for fruitful conversations between the participants where attitudes, experiences, situations, actions, issues, ideas and opportunities in relation to providing care in the COVID-19 outpatient clinic were explored in-depth (King et al., 2019; Kruger & Case, 2015).

Two of the researchers conducted the interviews; a moderator (KB) and an observer (HJ) who have extensive experience in qualitative research on nursing practice. Both knew most of the participants as clinicians and/or educators. The interviews followed an interview guide which was designed by the researchers in accordance with the aim of the study and the literature on surveillance and telehealth. Additionally, there were prompts, probes, clarifying and summarizing questions see Table 1. All participants answered a short questionnaire about age, highest academic degree, year of graduation and years of working experience.

The issues that participants in the focus group interviews talked about were similar as regarded the main emphasis in their experience, although individual accounts varied in depth and breadth. Most of the conversations revealed issues related to the telephone calls. In the group that also provided the on-site urgent care clinic, there was a new angle about taking care of the patients face-to-face. In the last interviews data saturation was reached as new information ceased to emerge.

3.6 | Ethical considerations

The study is a part of a larger study, *Disease course of COVID-19 amongst patients undergoing extensive risk assessment and comprehensive and organized follow-up and management*. Approval was gained from the National Bioethics Committee of the Ministry of Health (VSN:20078/VSNb2020040005/03.01). Confidentiality was requested of the participants, and they signed an iformed consent at the start of the focus-group interviews.

TABLE 1 Interview guide for the focus group interviews

How did you approach the conversations with the patients; what were the issues that you had in mind?
Telephone nursing
What was most *important in assessing* the patients' condition remotely over the phone?
What was most *difficult when assessing* in the patients?
What was most *unexpected* in the patients' condition and circumstances situation?
What was most important in *monitoring* the patients' condition?
Which actions/guidance/counselling were most important to meet patients' needs?
What was most difficult in reaching out to the patients?
View of the use of the telephone; could every nurse use it? What would have been the ideal situation for providing the care?
What might be missing when using only a telephone to care for these patients?
On-site urgent care clinic
What were the key aspects of the care in the on-site urgent care clinic?
How was caring for patients in the on-site urgent care clinic different from the telephone calls?
Contact line
What were key issues that patients brought up when calling the contact line?
Family
How was the family involved/invited into the nursing care?
Transfer of care
What was most important when determining and transferring patients between the triage categories?
What were the reasons for sending additional information about patients to the physician?
Meaningfulness of caring for patients with COVID-19 virus
What was most meaningful for you in providing this care?

3.7 | Data analysis

A mixture of deductive and inductive content analysis was used to analyse the data from the transcribed focusgroup interviews (Elo & Kyngäs, 2007; Graneheim & Lundman, 2004; Graneheim et al., 2017). In accordance with the aim of the research, we drew on the literature on surveillance and telephone nursing to guide our general approach to the data analysis, followed by the use of an inductive approach to gather the unique experiences of the nurses. We classified significant meaning units by identifying relevant quotes in the text and then grouped them into codes. The codes were subsequently grouped into a higher order level of sub-categories. Next, the sub-categories were grouped into main categories. Lastly, an overarching theme representing the experience of caring for the COVID-19 patients in the outpatient clinic was identified.

3.8 | Trustworthiness

Enhancing the trustworthiness of the findings and the research, the majority of nurses who fit the inclusion criteria participated in the study. We have rigorously accounted for the literature related to the research topic, reported on the healthcare context of the study, stayed close to the data analysis structure, and have given a thorough description of the research process, all of which enhance the trustworthiness of the research (Elo & Kyngäs, 2007; Graneheim et al., 2017; Graneheim & Lundman, 2004). Throughout the research, we challenged the participants and ourselves to acknowledge the contribution of other professions in the interdisciplinary team to the success of the outpatient clinic. The researchers conducting the interviews (KB, HJ) wrote the first draft of the analysis and the manuscript. This was followed by repeated conversations amongst the authors to clarify meanings and explore the significance of the findings, followed by systematic refinements of the findings and the manuscript. Four participants gave feedback on a draft of the findings and unanimously supported the analysis. They gave comments such as: 'This is very clear and describes what I experienced' and 'it gives me pleasure to see this all coming together'.

4 | FINDINGS

Invited nurses were 29 of whom 24 accepted the invitation, resulting in an 83% recruitment rate. There were seven focus groups and the interviews ranged between 60 and 90 min each. More than half of the participants (58%) were educated to postgraduate level in nursing and other health sciences and four were Clinical Nurse Specialists. Participants' background characteristics are further presented in Table 2.

The analysis of the interview data revealed an overarching category, three main categories and nine sub-categories, see Table 3. With only two to five nurses in each of the seven focus groups, and even distribution of age and speciality training in the groups, characterizing nurses in the findings is inappropriate.

TABLE 2 Characteristics of participants ($N = 24$)

Background characteristics	
Work experience, years (median)	30
Age, years (median)	58
	n
<30	1
31–40	2
41–50	3
51–60	11
>61	7
Gender, female	24
Professional education (highest academic degree)	
Nursing degree	10
Postgraduate diploma in Nursing	5
MSc in Health Sciences	4
MSc in Nursing	5

The overarching category *Confronting an unfamiliar health condition in unprecedented circumstances* dominated the conversations amongst participants. The category *Digging into the unknown* describes how the nurses conducted a clinical assessment on a health condition of which little knowledge existed. They soon realized that patients needed more than assessment, which is reflected in the category *Ensuring holistic nursing care*. The nurses were 'all in' when participating in these extraordinary events. They were proud of their contribution, which is revealed in the category *Contributing to averting catastrophe* (Table 3).

4.1 | Digging into the unknown

From the beginning of the COVID-19 pandemic, it was obvious that everything had changed. This unknown disease was an acute and serious threat to the entire healthcare system. It imposed multiple demands and required a new way of caring for patients. Existing knowledge and guidelines were scarce. The nurses were required to learn to manage a new electronic healthcare record system for registration and documentation and there was a new computerized system for interprofessional communication. Very few had much knowledge of infection control or experience from previous pandemics: '*We basically started with very little information and guidance, but it came as time went on. … This was a new disease; new symptoms and a new reality*'.

4.1.1 | Tackling the unfamiliar

The remote telephone service was new to the nurses. Providing nursing care only through the telephone was very different from

TABLE 3 Overview of the study results: Overarching category, categories, and sub-categories

Confronting an unfamiliar health condition in unprecedented circumstances		
Digging into the unknown	**Ensuring holistic nursing care**	**Contributing to averting catastrophe**
Tackling the unfamiliar	Bodily needs first	Never a question of not taking part
Inadequate assessment scheme	Responding to emotional distress	Going the extra mile
Mounting own skills to realize patients' sickness	It was all in our hands	Rewarding experience and thankful patients

what they were used to. Referring to the difference between only having the hearing to assess and interact with patients, and being physically in the same place as the patients—using all your senses—a nurse revealed:

> You don´t see the patients. You don´t see the skin colour, skin moisture or odour–information that are necessary for nursing care. When you walk into patients' room and you observe grey skin colour, abnormal odour, odour from the breathing, you immediately start thinking that you need to focus on what is wrong. [The situation is totally different when using the telephone only. There] the patients' voice can be O.K. and you only have their voice on the phone to rely on.

In the on-site urgent care clinic, the nurses were trusted to compose necessary protocols and work out how to operate the service so they could become proficient in physically taking care of infected patients and could skilfully protect them and others from becoming infected.

> This came about rather abruptly and then one thing after another happened. Suddenly, we were in the on-site urgent care clinic and did not quite know what was going to happen. … The nurse manager said: 'She is going to teach you how to put the isolation gown on'. Then there was a training session about that. Where were we? What was really going on?

The nurses were unsure whether they had the necessary knowledge to handle these unfamiliar circumstances: *'Am I competent, how can I contribute?'*. They quickly realized that *'No one knew about this disease or what to expect. …You are equally as good as anyone else'*. Others were more confident and pointed out that they had solid basic nursing education, and their experience and insight made them ready for the task ahead: '*Nurses are experts in preventing catastrophes; in observing patients, assessing them, realising whether they are becoming worse or better, and preventing exacerbations*'. One said: *'I don't know of any case where I did something wrong'*.

A nurse described her first shift in the on-site urgent care clinic:

> I showed up and thought that I would be told what to do. But no, there was nothing like that, and I became frustrated: 'Why didn't they write down everything that had been decided on'. Then I quickly realized that, in fact, nothing had been decided on.

The rhythm there was different from the telephone service: 'It was more to keep everything running. To triage and document the most important information, take blood tests, insert *IVs*, start fluids'

An important element of the uncertainty when making the phone calls concerned not knowing what to expect. No two phone calls were the same*: 'In the beginning it was strange: you would make a call, but you hardly knew anything about what was ahead of you'*. Thus, despite the importance of preparing for each phone call by reviewing available information, the nurses could not solely rely on this information: *'You never knew what you were going to face. Even though you were going to call someone who was categorised as green, -- having mild symptoms--, it could have changed'*. Phone calls ended with the nurses making sure that patients knew that they should phone back if they got worse and that they had the right telephone number.

The nurses were stoic about the unforeseeable situation they found themselves in. Patients' symptoms were as diverse as their needs. The length of the phone calls reflected that. They had a flexible time schedule for the phone calls, which they adjusted and extended to the fullest: *'I could expect everything. I took things as they came. … We could not say: "sorry, no, I am only asking about COVID, I cannot talk about this now"'*. In the on-site urgent care clinic, the nurses observed that the patients' condition was often much more severe than at first glance. This nurse described a patient who acutely had to be hospitalized because of decreasing oxygen saturation:

> Very perky man, healthy, good looking, not dyspnoeic, no risk factors, regular fitness training, no history of smoking, or anything to pinpoint. Such information could be misleading: His blood test and lung scan showed something totally different.

Taking care of all of the patients could lead to very long working hours, but *'we were always able to finish our tasks. It never happened that we could not call everyone*'. For some time periods there was pressure to shorten the phone calls to cover more patients, but the nurses ignored it: *'These are people who may be in the worst situation*

of their life. … Alone in a small room, vomiting, no one to help them, except what we could offer over the phone. This we could not do in two minutes'.

4.1.2 | Inadequate assessment scheme

At first, the nurses' role was to detect patients' deterioration by using an assessment scheme—a checklist—to monitor four main symptoms: persistent fever, shortness of breath, abdominal pain and diarrhoea and to assess difficulties with eating and drinking. This proved to be insufficient. A nurse said: '*We needed to go beyond the triage that had been set up, which was quite medically oriented and restricted'*. Another one explained:

> The items on the checklist were not enough. … It was not enough to ask how the breathing was, we needed to go deeper; 'how is it to take a deep breath?', 'do you perform breathing exercises?', 'do you have fever?' I needed to ask different questions to be able to get the right information about the symptoms and the patients' health more generally.

None of the checklist items considered patients' psychological condition or their social situation: *'Are you alone? Is there someone who buys you food? Is there anyone in the world who knows about you? and things like that'*.

By following the checklist only, the nurses might have failed to recognize the reluctance of patients to admit how severely ill they were as they often minimized or downplayed their symptoms. A nurse said: '*When we called, most patients said: 'I am fine'. Then we needed somehow to figure this all out ourselves*'. Another one said:

> I feel that the biggest challenge was to find out how sick the patients really were; that they would admit that they were sick. Some would say: 'No, no, no, no, everything is fine'. But I would continue, 'How are things going for you?' and they replied: 'I cannot eat, I have such diarrhoea'. Many things like that. Instead of just saying goodbye, I needed to continue; to dive into what was going on.

There were multiple other symptoms that caused patients distress and discomfort and needed treatment:

> First, we thought, O.K. this concerns just this person, but then we started to see it in other patients. … Some peculiar symptoms emerged; some that you had never seen or heard about. There could be some rash, numbness, or something you didn´t know about. Then we consulted the physicians or asked patients to come to the on-site urgent care clinic for examination.

A nurse revealed: *'I sensed that the virus detected weaknesses in your body. If someone used to have migraine, that person could have a very bad headache'*.

Sometimes it was a seriously ill relative that was of most concern, although the patient might be equally sick, but unaware of their own condition. Some were reluctant to take up healthcare professionals' time in the on-site urgent care clinic. Imitating a patient's point of view, a nurse said:

> 'Oh, I am fine, maybe I shouldn't have come', and was apologizing for taking up our time. Then of course we would explain that it was much better that they came, because if they became worse later it was better that we had seen and examined them in the clinic.

Underlying the patients' unwillingness to come to the on-site urgent care clinic was also fear that they might need hospital admission:

> 'Am I so sick?' We want to admit you to the hospital; there was a big drop in your oxygen saturation on the walking test. 'Oh, is it? Is this necessary?' It was a big step for the patients to be admitted to the hospital.

4.1.3 | Mounting own skills to realize patients' sickness

The nurses amended conventional practice approaches in their attempts to collect accurate clinical information and provide appropriate care. Intensive listening became their main instrument. A nurse said:

> *Hearing–that is a very important sense organ, psychologically and physically. It is so, not only for listening to the voice projection and vocabulary and through this to read patients' health condition, but to simultaneously listen for physical symptoms of breathing–wheezing and dyspnoea*.

This involved sharpening their communication skills such as 'keeping the conversation going', 'letting conversations flow', and using open questions at the beginning of the conversations. Giving patients all the time that they needed was repeatedly stressed. Some, not all, maintained that it was preferable to begin the phone call informally, even cheerfully, because more information would be gained if patients sensed that no one from the 'authorities' was monitoring their actions or spying on them. Others said that this was inappropriate because of the grave condition and circumstances of the patients.

> Someone had told me that it was very important to cheer the patients up, but I didn´t do that. I felt that it was much more important to listen to them, and

> of course, to comfort and reassure them, explain the symptoms, and help them manage the symptoms.

When more precise information was needed the nurses moved to closed questions as in this example:

> Have you been out of bed today? Have you eaten something today? Do you perform breathing exercises? Are you able to go to the toilet? How are things going at home? I might ask whether they could take a bath/shower or had washed their hair. If a patient could not do that for several days, that person was rather sick … Others might have symptoms but be up and about. That reflected a different condition.

Intensive listening also made up for the lack of measurements tools:

> We did not have any scales or instruments like I am used to in my usual work. We had to entirely rely on what we heard, asked about, or were told. I felt it was very important, as we all know, to actively listen to the patients.

A few nurses, however, decided to use some scales such as a numeric scale for pain and dyspnoea. The nurses in the on-site urgent care clinic would often send patients home with a pulse oximeter, and instructions about when to contact the hospital.

Another significance of intensive listening was to detect weakness in the patients' voice, which might signal mental exhaustion or abnormal breathing: *"Particularly regarding breathing, it was easy to assess it just by talking to the patients. No one with severe dyspnoea uses whole sentences when talking. If I heard something of that kind, I would go further and examine it"*. This nurse described an incident when she observed that a patient was getting hypoxic despite stating he was fine:

> I said: 'It seems to me that your breathing is strenuous, is that right? You are rather dyspnoeic when you talk'. 'Yes, I am dyspnoeic' 'Is this new?' 'Yes, my breathing is becoming harder'. … We sent an ambulance for this patient. … Had I ended the conversations earlier because he seemed O.K., we would simply have called back the next day. Had I not figured this out myself, because he did not realise this himself—no one knows what would have happened.

4.2 | Ensuring holistic nursing care

The nurses realized that the patients needed more than the triaging: *'At the beginning no one knew what kind of nursing care those patients should receive. …Based on previous experiences we started to use our own methods. … That was all we had and were accustomed to'*. A nurse described the very first phone calls she made in cooperation with an infectious disease specialist: '*He said: "You just need to call these people and triage them". … I asked: "Shouldn't we teach them something?" "Yes, yes, of course." "And what about breathing exercises?" "Yes, yes." So, when we started there was no plan for the care'*. The same happened in the on-site urgent care clinic: '*We used what we had been practising [in the telephone calls]. … This was what we had become used to*'. The nurses repeatedly referred to their service as 'holistic nursing care' to meet basic human needs.

4.2.1 | Bodily needs first

Patients needed several interventions, frequently over an extended period. Necessary self-care was supported by the nurses through teaching and counselling. The care needed to be provided *'carefully'*, with *'affection'*, on an individual basis, and consistently: '*To make sure that every patient for days and weeks, was eating and drinking properly, moving around, doing breathing exercises. We did this daily even for very many days [more than 20]'*. About fluid intake: *'We asked: "Are you drinking enough?", then we figured out that enough for the patient could be less than a cup of water. We needed to tell people to drink more than just water, and how much their fluid intake needed to be'*.

Teaching breathing exercises was a top priority: *'We performed breathing exercises with them on the phone–all kinds of exercises'*. In the on-site urgent care clinic, the nurses found out that even though the patients had been taught breathing exercises over the phone they did not do them correctly. Patients could say: '*"Yes, yes, I take deep breathes several times a day". … That is not a breathing exercise. So, we really needed to show the patients how to do the breathing exercises'*. Patient teaching also included household chores, explaining the difference between quarantine and isolation, advising about marital problems and sex life issues.

4.2.2 | Responding to emotional distress

Understanding and dealing with emotional distress and suffering was often much more intense and challenging than physical care. This was unanticipated, but the nurses firmly realized its significance and attended to it by showing a warm and caring attitude, empathy and providing the necessary time needed for the expression of feelings. Other methods were normalization, encouragement, listening and chatting: *'To talk; it was basically to be open to talking with people; to listen and acknowledge that what was happening was something that no one had lived through before'*. And there was more: *'To give time and allow for crying and call back the next day. It was better to call often than not'*.

To obtain information about emotional distress, the nurses often opened the conversations with questions about the isolation, instead of inquiring into the patients' emotional status: '*It was very easy to ask: "Are you alone in the isolation at home?" and "how is it?" Answering these questions gave a reason for not feeling well'*. And the

emotional problems could make the physical ones worse. A nurse said: *'The patients were very anxious, especially if they had severe lung symptoms. We know that anxiety can be related to drop in oxygen saturation. It can be difficult to distinguish between the anxiety and the lung symptoms'*.

Many patients feared for their lives and often they cried: *'There was tremendous fear in the society as a whole'*. Other emotional and mental problems unrelated to the COVID-19 surfaced as well and had to be addressed and given time: *'We could not just say: "Well, I can't talk to you any longer, goodbye". We of course discussed the issues that came up'*. In the on-site urgent care clinic, the fear was tangible in the eyes of the patients, especially at the beginning of the pandemic. There were *'many very sick people and they were anxious, particularly the first patients that came. I was shaken by how sick they were. … They might be dying, basically choking. … They were so fragile, weeping'*.

Relatives' health was often of more importance than the patients' own well-being and it could be devastating for the patients when relatives were hospitalized. The worst imaginable occurred when patients lost their loved ones: *'I had been calling him for some days. But to talk with him the day after he lost his mother; that was a big thing'*. These conversations could be lengthy and emotionally draining: '*Yes, this stays with me, these telephone calls were often long and difficult. On the same day I might call twice or three times, just to support them'*.

On top of concerns about relatives, some patients needed support to deal with guilt related to having infected other people and witnessing their sickness and discomfort. In some instances, those they had infected later died. That was heart-breaking. Guilt at being contagious; for being '*a carrier*' surfaced and increased the patients' discomfort. *'This is no one's fault, we had to highlight that'* and support the patients as best they could.

4.2.3 | It was all in our hands

The nurses were quite independent in developing, making decisions and providing patient care. *'There was no one to check on us; we were trusted to do this work'*. Most nurses started out by phoning patients with mild symptoms and proceeded to those with moderate or severe symptoms when they became more experienced. A few stuck to patients with mild symptoms and the more experienced to those with moderate and severe symptoms. The nurses followed procedures for how, and how frequently, patients should be contacted but adjusted these to individual needs. For instance, patients who were in emotional distress or lived alone were contacted more often. The nurses involved the patients in deciding on when to alert the physicians and the frequency of the telephone calls: *'"Is it O.K. that we call after two days, or do want us to call tomorrow?" If they said: "I would like a call tomorrow" we did so every day – the holidays also'*. Focus on the family was noticeable: '*We shared our experiences about how we dealt with families and family issues. That was essential'*. The nurses were not supposed to follow the same patient from one call to another. They explained the benefits of this by stressing that no two nurses approached the patient in the same way, and therefore one might detect something that another one did not. However, in several cases, they decided that the same nurse should follow the same patient, e.g. when someone in a close family had died.

4.3 | Contributing to averting catastrophe

The nurses were confident that their contribution had been invaluable in warding off the first wave of the pandemic. This they found personally satisfying: *'It was invaluable for me; to be able to do this'* and it made them proud of themselves.

4.3.1 | Never a question of not taking part

Nurses' participation in the outpatient clinic came about in various ways. Some were asked to transfer because of reduced activities in their own ward, whilst others volunteered. Some worked from home during their own quarantine or because their children were at home as primary schools were only partly open. Most were keen to join in, but it could be complicated. Many were quite immersed in their work. They '*set everything aside*' as this project '*engulfed them*', and they had to be *'all in'*. Some were hesitant at first: '*I thought this would be extremely difficult; to be alone, far away from the others, talking to somebody way out in the countryside. But all went fine. … It was demanding but very rewarding. …There was never a question of quitting, never'*. Getting to know other healthcare professionals and collaborating with them in successful teams was also valuable.

4.3.2 | Going the extra mile

The methods that the nurses used for caring for the patients were not only based on clinical assessment. They would use several necessary actions to 'ensure patients' safety'. If patients were insecure at home, the nurses might suggest a visit to the on-site clinic even though the patients were not severely physically ill. By doing that, patients would be more likely to be able to endure the isolation: *'A patient might say "I went to the on-site urgent care clinic yesterday. I think that I am much better today". Getting reassurance that the lungs were clean could do that'*.

If patients could not stay alone at home, for instance disabled persons without assistance at home, the nurses arranged for someone to look after them, or arranged for admission to a public quarantine facility. In the on-site clinic, there were some very fragile patients, especially those living alone, whom the nurses could not send back home:

> *Simply saying: 'Please come back tomorrow' and then help them into the car, send them into the darkness, coldness, just say, 'I hope you will make it home'. … 'Isn't*

it better that he is hospitalised overnight and possibly discharged the day after?'

Right from the outset, it was clear that the nurses wanted to do more than less in terms of frequency of contacts with patients and consultations with other health professionals.

The COVID-19 clinic served the whole country. It was therefore necessary to meet the needs of the patients in the countryside and remote villages. The nurses especially stressed how isolated and vulnerable the patients could be about access to healthcare and supplies. They could not visit the on-site clinic in the capital, so the nurses sometimes arranged home visits from a healthcare professional in their healthcare district.

The registration scheme for infected patients was not perfect and some could fall outside the system. The nurses quickly detected problems and ensured continuity of care so no one would be left out. Every day they manually checked whether the physicians had phoned the severely ill, made sure that they were phoned first, and guaranteed that dates for new and upcoming phone calls were correct. They also ensured that the time between telephone calls was in accordance with disease severity.

Provision of information on isolation and quarantine to health personnel inside and outside the hospital and ensuring that the outpatient clinic ran smoothly took up a considerable part of the nurses' work, especially at the beginning. Later they also advised on the care of patients in other institutions. This part of their work was immense during outside office hours: *'Managers and staff at various organisations did not realise that they could not go to work for two weeks after they became infected'*. In the on-site acute clinic, the nurses taught the staff—physicians and nurses—about infection control and oversaw the staffing schedule. The staff needed to share turns equally in the isolation rooms, and the nurses had to check that everyone did things properly: *'Oh, no, you need to do things this way. I need to fix this … and so on'*. The nurses also managed the flow of the patients in and out of the clinic. Despite limited amenities, they managed patients who were waiting for admission outside in their cars and collaborated with the paramedics driving patients to the unit. To do this they had to be firm, often insisting on prompt decisions: *'Here are the blood test results; what are you going to do with this patient? Can he leave?'*

4.3.3 | Rewarding experience and thankful patients

Despite all the challenges the nurses unanimously felt enlightened and satisfied. They referred to this time as '*empowering*', '*instructive*', '*rewarding*', even '*exciting*'. This nurse concluded:

> It was enjoyable to take part in this. I felt it was stimulating, interesting, pleasurable and difficult. … Of course, it was not good that people became sick, sometimes very sick, but it was exciting to see how all this evolved and how patients became better. We fared well in this pandemic.

They compared their situation to nurses elsewhere. In comparison with exhausted nurses in many places around the world, their task was quite easy: *'Patients were dying in their hands. This was not the situation with us. It was much easier here. We were very lucky here, unbelievably lucky'*. They felt that what they had accomplished demonstrated that nurses generally could quickly detect when patients were deteriorating and could provide complicated care over the telephone. This was gratifying: *'I felt it was exciting and rewarding nursing care'*.

Even though the nurses' work often seemed invisible, it was appreciated more openly and publicly compared with what they were used to. The patients' exceptional appreciation was memorable: *'Highest in my mind is patients' gratitude. They were so thankful for how well we took care of them'*. Another nurse said: '*Right from the beginning patients were very pleased. They started to rely on our calls. … They were extremely thankful and that gave me much in return'*.

5 | DISCUSSION

We describe nursing surveillance through remote telephone calls and in an on-site urgent care clinic for COVID-19-infected patients self-managing at home during the first wave of the COVID-19 pandemic. The surveillance is reflected in two categories: *Digging into the unknown* and *Ensuring holistic nursing care*. Nursing care was established almost overnight in the context of uncertainty. Preparation was limited, guidelines were preliminary, and the nurses learned by doing. They relied solely on intensive listening in assessing and interacting with the patients in the remote service, which was a new experience. In developing the care, the nurses were quite independent; expanded the assessment scheme and developed necessary interventions to provide holistic care. This approach reflects Virginia Henderson's Nursing Need Theory in which she considered the patient as a biological-, psycho-social, and spiritual being, having basic human needs—including breathing, food and fluid intake, eliminating body waste, mobility, sleep and rest, that nursing care should address (Nursing Theory, 2020). Although insecurity surfaced in the beginning, the nurses quickly realized that they had a wealth of knowledge, experience and support from colleagues to provide quality care. This work was unexpectedly gratifying, and the nurses were proud of the significance of their work. Our findings endorse previous studies about the beneficial impacts of using tele-health services in disaster situations (Nejadshafiee et al., 2020; Keshvardoost et al., 2020) and safety and effectiveness of nurse-driven tele-health service for Covid-19-infected patients outside hospitals (Driver et al., 2021). Also, that communication in this form may be as effective as face-to-face interventions (Speyer et al., 2018), as the excerpts from nurses' conversations with the patients demonstrate how rich in content they were.

Solely relying on intensive listening when determining unmet needs of patients and deciding on consequent actions, played out positively in the remote telephone service. Care delivery through the telephone not only gave possibilities for high-quality assessment and interventions, but it also granted equal access to

healthcare and no need for travelling. At the time of the study, there was no other way of caring for most of the patients, which justified the way healthcare was delivered. Our notion is, that in this situation, this simple form of communication was sufficient. More advanced form of technology, such as the use of video conferencing system might have been more advantageous (Greenhalg, 2020) but could, on the other hand, have excluded patients that lacked knowledge of or access to such technology, adding to the inequity in health care (Hashiguchi, 2020, Driver et al., 2021). Nurses must however have the autonomy to adapt the technique to fit their holistic perspective of nursing. The potential of wider use of such telehealth warrants examination, given that prior to the pandemic, recommendations suggested that, when possible, telehealth should be complementary to healthcare, not replacing it (WHO, 2019).

The way nursing surveillance played out in the remote telephone service corresponds with existing models of nursing surveillance (Giuliano, 2017; Greenberg, 2009; Kelly & Vincent, 2011). Purely by conversing with patients on the telephone the nurses had to find out what their health problems were, how serious they were, and what this all meant. They interpreted all this information in the context of their knowledge and experience and the patient-family circumstances. Based on this interpretation they determined how to support patients and families through this disconcerting journey. Foreseeing what might happen was a great asset as was a constructive collaboration with everyone involved particularly infectious disease specialists.

The way nursing surveillance was conducted in this study harmonizes with a conceptual framework of holistic, person-centred care using telehealth technologies described by Nagel and Penner (2016). This model consists of four interrelated and overlapping dimensions: Knowing the Person, Building a Picture, Clinical Decision Making, and Nursing Competencies. Holistic Person-Centred care is then in the centre and stresses the vital and ethical obligation of nurses in telehealth. To develop an image and to know patients and their context of living —individualized care—was of central importance to the nurses in our study to be able to provide quality care. They emphasized the significance of their own clinical knowledge and necessary competencies and talked about how that grew over time. They also delineated sophisticated ways of interacting and relating to the patients which they saw as fundamental to patient safety. The patients had to be able to self-manage and the nurses' tried to make sure the patients had the necessary information and devices to do so, including making complicated decisions such as when and where to call for assistance. The concept of holistic nursing was repeatedly highlighted as it contrasted the medically oriented assessment scheme used in the service.

One of the central findings of this study is the capacity of nursing to contribute to the health and welfare of people when nurses have the autonomy to develop and conduct care in accordance with professional knowledge, judgement and values, albeit in interdisciplinary collaboration. At the outset, the nurses were given a clinical assessment scheme with four cardinal symptoms for triaging the patients. They quickly found out that this approach was insufficient and expanded the clinical assessment to account for basic human needs, followed by developing highly sophisticated holistic nursing care to fulfil those needs. This finding also relates to the category, *Contributing to averting catastrophe*, which illustrates the gratifying and enjoyable experience of the nurses. It was obvious to them how much they contributed to the welfare of their patients and society as a whole. To be able to provide care without compromising professional values is of interest in the context of job satisfaction, burnout and nursing turnover. Even though the content of the nursing care mainly went unnoticed, the significance of it was clear to people. Allen (2015) in her work about the invisible work of nurses reveals how nurses' work is often seen as ordinary and mundane, whereas the fact is that it involves advanced and complex use of knowledge, in various circumstances, and highly sophisticated interactions with diverse healthcare professionals. Nurses need to look seriously into this matter and make concerted efforts to articulate and present their work in a sophisticated way and gain acknowledgement for the content of their practice. This has relevance for nursing education, quality care, and the professional status of nursing. Several implications for nursing practice internationally may be suggested. Firstly, the findings can be used in the development of future e-health services of other patient groups. Secondly, this form of service broadens the scope of practice and may create new opportunities for experienced nurses. Lastly, for nursing education, the findings support the importance of including e-health training in the curriculum, both the aspects of technology and communicational competence.

5.1 | Limitations

The strength of this study is the rigorous data collection and high recruitment rate. We used key informants and conducted several focus-group interviews. A validity check with participants supports the findings. We give a detailed account of the healthcare context and the research process by focusing on major decisions, which gives the readers the opportunity to evaluate the trustworthiness of the study.

Data collection took place by the end of the first wave of the COVID-19 pandemic when turmoil and uncertainty about what would lie ahead were at its peak. Despite efforts to maximize the reflexivity of the authors, the peculiarity of the situation might have influenced our work. The transferability of the research might be hampered since the findings might to some extent be situation specific-due to the uniqueness of the healthcare context and the unique atmosphere that prevailed worldwide during the first wave of the pandemic.

6 | CONCLUSION

Novel nursing surveillance through remote telephone calls and in an on-site urgent care clinic delivered to COVID-19 patients

self-managing at home resulted in holistic nursing care. The nurses relied on intensive listening when interacting with the patients. They expanded the original assessment scheme when they found out that patients needed assistance with the fulfilment of basic needs; they need holistic care. Although insecurity was apparent at the beginning the nurses quickly realized that they had a wealth of knowledge, support and experience to independently deliver the care, albeit in interdisciplinary collaboration, and they worked to their greatest potential. They were proud of the significance of their work. This has relevance for fostering professionalism in nursing.

AUTHOR CONTRIBUTIONS

All authors have agreed on the final version and meet at least one of the following criteria (recommended by the ICMJE, http://www.icmje.org/recommendations/):

1. Substantial contributions to conception and design, acquisition of data or analysis and interpretation of data.
2. Drafting the article or revising it critically for important intellectual content.

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No conflict of interest has been declared by the authors.

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DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author on reasonable request.

ORCID

Katrín Blöndal https://orcid.org/0000-0001-8666-6185
Brynja Ingadóttir https://orcid.org/0000-0003-0743-8200
Sigríður Zoëga https://orcid.org/0000-0002-5289-6166
Helga Jónsdóttir https://orcid.org/0000-0002-3295-869X

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