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Challenges faced by doctors and nurses in wound care management during the COVID-19 pandemic in Turkey and their views on telehealth

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ABSTRACT

Aim: This study aimed to determine the problems faced by physicians and nurses dealing with chronic wound care during the COVID-19 pandemic and their views on telehealth.
Materials and methods: A descriptive and cross-sectional design was used in this study. The sample comprised physicians (n = 74) and nurses (n = 271) interested in chronic wound care. Data were collected through a questionnaire form consisting of open- and closed-ended questions.
Results: Of the participants, 21.4% (n = 74) were physicians and 78.6% (n = 271) were nurses. Of the physicians, 45.9% (n = 34) were obliged to work in another unit during the COVID-19 period, while 43.2% continued their service related to chronic wound care, and only 17.0% (n = 18) in the wound care service before the pandemic. These rates are 51.3% (n = 139), 51.6% (n = 157) and 36.8% (n = 128) for nurses, respectively. 40.7% of the physicians (n = 33) and 34.9% of the nurses (n = 106) stated that their time had been reduced for chronic wound care. When the telehealth experiences were examined, 32.4% (n = 24) of the physicians utilized telehealth, 29.7% (n = 22) used e-visit, 77.0% (n = 57) stated that they thought telehealth was a good option, 47.3% (n = 35) utilized it for wound evaluation and treatment, and 31.9% (n = 59) used smart phones. These rates for nurses were 16.6% (n = 45), 14.0% (n = 38), 72.7% (n = 197), 33.9% (n = 92), and 27.0% (n = 182), respectively.
Conclusions: The COVID-19 pandemic negatively affected the manner of delivery, duration, and quality of service regarding wound management. During this period, face-to-face contact times with patients were reduced, some diagnosis and treatment attempts were not performed, and wound care services were suspended temporarily or permanently. On the other hand, a positive result was achieved in that the physicians and nurses gave positive feedback for the telehealth experience.

1. Introduction

The Covid-19 pandemic led to the occurrence of serious problems in all healthcare services around the world. Doctors and nurses, who are at the center of this unusual pandemic, face various challenges such as treating Covid-19 patients, reducing the spread of infection, developing appropriate short-term strategies and establishing long-term plans [1]. In almost every country, mandatory rules such as social distancing, closure of public spaces and quarantine practices were introduced to keep the transmission and spread of the virus under control. While struggling with these restrictions on the one hand, patients have various problems that require treatment and also they need postoperative care, periodic check-ups, emergency procedures and surgical assessments [2].

The spread of Covid-19 negatively affects healthcare practices in all aspects. Pandemic limits the chronic wound care and treatment practices that should be performed under normal conditions by causing various disruptions in treatment and care in the necessary medical fields, including chronic wound management [3]. In particular, patients with chronic wounds constitute the population at high risk. Because most of these patients generally have various underlying comorbidities such as diabetes, cardiovascular and cerebrovascular diseases, hypertension and respiratory diseases. Furthermore, untreated chronic wounds during the Covid-19 pandemic can be a gateway for secondary infections, which may pose a major risk for the patients [3]. In developed countries, it is estimated that 1% and 2% of the population have various chronic wounds [4]. Thus, chronic wounds, that cover a significant part of the health system, may turn acute conditions into irreversible systemic damages that can cause serious complications and even death, due to reasons such as limited outpatient services and failure to maintain professional wound care during the pandemic period.

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Therefore, chronic, non-healing or difficult-to-heal wounds that require special care and follow-up should be aggressively intervened by a multidisciplinary wound care team [3,5]. Unfortunately, there are still uncertainties about how long quarantine and social distancing will last in the foreseeable future. The continuation of these uncertainties and failure to maintain chronic wound care services due to social distancing measures constitute a major challenge for wound care professionals working during the pandemic period. Furthermore, healthcare professionals helping patients with suspected or confirmed Covid-19 infection in the middle of this pandemic constitute a population with high risk of transmission [5]. Moreover, the fact that patients consider hospitals or public transportation vehicles they use to go to hospitals as dangerous in terms of the risk of infection restrict receiving health care services. In many countries, including Turkey, health institutions have restricted access to some services, including some wound care units, for an indefinite period. For instance, chronic wound polyclinics and wound councils suspended working during this period. The nurses working in these units were assigned in Covid-19 services or intensive care units.

Based on all these developments, the search for innovative solutions has become a current issue both to meet the health care needs of patients and to minimize the risk of transmission for the doctors and nurses. Telehealth has almost become a basic need for healthcare professionals and Covid-19 patients in the general population. Telehealth allows patients to receive real-time services by contacting their healthcare provider for advice on their health problems, especially when they are in quarantine. Telehealth is considered to be one of the effective ways to use existing technologies to minimize the risk of direct person-to-person exposure and to facilitate optimum service delivery during the Covid-19 pandemic around the world [2]. Telehealth is considered as an innovative platform that contributes to the conduct of various epidemiological studies and the maintenance of disease control and clinical case management during the pandemic period [6]. It is also patient-centered and is considered as a technological approach that protects doctors and nurses in the twenty-first century [7,8].

In the literature, it is emphasized that telehealth, which is used in various fields of healthcare services, is an alternative to remotely evaluate patients who are under quarantine and cannot come to health institutions for various reasons and to reduce the risk of exposure to Covid-19, by drawing attention to its advantages [2,9] disadvantages [2,10,11] and the barriers to the spread of these programs [12–15] [6,16-17]. As an important development in this process, telehealth services were included in the scope of payment in chronic wound management in some countries. In Turkey, chronic wound management has been a rapidly advancing issue that has been addressed in the last two decades in contemporary terms [18]. However, despite significant developments in wound management education programs, it is necessary to complete legal regulations on how to conduct wound care services and to improve reimbursement systems. In Turkey, wound care services are carried out in Wound Management Clinics and polyclinics in large hospitals in a few metropolitan cities, in 35 stoma therapy units in the whole country, in some private centers, and in orthopedics, plastic surgery, and vascular surgery clinics of hospitals. According to the current legal regulation, a physician from surgical branches is responsible for these specialized units and at least two certified nurses must work in these units. In Turkey, the number of units and health workers providing services for chronic wounds is not enough and sufficient to serve all patients with chronic wounds in the country. Therefore, many patients have difficulties in these units and encounter complications due to the delay in the initiation of treatment [19]. In this context, with the Covid-19 pandemic, wound care services that were not strong enough in the country were significantly interrupted. On the other hand, although there is no telehealth structure integrated into the whole system, it is a fact that healthcare workers and patients use technology by producing their own solutions. Although telehealth is used for diagnosis, follow-up and communication with patients in various branches as a positive innovation and approach for patients and healthcare professionals in many countries, it is still in the startup phase in Turkey and is used limitedly in psychiatry, endocrinology, home care and intensive care [20–23]. Furthermore, scientific data are needed to increase awareness on this issue, to structure and popularize telehealth services, and studies in this field are limited. No study on telehealth in chronic wound management was found in Turkey. For these reasons, the study was conducted to determine the problems faced by doctors and nurses dealing with chronic wound management during the Covid-19 pandemic, and their experiences and views on the conduct of telehealth services and the barriers to them. It is predicted that the results of the study will contribute to the development of strategies for maintaining chronic wound management and structuring telehealth services, locally and globally, especially in unexpected periods of crisis.

2. Materials and method

2.1. Aim and type of study

In this study, a descriptive and cross-sectional design was used to determine the problems faced by doctors and nurses in chronic wound management during the Covid-19 pandemic, and their experiences and views on the conduct of telehealth services and the barriers to them.

2.2. Settings, participants, recruitment and sample size

All doctors and nurses who participated in the chronic wound management symposium organized online by the Wound Management Association Turkey (WMAT) between December 23–25, 2020 (n = 2629) constituted the population of the study. 345 doctors and nurses who worked in the field of chronic wound treatment and care management and filled out the survey questions completely constituted the sample. Written permission was obtained from WMAT for data collection. Doctors worked in plastic surgery, general surgery, wound care clinics, pediatrics, intensive care, hyperbaric underwater medicine and wound councils in various hospitals of Turkey. Nurses were experts and experienced in wound care and worked in wound care units, intensive care and palliative services.

2.3. Data collection procedure

The data were collected between December 23, 2020 and December 30, 2020. The questions of the questionnaire to be used in the study were developed based on the researchers' experiences and the literature and transferred to the https://koc.qualtrics.com platform. The participants were reached via the e-mail addresses of the symposium organization. The doctors and nurses were provided to fill out the data collection forms electronically. At the beginning of the data collection form, the doctors and nurses were asked to declare that they participated in this study voluntarily. The information was only accessed confidentially by the researcher, and the participants were asked not to provide their names or any other identifying information.

2.3.1. Data collection tools

A 10-question Questionnaire Form, which was developed based on the experience of researchers and the literature and consisted of closed and open-ended questions, was used to collect the data. The form included closed-ended questions (9 questions) about the profession, area of expertise, and departments of the doctors and nurses, and what kind of changes they underwent in wound care services during the Covid-19 process, and an open-ended question. (Appendix 1). In the open-ended question, they were asked to write the applications they performed with Telehealth applications with regard to the diagnosis/monitoring and treatment of the wound during the COVID-19 pandemic. The responses to the open-ended question were then categorized and tabulated by the researchers.

2.4. Ethical considerations

Written permission from the Wound Management Association Turkey (December 15, 2020 dated 12/01 number) and written consent of the participants were obtained before starting the survey questions, and then the questions were made accessible.

2.5. Data analysis

The data obtained in the study were analyzed using descriptive statistics in the SPSS (IBM-Statistical Package for Social Sciences) for Windows 26.

3. Results

Descriptive information of the participants is presented in Table 1. 21.4% (n = 74) and 78.6% (n = 271) of the participants were doctors and nurses, respectively. 10.4% (n = 36) of the doctors were general surgery specialists and 78.6% (n = 271) of the nurses were wound care nurses.

In Table 2, while 45.9% (n = 34) of the doctors who participated in the study stated that they continued chronic wound management, and only 17.0% (n = 18) of them stated that they could continue wound care in the same way as before the Covid-19. These ratios were 51.3% (n = 139), 51.6% (n = 157) and 36.8% (n = 128), respectively, for nurses. 40.7% (n = 33) of the doctors and 34.9% (n = 106) of the nurses stated that they reduced the length of service for chronic wound management. Furthermore, it was determined that while 34.0% of the doctors decreased face-to-face interview with the patients, 26.4% of them did not perform some diagnosis/treatment interventions, and 22.6% of them extended the patients' length of coming for control. These values were 31.6%, 19% and 12.6%, respectively, for nurses.

In Table 3, when their experiences on telehealth services were examined, while 32.4% (n = 24) of the doctors indicated that they experienced telehealth, 29.7% (n = 22) of them

Indicated that they used the e-visit, 77.0% (n = 57) of them indicated that they considered telehealth as a good option, 47.3% (n = 35) of them indicated that they used it in wound assessment and treatment, and 31.9% (n = 59) of them indicated that they used a smartphone, and these ratios were 16.6% (n = 45), 14.0% (n = 38), 72.7% (n = 197), 33.9% (n = 92) and 27.0% (n = 182), respectively, for nurses.

4. Discussion

In this study with a descriptive cross-sectional design, the problems experienced by doctors (n:74) and nurses (n:271) dealing with chronic wound management during the Covid-19 pandemic and their experiences and views on telehealth service were determined. Along with the first Covid-19 case announced on March 11, 2020 in Turkey, the Ministry of Health

Alerted all hospitals with a circular issued, and many clinics were turned into clinics where Covid-19 patients would receive treatment or Covid-19 intensive care units [24]. As a result of this planning, the need for doctors and nurses, which already had a large deficit, increased. Turkey ranks fourth from the last in terms of number per 1000 inhabitants with regard to the number of doctors and nurses among The Organization for Economic Co-operation and Development (OECD) countries [25]. As it was clearly revealed by the results of our study, as

A result of this deficit, one of every two nurses and nearly half of the doctors had to work in another clinic and significantly reduced the length of services. While 39 healthcare workers temporarily suspended the wound care services in their departments, 8 nurses permanently suspended them. In this process, some interventions were not performed

Table 1
Descriptive characteristics of doctors and nurses (n:345).

Descriptive Characteristics		n	%
Profession			
	Doctor	74	21.4
	Nurse	271	78.6
Area of expertise			
	General Surgery	36	10.4
	Plastic surgery	17	4.9
	Underwater Medicine	9	2.6
	Wound Care Nurse	271	78.6
	Other[a]	12	3.5
Working department			
	General Surgery	36	10.4
	Plastic surgery	17	4.9
	Underwater Medicine	9	2.6
	Wound Care Clinic	117	33.9
	Intensive care	105	30.4
	Palliative	20	5.8
	Other[b]	41	11.9

[a] Orthopedics, Infectious diseases, Pediatrics, Endocrinology.
[b] Emergency department, orthopedic department, family medicine.

Table 2
Difficulties faced by doctors and nurses in wound management during the Covid-19 pandemic (n:345).

	H Doctor (n = 74)		Nurse (n = 271)	
	n	%	n	%
Obligation to Work in Another Department				
Yes	34	45.9	139	51.3
No	40	54.1	132	48.7
Continuing Wound Care Services During the Covid-19 Period				
Wound management service was maintained	35	43.2	157	51.6
Length of service was reduced	33	40.7	106	34.9
Suspended temporarily	6	16.1	33	10.9
Suspended permanently	–	–	8	2.6
Changes on the Way of **Wound Care Services during the Covid-19 Period**				
No change was made (Same as before COVID-19)	18	17.0	128	36.8
Length of face-to-face interview was reduced	36	34.0	110	31.6
Some diagnosis/treatment interventions were not performed	28	26.4	66	19.0
Control periods were extended	24	22.6	44	12.6

Table 3
Experiences and views of doctors and nurses on telehealth service during the Covid-19 pandemic (n:345).

	Doctor(n = 74)		Nurse(n = 271)	
	n	%	N	%
Experiencing Telehealth Service				
Yes	24	32.4	45	16.6
No	50	67.6	226	83.4
Use of e-visit				
Yes	22	29.7	38	14.0
No	52	70.3	233	86.0
Considering Telehealth as a Good Option				
Yes	57	77.0	197	72.7
No	17	23.0	74	27.3
Practices in Telehealth				
Chronic wound assessment and treatment	35	47.3	92	33.9
Debridement/Pressure ulcer assessment	2	2.8	4	1.5
No practice	37	50.0	175	64.6
Access Method Used in Telehealth				
Smartphone	59	31.9	182	27.0
Sending Videos and Photos via Phonerowhead	32	17.3	134	19.9
Detailed Text Message	30	16.2	144	21.3
Computer	23	12.4	87	12.9
Hospital Based Platform	20	10.8	34	5.0
E-mail	13	7.0	57	8.4
Corporate Portal	8	4.3	37	5.5

for the diagnosis and treatment of the wound, at a rate that could be considered clinically significant, and the patients' length of coming for control was extended. In particular, it is remarkable that 8 nurses stopped the service completely. Because in general, maximum 1 or 2 wound care nurses work in each hospital in Turkey, which means that patients never received wound care services in at least 4–8 centers. These results are also supported by the limited number of literature results.

Similarly, in the literature, the problems faced by healthcare workers during the Covid-19 pandemic were indicated as working in different clinics and units of hospitals, long working hours, poor working conditions, insufficiency of personal protective equipment, risk of transmission, and also, social, emotional and psychological problems due to these problems [26,27]. In the literature, especially in wound management in many countries, healthcare professionals stated that Covid-19 affected their working conditions and forms of services, they had to cancel most of the outpatient appointments and had to decide on their own whether it would be better to evaluate outpatients in the hospital or at home [28]. Furthermore, healthcare professionals also experience various ethical dilemmas within the framework of professional ethical codes [29] and legal obligations [24], which received little attention in this process [29], which was supported by our personal experiences and observations although no data was obtained in this study. For many healthcare professionals, how to treat these patients during the pandemic can be a dilemma. In particular, the conflict of the principles of respect for autonomy, do no harm/benefit is considered to have an additional negative effect on healthcare workers.

Like each problem, the Covid-19 pandemic generated its own solutions. During this period, doctors (n:24) and nurses (n:45) had the opportunity to experience telehealth service. Although telehealth began to be used in the 1950s in the world, it first began to be used in a limited number of hospitals and units in 2007 in Turkey [30,31]. When the studies on the use of telehealth services in more specific areas in Turkey are examined, it is observed that it is used only in a limited number of hospitals and clinics in diabetic foot care [20], home care [21], psychiatry [22] and intensive care [23] and is not integrated into the national health system and that the service is not covered by the payment. Indeed, the low number of doctors and nurses who carry out the telehealth service on the corporate portal also reflects the current situation. The pandemic process was a period during which this service model was most widely experienced, discussed and thought about all over the world.

In the study, it was determined that e-visit, which is a part of telehealth services, was used by doctors (n:22) and nurses (n:38) in a similar way to the results in telehealth. By using the e-health, healthcare professionals can communicate with patients to obtain information about their health status, follow up during a specific treatment process, intervene in the health system, and maintain treatment and care practices [32].

In Turkey, active usage areas of e-health services include various call center services, emergency health care delivery, decision support systems and the use of electronic prescriptions [33]. However, chronic wound management is not included in this scope. However, it was concluded from the results of the study that the majority of doctors (n:57) and nurses (n:197) considered that telehealth was a good option for wound management. This result will constitute an important data and contribute to the future telehealth services. On the other hand, this result also suggests that well-structured telehealth can be a suitable service model in wound management, which actually requires an interdisciplinary approach. In other words, telehealth provides multi-faceted advantages by taking the health service provided beyond the patient-doctor/nurse relationship and increasing the interaction of health services between different disciplines [33]. In addition to these results, telehealth service also enabled better follow-up, treatment and care practices after diagnosis due to the minimization of social distance especially during the Covid-19 pandemic.

Within the scope of telehealth, most of the nurses and half of the doctors indicated that they did not perform any practice regarding the management of chronic wounds called arterial ulcer, venous ulcer and pressure injury (PI). In Turkey, there is no study through which we can compare this result. However, the prevalence of PI and diabetic foot ulcer is high in Turkey. In Turkey, it is estimated that approximately 14% of patients with diabetes have diabetic foot ulcers and that diabetic foot treatment constitutes 11% of the budget spent on diabetes treatment [34]. With regard to the prevalence of PI, another type of chronic wound, in the largest sample point prevalence study which conducted by Wound Ostomy Incontinence Nurses in Turkey and included 13 hospitals in 12 different regions for acute care ($n = 5088$), it was determined that the overall prevalence was 9.5% and the prevalence in intensive care units was 17.2% [34,35]. These data made us think of the increased risk of exposure to further complications (such as infection, amputation, septicemia), burden for their caregivers, and more serious problems (such as death) as a result of the inability of many patients to receive wound care services, which is an important concern mentioned in the literature [36,37]. Contrary to our results, it can be observed that healthcare professionals dealing with wounds performed various interventions within the scope of telehealth [2,28], created chronic wound care algorithms [3] and even used telehealth to keep their patients away from hospitals [38] even in the early stages of the pandemic in some countries. In Monaghesh's systematic analysis study on the role of telehealth during the Covid-19 pandemic, as a result of the results from a total of 8 studies, it was emphasized the use of telehealth contributed to the functioning of healthcare services and was an important tool in the delivery of care services, especially in keeping patients and health professionals safe, within the framework of social isolation and other strict quarantine rules during the pandemic [2]. In the literature, the technologies and methods used in telehealth services were indicated as smart phones, e-mail, video conference system, photo sharing, audio-video communication tools, electronic health records and other digital platforms [2,20–22]. Smartphones also ranked first in this study due to their practicality and ease of carrying with them all the time.

5. Study limitation

The results of this study are limited to the problems faced by doctors and nurses who participated in the study and the information they expressed about their telehealth experiences. A limited number of questions were asked to healthcare workers who had limited time due to the pandemic, and more in-depth recommendations could not be received as in a face-to-face interview.

6. Conclusions

This study was conducted to determine the problems faced by doctors and nurses (n:345) serving in the field of chronic wound management during the Covid-19 pandemic, and their experiences and views on the conduct of telehealth services and the barriers to them. The results of the study showed that healthcare workers significantly had to work in different clinics other than the clinics where they worked during the pandemic process, reduced the time allocated to wound care services, reduced the length of face-to-face interviews in wound care services, could not perform some diagnosis and treatment interventions, and suspended the wound care services temporarily or permanently. This study also showed that doctors and nurses experienced a low level of telehealth during the pandemic process, mostly considered it as a good service option and mostly used smartphones in telehealth services. Based on the results of the study, institutions are recommended to make rational personnel planning and to employ healthcare professionals in their area of expertise, and it is recommended to develop a national service model in which telehealth is inevitable and will be a good service model for health problems that require multidisciplinary decision processes such as chronic wounds within the context of fair distribution of

resources and opportunities to take advantage even for the groups with limited access to health resources.

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The authors have confirmed that all authors met final approval of the version to be published.

Declaration of competing interest

The authors declare there is no conflict of interest.

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Appendix A. Supplementary data

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