A Gender Perspective on Telemedicine. Early Results from the National Cancer Institute of Aviano Experience

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1 Introduction and Aim of the Study

The use of electronic information and communication technology to provide and sustain healthcare at a distance has been defined by the literature as telemedicine or e-health (Bashshur et al., 2011; Nikolian et al., 2018). Following the non-pharmaceutical interventions and social distancing criteria and the disruptions in hospitals around the world (Massaro et al., 2021), the recent COVID-19 pandemic (WHO, 2020a, 2020b) has catalyzed an unprecedented need to provide treatment remotely (Dal Mas, Romani, et al., 2021; Grasselli et al., 2020; Grenda et al., 2020; Remuzzi & Remuzzi, 2020; Romani et al., 2021; Sorensen et al., 2020). This compelled factor has aided the rapid growth of telemedicine facilities in many medical specialties, including radiology, psychiatry, dermatology, cardiology, and internal medicine, to meet patients' ambulatory care needs (Sorensen et al., 2020). Many people believe that virtual visits will continue to exist even in a COVID-free "new normal" (Barcellini et al., 2020; Cobianchi et al., 2020), since telemedicine has been shown to increase access to treatment, improve resource quality, and lower costs compared to conventional in-person hospital or ambulatory visits (Nikolian

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et al., 2018). Moreover, statistics claim that many patients fear that they will be harmed or infected while accessing hospital facilities (Acar & Kaya, 2019; Chen et al., 2019; Leape et al., 2009), and these fears have been exacerbated during the COVID-19 pandemic (Miaskowski et al., 2021). Telemedicine tools may allow patients to enjoy remote visits without traveling to the hospital, getting the care they need from home.

Several studies have looked at the public's perceptions, experiences, and satisfaction with telemedicine (Grenda et al., 2020; Reed et al., 2019), with many focusing on the technical solutions used, in response to the need for user-friendly yet safe platforms and tools (Dal Mas, Piccolo, & Ruzza, 2020; Jain & Kaur, 2018; Presch et al., 2020). Still, to our knowledge, little research has been conducted with a gender perspective on telemedicine and the use of e-health tools for women. While some early studies have highlighted that female patients seem to engage more with online and e-health tools than man (Escoffery, 2018; Reed et al., 2020), there is a call for more research on the topic. Employing a case study approach (Yin, 2014), this chapter aims at investigating the new perspectives of telemedicine for women's health, investigating a newborn telemedicine program for chronic pain and oncological follow-up recently launched by the National Cancer Institute of Aviano, Italy.

2 Female Patients and Female Workers During the COVID-19 Pandemic

Chronic pain has a significant effect on patients' everyday lives and healthcare systems all over the world, especially when coping with an aging population (Sousa et al., 2021). This disorder is fairly common, affecting roughly 25% of the population in Italy alone (Breivik et al., 2006), with similar numbers in the other countries. Such a disease affects more people aged 30–60 (Breivik et al., 2006), and two out of three chronic pain patients are women (Miceli, Bednarova, et al., 2021; Miceli et al., 2018). Moreover, data from ten European countries, providing a detailed distribution of COVID-19 cases by gender and age, show that women diagnosed with COVID-19 are substantially more than infected men among people of working age. This pattern reverses around retirement: infection rates among women decline at the age of 60–69, resulting in a cross-over with infection rates among men. The relative disadvantage of women peaks between the ages of 20 and 29, while the male disadvantage in infection rates peaks between 70 and 79 years (WHO, 2019).

Women are often seen as vulnerable patients, who are also often breadwinners in their households and during their careers (Dal Mas & Paoloni, 2019). Many times, a female patient must balance being a mother, a wife, a daughter, and a worker or an entrepreneur when coping with a severe diagnosis and the subsequent care and recovery plan. If not all women can be considered vulnerable, many are, for

example, single mothers or caregivers who need to look after elderly parents or relatives at home.

Moreover, the recent COVID-19 pandemic has emphasized the gender gap even more. The impact on women, especially those with parental duties, has been shown to be significant in a variety of fields (Wenham et al., 2020). The business disruptions, the closure of schools and kindergartens and the need for children to employ online and distance learning proved to have a massive impact on parents in general, but especially on women (Paoloni et al., 2021). Little has been said about the impact on female workers and patients during the COVID pandemic, while more attention has been paid to the gender effect for female healthcare professionals actively involved in the management of the emergency (Mavroudis et al., 2021; Ruta et al., 2021; Wenham et al., 2020), recording higher stress levels for women engaged in the front line (Della Monica et al., 2021) and with the need to employ new organizational models to support female workers in their duties (Paoloni et al., 2021).

Most contributions on female workers and entrepreneurs during the pandemic (Jiménez-Zarco et al., 2021; Martínez-Rodríguez et al., 2021) highlight the highest stress due to the need to balance new working conditions (including smart and remote work for several sectors, or the need to employ longer shifts and to wear personal protection equipment all day long for those engaged in essential services like healthcare or food retail) with family and private life (including supporting young children in distance learning or fragile relatives considered at risk). The same authors suggest the need to provide funds or dedicated support for such women. Similar results are argued by other authors studying female-run startups during the crisis (Kuckertz, 2021; Villaseca et al., 2020).

Regarding telemedicine and women, several contributions emerge in the literature. However, little has been investigated about the gender effect and the need to employ tailored solutions for women. A number of papers report experiences about women's health, including abortion (Vázquez-Quesada et al., 2020; Wenham et al., 2021), diabetes (Amgarth-duff et al., 2019), and oncology (Bednarova et al., 2020; Dal Mas, Biancuzzi, Massaro, & Miceli, 2020; Miceli et al., 2019). Some early studies conducted before the pandemic stressed that women seem to engage more with online and e-health tools than male patients (Escoffery, 2018; Reed et al., 2020). Moreover, women healthcare managers seem keener to the adoption of e-solutions (Arena et al., 2020).

All in all, the situation of women during the pandemic, being them workers or patients, seems more challenging than that of men. The potential impact of telemedicine on women looks, therefore, worth investigating.

3 Methodology

To investigate the potential impact of telemedicine on female patients, we decided to apply a qualitative case study approach (Yin, 2014). According to Massaro et al. (2019, p. 275) "qualitative methods allow researchers to discover to reveal and

understand relationships between variables even within complex processes, and to illustrate the influence of the social context." The case study methodology is considered applicable in the literature when a how or why question is posed about current circumstances over which the researcher has no control (Yin, 2014). Furthermore, case studies allow for a more in-depth understanding of a real-life situation (Ridder et al., 2014).

The case study was employed analyzing a new project by the National Cancer Institute—IRCCS CRO of Aviano (Italy), one of Europe's most renowned institutes and research centers in the field of oncological surgery and cancer treatments like chemotherapy and radiation therapy, in collaboration with the local government of the Region Friuli Venezia Giulia. The Institute has recently launched the project "Doctor@Home (D@H)," a brand new telemedicine program (Miceli, Dal Mas, et al., 2021). This initiative was originally set up for oncological check-ups related to pain therapy.

Several stakeholders from the Institute, including physicians and oncology experts, participated in data gathering and analysis. In the months of October and November 2020, five semi-structured interviews and two internal meetings about the aforementioned project were conducted. Additional material, including the Institute's website and social media channels, as well as publications, were gathered and analyzed, along with the National Healthcare System and the Region Friuli Venezia Giulia regulations about telemedicine programs.

4 The Case Study

The project D@H, which was initially launched within the pain therapy department, is now available for all the follow-up visits of the Institute (Miceli, Dal Mas, et al., 2021). While the Institute's ethical committee approved the request for further investigation and satisfaction among the patients during spring 2021, the project has a clear development path.

The clinician and the patient meet for the first time in person at the hospital. The patient has the option of continuing on the telehealth route or scheduling follow-up appointments in person. The online meeting takes place through an online platform, but additional meetings in person are possible whenever necessary or needed. The patient must provide a valid email address for medical staff to respond and send the invitation for the e-visit. The medical staff schedules the appointment on the "LifeSize" approved portal and sends the patient the access code on the scheduled date and time. The patient can use the app on his or her mobile or access the connection sent to him or her via email, and the system recognizes the patient by their unique social security number badge, which is recorded within the Regional Healthcare System. The medical staff produces an encrypted digital report at the appointment's conclusion, which is sent to the patient via email along with an unlock code. If a medical prescription is required, an identification code is emailed to the

patient, allowing them to pick up the paperwork and the related medication at any pharmacy.

Although the D@H program is not new, meaning that several telemedicine programs are already existing and running globally, the National Cancer Institute of Aviano has chosen to redesign and focus the protocol and ongoing experience on two fundamental and likely understudied aspects of telehealth: service co-production and continuous learning.

Co-production in services occurs when the customer actively participates in adding value to the service they require, thereby collaborating with the provider in its creation (Batalden et al., 2016; Dal Mas, Biancuzzi, Massaro, & Miceli, 2020; Elwyn et al., 2020; Fuchs, 1968). Co-production in healthcare refers to the patient's active participation in achieving the medical result by acting in particular ways or conducting specific activities in collaboration with the clinical staff (Biancuzzi et al., 2020). Since physical contact is not possible in the D@H program, physicians and patients must develop new interacting methods, describing symptoms and concerns. Some post-surgery visits can necessitate the presence of a caregiver who will perform procedures such as palpation. Clinical professionals play an essential role in guiding patients on this journey, helping people become more familiar with technology's potential. To provide such patients with guidance about the prescribed behaviors or necessary acts, such as the presence of another person, specific translation tools and techniques (Dal Mas, Garcia-Perez, Sousa, Lopes da Costa, & Cobianchi, 2020) may be required, including the use of non-technical skills (Dal Mas, Bagarotto, & Cobianchi, 2021; Dal Mas, Biancuzzi, & Miceli, 2021; Schutt et al., 2017; Yule & Smink, 2020). Most of these guidelines still need to be developed and formalized. Therefore, learning appears to be critical in order to raise awareness about best practices, and the best way to approach the patients to ensure the efficacy that they deserve, following a patient-centric philosophy (Cheng et al., 2009).

According to the National Cancer Institute of Aviano, the learning part of the program is the second pillar of the D@H initiatives. The clinical team is using a learning-by-doing technique to figure out how to treat the patient through the e-visit better. Co-learning is used to promote co-production of treatment in this form of "learning-on-the-job," which is done in an interprofessional manner involving medical practitioners and patients. Medical doctors participating in the program can seek assistance from colleagues from various specialties, nurses, and psychologists to better understand how to manage the remote visit and the patient's relationship (Dal Mas, Biancuzzi, Massaro, Barcellini, et al., 2020). The learning model also includes the patients, who must learn how to take advantage of the technology's stable and healthy capabilities without the need to travel back and forth from the hospital, with the encouragement, assistance, and guidance of the clinical staff.

The D@H program uses four separate phases to combine co-production and co-learning (Elwyn et al., 2020; Miceli, Dal Mas, et al., 2021):

1. **Co-assess**: Clinical staff at D@H can assist patients in consistently self-assessing their symptoms and accurately explaining them. Even between follow-ups, self-evaluation should be registered in a sort of "diary," which will be later shared with the medical doctor. Adequate shared methodologies should be put in place to record the health status and concerns in a standardized way, like, for example, rating their pain in certain circumstances or when performing specific movements.
2. **Collaborate**: D@H clinical personnel should use communication and translation resources to transfer their medical knowledge to the patient and learn about the patient's wishes, goals, and priorities (Angelos, 2020; Dal Mas, Biancuzzi, Massaro, Barcellini et al., 2020). Understanding the patient's requirements will help to facilitate shared decision-making (Osei-Frimpong et al., 2018; Woltz et al., 2018) about the next steps and treatment options.
3. **Co-design**: Once D@H clinical staff and the patient have a better understanding of one another, there is space to co-design the care plan. Such phase includes the treatment choices, but it also involves the telehealth aspects and the steps to be taken and best behaviors to improve medical outcomes.
4. **Co-deliver**: Although the patient must observe the three previous steps, telemedicine will assist D@H clinical staff in monitoring the patient's progress and helping or guiding the patient as appropriate, even at a distance. Clinicians may benefit even from the aggregate data collected through the program to enhance medical research.

The D@H program's two key theoretical and functional building blocks are represented by co-production of the remote healthcare service and continuous learning, which outcomes and resources can be shared with the medical community and readership through presentations at congresses and publications helping to shape the healthcare environment of the future. Since telehealth visits are on the rise in several medical disciplines besides oncology, the co-production and co-learning aspects of telehealth may have an effect on future postgraduate medical education as well.

5 Discussion and Conclusions

In the current healthcare scenario, telemedicine and e-health appear as tools that will become part of the daily routine for clinicians as well as patients.

Telehealth tools have a variety of advantages, including the opportunity of not traveling back and forth to and from the hospitals, especially for specialized hubs like the National Cancer Center of Aviano, which patients come from all over Italy and also from abroad. Moreover, in tough times like the COVID-19 pandemic, social distancing measures are needed, especially for vulnerable patients like the ones undergoing oncological treatments like chemo or radiations. At the same time,

telemedicine can offer a substantial response to patients' ambulatory needs of many specialties (Grenda et al., 2020; Ritchey et al., 2020; Sorensen et al., 2020).

Telemedicine appears particularly interesting when it comes to a gender perspective, as women are more affected by, for instance, chronic pains (Miceli et al., 2017). Moreover, women seem to be keener in the use of e-tools and apps about health (Escoffery, 2018; Reed et al., 2020). Women were also more impacted by the COVID-19 (Jiménez-Zarco et al., 2021; Martínez-Rodríguez et al., 2021; Paoloni et al., 2021), causing more stress and concerns both for workers and for patients, recording also higher infection rates among younger women than man. The pandemic challenged women in managing their careers and jobs with their private life, especially for those with children home from school and with vulnerable relatives considered at risk. The situation is even harder for those who face their sickness (like in the case of cancers) and still need to take care of their family members, especially children and kids while being at the same time patients (Bednarova et al., 2020).

While telemedicine seems to offer unique advantages for all the patients, but especially women, enjoying care directly from home, there is an urgent call for guidelines and understanding about how to make the best possible use of such tools. The D@H initiative by the National Cancer Institute of Aviano stands as a pilot study devoted mainly to women to investigate such dynamics, including the gender perspective and the specific facilitators and actions needed to make the e-tools effective for female patients. Although the D@H program is still in its infancy, it differentiates itself from the many more initiatives already present in the healthcare scenario or introduced during the pandemic because of the co-production and the co-learning approach. The expectation of such pillars is to allow full engagement, communication, and interaction between the clinical professionals and the patients to maximize the benefits of modern technologies in healthcare, allowing better quality of life and work-life balance.

We do expect that the D@H initiative will allow bringing light and best practices that can be enjoyed and replicated by institutions all around the globe.

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