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Technosociality in health professionals' daily lives and interaction with users in the covid-19 pandemic

Tecnossocialidade no quotidiano de profissionais da saúde e interação com usuários na pandemia de covid-19

La tecnosocialidad en el cotidiano de los profesionales de la salud y la interacción con los usuarios en la pandemia del covid-19

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ABSTRACT

Objective: to understand the use of health technologies and virtual social networks in Primary Health Care professionals' daily lives and reference units in the COVID-19 pandemic. **Methods:** an integrated-qualitative multiple case study, based on the Comprehensive Sociology of Everyday Life, with 47 professionals. **Results:** technosociality is present in professionals' daily lives, with advances during the COVID-19 pandemic. The use of health technologies and virtual social networks facilitate: communication between professionals and management, professionals and users; access to educational materials; scheduling appointments and exams; clarification of doubts during the service; monitoring of suspected and confirmed cases of COVID-19. The protocol elaboration to organize work with the use of cell phone is a necessity. There is a lack of management support and infrastructure for the use of technosociality by professionals. **Conclusion and implications for practice:** The pandemic boosted the use of technosociality in health professionals' and services' daily lives. Health technologies and virtual social networks represent an alternative for continuity of care and monitoring of patients with COVID-19.

Keywords: Primary Health Care; COVID-19; Nursing; Social Network; Technology.

RESUMO

Objetivo: compreender o uso de tecnologias em saúde e redes sociais virtuais no quotidiano de profissionais da Atenção Primária à Saúde e de unidades de referência na pandemia de COVID-19. **Métodos:** estudo de casos múltiplos integrado-qualitativo, fundamentado na Sociologia Compreensiva do Quotidiano, com 47 profissionais. **Resultados:** a tecnossocialidade se faz presente no dia a dia de profissionais, com avanços durante a pandemia de COVID-19. O uso de tecnologias em saúde e redes sociais virtuais facilita a comunicação entre os profissionais e: a gestão, profissionais e usuários; o acesso a materiais educativos; o agendamento de consultas e exames; o esclarecimento de dúvidas durante o atendimento; e o monitoramento de casos suspeitos e confirmados de COVID-19. A elaboração do protocolo para organizar o trabalho com o uso do aparelho celular é uma necessidade. Há carência de apoio da gestão e de infraestrutura para a utilização da tecnossocialidade pelos profissionais. **Conclusão e implicações para a prática:** a pandemia impulsionou a utilização da tecnossocialidade no quotidiano de profissionais e serviços de saúde. As tecnologias em saúde e redes sociais virtuais representam uma alternativa para a continuidade do cuidado e o monitoramento de pacientes com COVID-19.

Palavras-chave: Atenção Primária à Saúde; Enfermagem; COVID-19; Rede Social; Tecnologia.

RESUMEN

Objetivo: comprender el uso de las tecnologías sanitarias y las redes sociales virtuales en el cotidiano de los profesionales y unidades de referencia de la Atención Primaria de Salud en la pandemia de la COVID-19. **Métodos:** estudio de caso múltiple integrado-cualitativo, basado en la Sociología Integral de la Vida Cotidiana, con 47 profesionales. **Resultados:** la tecnosocialidad está presente en el cotidiano de los profesionales con avances durante la pandemia del COVID-19. El uso de las tecnologías sanitarias y las redes sociales virtuales facilitan la comunicación entre profesionales y: la dirección, profesionales y usuarios; el acceso a materiales educativos; la programación de citas y exámenes; la aclaración de dudas durante el servicio; el seguimiento de casos sospechosos y confirmados de COVID-19. La elaboración del protocolo para organizar el trabajo con el uso del celular es una necesidad. Falta apoyo de gestión e infraestructura para el uso de la tecnosocialidad por parte de los profesionales. **Conclusión e implicaciones para la práctica:** la pandemia impulsó el uso de la tecnosocialidad en el cotidiano de los profesionales y servicios de salud. Las tecnologías de la salud y las redes sociales virtuales representan una alternativa para la continuidad de la atención y seguimiento de los pacientes con COVID-19.

Palabras clave: Atención Primaria de Salud; Enfermería; COVID-19; Red Social; Tecnología.

INTRODUCTION

With the emergence of the COVID-19 pandemic, it became necessary to adopt quick and effective measures,[1] mainly in the Primary Health Care (PHC) teams, responsible for promoting screening and monitoring of suspected and confirmed cases of COVID-19.[2] Therefore, the use of technosociality in health services has been progressively increasing[3], representing an alternative to support users in this pandemic period[4,5] and promoting continuity of care, prevention of risks and injuries, surveillance and health promotion.[6]

Technosociality is understood as a way to communicate and interact socially, through the use of technologies, especially virtual social networks.[7] Evidence points to the increased use of virtual social networks by PHC professionals, such as WhatsApp®, for agility in communication and for having low cost and ease of access during the pandemic.[8]

The use of Information and Communication Technologies in PHC, especially WhatsApp®,[8] tends to improve communication between the inter/multidisciplinary team and health and management professionals, promoting improvements in the quality of care provided to users and families.[9] However, excessive use of the internet and its resources during the pandemic tends to worsen symptoms, such as anxiety and depression.[10]

Health technologies are interventions used to enable health promotion actions, procedures, care and decision making. The internet and its tools are among the technological resources.[11]

However, the rapid introduction of technosociality in health professionals' daily lives is followed by a lack of support from management and infrastructure, such as low-quality internet and the need to train professionals to use health technologies in PHC,[12,13] reality that deserves to be investigated, justifying the accomplishment of this study.

In this context, we ask: what is the impact of virtual social networks and health technologies in PHC professionals' daily lives and in the interaction with users?

This study aimed to understand the use of health technologies and virtual social networks in PHC professionals' daily lives and reference units in the COVID-19 pandemic.

METHODOLOGY

This is a study with a qualitative approach, outlined by the integrated multiple case study method,[14] based on the theoretical framework of Michel Maffesoli's Comprehensive Sociology of Everyday Life.[15] The comprehensive approach to everyday life is effectively based on empirical knowledge, when considering the know-how, the know-how and the know-how-to-live, accepting the diverse and multiple implications that constitute the richness of the details of individual and collective living, with complete transparency and justice in the face of the experience in the studied reality, paying attention to the details of everyday life.[15]

The research was carried out in two municipalities in southeastern Brazil and one in the South region. The study participants were 39 health professionals from PHC and eight key informants, professionals from reference units for PHC, with a minimum of six months in the position. Professionals on vacation or away from work during the data collection period were excluded.

We sent an invitation for voluntary participation via email, WhatsApp®, telephone call, or in person, with the first approach being a nurse from the Family Health Strategy (FHS) team, a reorganizing strategy for PHC in Brazil. In Case 1, health professionals from three FHS units and a reference unit were approached; in Case 2, five FHS units and a reference unit; and in Case 3, seven FHS units. Only in Case 3, the order of visits to the units for data collection was randomly determined by drawing lots. Of the 151 professionals invited to participate in the research, 47 voluntarily agreed to participate in this study, 24 refused, one withdrew from participation after acceptance, one did not meet the inclusion criteria, one was on vacation on the day of data collection and 77 did not respond after six attempts to contact via email, with a time interval of fifteen days. Literal replication was followed in multiple cases for data saturation.[14]

Data collection was carried out between April and October 2021, and the sources of evidence were the open-ended individual interview with a semi-structured script and the recording in field notes. To validate the script, a pre-test was performed. The interview was conducted by two researchers, video-recorded or audio-recorded, transcribed in full, validated by participants, addressing the following questions: 1 - Tell me about your relationship with the use of health technologies and virtual social networks; 2 - In which situations and how do you use health technologies or virtual social networks?; 3 - Tell me about the activities you carry out using health technologies or virtual social networks; 4 - What do you understand about the use of health technologies and virtual social networks to promote people's health?; 5 - In your daily life, what is the impact of health technology or virtual social networks for their performance in the health care of users and families?; 6 - In your daily life, what is the impact of health technology or virtual social networks for health promotion for users and families?; 7 - Do you want to add something in relation to the use of health technologies and virtual social networks in your daily professional work in PHC?

In the first case, the remote interview was carried out via Google Meet®; in the second case, in person or remotely via Google Meet®, concomitantly with a call via WhatsApp®; and in the third case, in person, respecting preventive measures against COVID-19. The interviews lasted about 21 minutes. Field notes were produced after each interview, corroborating the findings of all interviews.

The data were analyzed by two researchers, according to Thematic Content Analysis phases: pre-analysis, material exploration, treatment of obtained results and interpretation. We started with text reading, followed by data coding and categorization, proceeding to search for meanings, followed by interpretation and description of results.[16] In line with the methodological framework of an integrated-qualitative multiple case study, this study design consists of multiple units of analysis (three), i.e., it involves more than one unit of analysis to configure it as an integrated study.

Thus, the analytical technique of cross-synthesis14 of the three cases studied was followed, integrating the following units of analysis "professional use of technosociality in the PHC's daily life for health promotion actions", "professional use of technosociality in a reference team's and PHC's daily life for health promotion" and "technosociality in professionals'/people's daily lives and their purposes". The analytical framework used was Thematic Content Analysis,[16] encompassing the cross-synthesis of the three cases, and the results gave rise to four thematic categories: *"Technosociality in health professionals' daily lives and interaction with users in the COVID-19 pandemic"; "Infodemics and (mis) information in the COVID-19 pandemic: technosociality in everyday life*"; *"The pandemic changes health professionals' daily lives: technosociality in use"; "Health promotion and technosociality in Primary Health Care professionals' daily lives*". This article covers the category *Technosociality in health professionals' daily lives and interaction with users in the COVID-19 pandemic*.

Given the need to guarantee participant anonymity, the alphanumeric code I1, I2, I3... was used, using "I" for the interview. The study complied with all ethical procedures provided for in Resolution 510, of April 7, 2016, of the Brazilian National Health Council, approved under Opinion 4,232,966 and Amendment 4,538,343. We conducted the study according to the COnsolidated criteria for REporting Qualitative research guidelines.

RESULTS

Figure 1 shows the characterization of the study participants.

The results will be exposed in two subcategories of analysis, which gave rise to the category shown in Figure 2:

Infrastructure and daily work in times of the COVID-19 pandemic

Health technologies are present in PHC professionals' daily lives and reference units:

> *I work with the SISREG issue* (*Sistema de Regulação* – Regulation System)*, appointments via the internet. We also have the program, which is from the municipality itself, which is Pronto, for scheduling exams and the service itself, we are using it a lot! Electrocardiogram and dermatoscopy are through telehealth, and the results come through this technology.* [...] *we also use all government programs: SISCAN* (*Sistema de Informação do Câncer – Cancer Information System*), *SISREG, SISVAN* (*Sistema de Vigilância Alimentar e Nutricional* - Food and Nutrition Surveillance System)*. Anyway, all in which we have to feed our data. Making requests for cytopathological tests, making requests for mammograms, all in these technologies* (I6).

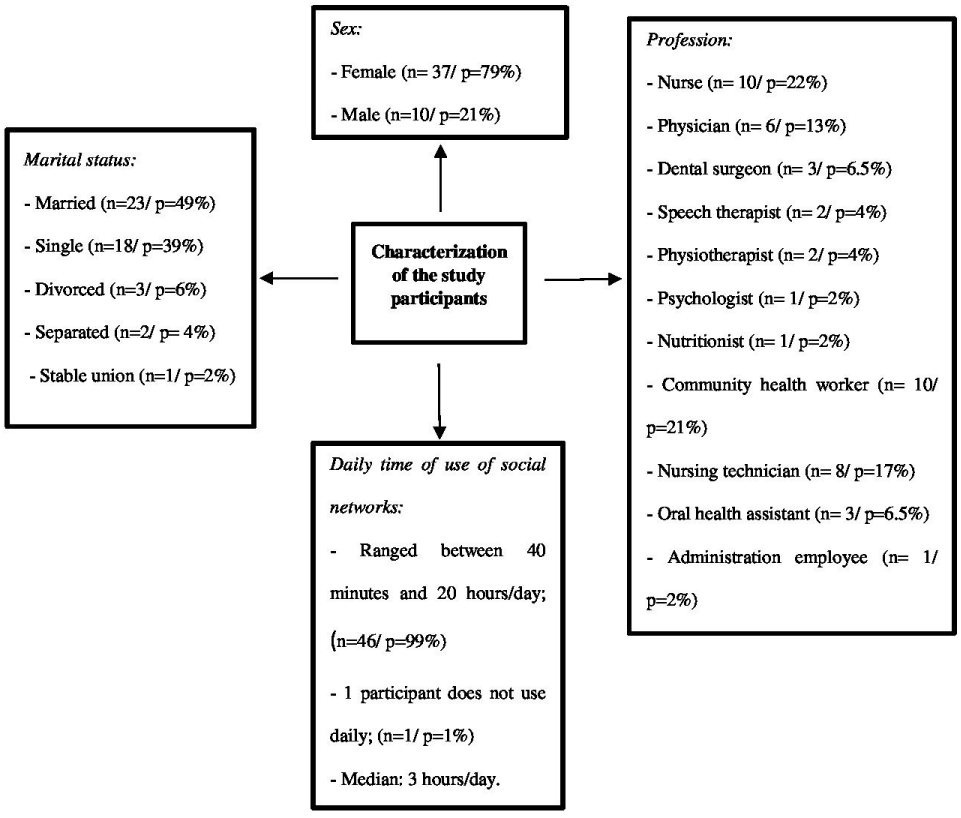

Figure 1. Characterization of survey participants from three municipalities in southern and southeastern Brazil, 2021
Source: research data, 2021.

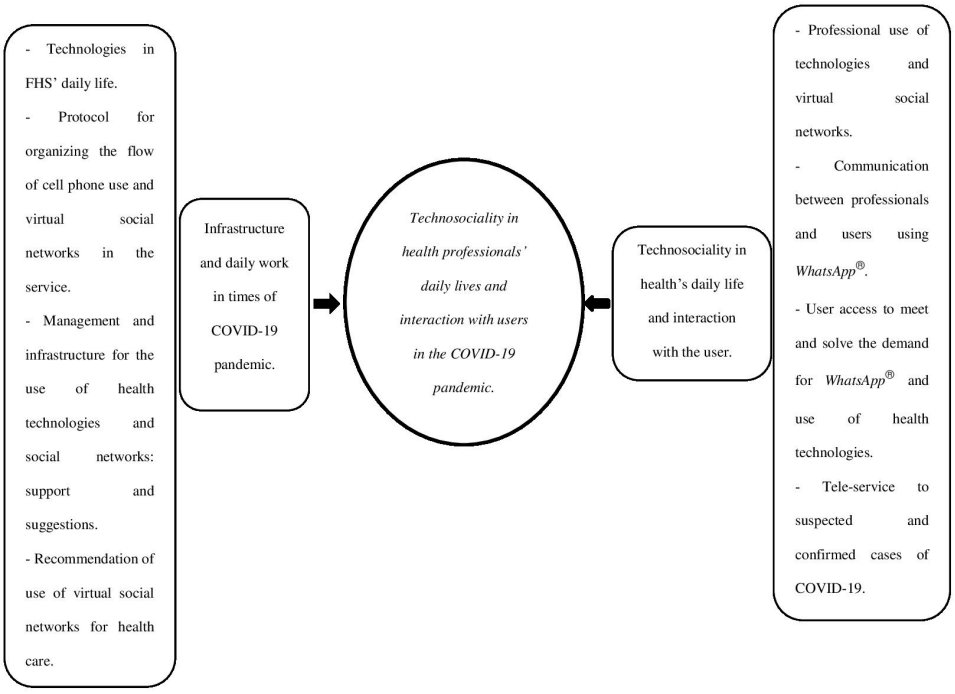

Figure 2. Category *Technosociality in health professionals' daily lives and interaction with users in the COVID-19 pandemic,* represented by subcategories and registration units, 2021
Source: research data, 2021.

> *In PEC* (*Prontuário Eletrônico do Cidadão* - Citizen's Electronic Medical Record)*, I launch all the procedures I do as a nurse at the unit, for example, consultation with the diabetic, hypertensive, childcare, preventive, pathological collections of the cervix, vaccination.* [...] *in the municipality, all health units use the PEC. There is the SI-PNI* (*Sistema de Informações do Programa Nacional de Imunizações* – Brazilian National Immunization Program Information System)*, which is the vaccine; In the past, we used. Now, with the PEC, it launches in the PEC and it already falls into the SI-PNI* (I16).

> *I use the electronic medical record, here is the SIS* (*Sistema Integrado de Saúde* - Integrated Health System)*. [...] the medical record is changing to Sonner, but I do all the evolution in the electronic record, I launch everything I need to achieve a goal in Previne Brasil. Occasionally and during a consultation, I use the cardiovascular risk calculator provided by the Brazilian Society of Cardiology together with the Diabetes one, when I need to classify hypertensive and diabetic patients* (I45).

The use of electronic medical records is frequently seen in FHS health professionals' and PHC reference units' daily lives. The use of programs, such as e-SUS, the request for cytopathological exams, mammography and registration of pregnant women in SISPRENATAL, and the notification of COVID proved to be recurrent, especially in nurses' daily lives (FN).

There is mention of the need to elaborate a protocol for organizing the flow of use of cell phones and virtual social networks in the service:

> *It's just that we still haven't sat down to think about how to do it [...] accurately, because many people will use the same cell phone. We need to describe this flow, to keep things organized, because there are seventeen people on the team! We haven't written anything yet, but so, in our planning, the first thing was to get the device. So, now came the device! So now it's writing the flow and protocol. Nothing rigid, but just to organize, because otherwise users send good morning and good night messages. So, some things in this sense, what will it be used for?* (I9)

The protocol elaboration for organizing work using a cell phone and WhatsApp®, for communication with users, also aims at ethical measures to maintain the confidentiality of information and the privacy of health professionals (FN).

The realities studied show that there is a need for infrastructure and management support, to have access to health technologies and virtual social networks:

> *In my case here, I asked for YouTube® release on the official computer here at the unit, so that I could research the subjects and it was never denied.* [...] *there are professionals who do not know how to deal with*

information technology, who have no skills, they need technical support for information technology for these professionals to learn camera and video resources, but I see that the Health Department, governments in general should have a priority right now (I7).

We could present, for our manager of each BHU and health secretary of each BHU to have their social network, to publicize the work that the unit is doing. I believe the population would be very pleased, because they could also see photos of the works, of the lectures they attended. It would be a good idea if each unit could create its profile on social networks to publicize the work to the general population (I28).

They are wanting to implement a tablet with internet so that we can collect data from the population and also take information to a lay person who cannot read, through images. It would help a lot in our work to have internet, a mobile technological system to get around the population. [...] *if they facilitated this means of communication between the professional who is in primary care, the worker or the professional who is going to make the visit, it would make it a lot easier for professionals and patients, because any demand would be resolved faster* (I40).

Virtual social networks are recommended by professionals so that health care actions for users and families can be carried out:

We give information to them, who, through the social network, have several platforms, other ways of being informed, learning how to deal with the disease. In the case of diabetics, how to measure glucose, the care they have to have with patients. Now, the others, we do with the patient here in the unit (I37).

Technosociality in health daily life and interaction with users

The professional use of health technologies and virtual social networks facilitates communication with users and management, access to educational materials and the clarification of clinical doubts at the time of care:

Here, in the service, we use it a lot, because, in addition to communicating with users, we communicate with the supervision, with the Health Department [...] we don't have Facebook® in the unit. So, here, I stay directly on WhatsApp®, because there can always be a warning, some supervision communication from Primary Care, at any time. And they send most of them today, it's all via WhatsApp®, in addition to e-mails. So, the email is more for sending official documents, but, so, communications, so, punctual, things that have to be resolved soon by the secretary, it's by WhatsApp® (I1).

In the unit, I use it to prepare a lecture. I use the internet to collect material, image, educational video (by Google® and YouTube®), *I use it during consultations. Google®, mainly, to exemplify what I'm doing for patients with images and make the service more didactic, so that they can better absorb the information* (I26).

I usually use Whitebook® a lot, which is a medical consultation application that helps to see dosage, drug name. I do not use Instagram® as a professional network. I use Linkedin®, which is a professional website, resume, I use one more app here, and UpToDate® is a very good database. I work in another place where I use a health app, but it's not in SUS. I do the entire interview and open the app and start to evolve, Salvo® is the name of this app (I45).

THE USE OF WHATSAPP® FACILITATES COMMUNICATION BETWEEN PROFESSIONALS AND USERS:

There are some users that we contact directly to carry out an active search, as a reference professional. So, like, I make contact; with some, I can talk on the phone, and some can't access it by phone, because they are on working hours and can't answer. Then, with these, I get in touch via WhatsApp® and forward the messages during my work hours. The next morning, when I return to my service, I assess and record the answers they sent me in the medical record (I11).

Sometimes, there are people I don't know personally and they come to me on WhatsApp®. [...] due to the pandemic, this happened much more (I20)!

We still only use WhatsApp® to send a message to a patient, but most of the time, we go to the same locus, you know? [...] when I need to schedule or change an appointment, we send a message via WhatsApp® (I30).

Users' access to service and resolution of demand by WhatsApp® becomes a reality, and the use of health technologies has advanced:

The active search for a child with a delayed vaccine and the mother could not answer during the day [...] she does not use her cell phone all day. So, sometimes, from 5:30 a.m. to 1:30 p.m., the mother is working, she would only be able to see it in the afternoon, then the active search for the child can be carried out, bring the child, take the vaccine (I2).

Specialized consultations, some appointment, consultation with the physician, exam, ultrasound. We communicate more through WhatsApp® with patients (I22).

> *In this vaccination you are having now, there is even an app, TeleCOVID or another communication channel for scheduling* (I40).

The use of WhatsApp® proved to be a positive strategy in the team's daily life, as it expands the possibilities of communication and clarification of user doubts. The use of this virtual tool for scheduling exams and consultations made it easier for users, because before they had to go to FHS (FN).

Teleservice to suspected and confirmed cases of COVID-19 has become routine, with user reception and monitoring, evidenced in the voice of FHS professionals and PHC reference units:

> *For example, post-COVID or COVID patients who need care, but who are in isolation or who are still having difficulty getting to the Health Unit, then we make the video call* (via WhatsApp®) *and follow the performance of breathing exercises, kinesiotherapeutic exercises* (I25).

> *During the pandemic period, we have used WhatsApp® in the unit to monitor patients who have respiratory symptoms; does not stop being a teleservice* (I29).

> *You have TeleCOVID when you need to call, to pass on complaints. [...] by TeleCOVID, even a certificate, type of medication and home isolation is already issued. They send the exam request by e-mail, if it is before the eighth day; if he has symptoms, he does the PCR swab, and if it is past the eighth day, he will do the rapid test on the 14TH day. This procedure is performed at the health center, but is patient-oriented step-by-step* (I40).

DISCUSSION

In this contemporaneity, the know-how, the know-how-to-say and the know-how-to-live are endowed with diverse and multiple implications in the way of communicating and interacting through technology, i.e., through technosociality,[7,15] which can be considered part of the re-enchantment of the world by the accelerated technosocial process of virtual approximation to human interactions.[17-19]

Worldwide, the use of technosociality has increased rapidly and intensely.[20] In the health area, health technologies and virtual social networks symbolize powerful allies for care actions,[21] education and health promotion,[22] conquering their space in FHS professionals' daily lives.[21] YouTube® proved to be a powerful tool in professionals' daily lives for the dissemination of health information.[23]

In this study, WhatsApp® and electronic medical records represent the virtual social network and health technology most used by professionals, respectively. The Pronto Mobile® application, available to users of the municipal health network in a municipality in southern Brazil, allows access to various health information, including medical records, vaccination history, prescriptions and appointments and vaccines.[24,25]

The SISREG, SISCAN and SISVAN programs implement the use of health technologies in FHS professionals' and reference units' daily lives, according to the participants of this study. SISREG is intended for scheduling and referring FHS to specialized care, such as consultation with a speech therapist,[26] gynecologist and mammography.[27] SISCAN makes it possible for professionals to request, view the results of cytopathological exams and following users up with altered exams, referring to the screening of breast and cervical cancer.[28] On the other hand, SISVAN, through periodic nutritional assessment, provides data on food consumption and nutritional status of people of any age group assisted in PHC.[29]

A study carried out in Paraíba, Brazil, evidenced the use of technologies in PHC for nursing care management, such as SISREG and PEC.[30] Health service computerization aims to improve the quality of care provided to the enrolled population.[31]

A study carried out in Chile showed that the use of health technologies, such as telemedicine in PHC, increases medical professionals' capacity in the management of dermatological diseases, reducing the need for referrals to Secondary Care.[8] The use of teledermatology is also satisfactory among health professionals and patients in Santiago, Chile.[32]

The electronic medical record has optimized the FHS teams' work, by favoring the simultaneous registration in the Primary Care Health Information System (SISAB - *Sistema de Informação em Saúde da Atenção Básica*),[33] with the power to represent the population's health, proving to be useful to calculate the prevalence of chronic diseases.[34]

Protocols have been considered relevant instruments to organize health work, in a systematic way, and to face various care problems.[35] In this study, the creation of a protocol for organizing the flow of cell phone use by the team to communicate with users via WhastApp® proved to be a necessity.

The reality experienced by FHS professionals during the COVID-19 pandemic exposes the lack of management support, training and infrastructure for the use of technologies,[36] as there is a lack of cell phones, quality internet access.[37] The implementation of home visits with tablet registration was recommended.

It is noted that health professionals are concerned with recommending safe sources of health information for users. The return of traditional values such as tribalism and nomadism represent a vitality of postmodern society.[7] Classic training is no longer enough, digital nomadism in favor of professionals' daily work, in parallel with technological development, creates a constant drive for knowledge.[38] Misinformation is provided, due to excess of links received by people and the ease of access to social networks,[39] especially in the pandemic, in which the rate of dissemination of fake news was increasing on virtual social networks, mainly through WhatsApp® and Facebook®.[40]

The need to adopt social isolation/distancing during the pandemic has led to the emergence of new ways of being together and communicating, through the use of the internet and its tools.[41,42] The appreciation of everyday life suggests an alterity (*religare*), a feeling of trust and tribal belonging,[38,43] the desire to be part of some group, an aggregate of people with whom to establish

communion, social bond, supported by the ethics of aesthetics, of feeling together, of the resumption of strength and the desire to live.[38] Furthermore, postmodern individuals find it difficult to separate the real, such as locality, from the unreal, provided by the internet. Thus, surrealism experienced with the daily use of virtual media has, at the same time, a real effectiveness, creating a bond and connecting people, in an interactive way, determined by the various cultural, musical, religious and political tastes.[18]

As a source of communication between users and professionals, interprofessionally, technosociality contributes to daily work and professional development, characterizing itself as an innovative tool.[44] In particular, WhatsApp® proves to be a facilitator for communication between professionals, professionals and users,[8] a fact also identified by the participants of this study.

The use of WhatsApp® has expanded users' access to FHS actions with greater resolution, facilitating the active search, scheduling or canceling appointments and clinical exams. Furthermore, it reduced the demand for face-to-face consultations, return and presentation of exam results.[45] The growing use of this social network is related to the speed of sending images, videos, voice and text messages.[46] Telemonitoring via phone call of patients with chronic disease conditions, during the pandemic, made it possible to control their health status and update data. Based on this monitoring, health professionals determine which users need to receive a home visit or to schedule a face-to-face consultation at FHS.[47]

TeleCOVID, as a remote monitoring system for suspected and confirmed cases of COVID-19, exercises control over patients in home isolation, and, in case of aggravation of the clinical picture, they are referred.[48] A study carried out in the United Kingdom showed a good acceptance of professionals and users for the telemonitoring of people with COVID-19.[49]

Thus, technosociality becomes relevant for health actions, recommending the need for investments in infrastructure in services for access and greater resolution of user demands.

CONCLUSION AND IMPLICATIONS FO PRACTICE

In this study, it is considered that the COVID-19 pandemic has brought greater use of health technologies and virtual social networks to PHC professionals' daily lives and reference units.

In the scenarios studied, technosociality demonstrated its relevance in the pandemic context as an alternative and necessary form of communication. between professionals, professionals and users for continuity of care and health care for people with chronic disease conditions and for the monitoring of suspected or confirmed cases of COVID-19.

However, management support and investment in infrastructure for the use of health technologies and virtual social networks, by FHS professionals and reference units, are necessary.

The limitation of this research includes the intentional sample; however, in multiple cases, there is a possibility of theoretical replication due to the similarity of results in different realities.

This study contributes to health and nursing, by understanding that the use of virtual social networks and health technologies is a reality in PHC and in reference units, innovating actions and advancing in times of the COVID-19 pandemic. However, it points out that there is a need for investments in this area, which can serve as a subsidy for planning strategies and actions in health with the use of technologies.

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Data analysis. Selma Maria da Fonseca Viegas. Tamires Carolina Silva

Interpretation of results. Selma Maria da Fonseca Viegas. Tamires Carolina Silva. Rosane Gonçalves Nitschke. Priscila Oliveira do Vale Tafner.

Article wrtiting and critical review. Tamires Carolina Silva. Rosane Gonçalves Nitschke. Leila Cristine do Nascimento. Daniela. Priscila Oliveira do Vale Tafner. Selma Maria da Fonseca Viegas

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Responsibility for all aspects of the content and the integrity of the published article. Tamires Carolina Silva. Rosane Gonçalves Nitschke. Leila Cristine do Nascimento. Daniela. Priscila Oliveira do Vale Tafner. Selma Maria da Fonseca Viegas

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