



## TECHNOLOGIES IN THE EMPOWERMENT PROCESS OF PRIMARY NURSING CARE IN THE COVID-19 CONTEXT

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### ABSTRACT

**Objective:** Understand the use of technologies in the empowerment process of nursing practices in the Primary Health Care (PHC) context in a social isolation scenarios ulting from the Covid-19 pandemic. **Methods:** A descriptive and exploratory study, with a qualitative approach, conducted online, with 23 nurses and nursing residents who work in Primary Care, through the application of a virtual form released from May to June 2020. Data analysis was performed using the Collective Subject Discourse, with the contribution of Merhy and Nietzsche's theoretical concepts. **Results:** The speeches were compiled regarding the use of social interaction technologies and individual health education actions, as well as in the recruitment of mass communication to restructure assistance in the identification of exposed individuals. These technologies permeate light, light-hard and hard densities, with educational, care and management objectives. **Conclusion:** New ways of creating the work process pass through previously unseen possibilities, using technologies that empower nurses in primary health care.

**Keywords:** Primary health care. Coronavirus infections. Social isolation. Health technology. Nursing.

### INTRODUCTION

Technologies have been growing worldwide, bringing innovations in several areas of knowledge, including the health field. Its ongoing development and incorporation through the Unified Health System (SUS) denotes an important advance for the implementation of policies aimed at expanding and improving technologies in care, management and educational practices<sup>(1)</sup>.

The concept of technology in the healthcare field goes beyond high-tech machines and equipment. It is structured much more as a practical application of knowledge, methods or ways of doing health, becoming essential, especially in the social isolation scenario caused by the Covid-19 pandemic<sup>(2)</sup>.

Given the high power of viral propagation caused by the Severe Acute Respiratory Syndrome of Coronavirus-2 (SARS-COV-2), there was a concern in the adaptation of health care processes, involving the Primary Health Care (PHC) context, level of care that stands out for the use of technologies to make care more comprehensive, in addition to contributing to the empowerment of professionals to provide care<sup>(3-4)</sup>.

Among the different definitions given to technologies, one of them is the proposal by Merhy<sup>(5)</sup>, who theorizes them in three perspectives: light, light-hard and hard technology. The first is used in human relations of care, involving the exchange of knowledge between those involved. The second refers to structured knowledge and has as defining marks

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the models of care, clinic, and epidemiology. The last one is exemplified by complex instruments, which include equipment used in care<sup>(5)</sup>.

Nietzsche<sup>(6)</sup> gives another concept adopted in the study: the classification of technologies as Educational (ET), Management (MT) and Assistance (AT). ET is an instrument that involves professional-user interaction, allowing to plan, monitor and evaluate the educational system. MT, on the other hand, is considered a systematized process of theoretical and practical actions used in practice management. Finally, AT includes a set of systematized actions, aimed at providing qualified assistance to the individual, family or community<sup>(6)</sup>.

To promote empowerment, the use of technologies in primary nursing care in a social isolation context, whether from an individual or collective perspective, requires support by the Freirean framework of critical-social teaching. Individual construction involves the promotion of autonomy and skills that enable the ability to face inequalities. The collective, on the other hand, is composed of changing strategies in social reality. The social-critical act values behavioral and ethnic-cultural aspects, providing engagement<sup>(7-9)</sup>.

The approach through the analysis of technologies in the empowerment process of nursing practices within the PHC allows it to expand and strengthen the diversity of skills, the digital learning led by the isolation scenario, the improvement of poor work processes and environments, as well as minimizing the boundaries of the profession in the convergence of healthcare services with technology. The contribution to the increased scope in the scientific literature that goes with digital solutions is being proposed to implement the best practices and more effective care models<sup>(10-11)</sup>.

Assuming that PHC is closely related to technologies and the nurse is an important member of the team, it is necessary to explore the effect of technological methods in health actions. When considering the challenges of primary nursing care in a social isolation context, the following concern emerged: How can the use of technologies influence the empowerment of primary nursing care in a social isolation context

caused by the Covid-19 pandemic?

Given the above, the study aimed to understand the use of technologies in the empowerment process of nursing practices within the scope of PHC in the social isolation context caused by the Covid-19 pandemic.

## METHODS

A descriptive and exploratory study, with a qualitative approach emphasizing the usefulness of health information, in which the opinions collected from nurses and nursing residents of the PHC in 2020 were contextualized, with a non-probabilistic intentional sampling type, based on the proposal of free and spontaneous participation of professionals for the sample's final composition. Professionals and residents who were on leave because of labor relations throughout data collection were excluded.

For the recruitment of participants, an e-card was created and sent through social networks (Facebook, Instagram) and instant messaging applications (WhatsApp) among groups with common interests for working in PHC, of which the authors belonged. The invitation reached approximately 149 professionals and residents and the adherence to the study took place spontaneously, with access to the questionnaire voluntarily. However, in the case of professionals who contacted the researchers and showed interest in participating, the approach was carried out individually, using the same applications, for up to three attempts.

The technique of chronological cut-off and data saturation was adopted to survey the sample size, using a virtual form created by the team and sent through the Google Forms® online platform, programmed to receive responses within 15 days. The data collection timeframe took place from May to June 2020 and, of the 31 professionals and residents who contacted the researchers and showed interest in participating, 23 composed the final sample. Refusals to participate in the survey can be explained by the professionals' physical exhaustion and mental fatigue to answer questions asked by the research. To avoid duplication of responses, the identification card number requested in the Informed Consent Form was verified. Only one form was excluded for presenting inconclusive

and confusing information.

The form comprised a total of eight objective and subjective questions, to collect sociodemographic data and professional profile, as well as some guiding questions: 1) In social isolation times, how are health promotion and education actions being conducted? 2) Are you making use of any technology(s)? Which (Which ones)? How? 3) How is the identification of groups, families and individuals exposed to risks (Covid-19) and other diseases being carried out? The questions were analyzed by nursingpostgraduate students in the PHC area, who lived with the context of developing and assessing technologies to re-signify their care practices.

The analysis of sociodemographic and professional data was performed using descriptive measures, absolute and relative frequency to characterize the participants' profiles. A specific spreadsheet in Excel 2016 software was used to organize and organize the data, later transferred to statistical analysis software, EpiInfo, version 7.2.1.

The analysis of qualitative data was performed using the Collective Subject Discourse (CSD), which consists of analyzing the collected spoken material, extracting, from each one, the Central Ideas (CIs) or Anchorages (ACs) and their corresponding Key Expressions (KE); when similar, one or several synthesis discourses are created, which are the CSDs<sup>(12)</sup>. To manage the data, the free trial version of DSCsoft was used.

Moreover, the data were associated with theoretical concepts on health technology<sup>(5-6)</sup>, to understand the resources used in the pandemic context and their influence on the

process of individual, collective and/or critical-social empowerment.

The study followed the standards of Resolution 466/12 of the National Health Council (CNS) of the Ministry of Health (MS) and 510/16 CNS/MS. The Informed Consent Term for online studies was presented, in which the participant stated the desire to participate and answered the proposed question. It was also approved by the Research Ethics Committee of the Federal University of Pernambuco (CAAE 31894820.7.0000.5208). The speeches were identified through acronyms, to preserve anonymity.

## RESULTS

The sociodemographic data analysis of the 23 participants showed a higher frequency of female professionals: 78.26% (n=18). Regarding professional position, 56.52% (n=13) were nursing residents and 43.48% (n=10) nurses.

As for the region of operation, the Northeast region stood out, with 78.26% (n=18), followed by the Southern regions, with 8.70% (n=2) and the Midwest, with 8.70% (n=2). Only 4.35% (n=1) of the professionals answered this question mistakenly, indicating only the country, but their speech was considered. Most professionals have residency-type specialization, 39.13% (n=9), followed by a master's degree, 26.09% (n=6) and specialization, 21.74% (n=5). However, 60.87% (n=14) are not specialized in primary care.

Regarding health promotion and education actions carried out in the area, the following Collective Subject Discourse (CSD) was compiled (Chart 1):

**Chart 1.** Collective Subject Discourse based on experiences and understandings on the use of technologies in nursing practice in Primary Care in the Covid-19 pandemic context -Brazil, 2020

<b>Central idea: The rescue of mass communication technologies and health measures, technological resources for social interaction and individual health education actions</b>
<i>I carry out awareness activities on sanitary barriers and health education in the vaccination campaign, in medication waiting rooms and through nursing consultations with awareness of the necessary measures to be taken: social isolation, hand washing, use of masks and hand sanitizer, guidance on signs and symptoms and the search for referral units, besides the development of actions based on popular education, using support materials for professionals and community members, in addition to the municipality's radio approach of dissemination of information (DSCI).</i>

**Source:** Research data, 2020.

Another CSD explained the technologies being used and its adoption to re-signify the nursing

work process for its empowerment in primary health care in the pandemic context (Chart 2):

**Chart 2.** Collective Subject Discourse based on experiences and understandings on the use of technologies in nursing practice in Primary Care in the Covid-19 pandemic context -Brazil, 2020

**Central idea: The promotion of empowerment with the use of new technologies: the resignification in primary nursing care in the social isolation context caused by the Covid-19 pandemic**

*I keep using the e-SUS for registration, the Calgary, Coelho and Savassi scales, and light technologies for user embracement. With the current pandemic scenario, I started using Geomaps to locate the highest incidence of covid-19, smartphone or personal cell phone for telephone service (Teleconsultation), phone calls, registration of families, reporting and follow-up of symptomatic cases, and their family members, as well as the monitoring of priority groups, hypertensive, diabetic, smokers, children and pregnant women, the latter two did not fail to have face-to-face monitoring in the units, in addition to text messaging applications (CSD 2).*

**Source:** Research data, 2020.

The last CSD was structured from the practices of nurses and nursing residents on the identification of groups, families and individuals exposed to risks (Covid-19) and other diseases, described in chart 3:

**Chart 3.** Collective Subject Discourse based on experiences and understandings on the use of technologies in nursing practice in Primary Care in the Covid-19 pandemic context -Brazil, 2020.

**Central idea: Nursing in the role of restructuring care for the identification of groups, families and individuals exposed to risks and other illnesses**

*Some strategies were kept, such as active search, home visits, and surveillance. But others I had to reset for the context we are living. The initial identification occurs by searching for services in health units, hospitals, outpatient clinics for respiratory symptoms or in the reception at our Basic Health Unit. I also developed a questionnaire used in the sanitary barrier. Whenever there are confirmed or even suspected cases, daily contact is made via telephone and with terms of commitment and responsibility signed after medical consultation or lab exams. I also identify through the triage, using the "covid" app, by telephone, and with the help of Google Earth. For patients with symptoms and chronic diseases, that is, those at greater risk, I am setting up strategies for a field group to be able to assess signs and symptoms more closely, so that they do not evolve into a moderate or severe case. I am using FAST-TRACK, communication and support from the Municipal Health Department and nurses were strengthened (CSD 3).*

**Source:** Research data, 2020.

Based on the process of analyzing the professionals' discourse, the technologies cited were classified according to some authors<sup>(5-6)</sup>, with a greater emphasis on hard and management technologies (Chart 4):

**Chart 4.** Classification of technologies for the empowerment process of nursing practices in the scope of Primary Care according to Merhy<sup>(5)</sup> and Nietzsche's<sup>(6)</sup> concepts. Brazil, 2020.

The Use of Technologies according to Merhy <sup>(5)</sup>	The Use of Technologies according to Nietzsche <sup>(6)</sup>	ACTIONS
Light Technology	Assistance	Guidelines for families; Triage center created for this purpose; Active search; User embracement;
	Educational	Guidelines for families; Individual guidelines for hygiene, isolation, socializing and the previous comorbidities; Guidance for Community Health Workers (CHW)
	Management	Communication and support from municipal management;

**To be continued...**

Light-hard technology	Management	Questionnaire created on sanitary barriers; Calgary and Coelho and Savassi Scale; Medical record; Surveillance reporting tools;
Hard technology	Assistance	Social networking applications; Instant messaging applications and voice call; Contact by phone; “Covid” app Telephone service
	Educational	Guidance via instant messaging applications;
	Management	e-SUS for registration; FAST-TRACK; Internet and cell phone for the registration of families, reporting, and follow-up of symptomatic cases and their families; Google Earth, to spot the houses by the number of medical records and if any resident has: diabetes, hypertension, pregnant women, children under 2 years old, postpartum women and smokers; Geomaps, to spot greater incidence; App via Global Positioning System (GPS) that can evaluate the isolation index in each territory.

**Source:** Research data, 2020.

The results show the purpose of using empowerment and encouraging changes in educational technologies at the individual, behavior and attitudes (Chart 5): collective or social critical level, concerning

**Chart 5.** Classification of empowerment according to the educational technologies used by nurses and residents of Primary Care in the social isolation context caused by the Covid-19 pandemic, Brazil, 2020

Psychological/Individual Empowerment	Advice and guidance during visits to micro-areas and nursing consultations on the need for social isolation, hygiene, use of masks and hand washing, suspected signs and symptoms, the existence of comorbidities and search for referral units; Individual consultations; Telephone service (Teleconsultation), aimed at guidance; Customer service through mobile applications; Telephone counseling for families; Counseling to CHWs via instant messaging applications to empower families.
Social/Collective Empowerment	Carrying out some health education activities throughout the vaccination campaign, with awareness of social isolation, delivery of educational flyers, masks and hand sanitizer; Flyers; Creation of a space for the dissemination of information on the municipal radio.
Social Empowerment Critical	Actions based on popular education, thinking, together with the community, of ways of responding in this period.

**Source:** Research data, 2020.

## DISCUSSION

In the current context of the Covid-19 pandemic, technological tools were widely used

by nursing, specifically within the PHC scope. Health education strategies using light technologies, supported by Merhy<sup>(5)</sup> are mentioned in some speeches. However, we can observe the importance of the use of light-hard and hard technologies. A fact that also prevailed in the pre-pandemic period, as shown in a study carried out in the south of the city of São Paulo with 19 nurses from the Family Health Strategy (FHS)<sup>(13)</sup>. This scenario can be explained by the individual perceptions of each professional, besides the lack of perception about the importance of applying light technologies as care instruments.

Some strategies employed before social isolation managed to stay effective, but it was necessary to re-create the care model, considering the context experienced. Pandemics such as Covid-19 make the resignification of nursing care practices more flexible and set several challenges for these professionals within the PHC scope, given that they are primarily responsible for the management and organization of the service<sup>(14)</sup>.

The change from face-to-face assistance to the remote type was needed, also observed in other countries, such as the United Kingdom, where the telephone is being used to give information and clarify doubts about the disease, while in the United States, professionals use video calls<sup>(15)</sup>.

For the classification of these technologies in the health area, the concept of Merhy<sup>(5)</sup> is mentioned in the new National Policy of Primary Care (PNAB) 2017, supporting that, to guarantee the high solubility of the service, it is crucial to incorporate of light, light-hard and hard technology, which help in educational, management, diagnostic and therapeutic approaches<sup>(16)</sup>.

This scenario becomes evident after understanding the speeches of professionals, which indicate the frequent use of social media as a vehicle of communication, in the social isolation context, demonstrating an option for reaching information beyond the usual environment. The effectiveness of these means may be observed by the emergency profile, in campaigns, and the counseling to families, as shown in the study developed at the University of the State of Bahia (UNEB)<sup>(17)</sup>. The use of

social media as an alternative method of providing care has spread throughout the world and the emergence of Covid-19 points to a moment of expansion of this modality of communication in health. This factor can be explained by the tool's potential to reach many people and provide fast dissemination of information and knowledge.

The use of instant messaging applications and electronic medical records has been widely discussed in the literature. In Florianópolis, this experience showed good outcomes, including in the work of Community Health Workers (CWAs). Light technologies, although less frequent in the speeches, are still used within the units, through user embracement and communication with families to give counseling about the virus<sup>(18)</sup>.

Regarding the use of technological methods, several cities in Brazil have resorted to the call center service as a means of assistance technology<sup>(6)</sup>. It was possible to observe a similarity with the study carried out in health units in Salvador, Brazil. An alternative that proved to be effective in the face of the restrictions imposed by social distancing<sup>(19)</sup>.

Despite the importance of the care model based on popular education practices, it may be observed that this method was not present in a significant way in the speech of professionals, highlighting the actions of management and assistance purpose, in agreement with what was carried out on the east coast of Ceará, Brazil<sup>(20)</sup>.

Regarding empowerment in nursing, it is observed as arising from something that professionals do for their patients, or as an individual process of self-awareness and updating<sup>(21)</sup>. In this context, the use of technologies was mentioned by most of the interviewees as an empowerment strategy in the nursing work process in primary care.

The development of empowerment, through health educational interventions, is strengthened through a theoretical contribution that can enable emancipating pedagogical practices, committed to the production of scientific evidence in health promotion<sup>(22)</sup>. It is observed that most educational technologies are focused on individual or psychological empowerment perspectives. The way these technologies are applied can interfere in the search for health

care.

It is worth stating that only one professional reported educational interventions from a perspective of social class empowerment, an end-stage in which the critical-reflective construction process awakens the political consciousness of individuals<sup>(14)</sup>. The low adherence and stimulus to critical-social empowerment may be because of the lack of understanding, by professionals, on how to develop technologies based on this perspective.

Actions with the potential to raise awareness about the severity and seriousness of Covid-19 and the importance of the community in preventing the spread of the virus were carried out in this study, by raising awareness activities about sanitary barriers, while holding health education, in waiting rooms, and through nursing consultation<sup>(18)</sup>.

The analysis of the speeches allows confirming the relevance of the actions carried out by nurses in the fight against Covid-19, as well as the technological innovations used as a strategy to guarantee the safety of users and professionals, besides promoting resoluteness and empowerment in care. However, reorganizing care management in the time of a pandemic is not an easy task. The need for strategies to include the opinions of these professionals in decision-making is highlighted, to promote the strengthening of care and recognition practices<sup>(14)</sup>.

The study had some limitations, such as lack of professional motivation in the scenario faced (pandemic); tiredness and impatience, due to the high volume of requests from these professionals in research in different areas.

## FINAL CONSIDERATIONS

Based on the experiences described by

professionals through the social distancing caused by the Covid-19 pandemic, the empowerment of nursing practices can be seen, through the resignification of actions and services related to primary health care, such as the strengthening of telephone service and the leading role in the elaboration of new structures in the construction of the health care network and care models for the identification and monitoring of groups, families and individuals exposed to risks and other diseases.

The use of light-hard and hard technologies in management and care perspective provided the user embracement and follow-up of care, contemplating the main needs in the face of a pandemic scenario that requires changes in social behavior and the relationships between user and health professional.

The role of nurses as a member of the PHC team is of utmost importance for decreasing the spread of the virus, through the development of promotion and prevention actions. Thus, the rescue of mass communication technologies and software innovation provided the implementation of more effective, qualified and humanized nursing care.

However, the speeches showed a lack of educational interventions from the perspective of social class empowerment, reinforcing two primary needs: the inclusion of subjects related to popular education in the curriculum of higher education health courses, as well as conducting new research, to expand knowledge on such an important and central theme.

Despite the limitations, the research contributed positively to teaching, research and management, as it revealed new ways of developing the nursing work process and exploring through previously unseen possibilities that make it possible to optimize and qualify the use of technologies in health.

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## AS TECNOLOGIAS NO PROCESSO DE EMPODERAMENTO DOS CUIDADOS PRIMÁRIOS DE ENFERMAGEM EM CONTEXTO DA COVID-19

### RESUMO

**Objetivo:** Compreender o uso de tecnologias no processo de empoderamento das práticas de enfermagem no âmbito da Atenção Primária à Saúde (APS) em contexto de isolamento social provocado pela pandemia da Covid-19. **Métodos:** Estudo descritivo e exploratório, com abordagem qualitativa, realizado de forma *online*, com 23 enfermeiros e residentes de enfermagem que atuam na Atenção Primária, através da aplicação de um formulário virtual divulgado no período de maio-junho de 2020. Os dados foram analisados pelo Discurso do Sujeito Coletivo, com o aporte dos conceitos teóricos de Merhy e Nietzsche. **Resultados:** Os discursos foram compilados no uso de tecnologias de

interação social e ações individuais de educação em saúde, como também no resgate da comunicação em massa para reestruturação da assistência na identificação de indivíduos expostos. Estas tecnologias permeiam as densidades leve, leve-dura e dura, com fins educacionais, assistenciais e gerenciais. **Conclusão:** Novos modos de construir o processo de trabalho navegam por possibilidades antes invisíveis, com o recurso das tecnologias que empoderamos enfermeiros diante dos cuidados primários à saúde.

**Palavras-chave:** Atenção primária à saúde. Infecções por coronavírus. Isolamento social. Tecnologia em saúde. Enfermagem.

## TECNOLOGÍAS EN EL PROCESO DE EMPODERAMIENTO DE LA ATENCIÓN PRIMARIA DE ENFERMERÍA EN EL CONTEXTO DE COVID-19

### RESUMEN

**Objetivo:** comprender el uso de tecnologías en el proceso de empoderamiento de las prácticas de enfermería en el ámbito de la Atención Primaria de Salud (APS) en contexto de aislamiento social provocado por la pandemia de Covid-19. **Métodos:** estudio descriptivo y exploratorio, con enfoque cualitativo, realizado de forma *online*, con 23 enfermeros y residentes de enfermería que actúan en la Atención Primaria, a través de la aplicación de un formulario virtual divulgado en el periodo de mayo-junio de 2020. Los datos fueron analizados por el Discurso del Sujeto Colectivo, con el aporte de los conceptos teóricos de Merhy y Nietzsche. **Resultados:** los discursos fueron compilados en el uso de tecnologías de interacción social y acciones individuales de educación en salud, así como en el rescate de la comunicación de masas para reestructuración de la asistencia en la identificación de individuos expuestos. Estas tecnologías permeian las densidades: blanda, blanda-dura y dura, con fines educativos, asistenciales y de gerencia. **Conclusión:** nuevos modos de construir el proceso de trabajo navegan por posibilidades antes invisibles, con el recurso de las tecnologías que empoderamos enfermeros ante la atención primaria de salud.

**Palabras clave:** Atención primaria de salud. Infecciones por coronavirus. Aislamiento social. Tecnología en salud. Enfermería.

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