Digital health and nursing: communication tool in the Family Health Strategy

Saúde digital e enfermagem: ferramenta de comunicação na Estratégia Saúde da Família

Salud digital y enfermería: herramienta de comunicación en la Estrategia Salud de la Familia

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Abstract

Objective: Evaluate the knowledge of professionals about the DigiSUS application and verify the need for software development for communication between nursing professionals and users of the Family Health Strategy (FHS).

Methods: Descriptive, cross-sectional study with quantitative approach. The research was undertaken in April and May 2020 in a city with 100% Primary Care coverage. All registered nurses (140) who were working in the city's FHS were invited.

Results: We analyzed the answers of 39 nurses, aged between 29 and 50 years, mostly women, who had been working for more than 10 years in the Family Health Strategy of the city in the North of Minas Gerais. Most nurses reported knowing the technologies provided by the Health Department, but 25 (64.1%) do not know the DigiSUS application.

Conclusion: This research demonstrates the nurses' need and expectation to have access to a prototype application that facilitates communication with users of the Family Health Strategy in the Unified Health System.

Resumo

Objetivo: Avaliar o conhecimento de profissionais acerca do aplicativo DigiSUS e verificar a necessidade de desenvolvimento de software para comunicação entre profissionais de enfermagem e usuários da Estratégia Saúde da Família.

Métodos: Estudo descritivo, transversal com abordagem quantitativa. A investigação foi conduzida nos meses de abril e maio de 2020 em uma cidade com uma cobertura de 100% da Atenção Básica. Foram convidados todos os enfermeiros cadastrados (140) e atuantes na ESF do município.

Resultados: Foram analisadas as respostas de 39 enfermeiros, com idade entre 29 e 50 anos, maioria mulher, com atuação há mais de 10 anos na Estratégia Saúde da Família do município norte-mineiro. A maior parte dos enfermeiros informou conhecer as tecnologias disponibilizadas pelo Ministério da Saúde, porém 25 (64,1%) não conhecem o aplicativo do DigiSUS.

Conclusão: Esta pesquisa demonstra a necessidade e expectativa dos enfermeiros de terem acesso a um protótipo de aplicativo que facilite a comunicação com os usuários da Estratégia Saúde da Família do Sistema Único de Saúde.

Resumen

Objetivo: Evaluar el conocimiento de profesionales sobre la aplicación DigiSUS y verificar la necesidad de desarrollar un software para la comunicación entre profesionales de enfermería y usuarios de la Estrategia Salud de la Familia.

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Conflicts of interest: nothing to declare.

Métodos: Estudio descriptivo, transversal, con enfoque cuantitativo. La investigación fue llevada a cabo en los meses de abril y mayo de 2020 en una ciudad con una cobertura del 100 % de la Atención Básica. Se invitó a todos los enfermeros registrados (140) y que trabajan en la ESF del municipio.

Resultados: Se analizaron las respuestas de 39 enfermeros, entre 29 y 50 años, mayoría de mujeres, que trabajan hace más de 10 años en la Estrategia Salud de la Familia de un municipio del norte del estado de Minas Gerais. La mayor parte de los enfermeros informó que conocía las tecnologías que el Ministerio de Salud pone a disposición, pero 25 (64,1 %) no conocen la aplicación DigiSUS.

Conclusión: Este estudio demuestra la necesidad y expectativa de los enfermeros de tener acceso a un prototipo de aplicación que facilite la comunicación con los usuarios de la Estrategia Salud de la Familia del Sistema Único de Salud.

Introduction

Scientific progress and, as a consequence, its technological and innovative developments have allowed accelerated interactions based on information and communication technologies (ICT) and the internet, especially with the advent of smartphones, which are configured as real computers available to people, full-time, by a significant portion of the global population. This reality has resulted in new forms of behavior influenced by the access and dissemination of information that accompany the dynamic development of societies and new patterns of the health-disease process. Hence, through ICT, new strategies for the democratization of knowledge are available that allow better conditions to ensure people's right to health.

Considering, thus, the value of ICT for equitable and universal access to health, through the knowledge the access to information has favored, in May 2005, during its 58^{the} Assembly, the World Health Organization (WHO) drew attention to the benefits of what it considered as digital health and its impact on the provision of care.[1] The 66th World Health Assembly recognized that digital health promotes accessible communication between peoples, quality care provided to the population, re-signifying and strengthening health systems.[2] Five years later, WHO again highlighted how important it is for its member countries to implement and develop digital health strategies.[3]

This sequence of decisions resulted in the establishment of global strategies for the development of digital health for the period 2020-2025, and WHO's call upon the countries for technological dialogue in order to meet the Sustainable Development Goals (SDG) of the 2030 Agenda. In addition, the organization recommended the adoption of technological structures that provide opportunities for digital advancement in line with universal access and coverage, with resources such as virtual care, database with a computerized system to categorize safe patient information, easy work organization and management, digital platforms, artificial intelligence and other tools that entail improvements for health systems.[4]

In this sense, the digital health strategies of Brazil 2020-2028 aim to connect population/governments/ministerial entities/universities/health professionals. The action plan of these strategies adopts priorities and interventions establishing leadership; government actions with legislations and regulations; computerization in the three levels of health care and improvement in care; objective actions, such as telehealth - training of health professionals, as well as improvement of physical spaces, a platform that allows citizens access to information and interactive ecosystems that guarantee the strengthening of the SUS' principle of universality.[5]

In addition, the Brazil Telehealth Program was expanded and brought important benefits to health professionals, with tools such as teleconsultation, telediagnosis, scientific support to educational institutions, tele-education, among others.[6] Through Ordinance No. 1,434, of May 28, 2020, the Ministry of Health established the Connect SUS Program, which aims to implement the National Health Data Network - RNDS. Thus, the program aims to computerize and ensure integration among health services, especially Primary Health Care, in addition to providing access to citizens who use the SUS.[7]

The SUS' principle of universality should therefore be devised based on strategies that permit its conception in a perspective that goes beyond the idea of people's physical access to health services and, thus, the achievement of access and accessibility of information that enable the construction

of knowledge for social emancipation, capable of favoring the guarantee of the right to health. Therefore, ICTs, in the context of digital health, are fundamental; therefore, health professionals are indispensable in this process. In this context, WHO acknowledges and values its professionals so that, through them, service efficiency and problem-solving ability are achieved.[8]

These professionals include nurses, with the mission of promoting the health and well-being of the population, taking care of individuals, families and communities. These professionals are recognized as fundamental for the sustainability of health systems at the local and global levels, advocating for the rights of patients in favor of the SDGs; they are also policy makers, who use evidence that projects nursing in meeting the needs of the population. They are therefore fit for the present and, being innovative and adaptable, they are indispensable for the future that projects concerning epidemiological estimates for global health,[9-13] also taking into account the cost-effectiveness ratio in health services.[12] Nursing professionals constitute the largest occupational group in the health sector globally, with approximately 59% of the workforce;[14] in Brazil, nursing represents approximately 70% of the health workforce.[14,15]

Thus, nursing is indispensable for the performance of the SUS, which presents Primary Health Care as the main context of health promotion, prevention of risks or diseases and rehabilitation. Especially at this level of health care, the decentralization process is essential to guarantee the principles of the SUS, in which the Family Health Strategy (FHS) is an important device for reorienting health actions and services based on the family and on the home and community context, which together constitute a valuable care matrix. These interactions are the context for the micropolicy of transformation among information access, knowledge construction and behavioral changes, capable of modifying realities based on the adoption of healthy habits for example, which modify individual and social vulnerabilities. Therefore, it may be within the scope of the FHS that digital health causes a greater impact for the universal access to health.

In this perspective and at the confluence of nurses' work with the digital Health Policy, this study aims to evaluate the professionals' knowledge about DigiSUS software and verify the need for software development for the purpose of communication between nursing professionals and FHS users.

Methods

Descriptive, cross-sectional study with a quantitative approach. This is the first phase of an applied or technological research,[16] whose purpose is to produce scientific knowledge to improve access and communication between nurses and users of the Family Health Strategy in a city in the North of Minas Gerais. Thus, it is necessary to understand the knowledge and needs of nurses working in the FHS, in order to structure effective strategies for the implementation and development of a prototype *software* application based on the User-Centered Design (UX) method.[17]

This method allows for users' active participation users in the construction of the prototype *software* application; thus, before starting the creation of this mobile technology, the researchers conducted a survey to diagnose the nurses' needs. Although the Health Department has the My DigiSUS application, it does not have features that allow nurses to communicate with their patients. Therefore, knowledge was needed on the nurses' needs, besides a survey on their expectations for the use of a new prototype yet to be created or the incorporation of improvements in the existing application. In addition, the justification for using the UX method is based on the theory of user usability. The fact of inviting the user to participate in the creation guarantees better chances that users will use the end product.

An online questionnaire was developed specifically for this study. Before being used, five nurse researchers submitted the questionnaire to face and content validation and tested and corrected it; it contains 69 questions distributed in five domains: (1) personal characteristics, (2) organization and management in the FHS; (3) principles and

guidelines of the SUS; (4) functions, action and skills developed in the FHS and (5) knowledge of the nurse about the digital technologies the Health Department makes available. The latter domain made it possible to evaluate the nurses' knowledge on the existing application - DigiSUS, and to raise information about the need to create and implement a new prototype software application, which facilitates access and communication between the nurse and the FHS user in the city surveyed.

The research was conducted in April and May 2020 in a city with a territorial area of 3,589. 811 km2, 413,487 inhabitants and Municipal Human Development Index of 0.770[18] with 89 Health Centers / basic health units, according to open data available on CNESNet.[19] Data obtained by the information and Management System of Primary Care E-Manager indicate that the municipality has a coverage of 100% of Primary Care.[20] All registered nurses (140) and working in the FHS of the municipality were invited. The participants were recruited by invitation, via e-mail, which clarified the research objectives, contained a link to access the questionnaire in *Google Forms* and an attachment with the Informed Consent Form signed by the researchers. The Primary Health Care Coordination in the city studied provided the *e-mail* addresses. Each nurse received the invitation thrice during the preset data collection period. Approval for the study was obtained from the Institutional Review Board at the University of São Paulo at Ribeirão Preto College of Nursing (opinion 3.836.432) (CAAE: 27862620.0.0000.5393). The study complied with the ethical guidelines of resolution 466/2012.[21]

The data were submitted to descriptive statistical analysis with frequency and percentage calculation, using the program *Statistical Package for the Social Sciences* (SPSS) version 25.

Results

We analyzed the answers of 39 nurses, aged 29 to 50 years. Among the participants, 32 (80%) are women, 28 (71.8%) hold a *lato sensu* specialization degree and 5 (12.5%) have been working in the Family Health Strategy of the city in Northern Minas Gerais for more than ten years. Most of the 24 (61.5%) nurses reported knowing the technologies the Health Department (HD) makes available, and that they would like to use an application/software to communicate with users registered in the FHS, in which 33 (84.6%) work. Twenty-five (64.1%) did not know the DigiSUS application and 29 (74.4%) indicated that they did not use any technology to communicate with FHS users (Table 1).

Table 1. Knowledge and use of Health Department communication technologies by nurses in a city in Northern Minas Gerais

Questions	Yes N(%)	No N(%)	No answer N(%)
Do you know the digital technologies the Health Department offers?	24(61.5)	14(35.9)	1(2.6)
Do you know the DigiSUS application?	13(33.3)	25(64.1)	1(2.6)
Is any technology used in your city that facilitates access and communication between the nurse and the FHS user?	9(23.1)	29(74.4)	1(2.6)
Would you like to use an application/ software to communicate with users registered in your FHS?	33(84.6)	5(12.8)	1(2.6)

When asked about the applicability of HD technologies in the city, 29 (74.4%) nurses considered it was positive. Regarding the applicability of DigiSUS and some technology that facilitates access and communication between the nurse and the FHS user, 18 (46.2%) considered it positive and 22 (56.4%) did not answer, respectively (Table 2).

Table 2. Nurses' answers on the applicability and need to use Health Department technologies

Questions	Positive N(%)	Negative N(%)	No answer N(%)
How do you perceive the applicability of the digital technologies the Health Department offers?	29(74.4)	2(5.1)	8(20.5)
How do you perceive the applicability of DigiSUS?	18(46.2)	3(7.6)	18(46.2)
How do you perceive the applicability of some technology that facilitates access and communication between the nurse and the FHS user?	13(33.3)	4(10.3)	22(56.4)

Regarding the digital technologies the HD offers, 29 (74.3%) nurses reported that they had started to use them in the last five years, and 18 (46.2%) indicated ease, accessibility, agility, problem-solving ability and database, work organization, registration and safety of patient records and improvement in

care as benefits of this use. Regarding usage difficulties, 15 (38.4%) highlighted the lack of structure, such as devices (computers and/or tablets) and internet access. As for DigiSUS, 15.3% of the nurses reported that they began to use it in the last five years and pointed to agility, assistance in care, entertainment and access to information as benefits of its use, while lack of training, devices and internet access were mentioned as difficulties.

Discussion

Like other professions, nursing practice should be in harmony with digital technology. The services need to be equipped with necessary instruments, and human resources need to be trained and receive education throughout their working life for their satisfaction at work, for the delivery of quality services and for the safety of the patient, the worker and the data they generate, as they are the ones that have to feed the information systems for the SUS.

Considering the research participants' age group and their involvement with technologies in their daily lives, living in a context of digital health, it would be expected that the majority knew the digital technologies the Health Department offers; nevertheless, a large number of professionals do not know these technologies, 14 (35.9%). Of the 39 respondents, 24 (61.5%) only partially know the technologies the Brazilian Health Department offers; 29 (74%) acknowledge that their use would be positive in their service.

In addition, and consequently, 15 (38.4%) pointed out the lack of structure, such as devices (computers and/or tablets) and internet access as difficulties faced. By itself, this set of results means that there is a need to train the nurses on the use of technology, to provide them with continuing education programs on a range of themes related to the work they do in the FHS, to expose them to the content of the Health Department website, encouraging the habit of frequent access to recycle their knowledge, and the use of digital technology and media, information processing and retrieval, and participation in social networks including a range of skills such as the use of digital media for the sake of information processing and retrieval, participation in social networks, power systems, feeding of information systems in the unified health system-SUS, for the generation of statistics on the reliability and trustworthiness of the data, in short, to understand their role in this context. Information and communication technologies (ICT) bring together repositories, data sources, giving breadth to information sharing, strengthening communication, providing data and knowledge, resulting in socio-economic and cultural development, influencing organizations and society.

In an age of accelerated advancement of digital media and in contrast to circumstances of limited resources, insufficient organizational adherence and behavioral change, the digital health policy should be the focus of health service managers' attention.[22-26]

There is evidence that referral to digital interventions has great potential to drive a larger proportion of patients towards structured interventions for their self-care, promoting behavioral change in relation to health in different contexts,[27-32] also developing professional confidence;[33] in addition, digital health interventions can serve as a strategy for customer engagement in health services,[34-37] they can mutually integrate different health professionals or align certain professionals with the protocols the health system adopts. It is well known though that its excessive use may violate the code of professional ethics and that addictive behavior may cause harm.[33,38]

The benefits of using the Health Department's technologies include the ease, problem-solving ability in the organization of work, besides constituting a database with secure sources for access to patient records, facilitating care. In terms of scheduling, the adoption of digital solutions is increasingly interesting, comfortable and convenient for both services and clients.[35,39] The realities differ between developed and developing countries though; in the case studied here, FHS nurses face difficulties to access the internet, lack of materials and improper facilities. Therefore, it is not surprising that, when questioned, most of the nurses - 25 (64.1%) declared that they were unaware of the Brazilian Health Department's applications, such as DigiSUS. The

participants who reported using DigiSUS say that the application assists in care, promotes entertainment and agile access to information. The study participants' performance depends not only on the physical-functional facilities of the unit where they work and the lack of leadership to invest in continuing education. It should also be kept in mind that the DigiSUS application was launched in 2015; the fact that it is relatively new for the nurses' age profile, in addition to the lack of investment in continuing education, explains their lack of knowledge and raises an alert. Therefore, the generational factor should be added to these determinants, as 22 (56.4%) of the respondents were born between 1970 to 1989 and make up generations whose restricted mastery of mobile technologies and low digital literacy is common.[40,41] This represents a challenge and managers need to take it into account; therefore, it is important that the incorporation of technologies in the FHS is accompanied by continuing education, focusing on these new models of digital technology.

When asked about the context they live in regarding the use of technology that facilitates the communication between nurses and users of the FHS in the city studied, 24 (74.4%) of the nurses who participated in this study informed that there is no technological tool to provide this interaction in the city in Northern Minas Gerais. It should be noted, however, that 33 (84.6%) participating nurses want a communication application/software to be developed and implemented that promotes greater communication with the families registered in the FHS where these nursing professionals work, which should merit our effort to proceed with this research.

The app DigiSUS is available for Android and IOS smartphones, whose functionalities allow SUS users to access their data and information, such as their SUS card number, list of medicines, vaccines, exams and health establishments close to the users' location. Besides offering and implementing this type of mobile technology, the HD should work to empower professionals for the use of this tool, disseminating and encouraging users to incorporate and improve mobile technology in their daily practice.[42,43]

In this context, we also note that the Family Health Program created in 1994, now called the Family Health Strategy, took about 27 years to develop computerization strategies in PHC. In 2019, the Health Department established, through Ordinance Nº 2.983, of November 11, 2019, the Primary Care Computerization Support Program, prioritizing: data network, training of professionals, electronic medical record with patient history, medication prescription, patient information, request for examinations, issuance of certificates, among others as a means of integrating the health care network of the SUS.[44] With the pandemic context of the coronavirus (COVID-19), however, Ordinance No. 1.247 of May 18, 2020 extended the program.[45]

We know that the public health principles should not be modified when adopting digital health goals: this goal comes to support and promote better health care for populations. Digital health is a means and not an end in itself. Digitalization should not modify public health principles; rather, it should support and enable their implementation, promote access, universalization, quality of the services provided, efficiency, inclusion and equity in health care.[36]

In addition, to perform interventions aimed at adopting digital methods involving health professionals and also their clients, the intervention planner needs to have in perspective the understanding of the psychosocial context of the users, since such processes exceed the assessment of acceptability, satisfaction and usability and, therefore, must cover behavioral elements of the intervention. Keeping these aspects in mind, interveners will be able to anticipate and interpret the use and results of the intervention, also seeking ways to make it persuasive, feasible and relevant for users.[46,47]

The literature contains ample evidence that the satisfying relationships between the nurse and patient increase patients' chances to achieve health and well-being, face-to-face contact in primary care services is essential to encourage that digital interventions are likely to happen, especially for the elderly; and it is important to highlight for clients that the use of the digital services may be more pronounced where it is not seen as a replacement to face-to-face care, but rather as a well-balanced solution.[48,49]

It is worth highlighting the WHO incentives and the digital health policy, which invite managers to implement digital health as a care quality process, influencing and transforming health services. Thus, the Health Department needs to close partnerships with the health secretariats and other public entities, applying necessary resources and structuring the FHS facilities; provide for high-quality computers and internet; promote training of professionals and teaching of SUS users to use the tools the HD offers, connecting the population with the healthcare network, aiming to contribute to the universal access to health. In doing so, the Department is responding to the Pan American Health Organization's recent call to action for the countries' health sector to take a stand, in keeping with the era of digital transformation underway in the region, putting in practice the eight guiding principles to this end: universal connectivity, digital assets, inclusive digital health, inter-operability, human rights, artificial intelligence, information security and public health architecture.[50]

At the end of the first phase of our research, we now have the commitment to proceed to the second phase, building and giving access to the application that nurses need for activities in which it is possible to practice the principles of the era of digital transformation and respond to the call to action issued by the Pan American Health Organization. We consider that the time elapsed between the data collection for this study and the issuing of Health Department Ordinance Nº 2.983, of November 11, 2019 for the computerization of Primary Care was short for an evaluation, especially in a pandemic context, and may constitute a limiting factor, therefore indicating the need to replicate and reassess the study.

Conclusion

This research demonstrates the nurses' need and expectation to have access to a prototype application that facilitates communication with users of the Family Health Strategy in the Unified Health System.

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Collaborations

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