

Critical analysis of the impacts of telehealth applied in the permanent education of the Primary Care professionals

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Abstract

Introduction: telehealth aids permanent education, standardizes the therapeutic behavior and facilitates the knowledge exchange among the primary care professionals from the isolated municipalities and the health professionals of the big health centers. Objective: analyze the impacts of telehealth in the formation of the primary care professionals in Brazil. Method: The methodological design used here was the bibliographic research about telehealth. We carried out a research in Scopus, Cochrane BVS, LILACS and MEDLINE in the sense of finding telehealth experiences. Results: Telehealth is important in the feedback of the cycle of translational research; it strengthens the care management and the health monitoring; it encourages the faster organization and the synthesis of knowledge through the knowledge exchange; it accelerates the implementation of innovations in the health care network. Conclusion: telehealth is an effective capacitation tool for the professionals in the development of their practices as guarantee of the quality of care and, bigger cost-benefit for health institutions. The training with telehealth enables a practical action in the development of problem solving through new situations of primary care in Brazil.

Keywords: Telemedicine; Primary Health Care; Informatics.

Resumen

Análisis crítico de los impactos de la telesalud aplicada en la educación permanente de los profesionales de la Atención Básica de Salud.

Introducción: una ayuda de teléfono y una educación permanente estandariza conductas terapéuticas y facilita un trámite de conocimientos en el ámbito de la atención básica de los locales remotos y en los profesionales de la salud de los centros hospitalarios. Objetivo: analizar los efectos de la comunicación en la forma de la práctica básica de la atención básica de Brasil. Método: El diseño metodológico utilizado fue realizar una bibliografía bibliográfica sobre telesalud. Realizamos una busca en el Scopus, Cochrane BVS, LILACS y MEDLINE en el sentido de encontrar experiencias de comunicación. Resultados: La telesalud es importante en el feedback del ciclo de investigación translacional; fortalece la gestión de los cuidados y la vigilancia de la salud; incentiva la organización más rápida y propicia troca de conocimientos; acelera la implementación de innovaciones en la red de cuidados de salud. Conclusión: un sistema de telecomunicaciones es una función eficaz de la capacitación de los trabajadores y las compañías en la seguridad de la calidad en el servicio al cliente y, por último, en el beneficio de las instituciones para el desarrollo. La formación con la telessaúde posibilita una acción práctica en el desarrollo de la solución de problemas frente a las situaciones nuevas de la atención básica de salud en Brasil.

Palabras-clave: Telemedicina; Atención Primaria de Salud; Tecnología de la Información.

Resumo

Análise crítica dos impactos da telessaúde aplicada na educação continuada de profissionais da Atenção Básica à Saúde

Introdução: a telessaúde auxilia a educação permanente, padroniza as condutas terapêuticas e facilita a troca de conhecimentos entre os profissionais da atenção básica dos municípios remotos e os profissionais de saúde dos grandes centros hospitalares. Objetivo: analisar os impactos da telessaúde na formação dos profissionais da atenção básica de saúde no Brasil. Método: O desenho metodológico usado foi a pesquisa bibliográfica sobre telessaúde. Realizamos uma busca no Scopus, Cochrane BVS, LILACS e MEDLINE no sentido de encontrar experiências de telessaúde. Resultados: A telessaúde é importante no feedback do ciclo de investigação translacional; fortalece a gestão de cuidados e a vigilância de saúde; incentiva organização a tornar-se mais rápida e propicia a síntese de conhecimentos através da troca de conhecimentos; acelera a implementação de inovações na rede de cuidados de saúde. Conclusão: a telessaúde é ferramenta eficaz de capacitação dos trabalhadores no desenvolvimento de suas práticas em garantia da qualidade do atendimento à saúde e maior custo-benefício para instituições de saúde. A formação com a telessaúde possibilita uma ação prática no desenvolver da solução de problemas frente às situações novas da atenção básica de saúde no Brasil.

Palavras-chave: Telemedicina; Atenção Primária à Saúde; Informática.

Introduction

In Brazil, the National Health Service (SUS) must offer healthcare provision in all national territory, with priority given to the Healthcare Network in the riverside, quilombola and indigenous communities and in remote municipalities as the National Policy of Primary Care (PNAB)¹ directs.

The Ministry of Health started to encourage the incorporation of Health Informatics in the process of referencing articulated to the clinical decisions and to the regulation processes for access to healthcare. In the sense of increasing the care and the resolution in primary care, avoiding people's exposure to unnecessary consultations and/or procedures²; to promote the organization of access to the rational use of resources in health; to avoid unnecessary displacements of patients; to guarantee the efficiency and equity to the management of waiting lists; to guarantee the accountability of order the flow of people in the points of attention in the Healthcare Network (RAS); to manage the reference and counter reference in point of attention and; to establish relations with the specialists that take care of people from the territory¹.

Among the many tools from Health Informatics, telehealth is a generic term used since 1970 that allows through Communication Technology the communication for the exchange of valid information for the promotion, protection and reduction of risk of disease and other harms and recovery³; offers the training and continued education and, second opinion to the health professionals, promotes and facilitates health research, evaluations and management. To ensure, specially, the wellbeing and the health of people in their communities that are traditionally underserved^{4,5}.

It became efficient to serve the professionals located in areas that are far away from the big hospital centers. Telehealth is carried out in two ways: from a health professional to another or from a health professional to a patient and involves the exchange of prerecorded data between two or more individuals in different moments⁴. It can be synchronous and asynchronous and the information can be transmitted as text, audio, video or images⁶. The Pan-American Health Organization (PAHO) in 2011 started to encourage telehealth in their strategy and action plan about e-health (2012-2017) in Latin America, characterizing it as information and communication technology in the provision of health services to a faraway population⁷. Therefore, telehealth encourages the faster organization and synthesis of knowledge, facilitates the exchange of knowledge and speeds up the implementation of innovations in the healthcare network⁸. In the modality of teleconsultations, they avoid in 80,8% the hospital transferences, generating an economy for the public health system of U\$ 20.081.840,00⁹. Telehealth aids the permanent education of the professionals from isolated communities, with the use of low cost technology¹⁰.

In this scenario, we traced the following starting point: does telehealth contribute to the training of the primary care professionals? To answer this question, we traced as objective: To analyze the impacts of telehealth in the training of primary care professionals in Brazil.

Method

The methodological pathway in this study is literature review starting with a search in the Biblioteca Virtual de Saúde (BVS/BIREME)¹¹ (free translation: Virtual Health Library) database, in the period of 2014 to 2018. The research period was four years, thinking about the evolutions during this process that was reviewed in the study, highlighting that the prevalence of articles is from the year 2014, due to the fact that the publications from the years 2017 to 2018 don't match the outlined eligibility criteria. Initially we carried out a literature review about the theme, the key words used for the reach of studies in *Scopus*, *Cochrane BVS*, *LILACS* and *MEDLINE*.

To each research portal, we adopted an elaborate specific strategy of crossing of the Science in Health Descriptors (*DeCS*, a Brazilian database of medical key words) or of the *Medical Subject Headings* (*MeSH*)¹². The Health Descriptors (*DeCS*)¹³ used to select the studies were: telemedicine, information, innovation, public health, service enablement, primary health care and its respective terminologies in *Medical Subject Headings* (*MeSH*)¹²: telemedicine, information, innovation, public health care, service enablement, primary health care. The Boolean operators "AND" and "OR" were used to combine key words and terms for the publication searches. We used the Population, Intervention, Comparison, Outcome, Study Design (PICO) research strategy to elaborate this research's conducting question.

Thirty *BVS/BIREME*¹¹ articles were found and 385 articles were found in *PubMed*¹². The eligibility, selection and exclusion criteria were applied: original articles with telehealth and/or telemedicine in the article's title, based in the primary health care professionals in Brazil, in Portuguese and English, published between 01/01/2014 and 14/10/2018. Eight relevant articles to the study were selected? 03 articles about teleducation; 03 about teleconsulting; 01 about teleassistance and 01 about telediagnosis.

Table 1. Articles located in the database BVS/PubMed, about the use of Telehealth in Primary Health Care in Brazil.

Title of the Article/ Reference	Objective	Results
Telemedicine: an instrument for Education and pediatric health promotion ¹⁴ .	Describe the experience of the use of telemedicine in the teaching and learning process in pediatrics.	Telemedicine is an active methodology that focus on the protagonism of the students in their formation: it is an important instrument in the integration teaching-service and in the pedagogic problematization of the practices.

Training in hearing health: evaluation of the tool in the Brazilian Telehealth Program ¹⁵ .	Evaluate the Networks telehealth program with a strategy to train in hearing health.	The activity in telehealth was positively evaluated as a strategy to train Hearing Health in Primary Care.
Telemedicine as a teaching tool in the care of burned patients ¹⁶ .	Evaluate the knowledge in care of burned patients and validate telemedicine in the propagation of this knowledge.	The carrying out of lectures via telemedicine is a useful tool in the propagation of knowledge in healthcare.
Teleconsultings in support to primary health care in remote municipalities in the state of Minas Gerais, Brasil ¹⁷ .	To analyze the use, effectiveness and problem-solving of the teleconsultings carried out by the Teleassistance Network of Minas Gerais (RTMG, a telehealth public service that provide teleconsulting and telediagnosis in cardiology services to 821 points of attention in health.	In the period of the study, 47.689 teleconsultings were carried out. Among the professionals that requested the service, 53,2% were Nurses and 34,3% were doctors. The specialists that answered were from the areas: family and community medicine (23,3%), dermatology (19,8%), gynecology (10,7%), medical clinic (8,8%), pediatrics (6,6%) and nurses (12,2%). The median of the population from the municipalities that sent teleconsultings was of 6778 inhabitants (interquartile interval [IQR] 4 425 to 10 805). The doubts were related to the pharmacological treatment and the non-pharmacological treatment and etiology. The teleconsultings avoided potential referrals in 80% of the cases and 94% of the health professionals reported to be satisfied.
Teleconsulting and videoconference as a permanent education strategy for the family health teams ¹⁸ .	Evaluate the existing relation among the thematic areas solicited in the teleconsultings and the proposed themes for the videoconferences carried out in the period of January 2008 to December 2012.	There was approach in the thematic areas of the described activities in the teleconsultings with the proposed theme for the videoconference. Indicating that the professionals used telehealth to discuss doubts of the health care reality.

Telehealth in Rio Grande do Sul, Brasil ¹⁹ .	To describe initiatives developed in the Brazilian Telehealth Program/RS in: teleconsulting, telediagnosis, teleducation and information technology in aid to the Unified Health System.	Since 2010, more than 50,000 clinical consultations were supplied and more than 15,000 health professionals have benefited from teleconsultings and telediagnosis and teleducation activities.
Phonoaudiology Teleconsultings in large scale telehealth public service ²⁰ .	To analyze the Phonoaudiology teleconsulting's profile carried out in large scale telehealth public service in Minas Gerais.	The 259 teleconsultings carried out in the study period were originated from 81 municipalities. The higher demand of teleconsultings was from the own phonoaudiologists (64,5%), followed by nurses (27,0%) and doctors (5,0%). The majority of the doubts were about assistance (81%), being that, from these, 35% were to aid in the diagnosis definition and 65% for the discussion of procedures and suggestion of therapeutic conducts. The proportion was similar for the professionals: phonoaudiologists and non phonoaudiologists (65,7% vs. 64,9%, p=1,00). The majority of the doubts were related to the language area (47%) and to oral motricity (29%), followed by voice (20%), audiology (18%), dysphagia (10%) and public health (3%).
Telemedicine in the Family Health Strategy: evaluating its applicability in the context of PET Health ²¹ .	Evaluate the second forming opinion through web and teleconference in primary and secondary care units, members of the PET-Health.	103 consultations were generated – 44 in Cardiology and 59 in Respiratory and Skin Allergy. 75% of the cases present good or great resolution and respectively, in Cardiology, the doubts about the request and interpretation of complementary exams/conduction of the treatment. In allergology, the doubts in the diagnosis, 90% of the cases. The study reveals the potential and relevance of telemedicine.

Results

Almino et al. (2014)¹⁴ left room for debate about the importance of telemedicine as a tool that strengthens the protagonism of the students in their formation, by integrating the teaching-service and in the pedagogical problematization of the practices, guaranteeing that the professionals produce actions in health related to self-care, motivation of the patient and adherence to the treatment.

Conceição & Barreira-Nielsen (2014)¹⁵ evaluated the opinion of the 37 community health agents (ACS) about the Network telehealth program in the training course in hearing health. The results pointed that 97% of the interviewed granted the effectiveness of telehealth, about 70% felt comfortable during the course and 50% felt satisfied with the training. Therefore, it is possible to evaluate that telehealth is a strategic training tool for the professionals of primary care for providing satisfaction with the system, efficiency of the activities, quality and general satisfaction of the health professional.

Dorigatti et al. (2014)¹⁶ analyzed the performance of the health professionals that carried out the distance training course about the care of burned patients through telehealth that used pre-test and post-test. The results pointed that the professionals in pre-test obtained an average of 59,2% of hits and on the post-test had an average of 83,5%. The professionals had an average performance of 24,3% of learning. Telehealth is a training tool for the primary health care professionals.

Marcolino et al. (2014)¹⁷ analyzed the use, effectiveness and resolution of the teleconsultings in cardiology carried out by the Teleassistance Network of Minas Gerais (RTMG) in 821 points in primary health care. In this context teleconsulting turned out to be an excellent tool to redress the regional difficulties. In 47,689 teleconsultings offered to the primary care professionals, being Nurses (53,2%) and doctors (34,3%). The service enabled 23,3% of the family and community health professionals, to 19,8% of dermatology, 10,7% of gynecology, 8,8% of medical clinic, 6,6% of pediatrics, 12,2% of nurses. The teleconsultings avoided potential referrals in 80% of the cases and 94% of the health professionals reported to be satisfied.

Guimarães et al. (2015)¹⁸ mapped the themes solicited by the nurses from the Family Health Program served in the Telehealth Center in the nursing area in the state of Minas Gerais. The results pointed that the nurses requested teleconsulting to eleven themes: being treatment of wounds, women's health, children and teenagers' health, nursing; adult's and elderly care, education in health, mental health and psychiatry, Systematization of Assistance in Nursing (SAE in Portuguese), fundamentals in nursing, health and nursing management, process of health and nursing work. The teleconsulting enabled a second forming opinion, with increase of information and with the anticipation of events

through a practical proposal. It ensured great social and economic benefits for the population of the municipalities that are furthest from the big centers.

Harzheim et al. (2016)¹⁹ analyzed the impacts of telehealth in the State of Rio Grande do Sul. The results pointed out that 50,000 distance clinic consultations were offered benefiting more than 15,000 health professionals in teleconsultings and activities of telediagnosis and teleeducation.

Lucena et al. (2016)²⁰ analyzed the impacts of the 259 teleconsultings offered to 81 municipalities of Minas Gerais. The teleconsultings met in 64% the phonoaudiologists, 27% of the nurses and 5% of the doctors. In 81% of the teleconsultings it was referring to the second opinion about therapeutic conducts and definition of diagnosis. Of these, 35% were in aid to the diagnostic definition and 65% to the suggestion of therapeutic conducts. The majority of doubts related to the language area (47%) and to oral motricity (29%), followed by voice (20%), audiology (18%), dysphagia (10%) and public health (3%).

Nunes et al. (2016)²¹ evaluated the impacts of second opinion through the web and teleconference in unit of primary care and secondary care of the Education for Health Work Program (PET-Saúde) (free translation: PET-Health), in 103 teleconsultings (44 in cardiology and 59 in respiratory and skin allergies). The results pointed efficiency in query handling in 90% and with problem-solving in 75% of the cases. It can be of great use to the monitoring in health and management of healthcare.

Discussion

The analyzed work pointed that teleconsulting in primary care expand the activity of the health professionals, adding them to the local services by the importance of a second opinion about the various subjects related to the health of faraway communities. The teleconsulting enables the professionals in primary health care concerning the suggestion of therapeutic conducts, discussion of procedures and definition of diagnosis^{18,20}. In order to contribute with the expansion of information, actions and skills that produce critic, discernment, compromise and sensitiveness, according to the skills expected from these health professionals²².

Through teleconsulting 90% of the doubts were clarified and with resolution in 75% of the cases²¹, and with that it was possible to avoid eventual referrals in 80% of the cases and satisfaction of the professionals in 94%¹⁷. The authors defend that the gains with the reduction of referrals of the patients promoted by teleconsulting compensates the investment of implementation of the service^{17,18}.

The teleconsultings can benefit a bigger number of health professionals by promoting a sense of security by the team with a wider area and application of better practices, guaranteeing a bigger security to the patients¹⁹. Telehealth reduces the costs regarding the presential training courses,

bettering the standardization of the professionals' processes, guarantees ethics to the practices and protocols and better the clinical results of the patients^{14,15,16,17}.

Conclusions

The located publications presented satisfactory and encouraging results in relation to telehealth in primary care for the training of human resources. It minimizes the regional contrasts in the access to treatment with highlight to the teaching, monitoring, prevention and diseases areas; it promotes bigger resolution in front of complex cases in the development of the problem-solving and facing new situations; it minimizes the repressed demand guaranteeing a bigger cost-benefit for the Unified Health System; through it is possible to have a bigger standardization of good practices and experiences of the health professionals.

Telehealth aids in the process of transmitting knowledge about health. It fortifies the healthcare actions and promotes the feedback of the translational research, as a remote access technology for the database produced by their respective platforms, when well-planned and interoperable.

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