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Prutchi Lachtermacher, Amanda; Romijn Tocantins, Florence
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REVIEW

INFORMATION AND COMMUNICATION TECHNOLOGY AND THE PREVENTION OF DISEASES - LITERATURE REVIEW

TECNOLOGIAS DA INFORMAÇÃO E COMUNICAÇÃO E A PREVENÇÃO DE AGRAVOS - REVISÃO DA LITERATURA

TECNOLOGÍAS DE LA INFORMACIÓN Y LA COMUNICACIÓN Y LA PREVENCIÓN DE ENFERMEDADES - REVISIÓN DE LA LITERATURA

Amanda Prutchi Lachtermacher¹, Florence Romijn Tocantins²

ABSTRACT

Objective: to analyze the scientific production on nursing care by telephone as a contribution to the promotion of health and prevention of diseases of clients. **Method:** this study is characterized as a literature review performed at the Virtual Health Library, whose results were analyzed using the content analysis technique. **Results:** we identified 46 productions, three of which were available online in full and linked to the subject. Scientific production pointed to a positive result regarding the use of telenursing. However, the use of Information and Communication Technology is more evident in patients with any chronic disease. **Conclusion:** telenursing contributes to the prevention of diseases, specific protection, early diagnosis, treatment and social assistance of clients, always with reference to diseases. It is assumed that telenursing might be more effective when combined with other types of Information and Communication Technology. **Descriptors:** Telenursing, Nursing care, Monitoring.

RESUMO

Objetivo: Analisar a produção científica quanto ao atendimento de enfermagem por contato telefônico como contribuição para a promoção da saúde e prevenção de doenças da clientela. **Método:** este estudo caracteriza-se como uma revisão de literatura, tendo sido acessada a Biblioteca Virtual da Saúde cujos resultados foram analisados mediante a técnica de análise de conteúdo. **Resultados:** Foram identificadas 46 produções, sendo que três estavam disponíveis online na íntegra e articuladas à temática. As produções científicas apontaram para um resultado positivo em relação ao uso da telenfermagem. Contudo, o uso da Tecnologia da Informação e Comunicação é mais evidente em pacientes que apresentam alguma doença crônica. **Conclusão:** A telenfermagem contribui para a prevenção de doenças, proteção específica, diagnóstico precoce, tratamento e assistência social da clientela, sempre tendo por referência uma doença. Reconhece-se que a telenfermagem poderá ser mais efetiva quando associada a outros tipos de Tecnologia da Informação e Comunicação. **Descritores:** Telenfermagem, Cuidados de Enfermagem, Monitoramento.

RESUMEN

Objetivo: analizar la producción científica sobre la atención de enfermería por contacto telefónico como una contribución a la promoción de la salud y prevención de enfermedades de los clientes. **Método:** este estudio se caracteriza como una revisión de la literatura realizada en la Biblioteca Virtual de la Salud y cuyos resultados se analizaron mediante la técnica de análisis de contenido. **Resultados:** fueron identificadas 46 producciones, de las cuales tres estaban disponibles online en su totalidad y articuladas con el tema. Las producciones científicas señalaron un resultado positivo con respecto al uso de telenfermería. Sin embargo, el uso de las Tecnologías de la Información y la Comunicación es más evidente en pacientes con alguna enfermedad crónica. **Conclusión:** la telenfermería contribuye a la prevención de enfermedades, protección específica, diagnóstico precoz, tratamiento y asistencia social de la clientela, siempre con referencia a una enfermedad. Se reconoce que la telenfermería podría ser más eficaz cuando asociada con otros tipos de Tecnologías de la Información y la Comunicación. **Descriptor:** Telenfermería, Atención de enfermería, Monitorización.

¹Nurse, Bachelor in Nursing by the Alfredo Pinto Nursing School of the Federal University of the State of Rio de Janeiro - UNIRIO. Address: Av. Nossa Senhora de Copacabana 836 apt. 402. Copacabana, Rio de Janeiro. CEP: 22.050 -001. Estado do Rio de Janeiro. Brasil; Tel: +55 - 21 - 22366623; E-mail: amandaprutchi@gmail.com. ²Nurse. PhD in Nursing. Full Professor. Public Health Nursing Department, Federal University of the State of Rio de Janeiro - UNIRIO. Email: florence@unirio.br.

INTRODUCTION

This study arose from the experience gained during extracurricular nursing training in an institution that offers a health care business plan, located in the southern region of the City of Rio de Janeiro, Brazil. This experience included assistance activities at the Department of Preventive Medicine, whose purpose is tracking chronic patients and pregnant women through telephone followup.¹ To that end, this department operates with nursing and psychology interns, and nurses who supervise the interns, as well as a psychologist and a physician that coordinate all activities. The department consists of the following four programs: Chronic Patient Support Program; Safe Pregnancy Program; Complex Cases Care; and Older Adults Support Program. The aim of the activities carried out in the sector is to provide health education, aiming at promotion and prevention, thus contributing to a healthy lifestyle. The programs offer followup performed by a multidisciplinary team, support by a telephone central office, specific guidelines for each case, support and guidance after admission, and referral to physicians.²

In countries such as the United States, England and Scotland, health care provided over the telephone have been widely studied and increased, and it is called telehealth, telenursing or telecare. Each of these strategies is presented as geared towards the promotion of health, prevention of diseases and social assistance.

Information and Communication Technology (ICT) has become an integral part of social life. In addition, according to studies, it also offers a great potential in the healthcare context, with an increasing number of patients and social organizations obtaining its benefits. The expansion

of access to specialized services, offering real-time health advice and monitoring telehealth and telecare programs, has the potential to reduce patient visits to healthcare providers (and vice versa). In addition, it enables more located care, providing diagnosis and intervention more quickly and even reducing costs. Another advantage reported is related to the fact that people can contact the service outside business hours, when they do not know who they can turn to.³ It is noteworthy that many people resort to the program more than once due to a previous positive experience, which creates a link with patients. These activities are particularly relevant to nursing.³ In addition, it is a valuable tool for achieving fairness, completeness and universality, which are basic assumptions of the Brazilian Unified Health System.

In this way, telehealth and telecare services, or even telenursing, as it is called by the International Council of Nurses, should focus on the health needs of the regions in order to be effective. A growing number of studies is starting to identify the benefits and challenges associated with these services.⁴

It is worth noting that the term 'telehealth' is more comprehensive than 'telemedicine', because it includes all professionals and health-related activities. With this understanding, the term 'telenursing' is related to the provision of nursing services through remote telecommunications.⁴

The adoption of ICT in clinical practice can bring substantial benefits in order to complement traditional nursing with respect to evaluation, health promotion, clinical intervention, and services organization.⁵ This new technology will enable new services such as, for example, virtual health promotion sessions performed by a nurse

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working with a group of people, whose participants are located in several places at the same time. Health websites will allow customers to access and store information about their conditions and receive customized health guidelines. The nurses will be able to conduct virtual visits via the Internet and discuss about a particular case with other health professionals through a secure connection in real time, which will enable better planning and coordination of customer care.

The growth of the population of older adults in the world—which by 2020 will be larger than young people population, together with the increase of chronic diseases—is creating a strong demand for the improvement of resources available in the health area.⁵ The use of ICT is one of the possible solutions to meet this challenge, because it enables the exchange of data over the telephone or the Internet. Based on studies conducted in the United States, it was identified that the ICT will have a key role to improve health and care, having the potential to change the way people use health services with respect to ease of access and provision of other ways of support.⁵

The expectations of the population are changing. Nowadays people want to determine their own health needs through information over the Internet or other technological interfaces and, at the same time, they expect more customized services provided by healthcare providers or nurses. We may be witnessing a change in the healthcare model, from the face-to-face model to the era of information.⁵

The ICT is been tested to promote behavioral change in people with chronic diseases.⁵ In many studies, nurses have been used to supervise the program. The studies concluded that the technology based on the self-care system can provide a practical way to monitor chronic diseases, in addition to enable therapeutic interventions to promote health. Moreover, the R. pesq.: cuid. fundam. online 2013. out./dez. 5(4):424-30

benefits of this technology are also evident with regard to knowledge of the diseases, treatment and reduction of hospitalization.

In my experience as intern, monitoring of clients through ICT was carried out in two ways, one active and the other on demand. Active monitoring occurs when interns contact the patients registered once per month, through telephone calls with the help of a system that generates predefined questions. In the case of patients with any pathology, such as hypertension and diabetes, among others, the disease is selected in the system that generates questions consistent with such disorder. These questions serve as a conversation guideline, because it will show the main factors to which healthcare professionals must be attentive, in order to obtain increased and better control of health. In addition, the system offers an 'intercurrence' space, in which additional information considered relevant is recorded. Next, the conduct is recorded, i.e., the guidelines given to that client, the questions that have been clarified and, if necessary, the scheduled consultation.

Regarding the other way, i.e., on demand, the patients are who come in contact by telephone calls. Usually, this contact is made when patients have doubts, insecurity, discomfort or when they want to schedule a new appointment with their doctors. When this call is received, the professionals always take advantage of the opportunity to carry out the control of patients' health, in the same way as during active monitoring. With this, it is possible to increase the number of patients contacted every month.

The experience gained at the internship prompted the interest to carry out an in-depth study to determine whether the nursing care, developed through the telephone contact, is able—as specified as purpose of preventive medicine programs—to promote health and prevent clients' diseases. In this way, the central

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question of this study is: Which aspects of healthcare through telecare contribute to health promotion and prevention of diseases?

The object of the study was: telenursing in health promotion and prevention of diseases. As objective of this study, we established to analyze the scientific literature regarding nursing care by telephone contact, as a contribution to the promotion of health and prevention of clients' diseases.

The justification of this study lies in the possibility to reflect on the question of whether the actions proposed by the ICT for clients conform to the professional commitment to promote health and prevent diseases, as specified in the Code of Ethics.⁶ Its contribution is understood as an innovative vision for nursing care strategy, with possible implementation in the context of the Unified Health System, contributing to the universality and integrality of care provided to the population's health.

METHODOLOGY

This is an exploratory study with a qualitative approach. According to Gil (2002), an exploratory study aims to provide greater familiarity with the subject. The strategy used was the literature review, which is used to compose the theoretical framework of a scientific article.⁷

The basis of access was the Virtual Health Library. We retrieved data from: Literature in the Health Sciences in Latin America and the Caribbean (LILACS); Medical Literature Analysis and Retrieval System Online (MEDLINE); and the Spanish Bibliographic Index of Health Sciences (IBECS) databases. The only database that had articles related to the topic was MEDLINE, which made it possible to find 46 productions related to the following keywords: telenursing; and telenursing care and monitoring. As selection criteria, we established that the scientific articles R. pesq.: cuid. fundam. online 2013. out./dez. 5(4):424-30

should be related to nursing care by telephone contact and be available online in their entirety.

In a second step, we performed the content analysis of the selected articles, comprising a set of communication analysis techniques, in order to obtain, through systematic and objective procedures of description of the messages content, indicators that allowed the inference of knowledge related to the topic under study.⁸⁻⁹

The course of working with the data of the survey, from the perspective of content analysis based on Bardin's model⁹, had various stages as reference. The first stage was the pre-analysis and exploration of the material, which encompassed the organization of the material, the selection of the documents to be analyzed, and the development of indicators to support the final interpretation. The second stage consisted of delimiting categories that allowed gathering more information on the theme under study, i.e., the promotion of health and prevention of diseases. In the last stage, we performed the analysis of the results, including the discussion related to the literature.

RESULTS AND DISCUSSION

The methodological process made it possible to identify that out of the 46 productions, only six were available in full¹⁰⁻¹⁵ and only three were in accordance with the topic analyzed.

These 46 articles had been published in 25 different journals, most of which had the term 'nursing' in the title. From the reading of the abstracts, it was found that 33.3% of the articles found apparently focused on the theme telenursing/telehealth. It is worth noting, however, that from the total of productions identified, 20.8% were predominantly focused on the educational area and not on care. Most scientific productions had been published by American authors and regarding Brazilian

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productions we found just one thesis.¹⁰ The chronology of publications on the subject ranged from 2008 to 2011, with predominance for the year 2009, a fact that points to the modernity of the theme.

As for the type of study, field research predominated, i.e., "developed through the direct observation of the activities of the group studied and interviews with informants in order to observe their explanations and interpretations of what occurred in the group".¹⁵ It is worth mentioning that many abstracts did not report the type of study conducted.

By analyzing the three articles in accordance with the theme selected, we identified that the first, titled "Targeting and managing behavioral symptoms in individuals with dementia: a randomized trial of a non-pharmacological intervention", focused on assistance to families of patients with mental disorders in order to manage abnormal behaviors, identifying the signs and symptoms of alarm.¹¹ The second article, entitled "Influence of an early recovery telehealth intervention on physical activity and functioning after coronary artery bypass surgery among older adults with high disease burden", dealt with the provision of confidence to patients in the postoperative of cardiac diseases, so that they could self-manage their treatment.¹² The third article, entitled "Use of telehealth by older adults to manage heart failure", is the increase of confidence of patients with heart failure, so that they could self-care and self-manage their health.¹³

The population groups, object of the studies identified, were the family members and older adults, focusing on the characteristics of diseases, mental disorders, people after cardiac surgery and during postinfarction.

In the articles analyzed, the central focus of ICT was on problem/disease/situation and the identification of signs and symptoms of diseases, R. pesq.: cuid. fundam. online 2013. out./dez. 5(4):424-30

in addition to those related to treatment. This way, it is possible to confirm that the contribution of care over the telephone lies in actions involving the prevention of diseases, specific protection of patients and the self-management of the treatment.

It is important to highlight that these scientific productions point to benefits related to prevention of diseases when using telenursing. However, the use of ICT is more evident in patients who have chronic diseases or who already have some aggravation. That is, the health promotion action is present in accordance with the design of Leavell and Clark¹⁶ who characterize it as having the purpose to improve health and the general well-being of clients and not according to the Ottawa Charter for Health Promotion that takes the conditions and determinants of health into account.

Thus, according to this perspective, it can be concluded that aspects of healthcare through telecare contribute to the prevention of diseases, specific protection, promotion of health, and the guidelines and support to clients, always having aggravations as reference.

It is recognized that all forms of ICT are important, because they can increase nursing's contribution to the promotion of health and prevention of diseases through alternative contacts, in addition to the traditional face-to-face contact. In this way, the use of different types of ICT, such as computers and telephones integrated with a camera system, must be valued in order to enable a more comprehensive nursing care.

CONCLUSION

This study showed that telenursing contributes more to the prevention of diseases, including specific protection actions, early diagnosis, treatment and social assistance, than to health promotion from the perspective of training,

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which takes the determinants and social constraints into account, i.e., an expanded conception of health. In general terms, telecare is focused on any health aggravation.

It is recognized, however, that telenursing might be more effective when associated with Internet programs, such as online chats and forums where people can expose their questions, with healthcare moderators and, if possible, a multidisciplinary team. These would respond appropriately and quickly to avoid the user to receive wrong information from other users without technical and scientific knowledge.

The telenursing system is necessary to better serve these clients, so they can talk and clarify their doubts at any time, since this contact provides a greater user embracement and a sense of greater security. This system also allows providing care to clients who do not wish to come out of anonymity. They will be giving a telephone number to which they can call without having to identify themselves and through which they can also share their doubts and problems without fear of being exposed.

The incorporation of this care association in the practice of nursing and clients care will bring changes in nurses' work, not only related to nurse/client contact, but also the skills that the professionals should have on this type of communication, giving priority to the strengthening of the assistance link.

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