



Application of telenursing in nursing practice: an integrative literature review



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ABSTRACT

Aims and background: Telenursing is the use of technological resources and communication systems to encourage the development of nursing. Its efficiency has been demonstrated to help countries overcome barriers to healthcare. This study investigates the current telenursing strategies utilized in nursing practice, as found in the literature.

Method: Integrative literature review of the application of telenursing, using the descriptors: telenursing, nursing care and communication means, in Portuguese, English and Spanish, between 2003 and 2013.

Results: Telenursing is found particularly in care through telephone use for health services and orientations. The country with the largest number of research publications was the United States with 14 (37.8%), followed by Canada and the United Kingdom.

Final considerations: It could be verified that telenursing is growing, in view of its presence in different countries, with strong evidence and benefits of its use. It proves to be an efficient tool to help countries overcome geographical barriers and provide health care information to the population.

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1. Introduction

The expansion of communication media creates different possibilities for the use of new tools in various knowledge areas in an attempt to enhance the effectiveness of their processes and competencies, contributing to scientific development. In health, these resources are used choosing the terminology according to the scientific area's focus, such as in the case of telehealth, telemedicine and telenursing. Telehealth technologies permit nurses to expand care to anyone who needs it, wherever they are. Telenursing is a strategy that enhances nursing activities, allowing the professionals to use it to guide and monitor patients and populations in light of their needs. It facilitates access, saving time, resources and promoting greater self-care possibilities (ICN, 2007).

Through telenursing, the development of nursing and health in general can be accelerated, using these technologies and communication systems in the field of teaching, research and care. In teaching, in a study undertaken in the United States concerning the implementation of the Virtual Clinical Practicum, teleconferencing technology was used to permit nursing students' real-time interaction with patients and preceptors at kilometers of distance. The study showed satisfactory results through the expansion of clinical experiences and the opportunity for critical reflection and dialogue. The patients who participated in

the research project were satisfied with their virtual experiences, mainly seeing them as a complement to the information gained from traditional health services (Grady, 2011). The use of telenursing in research was evidenced in a Canadian study about the perceptions of families who received telehealth care. To overcome the geographical distance between the participants and the research team, the video system of the telehealth network was used to hold interviews (Sevean, Dampier, Spadoni, Strickland, & Pilatzke, 2009).

A comprehensive national helpline system for healthcare has existed in Sweden since 2003, where nursing staff attends to approximately four million telephone calls from the population each year. International studies show satisfactory results of telenursing in screening access. Telenursing has served as the entry door to other health services, accomplished with safety, effectiveness and acceptance from the population (St George, Cullen, Gardiner, & Karabatsos, 2008).

Research has revealed that, as a result of the increase in the elderly population and the number of bedridden people suffering from chronic conditions, telenursing should be used in care as a tool to support care delivery. Telenursing makes it possible to address excessive demand and mitigate difficulties posed by geographical distances and transportation issues (Kawaguchi, Azuma, & Ohta, 2004). To expand the development of this resource and extend its benefits to different populations as needed, considering professionals as well as patients and community groups, the scientific production profile of the use of telenursing needs to be verified.

This research project focuses on how telenursing is applied, observing the technological tools used to develop intervention strategies. The

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use of telenursing is examined in professional and student education, in patient teaching and in care delivery to patients. In addition, the countries that publish most of the research on telenursing are noted, as well as the evidence levels attained in that research, so as to better assess the impact of these studies in nursing. Thus, the aim in this study was to investigate, in the literature, the current telenursing strategies utilized in nursing practice.

2. Method

Research developed through an integrative literature review of the Medical Literature Analysis and Retrieval System online (MEDLINE), Latin American and Caribbean Health Sciences Literature (LILACS) and Web of Science databases. The integrative literature review is a resource that seeks a detailed understanding of a phenomenon based on existing studies. Data obtained through different research designs are grouped to enhance the conclusions that research provides. For the appropriate use of this method, the methodological phases need to be carefully established: identification of the research problem; inclusion and exclusion criteria; definition of the information under analysis; assessment of the selected studies; and interpretation and synthesis of the data (Mendes, Silveira, & Galvão, 2008; Torracco, 2005).

The guiding question used was: “Where and how has telenursing been applied?” The following descriptors, derived from LILACS, were defined for the search: telenursing, nursing care and communication media. The languages searched were Portuguese, English and Spanish. The search identified 187 publications, whose titles and abstracts were read. As a result, 56 publications were selected and the full versions of these were read. From the articles reviewed, 37 met the following inclusion criteria: studies published in the last 10 years (2003 to 2013); written in English, Spanish or Portuguese; having a focus on telenursing as a strategy for nursing care. To analyze the articles, a tool was used based on Ursi and Galvão (2006). The following data were identified: year of publication; journal; place of study; method; evidence level according to Stetler et al. (1998); technology used; target population; theories used to support telecare; and main outcomes.

The strategies were classified according to four main characteristics: educational strategy (ELS)—use of telenursing as a teaching resource for students and/or professionals; educative strategy (EES)—the nursing intervention contains educative material for patient consultation; monitoring system (MS)—the intervention contains components to monitor and transfer patients' vital data to professionals; care management (CM)—the intervention involves telecare by trained professionals as a support strategy in healthcare management for patients and/or family members.

As far as quality of evidence is concerned, the studies can be divided into four levels of quality. Those quality levels are as follows: level 1—meta-analysis of controlled studies; level 2—studies with experimental design; level 3—quasi-experimental studies; level 4—non-experimental research; level 5—case reports, program assessment; level 6—opinions of authorities or expert committees (Stetler et al., 1998). The presentation and analysis of the data are accomplished descriptively (Polit, Beck, & Hungler, 2004).

3. Results

The publications analyzed included one thesis and scientific papers. Among the publications, one was a meta-analysis and eight were randomized clinical trials. In regard to the language used, one was available in Portuguese, one in all three languages, one in Spanish and the remainder in English. The data concerning year, publication vehicle, place of study, tool, target population, theories used in telecare in the studies, strategies and the quality levels of the studies' evidence are displayed in Table 1.

The strategies and main outcomes are displayed in Table 2. In seven of the publications analyzed, telenursing strategies were present in the

studies in the form of care delivery to the population. This care delivery is part of the country's national health services.

4. Discussion

Telenursing is a booming area, as shown by the increase in the number of studies performed and the presence of research developed in different countries, with strong evidence regarding the benefits of its use. Among the publications analyzed, one was a thesis and the rest were scientific papers. It is clear that English is the main language for much of the published research. English also affords greater international visibility to those countries where English is not the primary language.

Concerning the locations of the studies, the majority were concentrated in developed countries (86.5%), particularly the United States with 14 (37.8%), followed by Canada and the United Kingdom with five (13.5%) each (Table 1). The countries' level of technological development impacts the use of these technologies in science to expand healthcare professionals' competencies. If we take into consideration that telenursing is a strategy to direct and monitor patients and populations, facilitating their access, saving time, resources and promoting self-care (ICN, 2007), the countries that would most benefit from its use would be exactly those with fewer resources.

As regards the tools used in the telenursing strategies, the tool present in most of the studies was the telephone for patient care, aiming to support healthcare management (Table 1). This greater use of the telephone may be associated with the greater mastery of its use as a technology, as the telephone attained popularity before other resources. Several countries include telephone care as a strategy to maximize their care systemization and the search for health services as carried out by their populations (Price & McKay, 2000; Rodriguez-Gazquez, Arredondo-Holguin, & Herrera-Cortes, 2012).

Care delivery through audio calls requires greater competency from nurses to hold interviews, as they lose the possibility of using visual assessment for decision-making (Fincher, Ward, Dawkins, Magee, & Willson, 2009). Mobile phone use also permits information exchange through text messaging. Internet connections offer the possibility of accessing different resources. These possibilities are further expanded with the availability of mobile phones (McCann, Maguire, Miller, & Kearney, 2009).

Various evidences exist for the use of telephone care to guide healthcare. In the United States, a study by Hannan (2013) showed that telecare to help postpartum patients proved to be an easy, safe, low-cost and effective intervention that improved the health outcomes of mothers and children and reduced spending on healthcare. In another study in the United States by Battaglia, Benson, Cook, and Prochazka (2013), telephone care provided to psychiatric patients to lead them to quit smoking was a feasible strategy. In Malaysia, in a study by Tahir and Al-Sadat (2013), telephone calls to support breastfeeding were shown to be an effective resource, increasing exclusive breastfeeding rates in the first month postpartum.

The association of multiple technological resources can also present good results, like the study undertaken in Norway by Jelin, Granum, and Eide (2012) in which telephone care with educative support through the Web was used for care delivery to fibromyalgia patients, helping with counseling and support for these patients' chronic pain. The dissemination of computers and access to the Internet permit the use of technologies, through computers and other devices with Internet access. For example, Web sites, video calls, videoconferencing, audio calls and text messages can be used in combination with one another. Until a short time ago, this required a specific tool for each system. Technological evolution, however, entails unlimited possibilities for telenursing usage every single day (Dale, Caramlau, Sturt, Friede, & Walker, 2009).

A study that, in part, verified which Facebook groups on diabetes were the largest identified that patients and family members use these spaces to search for information on the disease, in addition to experience-exchange among the subjects for care and emotional support (Greene, Choudhry, Kilabuk, & Shrank, 2011). Regarding the use

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