Chapter 17
Telenursing in Aged-Care: Systematic Evidence of Practice

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ABSTRACT
The rapidly growing aged population is challenging conventional methods of care provision. Global ageing, combined with other challenges, has compelled health systems to explore new methods for providing health care. Telenursing, providing nursing care at a distance using new technologies, is identified as one alternative. The lack of evidence for the effectiveness of telenursing in aged care is a drawback for its wider use. The aim of this chapter is to review the evidence of randomised controlled trials (RCT) in geriatric telenursing practices. We performed a systematic literature review using the Ovid Medline and Pubmed databases on telenursing. A total of 62 articles were retrieved and 18 studies were selected for comprehensive analysis. The review found that the RCTs were conducted in different areas of geriatric telenursing and various information and communication technologies (ICT) were used in the interventions. Although robust evidence, based on RCTs in aged care telenursing is yet to emerge, the majority of current studies suggest that telenursing is an effective tool.

INTRODUCTION
Providing care for the rapidly growing aged population has compelled the health systems in both the developed and developing world. The cost associated with aged care is predicted to increase steadily. The lack of healthcare professionals to provide appropriate care for the ageing population has compelled governments to rethink traditional care systems. The solutions to these problems require significant financial investment and long term policy implementation. Evidence is emerging that if used in the right context, telehealth may offer some solutions to these critical problems. Telenursing in aged care is one of the emerging areas. This chapter sets out to report on a systematic review of literature on the use of telenursing techniques in aged care.
BACKGROUND

Elderly people are more likely to suffer from conditions of disability, chronic disease, and multiple impairments, and are therefore more likely to require care. Research shows that almost 75% of elderly (aged 65 and over) have at least one chronic illness (Calkins, Boult, & Wagner, 1999). The cost associated with treating the elderly with chronic conditions is high and continuing to grow. The World Health Organization (WHO) predicts that chronic disease will be the leading cause of disability by 2020 and will be the most expensive problem facing health care systems (Belfield & Colin-Thome, 2004). For example, studies show that caring for people with chronic diseases consumes approximately 78% of all health care spending in the United States – more than $USD 1 trillion annually (ITAA e-Health Committee, 2004).

One serious obstacle to providing care to the growing number of aged people is the lack of health professionals. The difficulty of recruiting and retaining quality health care workers has been well documented (Cooper, Getzen, McKee & Laud, 2002; Blumenthal, 2004). Nurses traditionally play an important role in aged care. According to the projections of the Health Resources and Services Administration (HRSA), the shortage of nurses in the US could escalate to one million by 2020 (HRSA, 2006). Australia projects a shortage of 40,000 nurses by 2010 (International Council of Nurses, 2005). The lack of nurses is a critical issue in developing countries too. According to WHO statistics, Sub Saharan Africa is short of 60,000 nurses to meet Millennium Development Goals (World Health Report, 2006).

Governments and health systems around the world are in search of solutions to the problems posed by global ageing. Logic dictates that the optimal solution would be the producing of more doctors, nurses and other health professionals. However, this requires long-term policy changes, funding and infrastructure development. Therefore, among other alternative solutions, the role of telehealth to address some critical issues in aged care has been identified.

What is Telenursing?

Telenursing is the use of information and communication technologies to provide nursing services at distance (Edirippulige et al., 2007). Telenursing can be used in both healthcare settings and non-institutional settings – that is at home or in an assisted-living facility (Wootton, Kvedar, & Dimmick, 2006). Telenursing applications may include real time techniques, (for example videoconferencing or telephony) and store-and-forward techniques, (for example email or web-based applications).

The use of real time and store-and-forward telenursing applications is becoming popular in providing health services to remote patients. Devices such as videoconferencing equipment help health professionals to make ‘virtual visits’ to deliver services to their patients. Such applications are becoming commonplace in both institutional and non-institutional settings. Studies have shown that real time transmission of audio and video data is sufficient to facilitate a quality online consultation. Telenursing applications provide access to nursing care for remote patients while offering numerous benefits to the care givers. Figure 1 depicts the use of videoconferencing for gait assessment by a geriatric specialist involving a patient at a remote location.

In addition to interactive video techniques, various devices such as alarms, sensors and monitoring equipment are being used in telenursing applications (Darkins, Dearde, & Rocke, 1996). The use of these systems allows nurses to monitor physiological parameters such as blood pressure, blood glucose and respiratory peak flow. Telenursing techniques help provide accurate and timely information for making critical decisions relating to care processes. Telenursing can also
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