Chapter 45
Why, What and When in-Home Physiotherapy?

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ABSTRACT

In the last decade, rehabilitation process has shifted from medical management to issues that enhance quality of life, community participation, treatment and cost effectiveness. In this context physiotherapists design and implement new and/or tailored interventions that enhance physical and functional abilities, restore, maintain, and promote optimal physical function, wellness, fitness and quality of life. The aim of this review was to assess the extent, content, and outcomes of in-home physiotherapy interventions. A search was conducted in Medline, PEDro, and Cochrane Library and IEEE Xplore. RE-AIM and GRADE guidelines were used to report this review. The findings suggest that in-home physiotherapy tailored specifically to the people needs, functioning and disability has positive results, including patients' engagement in their healthcare. Integration of information and communication technology in-home physiotherapy has great potential to increase accessibility, quality and effectiveness of various interventions provided by physiotherapists.

INTRODUCTION

In-home physiotherapy is rapidly growing, in line with the current shift in emphasis toward: i) patient-centered healthcare, compliant with 4P medicine (personalized, preventive, predictive, participatory medicine) (see Hood & Galas, 2008); ii) self-management for people with long-term and/or chronic conditions, in which greater use of community settings and individual autonomy are being encouraged

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(see Lommi, Matarese, Alvaro, Piredda, & De Marinis, 2015); iii) healthcare delivery closer to patients' homes - aiming for increasing access to healthcare services, cost-effectiveness, and sustainability of healthcare system (see Coulter, 2005). With advances in information and communication technologies (ICT), dramatic changes are produced in health care provision. There is increasing evidence suggesting great potential of ICT (see list of definitions) to meet healthcare aspirations of patients and citizens (see Coulter, 2005) as: fast access to reliable information about illness and treatment options; attention to physical and environmental needs; participation in health care decision and service developments, etc. ICT through contribution to patient engagement (see Triberti & Riva, 2014a), particularly on patient engagement in physical rehabilitation process (see Triberti et al., 2014) lead to more appropriate health care, tailored treatment, better health outcome and cost effective use of health services (Graffigna & Barello, 2015; Triberti et al., 2014). Home health technologies are now emerging as a distinct segment within the larger ICT market, forecasting the increase of consumers using home health technologies from 14.3 million worldwide in 2014 to 78.5 million by 2020 (Tractica, 2015). This is produced by: rapidly advances in ICT; increased access to Internet - 82,1% of European and 60% American population has now Internet access at home; development of mobile technologies; and increased access to mobile technologies – approximately 80% of Europeans and Americans have active mobile broadband subscriptions (ITU, 2015).

The interest on model, determinants, and technologies for in-home health care has led to a rise in the number of studies addressing the same, or very similar research questions, with a concurrent increase in discordant findings in terms of direction and magnitude of in-home physiotherapy interventions. Differences in scope, methods, and results in studies realized by health care professionals, engineers or information technology specialists cause great confusion, and make it difficult for decision makers to analyze the level of evidence towards finding solutions to improve practice and identify areas where new research is needed.

We investigated the extent (demographic, health, functioning/disability characteristics of patients, level of evidence, amplitude of practice implementation and adoption), content (what type of physiotherapy intervention, in which clinical condition, what technique or technology is used) and outcomes (e.g. balance, posture, coordination) of in-home physiotherapy. The aim of this chapter is characterization of the level of evidence of in-home physiotherapy in various clinical conditions, and on technology use for in-home physiotherapy. We present the framework for the analysis of the level of evidence related with in-home physiotherapy (Study Design and Methodology section) and the results (Main Evidence section) on what and when in-home physiotherapy, emphasizing why in-home physiotherapy may contribute to patient engagement in health care. Ongoing research and trends in technology for in-home physiotherapy are presented in Future Researches section.

BACKGROUND: WHY IN-HOME PHYSIOTHERAPY

In-home health care provided by governmental healthcare services are rapidly growing in industrialized countries, as a result of: i) increase in elderly population, ii) general increase of population with non-communicable, chronic diseases, and iii) epidemiological transition triggered by medical innovation in disease or sickness therapy and treatment (see Omran, 2005). In Europe, all countries are experiencing