

Chapter 23

A Self-Management Service Framework to Support Chronic Disease Patients' Self-Management

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ABSTRACT

Chronic diseases and conditions, such as diabetes, heart disease, hypertension, etc., are major public health problems worldwide. Self-management is an essential process for improving care of patients with chronic diseases. This chapter illustrates the generation of a conceptual model through a research survey on a self-management system of chronic diseases and classification of the functions in each system. Then, the chapter discusses knowledge and system components in the prospects of services realized by case study of self-management support systems for type-2 diabetic patients. The related design issues and the service components of the support systems illustrate practical examples of the application of service science in the medical field.

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1. INTRODUCTION

Improvement of medical practice helps patients to live longer and have better quality of life even with chronic diseases. Self-management is an essential component for improving care of patients with chronic diseases. Information and communication technologies (ICTs) generally play a major role in self-management support systems. In this chapter, functions of systems supporting patient self-management for some major chronic diseases are surveyed and reviewed. A generalized model of these functions is developed based on different dimensions including function groups and patient roles. In adopting the model to enhance healthcare service for patients with chronic diseases, a service approach should be emphasized and applied in developing related service systems. A case study project in Thailand to develop service systems to support self-management of patients with type 2 diabetes is used in exemplifying implementation of such approach.

This chapter is organized as follows. Section 2 provides a thorough survey of typical functions of ICT-enabled self-management systems surveyed across five groups of chronic diseases: pulmonary diseases, cardiovascular diseases, diseases of endocrine system, musculoskeletal disorders, and neuropsychiatric disorders. The survey results show the current state of the art and used as a basis for developing a generalized model of functions of systems for self-management of chronic diseases. Section 3 describes a service framework applied to a case study project to support self-care activities among type-2 diabetic patients in Bangkok, Thailand. The design and implementations of two service systems are discussed: an automated telephone disease management service and a patient self-management support portal. Section 4 provides a summary of the chapter and discusses some challenges for future research.

2. FUNCTIONS OF SYSTEMS FOR SELF-MANAGEMENT OF CHRONIC DISEASES: A SURVEY AND CONCEPTUAL MODEL

2.1. Background

Improvement of medical practice has resulted in successful treatment and cure of more diseases. However chronic diseases, which have gradual progression and long-term fluctuation and difficulty in treatment, are still major healthcare problems (Holman & Lorig, 2004). Self-management is an essential process for improving care of patients with chronic diseases. Self-management usually includes dynamic and continuous self-care activities of a patient to manage his or her daily life, disease and consequences to allow the patient to live well with a chronic disease or condition (Barlow, Wright, Sheasby, Turner, & Hainsworth, 2002).

Information and communication technologies (ICTs) are widely employed in many applications for improving quality of services. ICTs are increasingly adopted in healthcare systems (Glasgow, Bull, Piette, & Steiner, 2004) including systems with self-management support functions (Garcia-Lizana & Sarria-Santamera, 2007). There are various functions found in different self-management support systems for different chronic diseases and conditions (Barlow et al., 2002; Clark et al., 1991). This study aims to survey these systems and develop a conceptual model of functions of self-management support systems.

2.2. Survey Methods

The Medline database and the Google search engine were used for online full-text literature searching. The search terms were “chronic” and “self-management”. The aim was to collect at least 40 literatures that fulfill the criteria for survey in the basis of first-come-first-served. Selections of publications were based on the following inclusion criteria:

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