

Chapter 1

E-Health for Older Adults: Assessing and Evaluating User Centered Design with Subjective Methods

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ABSTRACT

Health care related technology, or E-health, has the potential to lessen the impact of the growing aging population on the health care system, at the same time supporting aging in place. However, for technologies to be developed that are adopted by older users, research is needed to capture a thorough picture of older adults' unique health care needs. Specifically directed toward older users, this chapter will demonstrate the need for user centered design, discuss technology acceptance, and describe studies that employed systematic subjective methods such as focus groups, interviews, and questionnaires to provide a rich, detailed depiction of older users' interactions with E-health.

INTRODUCTION

The older adult population is growing at a rapid rate worldwide and society is not prepared for the impact on the health care system. The health care workforce is understaffed and the economic demand of treating and managing older adults' health conditions with traditional means is too great. Alternative methods are essential for meeting the health care needs of older adults. E-health has the potential to reduce older adults' dependence on the health care workforce and to support them

if they choose to live independently as long as they are able to.

Surveys across the globe have shown that aging in place is preferred by most older adults and can increase feelings of well-being (AARP, 2000; Costa-Font, Elvira, & Mascarilla-Miró, 2009; Weeks, Branton, & Nilsson, 2005). Survey data suggest that older adults see the potential of health technologies to support their preference for remaining independent and living in their own homes (AARP, 2008). Three-fourths of the respondents from an AARP survey reported a willingness to use telemedicine as a means for health care professionals to diagnose or monitor

DOI: 10.4018/978-1-60960-177-5.ch001

health conditions remotely. By allowing some of older adults' health care needs to be addressed in the home, E-health also has the potential to reduce the financial burden of treating and managing age-related health conditions.

The objectives of this chapter are threefold. For one, we will demonstrate the need for user centered design directed toward older adults by discussing the current and future trends of the aging population and the ability of technology to support home health care and aging in place. Secondly, we will discuss a model of technology acceptance. Thirdly, we will describe studies that used systematic subjective methods such as focus groups, interviews, and questionnaires and discuss their potential for providing a rich, detailed depiction of older users' E-health needs. Although there are no standard boundaries for determining the age range of older adults, for the purposes of this chapter we will refer to individuals 60 years of age and older as older adults.

Aging Society

Demographic aging is driven by lowered mortality rates, lowered fertility rates, and changes in the population structure, such as the aging of baby boomers (Cheng & Heller, 2009). These factors are associated with improvements in health and medical care, as well as changes in attitudes toward birth control and marriage. Together, they are causing a marked shift in the age distribution toward older groups in industrialized countries. Currently, the percentage of 65-year-olds in North America and Europe is around 15% but will rise sharply to over 20% in 2030 (Kinsella & Velkoff, 2001). Worldwide, the size of this population is expected to increase by 113% altogether from 2005-2050, with the largest increases in African, Latin American and Asian countries (United Nations Population Division, 2007). This increase has been called an "unprecedented demographic phenomenon" (p. 14, National Institute on Aging, 2007) and has wide ranging implications for

social structures, economic activity, and health care (Cheng & Heller, 2009). The quantitative dimensions of the aging population are better known than the impact they may have on the health care needs with which they are associated (Rice & Fineman, 2004).

Older adults have a unique set of needs and preferences regarding home health care. Because expensive medical treatments are not readily accessible by many populations in the world (World Health Organization, 2004), the focus of many governments is on development and strengthening of home- and community-based care (United Nations Department of Economic and Social Affairs, 2008). The specific health care preferences among older adults has started a change in health care perspectives that emphasize autonomy, self-determination, and independence of the older adult rather than diagnostic or symptomatic categories of health (Flick, Fischer, Neuber, Schwartz, & Walter, 2003). The use of technology can help them accomplish these goals (Rajasekaran, Radhakrishnan, & Subbaraj, 2008).

Technology Supports Home Health Care and Aging in Place

It is a misconception that older adults have negative attitudes towards new technology (Czaja & Moen, 2004). Although it is true that non adoption of new technology by older adults can in part be attributed to their perception of lack of benefits rather than the anticipation of costs (Melenhorst, Rogers, & Bouwhuis, 2006), they will adopt new technology when it seems relevant and easy to use (Czaja, 1997). Adequate training and support are also important to facilitate adoption of new technology, as well as earlier experiences with and exposure to new technology (Czaja, 1997).

Older adults are both more limited in their use of technology and less likely to be users of technology compared to their younger counterparts. According to a meta-analysis, the training of older adults took longer than younger adults

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