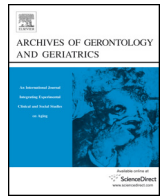




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Effects of self-care behaviors on medical utilization of the elderly with chronic diseases – A representative sample study

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ABSTRACT

Background: Research indicates that self-care affects lifestyle and health behaviors; however, little is known about whether or not self-care affects medical utilization.

Objectives: Exploring the effects on self-care behaviors to medical utilizations by elderly with chronic conditions.

Method: Data from the Taiwanese National Survey of Health and Living Status of Older Adults and the National Health Insurance claim databases in 2007 were used. Indicators of self-care were disease management behavior and self-care confidence of the elderly. We considered hospital admissions, emergency room services, and avoidable hospitalizations as representing utilization of medical services. **Results:** In total, 2531 cases were recruited. After controlling for demographic factors and health status, a logistic regression showed that higher self-care confidence and beginning an exercise program decreased avoidable hospitalizations. Furthermore, beginning an exercise program decreased hospital admissions and also decreased utilization of emergency services.

Discussion: Self-care behavior and confidence decreased avoidable hospitalization, hospital admission and emergency services. More research is needed to identify the interaction between self-care literacy, self-care behavior and health services that may clarify the effective means and provide appropriate intervention programs.

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1. Introduction

Self-care refers to the adoption of specific behaviors by patients to promote health, prevent a deterioration in their health, and maintain individual psychological well-being (Astin & Closs, 2007; Dean, 1992; WHO, 1983). The concept of self-care involves sharing the responsibility for individual health between medical institutions and patients, rather than attributing the responsibility for individual health solely to medical institutions (Astin & Closs, 2007). Most studies on self-care focused on patients with specific chronic diseases and the implementation of specific behaviors relevant to health or diseases in daily life, such as regular medications, exercise, dietary control, and weight management (Lorig & Holman, 2003). Using hypertensive patients as an

example, the self-care behaviors include quitting smoking, exercising, losing weight, and consuming moderate amounts of alcohol (Chobanian et al., 2003). Self-care behaviors of patients with diabetes include diet management, blood glucose monitoring, and regular general practitioner visits. For patients with cardiac diseases or heart failure, medication compliance and regular monitoring of symptoms were used as important indicators of self-care (Lee, Tkacs, & Riegel, 2009). Nevertheless, some studies also suggested that besides the behaviors mentioned above, self-care should also include learning and acquisition of medical knowledge relevant to the disease, prevention, and treatment (Leak, Davis, Houchin, & Mabrey, 2009).

Self-care has a significant effect on disease management, thereby slowing the disease progression and maintaining the health of patients with chronic diseases. Because of the prolonged course of chronic diseases (over 6 months), patients may suffer from such diseases for the rest of their lives, and it is difficult to completely cure chronic diseases. Chronic diseases have far-reaching impacts on patients, including on their daily life and social, psychological, and economic aspects. Consequently, patients with chronic diseases need to learn more about self-care

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and skills and become a partner with medical institutions and physicians (Beasley, 2009). One study indicated that for patients with diabetes, effective self-care is an important factor in the successful care of such patients (McCollum, Hansen, Lu, & Sullivan, 2005). Among treatments, 95% of diabetes treatments need to rely on the self-care behavior of patients (Anderson, 1995). For patients over 65 years of age, successful self-care behavior can increase the efficacy of treatments (Polly, 1992). The International Guidelines for the Care of Cardiac Diseases also indicate that successful care of cardiac diseases relies on medicine and the cooperation of self-care behavior (Yu, Lee, Thompson, Woo, & Leung, 2010).

Studies have shown that in contrast to patients who do not engage in self-care, those who do obtain achieve superior efficacy in health maintenance and medical utilization. Patients with cardiac diseases with poor medical compliance have a higher risk of hospitalization. In contrast, patients who engage in self-care can better prevent hospitalization (Evangelista et al., 2010; Kornelius et al., 2014; Michalsen, König, & Thimme, 1998; Ni et al., 1999; Rubin et al., 2001; van der Wal, Jaarsma, & van Veldhuisen, 2005). Patients who engage in self-care behaviors can more effectively prevent myocardial infarctions and reduce the chance of hospitalization and avoidable hospitalization (Kornelius et al., 2014; Vinson, Rich, Sperry, Shah, & McNamara, 1990). Patients with poorer self-care behaviors, medical advice compliance, and health-related knowledge and skills may also have a higher risk of death caused by cardiac diseases (Evangelista et al., 2010).

Previous studies indicated that self-care can effectively slow disease progression and reduce medical utilization and the risk of death. However, there is a significant difference in rates of implementing self-care. The proportion of patients with cardiac diseases who comply with medical advice ranges 10–96% (Evangelista, Berg, & Dracup, 2001; Monane, Bohn, Gurwitz, Glynn, & Avorn, 1994), and those who follow dietary instructions to control their diet range 38–71% (Evangelista et al., 2001; Ni et al., 1999). The proportion of patients varies with study sites and the screening methods of the research samples. Because the proportion of patients with chronic diseases who are willing to engage in self-care is generally lower, the factors which influence self-care behavior should be identified to enable patients to initiate implementation of self-care, and this has been an important issue of studies involving self-care over the last decade.

The prevalence of chronic diseases usually increases with age (Thrall, 2005). According to a survey on health care and career planning of the middle-aged and elderly in a family planning study conducted by the Taiwanese Department of Health in 1996, approximately 80% of the elderly reported that they suffered more than one chronic disease. The National Sampling Survey on the Elderly over 65 years of age in Taiwan in 2000 reported that among the elderly in Taiwan, 70% suffer from at least one chronic disease (Chi, Lee, & Wu, 2011). However, currently few studies have investigated issues related to self-care of the elderly with chronic diseases in Taiwan, and only preliminary investigations on the self-care behavior of patients with specific chronic diseases have been conducted, whereas there have been no studies on the actual benefits of self-care in the elderly with chronic diseases. Our research objective is to explore the effects on self-care behaviors to medical utilizations by elderly with chronic conditions.

2. Materials and methods

Data used in this research were based on the “2007 Survey of Health and Living Status of the Elderly in Taiwan,” a longitudinal panel study, which was conducted by the Taiwan Provincial Institute of Family Planning (now incorporated into the Bureau of Health Promotion, Department of Health, Taiwan) and the Population Studies Center at the University of Michigan. The

panel study was conducted in six waves at 3–4-year intervals beginning in 1989, and the sixth wave in 2007 was the main analysis data in our study. The questionnaire of the panel survey contained eight sections, including marital history and background characteristics, household schedules, socioeconomic exchanges, health status and healthcare utilization and behavior, occupational history, activities and general attitudes, residence history, economic/financial well-being, and emotional and instrumental support. All persons in Taiwan ≥ 60 years of age as of the end of 1988 included in the registration system were in the sampling population at the baseline with a sample of 4412 persons. The response rate was 91.8% and 4049 participants were completed the first interview in 1989. Because the near-elderly population has grown into a rapidly aging society, this survey was extended to include a sample of 2462 persons 50–66 years of age in 1996 and 1599 persons in 2003. The participation rate in each wave was 80–90%, and the rate in 2007 was 90% approximately.

The data used for this study were from the latest wave, only included the elderly above 65-year-old, and were matched with the National health insurance database Taiwan to explore medical utilization. Taiwan launched a single-payer National Health Insurance program on March 1, 1995. The database of this program contains registration files and original claim data for reimbursement. In addition, weighting was used by a post-stratification approach to adjust the sample representativeness. The county of residence, gender, and age were the main levels stratified.

Self-management confidence and disease-management behavior were proxies for health literacy. Respondents with at least one chronic condition or pain problem were interviewed about their confidence in engaging in self-management behavior. The questions included the following: (1) How confident do you think that you can comply with instructions of their physician to take medicine?; (2) How confident do you think that you can engage in more exercise to alleviate pain?; (3) How confident do you think that you can control their diets (e.g., low-salt, low-sugar, and low-fat diets) to alleviate pain?; (4) How confident do you think you can clearly inform their physician of their disease status?; (5) How confident do you think that you can ask their doctor questions about their disease condition?; (6) How confident do you think that your health or discomfort will not affect what you intend to do (e.g., activities of daily life (ADLs))?; and (7) How confident do you think that the emotional distress (bad mood) caused by the disease will not affect what you intend to do (e.g., ADLs)?

The answers included the following 5 levels: strongly agree (which implied responder had 90–100% confidence to comply with the self-management behavior); agree (70–80% confidence); neutral (50–60% confidence); disagree (30–40% confidence); and strongly disagree (<20% confidence). In the analysis, total scores of the seven questions were added up, with a minimum score of 7 points and a maximum score of 35 points. A higher score represents higher confidence in self-care. The level of self-care confidence was divided into the following three groups, according to the distribution of variables: high, medium, and low.

Disease-management behaviors included controlling one's weight, quitting smoking, quitting alcohol consumption, beginning exercise, dieting, and making life adjustments, such as stress relaxation. Respondents were interviewed regarding their performance of these behaviors to control their diseases during a 1-year period. If they did the behaviors in the past year, they would be recorded as “yes” for each item.

We used emergency room services, hospital admissions, and avoidable hospitalizations in the same year to represent medical service utilization. Avoidable hospitalization means that if treated with proper primary care as an outpatient, patients should not get to the point where hospitalization is required. We adopted the

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