



Research Article

Relationships of Factors Affecting Self-care Compliance in Acute Coronary Syndrome Patients Following Percutaneous Coronary Intervention



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SUMMARY

Purpose: This study was conducted to identify direct and indirect factors influencing self-care compliance in patients with first acute coronary syndrome through examining the relationship among multi-dimensional factors.

Methods: Outpatients who made hospital visits to receive a follow-up care at more than 6 months after percutaneous coronary intervention were recruited at a national university hospital in Korea. Data of 430 participants were collected through self-administered questionnaires and analyzed using AMOS version 7.0. The fitness of the hypothetical model and the degree of significance of direct and indirect paths were analyzed.

Results: Three paths were found to have a significant effect on self-care compliance in the modified model. Social support indirectly influenced self-care compliance through enhancing self-efficacy, reducing anxiety and increasing perceived benefit. In addition, social support and body function indirectly influenced self-care compliance through reducing depression which affected self-efficacy. Self-efficacy was the most influential factor and played an important role as a mediating variable.

Conclusion: Results of this study suggest that nurses' counselling and education as a form of social support should be encouraged to enhance self-efficacy and self-care compliance among outpatients during follow-up care after percutaneous coronary intervention.

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Introduction

The prevalence of acute coronary syndrome (ACS) in Korea has increased by more than 5-fold in the last 10 years, while the overall death rate from heart disease has increased by more than 3-fold, from 13.0 per 100,000 people in 1996 to 43.4 per 100,000 people in 2009 (Korea Center for Disease Control and Prevention, 2010). According to the Korean Acute Myocardial Infarction (AMI) Registry, 21% of 8,425 AMI patients who had percutaneous coronary intervention (PCI) suffered a major adverse cardiac event such as cardiac or noncardiac death, restenosis, or recurrence of AMI within 1 year (Sim, Kim, & Jeong, 2009). Furthermore, readmission and treatment

owing to recurrence caused by PCI failure in patients with coronary artery disease can lead to higher medical costs, leading to heavy financial burdens and lower quality of life.

Although the PCI shows very high success rate in ACS patients, the patients need to comply with self-care regimens for life such as smoking cessation, regular hospital visits, regular medication, dietary management, adequate exercise, and weight control to prevent a secondary attack or another major adverse cardiac event (American Heart Association, 2006). According to an international multicenter trial among 18,000 patients with ACS, those who reported persistent smoking and nonadherence to dietary control and exercise for 6 months after discharge exhibited 3.8-fold increased risk of AMI, stroke and death compared with non-smokers who modified diet and exercise (Chow et al., 2010). A cohort study also reported that smoking cessation in patients after coronary events was associated with reduced recurrence of AMI (Rea et al., 2002).

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A previous study reported that 39.1% of the patients with first follow-up angiogram, which was routinely conducted within 6–9 months after PCI, had a restenosis. Among them, low compliance with self-care was more often reported by those at less than 1 year compared to those at over 1 year following PCI (Choi, Jeong, & Hwang, 2011). Most patients have a tendency to maintain health behaviors for about a month after discharge but then gradually comply less, starting at 6 months after discharge (Haskell, 2003). Therefore, prevention of fatal complications and side effects depends on persistent and effective self-care for more than 6 months after PCI. In this regard, identification of factors affecting self-care compliance is very important (Haskell). Previous studies in ACS patients have found the following factors affecting self-care compliance: functional state of the body (Mittag et al., 2006), social support from family and healthcare providers (Choi & Cho, 2007; Haskell; Mittag et al.), depression and anxiety (Bhattacharyya, Perkins-Porras, Whitehead, & Steptoe, 2007; Flynn, Cafarelli, Petrakos, & Chirtophersen, 2007; Székely et al., 2007), disease-related knowledge as a motivation to embrace behavioral changes in addition to dietary control, smoking cessation, and regular exercise (Choi & Cho; Kim & Park, 2009), perceived benefits and barriers (Han, Lee, & Kim, 2007) and increased self-efficacy (Choi, Song, & Choi-Kwon, 2007; Han et al.). Moreover, compliance with health behaviors is not solely influenced by external support (i.e., social support from family & healthcare workers); the extent of self-care compliance is also impacted by internal factors such as a person's beliefs or emotional state (Choi & Cho; Flynn et al.; Senuzun, Fadiloglu, Burke, & Payzin, 2006). However, the reported factors were not measured by integration of physical, social, and emotional aspects.

Therefore, this study had the following research objectives: (a) to identify the causal relationships of factors affecting self-care compliance in ACS patients with follow-up after PCI, and (b) to develop an explanatory model for self-care compliance for a comprehensive understanding of ACS patients.

Conceptual framework and hypothetical model

The conceptual framework of this study was established based on the integration of the concepts of the health belief model with self-efficacy supporting individual's long-term lifestyle changes (Champion & Skinner, 2008, pp. 45–65), and the variables found in previous studies (Choi & Cho, 2007; Kim & Park, 2009; Mittag et al., 2006; Székely et al., 2007). We hypothesized that the likelihood of action, patients' compliance would be affected by individual knowledge of disease and self-efficacy that explain the perceived ability to carry out the recommended health action, the cognitive perception to have expected outcome, and the environmental cues to action. Individual variables included in this model were self-efficacy (Choi et al., 2007), disease-related knowledge (Kim & Park, 2009), body function implying activities of daily living (Mittag et al.), and anxiety and depression as psychological variables (Flynn et al., 2007; Székely et al.). Cognitive perceptions were regarded as perceived barriers and perceived benefit of taking health behaviors (Han et al., 2007). In addition, social support as an environmental variable, such as provision and guidance from family and health professionals was included as cues to action strengthening self-efficacy (Choi & Cho). Individual's knowledge, physical body function, and situational social support have an influence on individual emotions and cognitive perceptions, which then influence self-care compliance of individuals through self-efficacy. In this study, social support, disease-related knowledge and body function were regarded as exogenous factors, while depression, anxiety, perceived benefits and barriers, and self-efficacy as a motivating factor were regarded as endogenous

factors. The hypothetical model showing the relationships between the three extraneous variables and six endogenous variables is presented in Figure 1.

Methods

Study design

The study employed a cross-sectional descriptive design to examine direct and indirect pathways among factors by structural equation modelling. It integrates various factors affecting self-care compliance among patients seeking follow-up care for more than 6 months.

Setting and sample

Participants were recruited from the outpatient department of a national university hospital in a city in Korea. The hospital does not currently have a cardiac rehabilitation program for ACS patients. The participants met the following eligibility criteria: (a) cognitively intact; (b) receiving follow-up treatment for at least 6 months after PCI with first-time ACS; (c) exhibiting no complications such as heart failure and arrhythmia; and (d) understood the purpose of the study and consented to participate. Confidentiality of personal information and the purpose of the study were fully explained to all participants who voluntarily signed the participation agreements after approval of the study by the hospital ethics committee (1-2008-05-059). Of the 450 patients who agreed to participate, 430 completed the questionnaires. Data from 20 patients were incomplete and deleted from the analysis. The sample size of this study was satisfied by the rule of thumb for a structural equation modelling which states that the sample size should be 200 as determined by maximum likelihood or should have 10–20 times more observations than variables (Bae, 2007).

Measurement

Social support

An 11-item Likert scale, consisted of 7 items assessing family support and 4 items assessing support from healthcare providers, was modified from an instrument developed by Tae (1985). From a pilot test of 48 patients with the original scale, 3 items assessing the support of healthcare providers where the loadings in the rotated

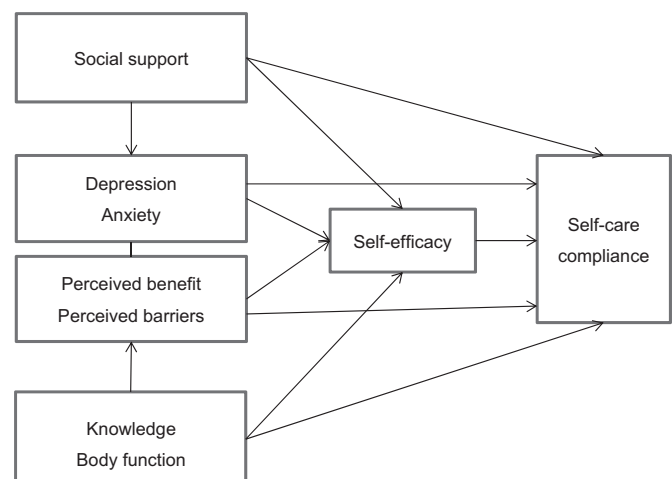


Figure 1. Conceptual framework of this study.

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