



## Research Article

## Changes in Depressive Symptoms in Spouses of Post Myocardial Infarction Patients

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## SUMMARY

**Purpose:** To identify parsimonious models for changes in depression in spouses of post myocardial infarction (MI) patients over 2 years based on the biopsychosocial model.

**Methods:** A total of 442 community living patients who had experienced an MI and their spouses were included for analysis. Patients and spouses completed psychosocial assessments at baseline, 1 year, and 2 years after enrollment in the Patients' and Families' Psychological Response to Home Automated External Defibrillator Trial. Linear mixed models were used for testing hypotheses.

**Results:** A total of 15.2% (baseline), 11.5% (1-year follow up), and 8.1% (2-year follow up) of spouses were depressed. Spouse biological factors did not influence changes in depression. Among all spouses, two groups of spouses showed increased depression over time: spouses with lower baseline depression scores ( $p < .001$ ), and spouses of patients who had higher baseline depression scores ( $p = .001$ ). Among psychologically distressed (anxious or depressed) spouses, three groups of spouses showed increased depression over time: spouses who had lower baseline depression scores ( $p < .001$ ), spouses who had more social support at baseline ( $p = .023$ ), and spouses of patients who had higher baseline depression scores ( $p < .001$ ). **Conclusion:** Spouse and patient baseline depression significantly predicted changes in depression for all spouses and psychologically distressed spouses. Among psychologically distressed spouses, higher baseline social support predicted higher depression scores over time. This study is an important step in understanding longitudinal changes in the psychological status of spouses of MI patients for evaluating the need for interventions. It is crucial that patient couples' psychosocial factors are continuously assessed.

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## Introduction

The spouse of the post-myocardial infarction (MI) patient experiences life altering changes after the MI. In post-MI or revascularization couples, the spouses were significantly more anxious and depressed than the patients were (Moser & Dracup, 2004). The spouse is subject to many physical and psychological demands and may need to assume the functions that were once the patient's roles. As a result, spouses may develop and maintain higher levels of psychological distress such as depression or anxiety (Moser).

The psychological distress of spouses continues after the acute phase of MI. In a longitudinal study with 10 years of follow-up (Arefjord, Hallaraker, Havik, & Maeland, 1998), approximately 50% of wives of MI patients had a low level of depression during the

whole period and the proportion of severely depressed wives of MI patients was relatively stable over 10 years. While the patient directly experiences the cardiac event, the spouse lives through a parallel experience equally intense as the patient's experience (Marsden & Dracup, 1991). The spouses are more likely to be marginalized from medical attention since the main focus is on patient survival. From a long-term perspective, decreasing spousal anxiety and depression may be a cost-effective way to improve the patients' psychosocial status and may decrease morbidity and mortality outcomes (Moser & Dracup, 2004). Health care professionals need to identify spouses with the greatest need for support and provide resources to them (Martensson, Dracup, & Fridlund, 2001). This study is an important step to understand longitudinal changes in the psychological status of spouses of MI patients and for evaluating the need for interventions. It is crucial to decrease psychological distress and improve social support or coping skills among spouses of post-MI patients. Little is known about the longitudinal changes in depression for spouses of post-MI patients.

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## Theoretical framework

The biopsychosocial model provides the basis for understanding the holistic approach for patient care as well as the determinants of disease (Engel, 1977). The model encompasses both circumstances of the person and illness. The biopsychosocial model takes into account the missing dimensions of the biomedical model that leaves no room within its framework for the social, psychological, and behavioral dimensions of illness (Engel, 1977, 1980). The biopsychosocial model has been used extensively in the understanding of risk for the development and progression of coronary heart disease (Andersson, Pesonen, & Ohlin, 2007; Buselli & Stuart, 1999; Ramachandruni, Handberg, & Sheps, 2004).

Various factors in spouses' biological, psychological, and social realms can affect their health status. Figure 1 presents the revised biopsychosocial model for health in spouses of MI patients. Spouses' biological factors such as age and gender influence their psychological responses or coping strategies. Younger wives report more emotional and somatic symptoms than older wives do including appetite disturbance, headaches, and depression lasting up to 2 years after the cardiac events (Ebbesen, 1990; Moore, 1994). Comparing female and male spouses of patients who experienced an acute MI, female spouses showed higher scores in the use of certain coping strategies such as planful problem solving (Santavirta, Kettunen, & Solovieva, 2001).

Spouse social factors, including spouse's social support, marital relationship with the patient, and patient's biological, psychological, and social factors, interact with factors in the spouse's biological and psychological realms. The social factors also affect spouse's health status. Perceived spousal social support strongly affects the spouses' psychological responses and health. In wives of post-MI patients, dissatisfaction with social support was strongly related to anxiety and depression (Arefjord et al., 1998). The quality of the marital relationship was a crucial factor affecting the spouse's well-being (Coyne & Smith, 1991; Kriegsman, Penninx, & van Eijk, 1994; Manne, 1990).

The patient's biopsychosocial factors in the spouse's social realm play an important role in influencing the spouse's psychological

distress. Spousal distress is related to the patient's age. Distress in wives was negatively associated with the age of the patient indicating that the spouses of older patients were less distressed (Coyne & Fiske, 1992). The patient's severity of illness may or may not be related to spousal distress. The number of MIs and the clinical severity of MI were not related to emotional reactions in wives (Arefjord et al., 1998).

The current study focuses on depression in spouses of post-MI patients. Based on the biopsychosocial model, the spouse's biopsychosocial factors will ultimately affect their own health status. Psychological distress is a risk for heart disease. In the first National Health and Nutrition Examination Survey for people who were free of coronary heart disease, depression was related to an increased risk of its incidence in both men and women after controlling for possible confounding factors (Ferketich, Schwartzbaum, Frid, & Moeschberger, 2000). Also, increased morbidity and mortality will impact the spouses' abilities to assist patients in their recovery and provide a stressor that will impact patients' health (Figure 1).

## Purpose of the study and hypotheses

The purpose of the study was to examine factors that contribute to changes in depression for spouses of post-MI patients based on three realms from the biopsychosocial model over a period of 2 years. Spouse biological factors (age and gender), spouse baseline psychological factors (anxiety, depression, and coping), and spouse baseline social factors including the amount of and satisfaction in spouse support, and patient factors (age, gender, elapsed time since most recent MI, and baseline psychosocial variables) were used to predict changes in spouse depression. Separate models were developed for all spouses and for psychologically distressed spouse subgroup (anxious or depressed spouses). We hypothesized that the spouse's baseline biopsychosocial factors would predict changes in spouse depression over time in all spouses and the subgroup of psychologically distressed spouses.

## Methods

### Research design and data set

The study is a longitudinal observational nonexperimental design. The data set for the current study is longitudinal data from the Patients' and Families' Psychological Response to Home Automated External Defibrillator Trial (PRHAT). The PRHAT study was conducted as an ancillary study of the Home Automated Defibrillator Trial (HAT). The HAT was designed to determine whether having an automatic external defibrillator (AED) in the home improves survival of patients at intermediate risk of sudden cardiac arrest. The primary purpose of the PRHAT study was to examine the long term psychological responses, including anxiety, depression, family coping skills, and social support, and compare the effects of the CPR and CPR/AED training in groups of community living patients who have experienced an MI and their spouses/companions over 2 years. Details of the PRHAT study regarding recruitment and data collection are described in a previously published paper (Thomas et al., 2011). For the current study, individuals who are spouses or domestic partners were included. Individuals who had evidence of cognitive impairment were excluded. To test the research question with linear mixed models, power was calculated for spouses ( $N = 442$ ) for the outcome variable depression using Diggle and Diggle's method for continuous outcomes (Diggle & Diggle, 2002). For a medium effect size with an alpha of .05, power was .82 for depression.

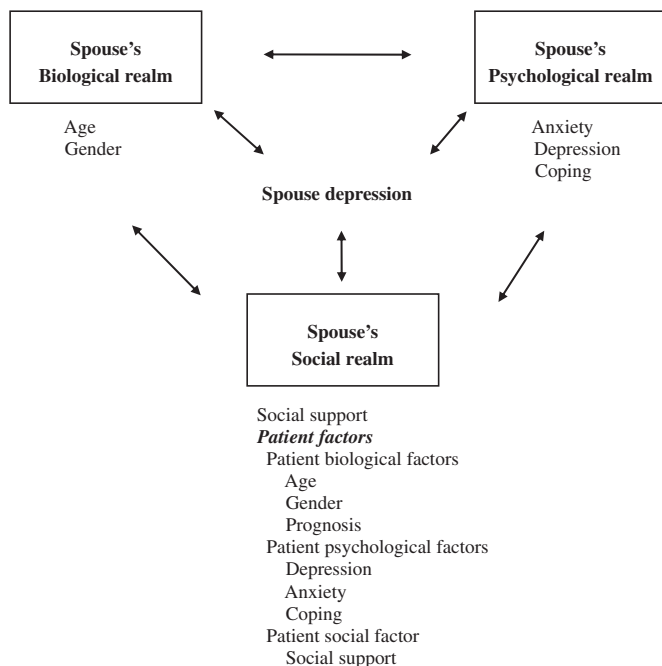


Figure 1. Revised biopsychosocial model in spouses of post myocardial infarction (MI) patients from (Thomas et al., 2008).

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