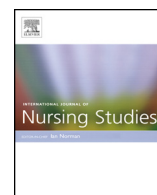




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Modifiable correlates of physical symptoms and health-related quality of life in patients with heart failure: A cross-sectional study

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ABSTRACT

Background: Heart failure is associated with high rates of hospitalization and mortality. The majority of patients with heart failure suffer from physical symptoms, and these symptoms are strongly associated with poor health-related quality of life. To improve physical symptoms and health-related quality of life, the modifiable factors associated with physical symptoms need to be examined.

Purpose: To examine modifiable psychosocial and behavioral factors associated with physical symptoms and health-related quality of life, and the mediator effects of physical symptoms on the relationships between the modifiable factors and health-related quality of life in patients with heart failure.

Methods: Data on potential correlates of physical symptoms (i.e., depressive symptoms, perceived control, social support, medication adherence, sodium intake, and self-care management) were collected from 109 patients with heart failure (mean age 58 ± 14 years, 46% male, 89% New York Heart Association class II/III). Data on physical symptoms (Symptom Status Questionnaire-Heart Failure) and health-related quality of life (Minnesota Living with Heart Failure) also were collected. Simple and multiple regression analyses were used to analyze the data.

Results: Among the potential correlates, depressive symptoms and sodium intake were associated with physical symptoms ($F = 11.63$, $p < .001$), and depressive symptoms and perceived control were associated with health-related quality of life ($F = 9.917$, $p < .001$). Physical symptoms mediated the relationship between depressive symptoms and health-related quality of life.

Conclusion: Improving depressive symptoms and eating the appropriate amount of sodium may be primary intervention targets to improve physical symptoms. To improve health-related quality of life, depressive symptoms as well as physical symptoms need to be managed appropriately.

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What is already known about the topic?

- There is high prevalence of physical symptoms in patients with heart failure.
- Physical symptoms are associated with poor health-related quality of life and precede hospitalizations and emergency department visits in patients with heart failure.
- There is high prevalence of depressive symptoms in patients with heart failure.

What this paper adds

- Among possible modifiable psychosocial and behavioral factors, depressive symptoms and sodium intake were associated with physical symptoms in patients with heart failure.
- Among possible modifiable psychosocial and behavioral factors, depressive symptoms and perceived control were associated with health-related quality of life in patients with heart failure.
- Physical symptoms mediated the relationship between depressive symptoms and health-related quality of life.

1. Introduction

More than 90% of patients with heart failure suffer from physical symptoms (Albert et al., 2010; Zambroski et al., 2005), and approximately 90% have multiple symptoms (Carlson et al., 2001). Physical symptoms are strongly associated with poor health-related quality of life (Bekelman et al., 2007; Heo et al., 2008, 2013), which is worse in these patients than in healthy elders of similar ages (Heo et al., 2007b). Furthermore, physical symptoms and health-related quality of life are associated with high rates of hospitalization and mortality in patients with heart failure. For instance, worsening of heart failure symptoms precedes 75% of hospitalizations (Giamouzis et al., 2011). Ninety to 100% of heart failure patients who are admitted to hospitals have dyspnea (Albert et al., 2010), and 70% report that dyspnea was the main reason for visiting the emergency department (Parshall et al., 2001). Health-related quality of life predicts hospitalization and mortality rates (Carson et al., 2009). These findings suggest that physical symptoms need to be managed effectively to improve health-related quality of life and reduce high hospitalization rates.

In order to manage physical symptoms, it is essential to identify modifiable factors associated with them (Fig. 1). Chief among the candidates for potential modifiable psychosocial factors are depressive symptoms, perceived control, and social support. Approximately 30–60% of patients with heart failure have depressive symptoms (Faller et al., 2009; Tousoulis et al., 2008), and depressive symptoms have been related to physical symptoms and poor health-related quality of life in patients with heart failure (De Jong et al., 2005; Heo et al., 2008, 2013). Higher perceived control has been associated with less severe physical symptoms and better health-related quality of life in a few studies examining this relationship (Heo et al., 2005b, 2008). Social support can affect physical symptoms

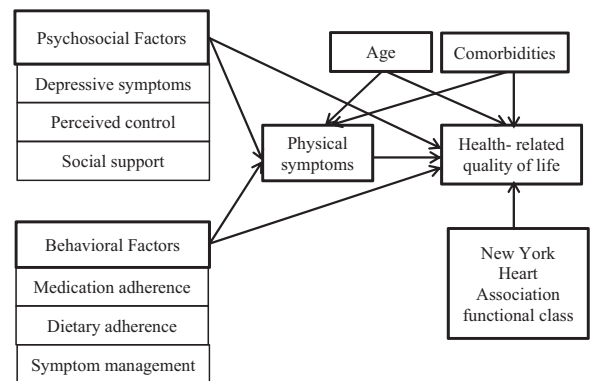


Fig. 1. Modifiable and non-modifiable factors associated with physical symptoms and health-related quality of life.

through its effects on self-care (Wu et al., 2008b). In one study (Carels et al., 2004), social support was associated with physical symptom expression. Potential modifiable behavioral factors associated with symptoms are medication adherence, sodium intake, and engagement in self-care (Lindenfeld et al., 2010). In patients with heart failure, medication adherence rate measured by medication event monitoring system was about 59%, and medication adherence and depressive symptoms were associated with event-free survival (Wu et al., 2013). Adherence to a restricted sodium intake, measured objectively, is poor (25%) (Lennie et al., 2008), even after dietary intervention (46%) (Dunbar et al., 2005). Self-care management in patients with heart failure is also very poor (12%) (Cameron et al., 2009). These factors likely contribute to increased symptom expression.

To the best of our knowledge, no investigators have examined the associations of all these modifiable factors to physical symptoms or to health-related quality of life in patients with heart failure. Thus, the purpose of this study was to identify potential modifiable psychosocial and behavioral factors (i.e., depressive symptoms, perceived control, social support, medication adherence, sodium intake, and self-care management) potentially associated with physical symptoms and health-related quality of life in patients with heart failure. We also examined the mediator effects of physical symptoms on the relationships between the modifiable factors and health-related quality of life.

2. Methods

2.1. Design, setting, sample, and procedure

This cross-sectional study used baseline data from a prospective study of adult patients with heart failure from three sites in the Midwest and Southern United States. Two sites included both a university referral center and a community hospital, and one site included only a university referral center. The purpose of the prospective study was to examine the relationships among psychosocial and behavioral factors, physical symptoms, and heart failure outcomes, including health-related quality of life

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