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Title: Sleep quality and self-care of adults with Heart Failure

ABSTRACT

Background. Heart failure (HF) is a pandemic syndrome affecting 1%–2% of the adult population in developed countries. Almost 6 million people in the US and 15 million people in Europe suffer from HF. As the prevalence increases with age, HF is projected to increase by 46% between 2012 and 2030. Patients with HF experience poor outcomes such as frequent hospitalization, high mortality rates and decreased quality of life (QOL) due to the many symptoms caused by HF. In addition to the well-known HF symptoms, there are other common symptoms like difficulty sleeping, and daytime sleepiness, which strongly affect sleep quality. Poor sleep quality contributes to inadequate self-care. Although some studies have shown an association between sleep quality or excessive daytime sleepiness and self-care behavior of adults with HF, there is a lack of evidence to conclude that the sleep quality is associated with HF self-care. Additionally, no studies evaluated the association of individual sleep quality components with the 3 dimensions of self-care (maintenance, management, and confidence). It is also important to know the association between sleep quality and self-care in adults with HF to tailor effective interventions to improve both sleep quality and self-care. To improve self-care one effective intervention is Motivational Interview (MI) but, its effect on anxiety, depression, sleep quality, and QOL in HF patients is unknown.

Objectives. The overarching objectives of this doctoral program were twofold: 1) to evaluate the association between sleep quality and self-care maintenance, self-care management, and self-care confidence of adults with HF; 2) to evaluate the effect of MI on anxiety, depression, sleep quality, and QOL experienced by HF patients. Specific objectives were 1) to summarize and report the current literature on the association between sleep quality and/or excessive daytime sleepiness and self-care of adult patients with heart failure; 2) to evaluate the association between global and specific sleep quality components and self-care maintenance, self-care management, and self-care confidence of adults with HF; 3) to evaluate the effect of MI on anxiety, depression, sleep quality and QOL experienced by HF patients in the 12 months following the receipt of an MI intervention.

Methods. The first study was a systematic review that adhered to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. MedLine, CINAHL, PsycINFO and SCOPUS were searched. Observational, case-control and cohort studies were considered. The quality of the studies was evaluated with the Joanna Briggs Institute's Critical Appraisal Tools. The second study (a cross sectional study) was a secondary analysis of baseline data from the motivational

interviewing to improve self-care in heart failure patients (MOTIVATE-HF) study, a three-arm randomized controlled trial (RCT) conducted on a sample of 510 patients with HF and their caregivers. Only the patients were included in this study. To assess sleep quality, the Pittsburgh Sleep Quality Index was used, and to assess self-care, the Self-Care Heart Failure Index V6.2 was used. The third study was a planned, secondary outcome analysis of the MOTIVATE-HF study, a three-arm randomized controlled trial (1:1:1) evaluating the effect of MI in improving self-care in HF patients. Endpoints were evaluated with the Hospital Anxiety and Depression Scale, the Pittsburgh Sleep Quality Index, the 12-Item Short-Form Health Survey, and the Kansas City Cardiomyopathy Questionnaire every 3 months for one year.

Results. In the first study, we found a lack of robust evidence to identify whether sleep quality is associated with self-care in patients with HF. However, we found that results from the few available studies suggest that sleep quality could affect self-care in this population. In the second study, we found that global sleep quality was not significantly associated with any self-care scale. However, when we examined specific sleep quality components, we found that lower self-care maintenance was associated with worst habitual sleep efficiency and more frequent use of sleeping medications. Lower self-care management was associated with a lower frequency of daytime dysfunction. Lower self-care confidence was associated with less frequent use of sleeping medications. In the third study, we found that MI had no effect on anxiety, depression, or sleep quality in the 12 months following MI intervention. Only disease-specific QOL improved over time in the intervention arms compared to the control arm, but not until 9–12 months after the intervention.

Conclusion. Our studies have found that sleep quality influences self-care behaviors. Clinicians should systematically assess both sleep quality and self-care in patients with HF. Moreover, it is not enough for clinicians to measure global sleep quality, but it is necessary to assess its different components to identify patients at risk for poor self-care. Additionally, our studies have shown that patients dramatically have both poor sleep quality and inadequate self-care. Thus, interventions to improve both sleep quality and self-care are urgently needed. MI significantly improved self-care in HF patients and including caregivers may potentiate the effect, especially in self-care management. We found that MI was effective in improving disease specific QOL, especially in the arm where both patient and caregiver received the intervention. Thus, clinicians should include both patients and caregivers when providing MI interventions. Future research on this topic is needed. Poor sleep quality is a frequent complaint by patients with HF, but evidence of the relationship between sleep quality and self-care behavior needs to be strengthened. Particularly, prospective observational designs measuring this association are strongly recommended.