Fatigue Domains Correlate Sleep Quality in Taiwanese People with Heart Failure

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Background

Fatigue and poor sleep have been viewed as main symptoms of heart failure and can restrict physical tolerance to carry out usual daily activities. Fatigue has been associated with poor sleep quality, however, only a few studies have examined different domains of fatigue with sleep quality in Taiwanese patients with heart failure.

Purpose

The purpose of this study was to examine the relationship between fatigue domains and sleep quality in Taiwanese patients with heart failure.

Design

A cross-sectional research design was used.

Sample and Setting

One hundred and one participants were recruited from the cardiology outpatient departments of a medical center located in Southern Taiwan.

Inclusion criteria:

- Patients who have HF, diagnosed by a physician
- Age 18 or older
- Can communicate either in Mandarin or Taiwanese

Exclusion criteria:

- Suffered sleep disturbances before diagnosed with HF.
- Diagnosed with dementia.
- Have psychiatric disorder or major depression.

Instruments

- The Multidimensional Assessment of Fatigue Scale
  - 16 items, 4 domains
  - Total score 1-50, higher scores indicating greater fatigue
  - Cronbach’s alpha .94
- Pittsburgh Sleep Quality Index
  - 19 items, 7 components
  - Likert scale 0-3, total score 0-21, higher scores indicating poor sleep.
  - ≥ 5 points: Poor sleep quality
  - Cronbach’s alpha .71

Data analyses

- Descriptive statistics: frequency, percentage, mean, standard deviation
- Bivariate analysis: t-tests, one-way ANOVA, and Pearson correlation analysis to examine the relationship between variables
- Multiple linear regression analysis to identify the major determinants of sleep quality in patients with HF.

Results

The mean age of the participants was 66.5 ± 12.3 years old, and the mean duration of heart failure was 6.87 years.
- Mean for PSQI: 5.99 ± 3.81, for fatigue: 11.88 ± 12.14
- Approximately 43% reported fatigue, while 47% experienced poor sleep quality.
- Participants who did do exercise (t = -2.90, p < .01) had poorer sleep quality than those who did not (Table 1).
- The PSQI global score was significantly correlated with the global fatigue score (r = .24, p < .05), fatigue severity (r = .23, p < .05), fatigue distress (r = .23, p < .05), and fatigue timing (r = .25, p < .05) but not fatigue timing, age, heart failure duration, and body mass index, indicating the more severe and distress the fatigue, the poorer the sleep quality.
- Multiple linear regression analysis showed fatigue domains were not significant determinants of sleep quality. However, global fatigue score and doing exercise accounted for 12.4% of adjusted variance in sleep quality among Taiwanese patients with heart failure (Table 2).

Discussion and Conclusion

- The study found that only fatigue severity and fatigue distress domains, but not fatigue timing, significantly associated with sleep quality.
- The reason for the participants to engage in doing exercise might be that they tried to use it to improve sleep quality.
- Future interventions aimed to reduce the perception of fatigue distress and severity should be designed in order to promote sleep quality of the patients with heart failure.