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### Differences in comorbidities between men and women with heart failure exist

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**Title:****Differences in comorbidities between men and women with heart failure exist****Background:**

Comorbidities in patients with heart failure (HF) increase morbidity, mortality and healthcare usage. Depression in HF patients is common and is associated with negative outcomes. The prevalence of depression is higher in women with HF than in men. However, knowledge about the differences in comorbidities between men and women with HF, and between men and women with depression specifically, is limited.

**Purpose:**

The purpose of our study was to establish (1) differences in comorbidities between men and women with HF, and (2) differences in comorbidities between patients with HF with and without depression. We hypothesized that there are differences in comorbidities between men and women with HF (with and without depression).

**Methods:**

The prevalence of comorbidities was obtained by studying a database with 38807 participants from 41 research projects in the Netherlands, executed between 2010-2013 (the Older Persons and Informal Caregivers Survey Minimal dataset). Out of the 38807 participants, only those patients who reported HF were included in this study. Mann-Whitney, Kruskal Wallis and Chi-square tests were used to analyze differences between groups.

**Results:**

We included 7010 patients, who had reported HF. The median age was 80 (range 52-102 years), and 56.4% was female. Fifteen percent of the participants came from research projects in the general population, nursing home or retiring community, 25% from projects in a hospital setting and 60% from primary care setting projects.

The following comorbidities were significant more prevalent in women compared to men (Table 1): urinary incontinence, osteoarthritis or rheumatoid arthritis, osteoporosis, hip fractures, other fractures, dizziness with falling, vision disorders, and anxiety/panic disorder. Cancer and hearing disorders were more common in men than women. In addition, depression was registered more often in women than men: 13.0% vs. 9.5%. We compared patients with and without depression on the prevalence of comorbidities. Our results show that for both men and women, patients with depression had a higher prevalence of most comorbidities, than patients without depression. Women with depression had 2 additional comorbidities compared to women without depression, men with depression had 1 additional comorbidity compared to men without depression.

**Conclusion:**

Our study indicates that women with HF report comorbidities more often than men with HF. Furthermore, women with HF and depression report a higher number of additional comorbidities than men and women without depression. Men with HF and depression also

report a higher number of additional comorbidities than men without depression. This information is important for researchers who study comorbidities, and warrants additional studies to investigate the effect of depression on combinations of comorbidities in men and women with HF, and whether depression is associated with increased health care usage in men and women with HF.