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Fatigue and acute coronary syndrome: a systematic review of contributing factors

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ABSTRACT

Fatigue is a symptom of ACS, but it remains unclear who is at risk and what factors contribute to fatigue. The purpose of the systematic review was to identify factors that influence fatigue in patients with ACS. The review was guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses. Literature published from 1981 to 2017 was reviewed, and of 983 articles screened, 36 met inclusion criteria. Variables contributing to fatigue fell into 3 categories: demographic characteristics, clinical characteristics, and other factors. More fatigue was found in women than men, and significant differences in fatigue were identified by race. Additionally, sleep deprivation, depression, and anxiety were associated with higher levels of fatigue. The findings highlight the importance of demographic, clinical, and other factors' impact on fatigue in ACS patients. Fatigue is an important symptom in ACS and healthcare providers must recognize how patient variables affect symptom expression.

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Every 30 seconds someone in the United States (U.S.) has a coronary event and every 84 seconds someone in the U.S. will die of a coronary event.¹ In 2011, coronary artery disease caused 1 in every 7 deaths in the U.S., and was the leading causes of death worldwide, with a 35% mortality rate.¹ By 2030, cardiovascular disease is expected to account for over 23.6 million deaths per year worldwide and the estimated global cost of cardiovascular disease is expected to rise to over \$1 trillion.¹ Acute coronary syndrome (ACS) is characterized by the blockage of blood being supplied to the heart, and leads to nearly 2.4 million hospitalizations each year in the U.S., while an additional 13 million people in the U.S. are at risk for ACS.²⁻⁴

Understanding symptoms of ACS is imperative as healthcare providers work to effectively recognize and treat ACS events. While fatigue has been identified a symptom of ACS, it remains unclear who is at risk for fatigue and what factors contribute to fatigue. Adding to the complexity of fatigue is the multidimensional nature of the symptom. Fatigue can be measured in a variety of ways from narrative interviews to standard questionnaires. While studies may identify fatigue as a symptom and work to quantify, qualify, and describe fatigue, no standard definition has been agreed upon. Fatigue can be defined as a subjective experience that includes physical and mental exhaustion,^{3,5} extreme lack of energy,⁶ and decreased capacity for physical and mental work.^{3,7} Fatigue interferes with one's

ability to function normally.^{3,5} Fatigue is challenging to measure because of its complexity and the subjective nature of the symptom itself.⁶ The multidimensional and subjective nature of fatigue makes the symptom difficult to understand, and no diagnostic instrument has been established as a standard of measuring fatigue.^{6,7}

Fatigue is a prodromal symptom of ACS⁶⁻¹³ and is reported by 70% of patients with ACS.¹⁴ Further complicating the understanding of fatigue in ACS patients is the significant variability of reported fatigue based on age, race, and sex.^{3,14,15} Fatigue is an established correlate of depression, making the determination of fatigue related to depression, versus fatigue related to ACS even more challenging. It is well documented that depression is a predictor of morbidity in cardiac patients.^{12,16,17} Synthesizing empirical data related to fatigue and ACS will allow healthcare providers to more clearly identify the differing impacts that fatigue can have on ACS patients based on a variety of demographic and clinical characteristics as well as other factors. The purpose of the systematic review was to identify factors that may influence fatigue in patients with ACS. The primary research questions were: 1) what factors influence fatigue in patients with ACS? 2) what additional research is needed to better understand fatigue in patients with ACS?

Methods

Search strategies

Studies included in this review were identified via searches of PubMed and CINAHL. These databases were chosen due to

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the focus on medical and nursing literature and the goal of including peer-reviewed manuscripts. A search protocol was developed that included search terms “fatigue,” “ACS,” “acute coronary syndrome,” “MI,” and “myocardial infarction.” These searches were combined with terms such as “gender,” “sex,” “age,” “race,” “ethnicity,” and “demographics.” The terms were chosen due to the researcher’s previous work and knowledge of ACS literature. Ancestry review of each reference list was conducted in order to identify any studies missed by the original searches.

Inclusion and exclusion criteria

Articles included in this review were: 1) peer reviewed empirical publications (qualitative or quantitative) of adults (≥ 18 years old); 2) focused on fatigue as a variable of interest or used a fatigue scale; 3) published in English. Articles were excluded if they: 1) did not focus on ACS (myocardial infarction or unstable angina); 2) were unpublished dissertations or conference proceedings. Unpublished dissertations were not included since a full peer review is not undertaken; however, the choice to include only peer-reviewed studies may lead to bias as not all studies of fatigue and ACS were included in the review. Since fatigue is a multidimensional symptom, it was determined that both qualitative and quantitative studies would be included in the review.

Data extraction

The review was guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). Both researchers reviewed each article independently and then met to discuss. No discrepancies were identified between the two researchers. PRISMA guidelines¹⁸ were used to assess each article including the introduction, methods, results and discussion sections. A priori decisions for inclusion and exclusion of studies enhanced rigor by assuring only articles that met guidelines were reviewed. Only articles published in peer-reviewed journals were included in the review. While all peer-reviewed articles which met inclusion criteria were reviewed, the majority of the articles were descriptive studies with a level of evidence at a III or IV based on the Evidence Hierarchy of Designs for Cause Probing Questions. No interventional studies, quasi-experimental studies, or randomized controlled trials were identified.

The search strategy included no limitation to the date of publication. All studies within each database were reviewed regardless of publication date and included if all inclusion criteria were met. A total of 938 studies were initially identified, and 36 studies were included in this review (Fig. 1).

Results

Studies were reviewed and common variables associated with fatigue were identified. The variables identified through review of

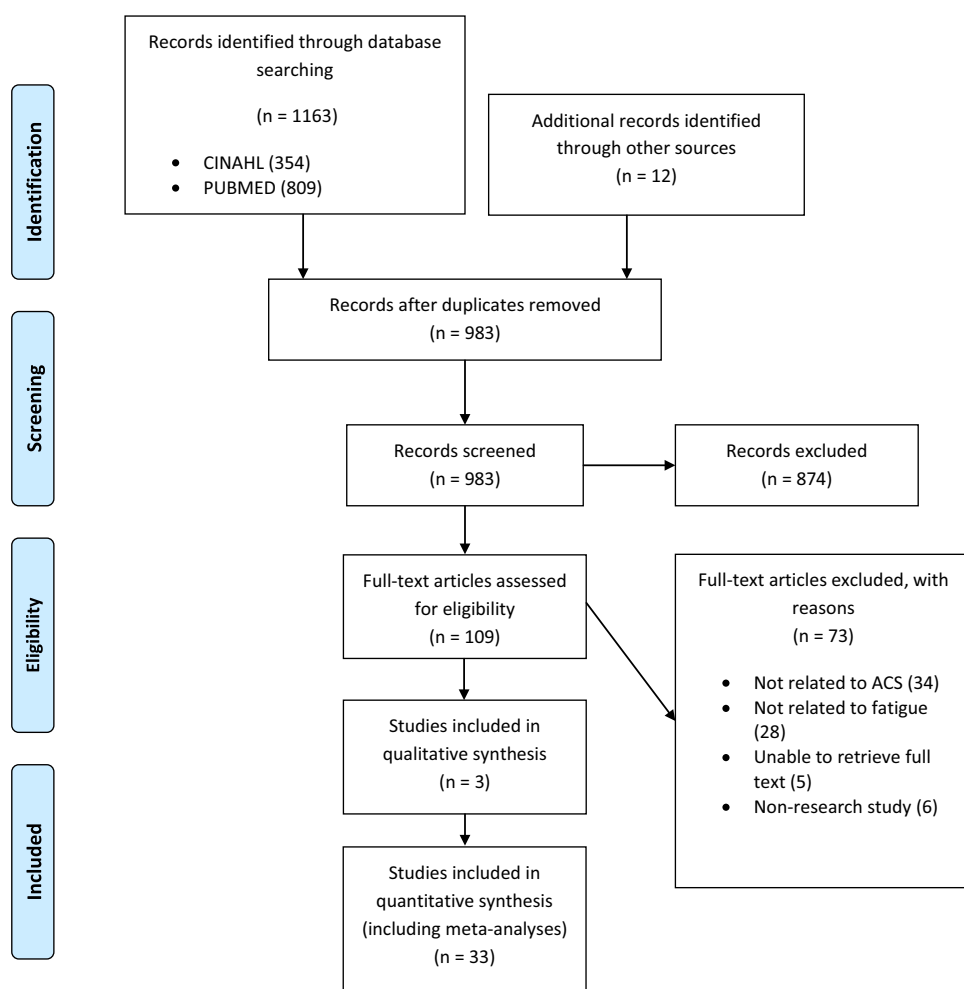


Fig. 1. Search Results (PRISMA flowchart).

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