



Effectiveness of nurse-led patient-centered care behavioral risk modification on secondary prevention of coronary heart disease: A systematic review



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ABSTRACT

Background: Despite establishment of advocacies centered on using patient-centered care to improve disease-related behavioral changes and health outcomes, studies have seldom discussed incorporation of patient-centered care concept in the design of secondary cardiac prevention.

Objectives: This review aimed to identify, appraise, and examine existing evidence on the effectiveness of nurse-led patient-centered care for secondary cardiac prevention in patients with coronary heart disease.

Design: A systematic review of randomized controlled trials focusing on nurse-led patient-centered care for secondary cardiac prevention was conducted. Primary outcomes were behavioral risks (e.g. smoking, physical activity), secondary outcomes were clinically relevant physiological parameters (e.g. body weight, blood pressure, blood glucose, blood lipoproteins), health-related quality of life, mortality, and self efficacy.

Data sources: Twenty-three English and seven Chinese electronic databases were searched to identify the trials.

Review methods: The studies' eligibility and methodological quality were assessed by two reviewers independently according to the Joanna Briggs Institute guidelines. Statistical heterogeneities of the included studies were assessed by Higgins I2 and quantitative pooling was performed when studies showed sufficient comparability.

Results: 15 articles on 12 randomized controlled trials were included in this review. Methodological quality of the included studies was fair. Based on the Joanna Briggs Institute critical appraisal tool for experimental studies, the included studies had met a mean of six criteria out the ten in this appraisal tool. The meta-analyses of the included studies revealed that nurse-led patient-centered care had significantly improved patients' smoking habits, adherence toward physical activity advices, and total cholesterol level with medical regime optimization, in short- to medium-term. The intervention was also favorable in improving the patients' health-related quality of life in several domains of SF-36. Furthermore, from single-study results, the intervention was favorable in improving the patients' weight management and alcohol consumption. However, it did not show significant effects on improving the patient's dietary habits, certain cardiac physiological parameters, mortality and self-efficacy. Currently, no addition long-term benefit of the intervention on secondary cardiac prevention was identified.

Conclusion: This review has systematically analyzed the effects of nurse-led patient-centered care on patients' behavioral risks, cardiac physiological parameters, mortality, health-related quality of life and self-efficacy. Given limited quantity of existing evidence regarding certain outcomes and long-term follow-up period; cross-trial heterogeneity of the interventions, measurement methods and statistical results; high or unclear risk of bias in some quality dimensions, the effectiveness of the intervention on secondary cardiac prevention remains inconclusive and subject to additional trials and evidences.

What is already known about the topic?

- Behavioral risk modification is crucial for secondary prevention of coronary heart disease.
- Patient-centered care is widely used for chronic illness and assumed to better address patients' healthcare needs.

- The effects of nurse-led patient-centered care on secondary prevention of coronary heart disease remain unknown.

What this paper adds

- This review comprises 12 randomized controlled trials reported in

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15 articles, involving 2640 coronary heart disease patients. The interventions under evaluation met all the attributes of patient-centered care in cardiovascular medicine as defined by the American College of Cardiology Foundation.

- This review demonstrates that nurse-led patient-centered care may improve patients' smoking habit, physical activity, total cholesterol level, and certain domains in health-related quality of life.
- The efficacy of the intervention on dietary outcomes, weight control, alcohol consumption, and certain cardiac physiological parameters remains uncertain.

1. Introduction

1.1. Background

Coronary heart disease (CHD) is a globally prevalent disease that has exerted considerable pressure to the healthcare systems worldwide (Mozaffarian et al., 2015; World Health Organization, 2015). According to the American Heart Association, the prevalence of CHD is estimated to increase by 18% from 2013 to 2030 (Mozaffarian et al., 2015). CHD impairs the physical and psychosocial functioning of an individual (Najafi Ghezalje et al., 2014; Roebuck et al., 2001; Zhu et al., 2012) and hampers their health-related quality of life (De Smedt et al., 2013; Lee et al., 2015; Xie et al., 2008).

Secondary prevention is crucial in providing assistance to people with clinical signs of CHD, and preventing disabilities and disease recurrence (Clark et al., 2005; Cole et al., 2010; Ford et al., 2007; Janssen et al., 2013). However, individual compliance toward secondary preventive measures is largely dependent on ones' perceptions of the disease or program design (Fernandez et al., 2006; Goulding et al., 2010; Jackson et al., 2012; Neubeck et al., 2012). To minimize the gap between patients' expectation and actual care received, scholars must develop interventions focusing on individuals' unique experiences and care needs.

In 2012, the American College of Cardiology Foundation launched a health policy statement on patient-centered care in cardiovascular medicine, which emphasizes on individualized treatment regimens and lifestyle modifications in cardiovascular disease management (Walsh et al., 2012). Patient-centered care aims to actively engage patients in care planning and empower them in managing their health condition. The key characteristics of patient-centered care include enhancing communication between health professionals and individuals in care planning, sharing decision making on disease management, self-monitoring of identified measures, and providing individualized information based on ones' values and experience (Walsh et al., 2012). Hence, patient-centered care is not only related to the disease or its symptoms alone but also to the disease management in patients' cognitive and psychosocial context.

Given that patients' perspective might affect their health management process. Nurses, who are the primary caregivers in different healthcare settings, are competent to work with the patients with respect to their experiences, values, beliefs, knowledge, preferences, and self-management abilities in planning of care. One important focus of nursing is to provide care to patients beyond their diseases (American Nurses Association, 2015). Nurses are well prepared to provide patient-centered care with regards to the patients' heterogeneous responses to the disease in health promotion, disease prevention, health restoration, and health maintenance (Fridlund, 2002).

Despite the establishment of advocacies centered on using patient-centered care to improve disease-related behavioral changes and health outcomes, studies seldom discussed about the incorporation of patient-centered care concept in the design of the interventions. The identified reviews were only focused on evaluating the effects of different interventions or strategies to improve secondary cardiac prevention; such as motivational interviewing (Lee et al., 2013) and psycho-educative care (Aldcroft et al., 2011). Evidence is limited with regard to whether or

not the use of patient-centered care approach for behavioral risk modification would result in favorable changes in secondary cardiac prevention. To address this knowledge gap, scholars must perform a systematic review that focuses on identifying the effects of secondary cardiac prevention by incorporating the attributes of patient-centered care as defined by the American College of Cardiology Foundation.

2. Methods

2.1. Aim

This review aims to systematically evaluate the effects of nurse-led patient-centered care in changing behavioral risks, cardiac physiological parameters, mortality rate, health-related quality of life, and self-efficacy among patients with CHD. This review protocol has not been registered in any databases in advance.

2.2. Design

A systematic review was conducted in accordance with the Joanna Briggs Institute (JBI) Reviewers' Manual for "The Systematic Review and Synthesis of Quantitative Data" (Joanna Briggs Institute, 2011). Details of the included studies were extracted and summarized independently by two reviewers. In addition, information of the included studies which showed sufficient comparability was pooled for statistical meta-analysis.

2.3. Inclusion and exclusion criteria

This review included randomized controlled trials involving adults (≥ 18 years old) who had index diagnoses of CHD, acute coronary syndromes, angina pectoris or had received revascularization (percutaneous coronary intervention or coronary bypass grafting).

Meanwhile, this review excluded studies that recruited adults who had heart failure or underwent heart transplantation or implanted with a cardiac device.

Regarding interventions under evaluation, only trials that focused on nurse-led patient-centered care for secondary cardiac prevention were included. Nurse-led intervention was defined as a kind of intervention where nurses serve as the central leading personnel and have rights to customize the intervention (Richardson and Cunliffe, 2003). Following the American College of Cardiology Foundation health policy statement on patient-centered care in cardiovascular medicine (Walsh et al., 2012), interventions were qualified for inclusion only if they showed all of the following person-centered care features: 1) actively engage patients in care planning; 2) provide individualized information according to the unique needs of a patient; 3) share decision making and incorporate goal setting in care planning; and 4) empower patients to manage their health condition.

However, this review excluded studies focusing on a single behavioral risk or interventions delivered by other health disciplines. Interventions without share decision making, such as standardized educational program or professional-orientated program, were excluded from this review. Interventions with intensive exercise training components were also excluded because exercise has been confirmed to effectively improve cardiovascular mortality and morbidity (Shepherd and Balady, 1999). Hence, a single effect from exercise might overestimate the overall intervention effect on a patients' outcome.

Since nurse-led patient-centered care is largely embedded in different types of intervention; in this regard, authors of the potentially relevant articles with lacking or ambiguous information, such as central leading personnel or specific components of the intervention, were requested from original author of the study prior to its inclusion. The comparator of interest in this review was regarded to be any intervention that did not include the attributes of patient-centered care for secondary cardiac prevention. The intervention can take any format,

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