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The Impact of Cardiac Rehabilitation on Psychosocial Factors, Functional Capacity, and Left Ventricular Function in Patients with Coronary Artery Disease: Systematic Review and Meta-Analysis

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ADMINISTRATIVE INFORMATION

Support - No financial support.

Review Stage at time of this submission - Completed but not published.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 29 March 2024 and was last updated on 29 March 2024.

INTRODUCTION

Review question / Objective This review aimed to examine the effect of cardiac rehabilitation on psychosocial risk factors, functional capacity and left ventricular function.

Rationale Pool the results of early randomized controlled studies and explore the effect of cardiac rehabilitation on the whole body comprehensively.

Condition being studied Psychosocial risk factors, functional capacity, and left ventricular function among patients with coronary artery disease who experiencing cardiac rehabilitation.

METHODS

Search strategy The current systematic review and meta-analysis adhered to the Preferred

Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines. Two authors (ASH and PY) independently searched the following databases: PubMed, CINAHL, Scopus, Cochrane Library, and EMBASE. Additionally, the references of included studies were manually searched to retrieve studies undetected in the primary search. Medical Subject Headings (MeSH) were used in the search process to retrieve the relevant studies. The filters were set to retrieve studies that were published in the English Language between 2000 and 2024. The retrieved studies were checked primarily by titles for potential inclusion in this review, subsequently, those potentially included papers were checked by abstract and then full text for eligibility. Any conflict was resolved by discussion until consensus was reached, and the final decision about the included and excluded paper was made by the senior author (SKL).

Participant or population Patients with coronary artery disease who experiencing cardiac rehabilitation.

Intervention Cardiac rehabilitation.

Comparator Traditional center-based cardiac rehabilitation or usual care.

Study designs to be included Randomized controlled trials.

Eligibility criteria 1) randomized controlled trial; 2) examined the impact of CR on at least one outcomes of interest; 3) involving patients with CAD aged ≥ 18 years; 4) the minimum follow-up duration of four weeks. studies did not meet these criteria were excluded. In addition, studies with mixed populations (i.e., patients with CAD and patients with non- CAD) were excluded.

Information sources the following databases: PubMed, CINAHL, Scopus, Cochrane Library, and EMBASE.

Main outcome(s) Anxiety, depression, peak oxygen consumption, six-minute walk distance, left ventricular ejection fraction and left ventricular end-systolic and diastolic dimensions.

Additional outcome(s) None.

Quality assessment / Risk of bias analysis Version 2 of the Cochrane risk-of-bias tool for randomized trials (RoB 2).

Strategy of data synthesis meta-analysis of continuous data (means and standard deviations).

Subgroup analysis Duration of follow-up (≥ 3 -month vs < 3 -month), and population average age (≥ 60 vs < 60 years).duration of follow-up (e participants age.

Sensitivity analysis If I² values showed high heterogeneity (I² > 50%), sensitivity analysis was performed by using 'leave-one-out approach, removing one study at a time and observing the impact on heterogeneity. leave-one-out approach.

Language restriction The language filter was set to include studies that have been published in English.

Country(ies) involved Malaysia - Department of Nursing and Rehabilitation, Faculty of Medicines and Health Sciences, Universiti Putra Malaysia (UPM).

Keywords cardiac rehabilitation, psychosocial factors, physical capacity, left ventricle.

Contributions of each author

Author 1 - ALI HARBI - Author 1 drafted the manuscript, extracted data, assessed the risk of bias and quality of evidence, and conducted the statistical portion.

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Author 2 - Kim Lam Soh - Author 2 the senior author provided supervision on all steps, made the final decision for the included and excluded studies.

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Author 3 - Putri Yubbu - Author 3 drafted the manuscript, extracted data, assessed the risk of bias and quality of evidence, and conducted the statistical portion as a double-check.

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Author 5 - Salimah Japar - Author 5The author contributed to the development of the selection criteria and the risk of bias assessment strategy.

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