

INPLASY PROTOCOL

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Gender inequalities in secondary prevention of major cardiovascular events: a scoping review protocol

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**Review Stage at time of this
submission:** Data extraction.

Conflicts of interest:

None declared.

Review question / Objective: The research question of the present paper is: are there inequalities by gender in patient care and use of health services in secondary prevention of cardiovascular events? The objective is to carry out a scoping review to observe whether there is scientific evidence of the existence of differences by gender in health care and use of health services (disease management, treatment regimen, adherence, rehabilitation, access to services, visits to general practitioner and nurse, referral to specialists, etc.), after having suffered a major cardiovascular event. This may allow to identify gender inequalities in care in order to provide more equitable attention for these patients.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 23 May 2023 and was last updated on 23 May 2023 (registration number INPLASY202350084).

INTRODUCTION

Review question / Objective: The research question of the present paper is: are there inequalities by gender in patient care and use of health services in secondary prevention of cardiovascular events? The objective is to carry out a scoping review to observe whether there is scientific

evidence of the existence of differences by gender in health care and use of health services (disease management, treatment regimen, adherence, rehabilitation, access to services, visits to general practitioner and nurse, referral to specialists, etc.), after having suffered a major cardiovascular event. This may allow to identify gender

inequalities in care in order to provide more equitable attention for these patients.

Background: Cardiovascular disease (CVD) is a major cause of morbidity and mortality worldwide (1-3). Its high incidence is associated with a high frequency of individual risk factors, such as high blood pressure, smoking and obesity. Environmental factors, population ageing and social factors, among others, also influence their incidence (4).

Within the disease process, the health care received after a cardiovascular event (so-called secondary prevention) is essential to reduce mortality and prevent recurrence. Secondary prevention includes elements such as cardiac rehabilitation, the use of drugs and the monitoring and control of risk factors by healthcare professionals (5,6).

However, the existence of gender inequalities in health care is well known, so that women and men do not receive the same care for the same health process, leaving women in a vulnerable situation (7). This aspect has been widely described for hospital care during the cardiac event (8,9), but possible gender inequalities in secondary prevention are much less well known.

Rationale: CVD has been portrayed as a men's disease, however, lately, considerable effort has been made to increase awareness of women's CVD risk. Primary prevention of cardiovascular disease risk factors has been widely studied in both genders. In addition, gender inequalities during hospital treatment of the cardiac event are also known.

Nevertheless, how gender inequalities affect secondary prevention of CVD is not yet fully understood. Therefore, we will conduct a scoping review to identify whether there are studies that explore this question with the aim of describing their findings.

The results of this review will fill possible knowledge gaps and provide valuable information on how gender inequalities could be managed in secondary prevention of CVD.

METHODS

Strategy of data synthesis: The search strategy incorporated three concepts combined (1) major cardiovascular event (MACE), (2) gender disparities, and (3) secondary prevention measures.

Searches were piloted in MEDLINE (Pubmed) and adapted to run across EMBASE and Cochrane assisted by the Polyglot Search Translator.

*MEDLINE (Pubmed) Search by MeSH terms and free terms in title and abstract.

((("cardiovascular diseases"[MeSH Terms] OR "cardiovascular disease"[Title/Abstract] OR ("cardiovascular system"[MeSH Terms] OR "cardiovascular system"[Title/Abstract])) AND ("outcome"[Title/Abstract] OR "outcomes"[Title/Abstract])) OR ("myocardial ischaemia"[Title/Abstract] OR "myocardial ischemia"[MeSH Terms] OR "myocardial ischemia"[Title/Abstract] OR "coronary artery disease"[MeSH Terms] OR "coronary artery disease"[Title/Abstract] OR ("acute coronary syndrome"[MeSH Terms] OR "acute coronary syndrome"[All Fields]) OR ("acute"[Title/Abstract] AND ("myocardial infarction"[MeSH Terms] OR "myocardial infarction"[Title/Abstract])) OR ("coronary disease"[MeSH Terms] OR "coronary disease"[Title/Abstract] OR "coronary heart disease"[Title/Abstract]) OR ("major"[Title/Abstract] AND ("cardiovascular system"[MeSH Terms] OR "cardiovascular"[Title/Abstract]) AND ("event"[Title/Abstract] OR "events"[Title/Abstract])) OR (("major"[Title/Abstract] AND ("cardiovascular diseases"[MeSH Terms] OR "cardiovascular"[Title/Abstract] OR "cardiac"[Title/Abstract]) AND "adverse"[Title/Abstract] AND "event"[Title/Abstract])) OR "major adverse cardiac event"[Title/Abstract] OR ("stroke"[MeSH Terms] OR "stroke"[Title/Abstract] OR "acute cerebrovascular accident"[Title/Abstract]) OR ("hemorrhagic stroke"[MeSH Terms] OR "hemorrhagic stroke"[Title/Abstract] OR "haemorrhagic stroke"[Title/Abstract]) OR ("ischemic stroke"[MeSH Terms] OR "ischemic stroke"[Title/Abstract]) OR ("heart failure"[MeSH Terms] OR "heart failure"[Title/Abstract]))

AND ("secondary prevention"[MeSH Terms] OR "secondary prevention"[Title/Abstract] OR "relapse prevention"[Title/Abstract] OR ("health"[Title/Abstract] AND ("check"[Title/Abstract] OR "checked"[Title/Abstract] OR "checkings"[Title/Abstract] OR "checks"[Title/Abstract])) OR ("delivery of health care"[MeSH Terms] OR "delivery of health care"[Title/Abstract] OR "health care delivery"[Title/Abstract]) OR ("patient acceptance of health care"[MeSH Terms] OR "patient acceptance of health care"[Title/Abstract] OR "health care utilization"[Title/Abstract]) OR ("therapy"[MeSH Subheading] OR "therapy"[Title/Abstract] OR "disease management"[Title/Abstract] OR "disease management"[MeSH Terms]) OR ("drug therapy"[MeSH Subheading] OR "drug therapy"[Title/Abstract] OR "drug therapy"[MeSH Terms]) OR ("drug prescriptions"[MeSH Terms] OR "drug prescriptions"[Title/Abstract] OR "drug prescription"[Title/Abstract]) OR ("medication adherence"[MeSH Terms] OR "medication adherence"[Title/Abstract]) OR (("clinical"[Title/Abstract] AND ("outcome"[Title/Abstract] OR "outcomes"[Title/Abstract])) OR "clinical outcomes"[Title/Abstract]) OR ("patient care"[MeSH Terms] OR "patient care"[Title/Abstract] OR "aftercare"[MeSH Terms] OR "aftercare"[Title/Abstract] OR "follow up care"[Title/Abstract]) OR ("rehabilitation"[MeSH Terms] OR "rehabilitation"[Title/Abstract] OR "rehabilitation"[MeSH Subheading]) OR ("cardiac rehabilitation"[MeSH Terms] OR "cardiac rehabilitation"[Title/Abstract]) OR (("pharmaceutical preparations"[MeSH Terms] OR "pharmaceutical preparations"[Title/Abstract] OR "medication"[Title/Abstract] OR "medications"[Title/Abstract]) AND "use"[Title/Abstract]) OR ("prevention and control"[MeSH Subheading] OR "prevention and control"[Title/Abstract]) OR ("recurrence"[Title/Abstract] OR "recurrence"[MeSH Terms] OR "recurrence"[Title/Abstract] OR "recurrences"[Title/Abstract] OR "recurrencies"[Title/Abstract] OR

"recurrency"[Title/Abstract]) OR ("patient readmission"[MeSH Terms] OR "patient readmission"[Title/Abstract]) OR ("referral and consultation"[MeSH Terms] OR "referral and consultation"[Title/Abstract] OR "consultation and referral"[Title/Abstract]))

AND ("gender equity"[MeSH Terms] OR "gender equity"[Title/Abstract] OR "gender differences"[Title/Abstract] OR "sex differences"[Title/Abstract])

*EMBASE Thesaurus search: entree term and free terms.

('cardiovascular disease'/exp OR 'cardiovascular disease':ti,ab OR (('cardiovascular system'/exp OR 'cardiovascular system':ti,ab) AND (outcome:ti,ab OR outcomes:ti,ab)) OR ('myocardial ischaemia':ti,ab OR 'heart muscle ischemia'/exp OR 'myocardial ischemia':ti,ab OR 'coronary artery disease'/exp OR 'coronary artery disease':ti,ab) OR 'acute coronary syndrome' OR (acute:ti,ab AND ('heart infarction'/exp OR 'myocardial infarction':ti,ab)) OR ('ischemic heart disease'/exp OR 'coronary disease':ti,ab OR 'coronary heart disease':ti,ab) OR (major:ti,ab AND ('cardiovascular system'/exp OR cardiovascular:ti,ab) AND (event:ti,ab OR events:ti,ab)) OR ((major:ti,ab AND (('cardiovascular disease'/exp OR cardiovascular:ti,ab OR cardiac:ti,ab) AND adverse:ti,ab AND event:ti,ab)) OR 'major adverse cardiac event'/exp OR 'major adverse cardiac event':ti,ab) OR ('cerebrovascular accident'/exp OR stroke:ti,ab OR 'acute cerebrovascular accident':ti,ab) OR ('hemorrhagic stroke':ti,ab OR 'haemorrhagic stroke':ti,ab) OR ('ischemic stroke'/exp OR 'ischemic stroke':ti,ab) OR ('heart failure'/exp OR 'heart failure':ti,ab)) AND ('secondary prevention'/exp OR 'secondary prevention':ti,ab OR 'relapse prevention':ti,ab OR 'health check'/exp OR 'health check':ti,ab OR 'health care delivery'/exp OR 'delivery of health care':ti,ab OR 'health care delivery':ti,ab OR 'patient attitude'/exp OR 'patient acceptance of health care':ti,ab OR 'health care utilization'/exp OR 'health care utilization':ti,ab OR ('disease management':ti,ab OR 'disease

management'/exp) OR ('drug therapy':ti,ab OR 'drug therapy'/exp) OR ('prescription'/exp OR 'drug prescriptions':ti,ab OR 'drug prescription':ti,ab) OR ('medication compliance'/exp OR 'medication adherence':ti,ab) OR ('patient care'/exp OR 'patient care':ti,ab) OR (aftercare/exp OR aftercare:ti,ab OR 'follow up care':ti,ab) OR ('cardiac rehabilitation'/exp OR 'cardiac rehabilitation':ti,ab) OR (((drug/exp OR 'pharmaceutical preparations':ti,ab OR drug:ti,ab OR medication:ti,ab OR medications:ti,ab) AND use:ti,ab) OR 'drug utilization review'/exp OR 'medication use':ti,ab) OR ('prevention and control'/exp OR 'prevention and control':ti,ab) OR (recurrence:ti,ab OR 'recurrence risk'/exp OR recurrence:ti,ab OR recurrences:ti,ab OR recurrencies:ti,ab OR recurrency:ti,ab) OR ('hospital readmission'/exp OR 'patient readmission':ti,ab) OR ('patient referral'/exp OR 'referral and consultation':ti,ab) AND('gender equity'/exp OR 'gender equity':ti,ab OR 'gender differences':ti,ab OR 'sex differences':ti,ab))

*Cochrane:

([mh "gender equity"] OR "gender equity":ti,ab OR "gender differences":ti,ab OR "sex differences":ti,ab) AND ([mh "cardiovascular diseases"] OR "cardiovascular disease":ti,ab OR "myocardial ischaemia":ti,ab OR [mh "myocardial ischemia"] OR "myocardial ischemia":ti,ab OR [mh "coronary artery disease"] OR "coronary artery disease":ti,ab OR [mh "acute coronary syndrome"] OR "acute coronary syndrome" OR [mh "myocardial infarction"] OR "myocardial infarction":ti,ab OR "coronary heart disease":ti,ab OR "major adverse cardiac event":ti,ab OR [mh stroke] OR stroke:ti,ab OR "acute cerebrovascular accident":ti,ab OR [mh "hemorrhagic stroke"] OR "hemorrhagic stroke":ti,ab OR "haemorrhagic stroke":ti,ab OR [mh "ischemic stroke"] OR "ischemic stroke":ti,ab OR [mh "heart failure"] OR "heart failure":ti,ab) AND ([mh "secondary prevention"] OR "secondary prevention":ti,ab OR "relapse prevention":ti,ab OR "health check":ti,ab OR [mh "delivery of health care"] OR "delivery of health care":ti,ab OR "health care delivery":ti,ab OR [mh "patient

acceptance of health care"] OR "patient acceptance of health care":ti,ab OR "health care utilization":ti,ab OR "disease management":ti,ab OR [mh "disease management"] OR [mh "drug therapy"] OR "drug therapy":ti,ab OR [mh "drug prescriptions"] OR "drug prescriptions":ti,ab OR "drug prescription":ti,ab OR [mh "medication adherence"] OR "medication adherence":ti,ab OR "clinical outcomes":ti,ab OR [mh "patient care"] OR "patient care":ti,ab OR [mh aftercare] OR aftercare:ti,ab OR "follow up care":ti,ab OR [mh "cardiac rehabilitation"] OR "cardiac rehabilitation":ti,ab OR "medication use":ti,ab OR [mh "prevention and control"] OR "prevention and control":ti,ab OR recurrence:ti,ab OR [mh recurrence] OR recurrence:ti,ab OR [mh "patient readmission"] OR "patient readmission":ti,ab OR [mh "referral and consultation"] OR "referral and consultation":ti,ab).

Eligibility criteria: The eligibility criteria studies will be based on the Population, Concept, Context (PCC) strategy:

Population: Studies related to secondary prevention in patients who have had a MACE will be included. We define MACE as those people with a myocardial infarction or a stroke. These diagnoses correspond to codes I21 and I60-I63 of the International Classification of Diseases (ICD-10).

Secondary cardiovascular prevention can be understood as any strategy (pharmacological treatment, cardiac rehabilitation or lifestyle counselling) aimed to reduce the likelihood of a recurrent MACE in patients with a previous cardiovascular event or with known CVD, including coronary artery disease, cerebrovascular arterial disease, peripheral arterial disease, and atherosclerotic aortic disease.

Concept: Studies related to gender inequalities will be included. If differences by sex are related to biological features, they will be excluded.

Context: this scoping review is focused on the health services setting and, in particular, on the cardiovascular secondary prevention measures, such as disease

management, treatment regimen, adherence, rehabilitation, access to services, visits to general practitioner and nurse and referral to specialists.

Inclusion criteria: Studies of any design, setting or duration will be included if they report gender inequalities in secondary prevention on patients with MACE that have been published in the last 10 years. For instance, studies on:

- Cardiac rehabilitation programs for the control of cardiovascular risk factors (tobacco, diet, lipid levels, etc.).
- Contacts with the health system for the control of cardiovascular risk factors.
- Pharmacological treatments or recommendations at discharge from the acute episode. (including articles on differences in prescriptions or persistence, adherence and effectiveness according to gender).

Exclusion criteria: Studies with the following characteristics will be excluded:

- Focused on pathologies other than MACE.
- Dealing with primary prevention or cardiovascular disease risk factors.
- Focused on care during the event (pre- or in-hospital, surgery, revascularization, waiting times on admission...).
- Exploring pharmacological treatments given for a surgery (fibrinolysis) or as a consequence of a surgery (antiplatelet agents for stenting).
- Analysing differences due to biology or sex, including publications on different pharmacological effectiveness due to biological factors associated with sex.
- Focused on health outcomes: quality of life, functionality, etc.
- Conference abstract or posters with no full text available.
- With a time period after publication greater than 10 years.

Source of evidence screening and selection: This scoping review follows the guidelines and structure of PRISMA-ScR.

A systematic search was performed in three electronic databases: MEDLINE (through PubMed), EMBASE and Cochrane. We also performed a manual or snowball search to identify other relevant studies in additional sources.

Study screening and selection will be over different phases. First, duplicate studies will be deleted automatically by the online software CONVIDENCE and manually with RAYYAN. Second, potentially relevant articles will be determined by screening title and abstract of the retrieved articles. Third, a final selection will be made after reading the full text of the articles. The selection process will be done by two reviewers, independently (I.L.F. and I.A.P), and a third reviewer will participate if disagreement (S.M). For excluded studies, the reason for exclusion will be documented. Two reviewers (I.L.F and I.A.P) will discuss and resolve conflicts. If no consensus can be reached, the third researcher (S.M) will be consulted for evaluation.

Data management: We developed a data summary sheet and extracted the main characteristics of the studies.

Type of intervention was divided into: cardiac rehabilitation; differencing referral; adherence and dropout; treatment, considering prescription and adherence; use of health services, guideline recommended care, guideline-based control goals and healthy lifestyles habits. Studies were reviewed one at a time, combining the studies referred to the same category.

Presentation of the results: The evolution of the research from the primary search of articles to their selection and exclusion will be presented in a flow diagram according to PRISMA-ScR.

Following the JBI Manual for Evidence Synthesis, the summarized results and characteristics of the included studies will be organized and reported in a table based on major conceptual categories such as: description of general bibliographic data (author, year, country), design of the study, study population (sample size and cardiovascular event presented), type of secondary prevention intervention, and main results of inequities.

A narrative synthesis will accompany the tabulated results and describe them more precisely.

Language restriction: Only articles published in English or Spanish will be considered for inclusion.

Country(ies) involved: Spain.

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Keywords: Scoping review, secondary prevention, gender inequities, major cardiovascular event.

Dissemination plans: Findings of this review will be made public in a peer-review journal and disseminated in scientific conferences.

Contributions of each author:

- Author 1 - Irene López-Ferreruela.
Author 2 - Isabel Aguilar-Palacio.
Author 3 - Sara Malo.
Author 4 - María Jose Rabanaque.