INPLASY

Cardiac rehabilitation in the WHO Eastern Mediterranean Region (EMRO): availability, delivery models, and barriers/enablers to uptake and completion in adults with CAD/MI/CABG: a scoping review protocol

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ADMINISTRATIVE INFORMATION

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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 15 January 2026 and was last updated on 15 January 2026.

INTRODUCTION

Review question / Objective What evidence exists on the availability and delivery of exercise-based cardiac rehabilitation (CR) services in WHO Eastern Mediterranean Region (EMRO) countries, and what barriers and enablers influence referral, uptake/enrolment, adherence, and completion among adults with coronary artery disease (CAD), myocardial infarction (MI), or post–coronary artery bypass grafting (CABG)?
Objectives:
1. To map the availability and geographic distribution of CR services in EMRO countries.
2. To characterise CR delivery models (e.g., centre-based, home-based, hybrid, tele/digital), programme components, duration, intensity, and multidisciplinary team involvement.
3. To summarise reported service metrics, where available, including referral pathways, enrolment/uptake, adherence, completion/attrition, and reasons for non-participation or dropout.
4. To identify and synthesise barriers and enablers to CR implementation and participation at patient, provider, organisational/health-system, and policy/financing levels.
5. To provide a Saudi Arabia–focused synthesis within the regional map and to highlight evidence gaps and priorities for service development and future research.

Background Cardiovascular disease remains a leading cause of morbidity and mortality worldwide, and secondary prevention is essential to reduce recurrent events and disability among cardiac patients. Exercise-based cardiac rehabilitation (CR) is an evidence-based, multidisciplinary intervention that typically combines supervised or prescribed exercise training with education, risk-factor management,

and behavioural support. It is commonly indicated for adults with coronary artery disease (CAD), after myocardial infarction (MI), and following revascularisation procedures such as coronary artery bypass grafting (CABG). Physiotherapists and rehabilitation professionals are central to the design and delivery of exercise training and functional recovery within CR teams.

Despite its established clinical value, CR is frequently underutilised. Access and participation vary widely between and within countries due to differences in service availability, referral practices, programme delivery models, capacity, and financing. In many settings, eligible patients are not referred, do not enrol, or fail to complete programmes because of patient-level constraints (e.g., transportation, time, health beliefs), provider-level factors (e.g., limited awareness or inconsistent referral), organisational barriers (e.g., insufficient workforce or facilities), and broader system and policy issues (e.g., lack of funding or structured national pathways).

The WHO Eastern Mediterranean Region (EMRO) includes countries with diverse health-system capacities and varying levels of CR development. Evidence from the region appears heterogeneous, encompassing programme evaluations, registries, observational studies, qualitative research, and surveys addressing service delivery and implementation challenges. However, the extent and nature of available evidence across EMRO countries, and the factors influencing referral, uptake, and completion, have not been comprehensively mapped for adults with CAD/MI/CABG. A scoping review is therefore appropriate to systematically identify, chart, and summarise the breadth of evidence and to inform service planning and research priorities, including a focused synthesis relevant to Saudi Arabia.

Rationale Evidence on cardiac rehabilitation in EMRO countries is fragmented and methodologically diverse (e.g., programme reports, registries, surveys, qualitative studies, and effectiveness studies), making a scoping review the most suitable approach to map existing knowledge rather than to pool effect estimates. This review will provide a structured overview of (i) where CR services exist and how they are delivered, (ii) what is known about referral, uptake, adherence, and completion, and (iii) the key barriers and enablers affecting implementation and participation across multiple levels (patient, provider, organisation/health system, and policy/financing). By synthesising regional evidence and providing a Saudi Arabia–focused analysis, the findings will support service scale-up planning, strengthen referral pathways, guide rehabilitation workforce considerations, and identify priority gaps for future research. The review will follow established scoping review methodology and be reported in accordance with PRISMA-ScR.

METHODS

Strategy of data synthesis We will conduct a scoping review using established scoping review methodology and will report according to PRISMA-ScR. A comprehensive search will be undertaken in the following electronic databases from 1 January 2000 to 14 January 2026: MEDLINE (via PubMed), Scopus, Web of Science Core Collection, CINAHL, and Embase (if accessible). We will also search the WHO Index Medicus for the Eastern Mediterranean Region (IMEMR) to capture regionally indexed literature. Search terms will combine controlled vocabulary (e.g., MeSH/Emtree where applicable) and free-text keywords related to cardiac rehabilitation and secondary prevention (e.g., “cardiac rehabilitation”, “exercise-based rehabilitation”, “secondary prevention”), service delivery and implementation (e.g., “program”, “service”, “delivery”, “availability”, “implementation”), and participation metrics and determinants (e.g., “referral”, “uptake”, “enrolment”, “adherence”, “completion”, “dropout”, “barriers”, “enablers”). The search will be restricted to EMRO country terms and equivalents (e.g., “Saudi Arabia”, “United Arab Emirates/UAE”, “Qatar”, etc.). Reference lists of included studies will be hand-searched, and forward citation tracking will be performed for key included papers where feasible.
Data synthesis will be primarily descriptive and narrative, consistent with scoping review objectives. Evidence will be charted and summarised using tables and figures to map: (i) country-level availability of CR services; (ii) programme delivery models (centre-based, home-based, hybrid, tele/digital); (iii) programme characteristics (duration, sessions, components, staffing/team); (iv) referral pathways and reported service metrics (uptake/enrolment, adherence, completion/attrition, reasons for non-participation and dropout) where available; and (v) implementation determinants (barriers/enablers) categorised at patient, provider, organisational/health-system, and policy/financing levels. A Saudi Arabia–focused synthesis will be provided within the regional map to highlight Saudi-specific evidence, gaps, and priorities.

Eligibility criteria Population: Adults (≥18 years) with coronary artery disease (CAD), post–

myocardial infarction (MI), and/or post–coronary artery bypass grafting (CABG), or studies explicitly describing CR services for these populations. Studies focusing exclusively on paediatric populations will be excluded.

Concept: Exercise-based cardiac rehabilitation (CR) services and their implementation, including: (i) availability and geographic distribution of CR programmes; (ii) delivery models (centre-based, home-based, hybrid, tele/digital), programme components, intensity and duration, and multidisciplinary team involvement; and (iii) determinants and service metrics such as referral pathways, uptake/enrolment, adherence, completion/attrition, and reported barriers/enablers to implementation and participation. Studies solely describing non-programmatic lifestyle advice without an identifiable CR service/programme will be excluded.

Context: WHO Eastern Mediterranean Region (EMRO) countries. Studies must report data from at least one EMRO country. Multi-country studies will be included if EMRO-specific data are identifiable.

Types of evidence sources: Peer-reviewed primary research (quantitative, qualitative, or mixed-methods), programme evaluations, and registry-based/retrospective studies. Reviews, editorials, commentaries, conference abstracts without full text, and non-peer-reviewed sources will be excluded.

Timeframe and language: Studies published from 1 January 2000 to 14 January 2026. No language restrictions will be applied at the search stage; non-English articles will be assessed for feasibility of translation.

Source of evidence screening and selection All retrieved records will be imported into reference management software and duplicates will be removed. Title and abstract screening will be performed independently by two reviewers against the eligibility criteria. Full texts of potentially relevant records will then be obtained and assessed independently by the same reviewers. Any disagreements at either stage will be resolved through discussion and consensus; if consensus cannot be reached, a third reviewer will adjudicate. Reasons for exclusion at the full-text stage will be documented. The study selection process will be reported using a PRISMA-ScR flow diagram.

Data management All records retrieved from database searches will be exported to reference management software (e.g., EndNote/Zotero) for deduplication. A screening platform (e.g., Rayyan or Covidence) will be used to manage title/abstract and full-text screening, document decisions, and resolve conflicts. A standardised data-charting form will be developed in Microsoft Excel (or equivalent) and piloted on a small sample of included studies before full data extraction. Extracted data will be stored on a secure, access-controlled institutional drive, with version control for iterative updates. Any amendments to the protocol will be documented and dated.

Reporting results / Analysis of the evidence We will summarise evidence using descriptive statistics and narrative synthesis, consistent with scoping review methodology. Quantitative data (e.g., number of programmes, enrolment/uptake, completion/attrition, and reported factors associated with completion) will be reported as frequencies, proportions, and ranges where available, without meta-analysis. Qualitative findings will be synthesised thematically and mapped to multi-level domains (patient, provider, organisational/health-system, and policy/financing) to identify key barriers and enablers to CR implementation and participation. Where relevant, we will compare patterns across EMRO countries and provide a Saudi Arabia–focused synthesis. Formal risk-of-bias appraisal is not planned, as the primary purpose is evidence mapping; however, key methodological features of included studies will be described to support interpretation.

Presentation of the results Results will be presented using a PRISMA-ScR flow diagram and structured tables/figures. Planned outputs include:

1. A country-by-country evidence map summarising the number and type of included studies and whether CR services/programmes are reported.

2. A table of programme characteristics and delivery models (centre-based, home-based, hybrid, tele/digital), including duration, session frequency, core components, and multidisciplinary staffing (including physiotherapy involvement where reported).

3. A table summarising participation metrics (referral pathways where reported, uptake/enrolment, adherence, completion/attrition) and reasons for non-participation or dropout.

4. A matrix of barriers and enablers mapped across patient, provider, organisational/health-system, and policy/financing levels.

A dedicated subsection will provide a Saudi Arabia–focused synthesis to highlight context-specific evidence, gaps, and priorities. Findings will also be summarised narratively to identify evidence gaps and research and service-development priorities across EMRO.

Language restriction No language restrictions will be applied.

Country(ies) involved Saudi Arabia.

Other relevant information Protocol registered on INPLASY; PRISMA-ScR; final search 14 Jan 2026.

Keywords cardiac rehabilitation; EMRO; Saudi Arabia; scoping review; uptake; completion; barriers; delivery models; CAD; CABG.

Dissemination plans Findings will be disseminated through publication in a peer-reviewed journal (target: Saudi Medical Journal) and presentation at relevant regional and international cardiovascular rehabilitation conferences. We will also share a concise summary with key stakeholders in Saudi Arabia and EMRO (e.g., cardiac rehabilitation providers and health-system leaders) to inform service development, referral pathways, and future research priorities. Where appropriate, supplementary materials (search strategies, data-charting template, and evidence map tables) will be made available on request or via an open repository.

Contributions of each author

Author 1 - Wael Alghamdi - Author 1 conceived the study, drafted the protocol, designed the search strategy, and will lead screening, data charting, synthesis, and manuscript writing.
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