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Perspectives of cardiac rehabilitation in patients who had a stroke: a protocol for a qualitative study review

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ABSTRACT

Introduction Stroke has a high incidence and disability rate, and its recurrence and readmission rates are rising, making it the second-leading cause of mortality in the globe. Cardiac rehabilitation is a well-known, evidence-based strategy that might serve as an additional preventative programme. Prior quantitative research has proven the positive results and high practicability of cardiac rehabilitation for patients who had a stroke, however, cardiac rehabilitation is not yet a routine component of stroke rehabilitation worldwide. It might be useful to conduct meta-integration of previous qualitative studies to understand if existing cardiac rehabilitation programme meets the needs of patients who had a stroke. Therefore, the purpose of this study is to combine systematically the perspectives on benefits, barriers and facilitating factors of cardiac rehabilitation in patients who had a stroke.

Methods and analysis There will be a search of PubMed, Web of Science, Embase, Scopus, CINAHL and PsycINFO databases. In addition, grey literature from Google Scholar, OpenGrey, PyARXiv, bioRxiv and medRxiv will also be searched. Included studies will be qualitative studies or findings from mixed-method research involving patients who engage in CR after a stroke. Regardless of the publishing date and context, English-language articles will be reviewed. Two impartial reviewers will screen studies and extract data from the included studies. According to the Joanna Briggs Institute Centre for Evidence-Based Health Care Quality Evaluation Criteria for qualitative research, the methodology of the included literature will be examined. For data synthesis, the pooling meta-integration approach and Noblit and Hare's seven steps of meta-ethnography will be used.

Ethics and dissemination Because there will be no collection of primary data, this systematic review is exempt from the need that gets ethical approval. The findings of the review will be made public by publishing them in scholarly journals and presenting them at scientific conferences.

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STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ The study includes literature from multidisciplinary databases to maximise data variety.
⇒ This review synthesises qualitative data regarding cardiac rehabilitation perspectives of patients who had a stroke in accordance with the research question in a rigorous way.
⇒ The comprehensiveness of the review will be compromised by the exclusion of works written in a language other than English, and the quantity and quality of research available.

INTRODUCTION

Stroke is a condition defined by local or global cerebral deficits resulting from acute cerebral circulation abnormalities. It is subdivided into two categories: ischaemic and haemorrhagic. It has a high incidence and disability rate, with rising recurrence and readmission rates[1]; it is the second-leading cause of death worldwide.[2] More than 80 million people worldwide are living with the consequences of a stroke, and 13.7 million new cases are identified year.[3] In addition, recurrence poses the greatest threat to mortality, disability and poststroke depression. The cumulative risk of stroke recurrence was 7.7% after 3 months, 9.5% after 6 months, 11.2% after 1 year, 16.1% after 2 years, 19.3% after 3 years, 18.1% after 5 years and 39.7% after 12 years, according to a systematic review and meta-analysis.[4] The prevention, control and reduction of stroke recurrence should therefore be an important component of global stroke prevention and management efforts.

Secondary stroke prevention is an essential step in patient care. According to the INTERSTROKE study, 90% of the overall population-attributable risk for stroke exists as a result of 10 potentially modifiable risk factors, including hypertension, physical inactivity, psychosocial factors and cardiac causes which can all be controlled.[5] According to a meta-analysis, pharmaceutical therapies dominate in secondary prevention, although poststroke exercise training programmes lower death rates more than medication interventions.[6] Physical inactivity is usually regarded as one of the top five modifiable risk factors for primary

and secondary stroke prevention.[7] Stroke and coronary heart disease have similar aetiology and modifiable risk factors;[8] nevertheless, conventional stroke rehabilitation has concentrated on enhancing the patient's functional independence without exercise and risk factor management programmes comparable to cardiac rehabilitation.[7]

Cardiac rehabilitation is a well-known, scientifically supported treatment for individuals with heart disease.[9] Cardiac rehabilitation is the process of recovering and maintaining cardiovascular disease patients' optimum physical, psychological, social, occupational and emotional health.[10] Specific components of cardiac rehabilitation include medical evaluation, psychosocial evaluation, exercise prescription, treatments for cardiac risk factors, patient education, behavioural coaching and clinical outcome evaluation.[11–13] Cardiac rehabilitation has become a standard component of rehabilitation for patients with heart disease, but its efficacy in patients who had a stroke is still being investigated.[14 15]

Patients who had a stroke may benefit from cardiac rehabilitation, which is a regimen that can be implemented to their care. Stroke and cardiovascular disease have numerous risk variables that are extremely similar and modifiable.[16] Simultaneously, there are intricate connections between the neurological system and circulatory system. Prior *et al*[12] found that comprehensive cardiac rehabilitation improved anxiety, depression, physical and mental health status, verbal learning and memory, psychomotor speed, and oral-verbal fluency in patients with transient ischaemic attacks (TIAs) or mild stroke. Cuccurullo *et al*[17] observed that stroke survivors who got a stroke recovery programme that includes modified cardiac rehabilitation may see a reduction in all-cause mortality and an improvement in cardiovascular performance and function. There are many feasibility studies,[11 18–20] but less high-quality randomised controlled trials on the effectiveness of cardiac rehabilitation in patients who had a stroke. There are meta-analyses examining the effect of cardiac rehabilitation on cognitive impairment, however the quantity of research and outcomes are limited.[14]

In spite of the fact that participation in cardiac rehabilitation is practical, safe and clinically advantageous for patients who had a stroke, patients who had a stroke are seldom engaged in cardiac rehabilitation. Ordinary cardiac rehabilitation usage remains low around the world among patients with heart disease. The global referral rate for cardiac rehabilitation was 43%, and the enrolment rate was 42%.[21] But the data varies widely between countries. In the USA, 59.2% of patients were referred to cardiac rehabilitation.[22] A study in Europe found that 46% of patients were referred.[23] In Australia, 36%–54% of primary percutaneous coronary intervention patients received cardiac rehabilitation.[24] In China, the participation rate in cardiac rehabilitation was around 5%.[25] A limited number of data are available on the rate of cardiac rehabilitation participation among patients who had a stroke since cardiac rehabilitation is not yet a routine component of stroke rehabilitation. According to a study from Australia, patients who had a stroke and those who have suffered strokes or TIAs represent less than 2% of the total number of people enrolled in cardiac rehabilitation programmes.[26] Patients have limited access to cardiac rehabilitation programmes owing to a number of circumstances. Lack of resources (money, staff, space, equipment, etc) is often noted as a significant obstacle, and it is likely the most difficult to overcome.[27] Coordinators of cardiac rehabilitation noted that safety concerns, a lack of referrals, a low staff-to-patient ratio and integration issues were the most hurdles to attendance.[26] Patients after stroke who were both socioeconomically and physically disadvantaged faced greater obstacles.[28]

Therefore, conducting qualitative research related to perspectives of cardiac rehabilitation of patients who had a stroke might help overcome individual barriers, understand if existing cardiac rehabilitation programming meets the needs of the patient after stroke. Existing qualitative studies and mixed-method research have first proven the experience and perception of patients who had a stroke engaging in cardiac rehabilitation, [11 19 29–34]however, the findings of a single qualitative study do not adequately represent patients' perspectives. This study is therefore a meta-integration of existing qualitative studies on patients who had a stroke'perspectives of cardiac rehabilitation, with the objective of analysing patients' benefits, barriers and facilitating factors of cardiac rehabilitation in order to provide a reference for improving stroke cardiac rehabilitation programmes and promoting patients' physical and mental health.

METHODS AND ANALYSIS

Objective

The aim of this review is to systematically integrate perspectives on benefits, barriers and facilitating factors of cardiac rehabilitation in patients who had a stroke.

Research questions

What are the perspectives of the experience of patients who had a stroke who participate in cardiac rehabilitation? What are the contextual factors that prevent or encourage patients who had a stroke to enrol in cardiac rehabilitation?

Review methods

Eligibility criteria for the studies

Cooke *et al*[35] developed a SPIDER model for qualitative research based on the PICO (population, interventions, comparisons, outcomes) model, which is more suited for the development of qualitative research questions and includes: sample (S), phenomena of interest (PI), design (D), evaluation (E) and research type (R). The SPIDER model will be used to create inclusion criteria for this study:

1. The study population consists of patients after any types of stroke who are over the age of 18.

2. The perspectives on benefits, barriers and facilitating factors of patients who had a stroke in cardiac rehabilitation are phenomena of interest. A cardiac rehabilitation programme must include five basic components: assessment of the patient, aerobic training, nutrition and dietary advice, risk factor management and psychosocial interventions. During the 12-week programme, training sessions are conducted three times per week for a total of 31–50 min of moderate aerobic activity each session.[36]
3. A qualitative study approach is used.
4. The qualitative data of cardiac rehabilitation of patients who had a stroke serves as the evaluation material.
5. Research type includes descriptive qualitative research, phenomenology, grounded theory and others. In addition, mixed-method research will be taken into account in this evaluation.

The exclusion criteria of this study:

1. The entire text is not accessible.
2. Not works of literature in English.
3. Conference summaries.
4. Duplicate publications.
5. Unable to extract data.

Information sources

From inception until 15 July 2023, electronic searches of PubMed, Web of Science, Embase, Scopus, CINAHL and PsycINFO will be undertaken. Subject words will be paired with free terms to perform searches. In addition, it is supplemented and validated for completeness by reading the literature's references. In addition to Google Scholar, we will search grey literature such as OpenGrey, PyARXiv, bioRxiv and medRxiv.

Search strategy

Stroke, ischemic attack, transient ischemic attack, TIA, poststroke, cerebrovascular accident, CVA, brain attach hemorrhage, cardiac rehabilitation, qualitative, interviews, focus group, benefits, perceptions, emotions, perspectives, experience, attitudes and requirements are the primary search phrases. The PubMed search technique serves as an example (online supplemental appendix 1).

Screening

In the search and selection process, we will adhere to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) information sources protocols guidelines.[37] Literature will be maintained using Endnote X9, and duplicates will be removed prior to screening. Two researchers will independently conduct the literature search, data extraction and cross-checking, and any disputes may be addressed or settled with a third researcher. To strengthen the rigour of the review, two reviewers will assess the titles and abstracts of all identified studies, and any potentially eligible studies will be further assessed for eligibility by obtaining their full texts. Only studies meeting the inclusion criteria of both reviewers will be included in the final report. Those studies that do not meet the inclusion criteria will be excluded from the review, and their reason for exclusion will be noted in the final full text. The final systematic review will contain a PRISMA flow diagram illustrating the findings of the search and the method for research inclusion.

Types of study to be included

In this review, the context of included studies is not limited. A service of intervention may be provided as an outpatient, an inpatient, in the community or at home. The scope of this study is not limited by geography, healthcare facilities or services. The first author, publishment year, country or area, research methodology, study population, aim, setting, delivery method, intervention components and dosage and key findings of included studies will be extracted. An independent data extraction will be performed by two researchers in parallel, and any disagreements will be resolved by a third researcher.

Risk of bias assessment

Two researchers will independently assess the technique of the included literature according to the Joanna Briggs Institute Centre for Evidence-Based Health Care Quality Evaluation Criteria for qualitative research.[38] The criteria consists of ten items, each item is rated as 'yes', 'no', 'unclear' and 'not applicable'. The final analysis of the selected studies will include at least six items that have received a 'yes' rating in order to ensure the methodological quality of the studies. In the event of a dispute, a third researcher will be contacted to determine the inclusion of the literature. The following are the 10 items:

1. Determine whether the stated philosophical stance and research methodology are consistent.
2. Whether the research procedures are consistent with the study questions or aims.
3. Whether there is coherence between the research technique and data gathering method.
4. Whether the study process, data analysis and data presentation are consistent.
5. Whether the research techniques and the interpretation of the findings are consistent.
6. Clarification of the possible impact of the researcher's views and values on the study.
7. Whether the researcher's effect on the research and the research's impact on the researcher are stated.
8. Whether the participants' expressed meaning is accurately portrayed.
9. The study complies with contemporary ethical and moral norms and has an academic institution-recognised certificate of research ethics approval.
10. Whether the research's results are supported by the data analysis and interpretation.

Strategy for data synthesis

The data analysis will be carried out by two independent PhD students who are researching stroke care. The

pooled meta-integration approach and Noblit and Hare's seven steps of meta-ethnography will be used in this study to synthesise the findings of multiple qualitative studies on our topic of interest.[39 40] We will account synthesised results in line with the increase transparency in broadcasting the qualitative examine strategies for qualitative evaluations.[41] Specific steps are as follows:

Step 1: Getting started. Identifying the study's purpose and topic.

Step 2: Deciding relevance. Establishing inclusion and exclusion criteria and conducting a systematic search to search relevant studies. The first two steps have been described in detail in the preceding section.

Step 3: Study analysis. A thorough examination of the chosen studies will be conducted. This will involve frequent reading and a thematic analysis of the studies to extract underlying themes, metaphors and concepts.

Step 4: Establishing links. It will be determined how the studies are related to one another. A list of themes will be made and a table will be used to check if the concepts are related within and between studies.

Step 5: Translating studies. The process of comparing metaphors from various studies will start in order to create a reciprocal translation. This may entail categorising and contrasting key concepts and themes.

Step 6: Synthesis and conceptualisation. The synthesised translations will be taken to the next level by conceptualising them at a higher level. A compelling line of argument will be created based on the synthesised findings that presents a new perspective.

Step 7: Expressing synthesis. The final step will be to present the results in a way that is understandable and useful to a variety of audiences, including policymakers.

Patient and public involvement

Patients or the general public were not involved in the protocol design for this systematic evaluation of literature that will be made accessible to the public.

Ethics and dissemination

Since no primary data will be gathered for this systematic review, ethical approval is not necessary. The results of the review will be presented at scientific meetings and published in scholarly journals.

DISCUSSION

Our research will be the first qualitative evidence synthesis of perspectives on benefits, barriers and facilitating factors of cardiac rehabilitation in patients who had a stroke, to the best of our knowledge. We have located numerous individual studies based on early searches, although the majority are site-specific and population-specific. The review's results will be released and shared on social media, in conferences and in publications. We hope that the results of our analysis will assist us in better understanding the perspectives of patients who had a stroke with regard to the benefits, barriers and factors facilitating cardiac rehabilitation. Our study may make researchers and medical professionals more aware of cardiac rehabilitation for patients who had a stroke and encourage them to use it more frequently, especially if barriers can be actively removed and facilitators can be rationalised when offering cardiac rehabilitation programmes for patients who had a stroke. Additionally, the findings of our research could persuade patients who had a stroke to benefit from cardiac rehabilitation while they are recovering, lowering the risk of recurrence and raising quality of life.

Contributors ZZX is the review's guarantor. HJ directed the formulation of the process for review and authored the paper. HJ, YM, BL, WW, XW and ZZX contributed to the creation of the selection criteria and eligibility requirements. All authors reviewed article versions, offered input and approved the final version.

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