BMJ Open

Barriers and facilitators to return to work following cardiovascular disease: a systematic review and meta-synthesis of qualitative research

Emma Borre Andersen [1], Maria Kristiansen [2], Sidsel Marie Bernt Jørgensen [1,2]

To cite: Andersen EB, Kristiansen M, Bernt Jørgensen SM. Barriers and facilitators to return to work following cardiovascular disease: a systematic review and meta-synthesis of qualitative research. *BMJ Open* 2023;**13**:e069091. doi:10.1136/bmjopen-2022-069091

► Prepublication history and additional supplemental material for this paper are available online. To view these files, please visit the journal online (http://dx.doi.org/10.1136/bmjopen-2022-069091).

Received 12 October 2022
Accepted 09 January 2023

[1]Section of Cardiovascular Research, The Danish Heart Foundation, Copenhagen, Denmark
[2]Department of Public Health & Center for Healthy Aging, University of Copenhagen, Copenhagen, Denmark

Correspondence to
Sidsel Marie Bernt Jørgensen; sidselmrj@hjerteforeningen.dk

ABSTRACT

Objectives Return to work is a key rehabilitation goal, however, people recovering from cardiovascular disease (CVD) often struggle with returning to work. The aim of this study was to conduct a systematic review and meta-synthesis of the existing qualitative evidence on barriers and facilitators to return to work experienced by people with CVD.

Methods A systematic literature search was conducted in PubMed, Embase, Web of Science, PsycINFO, Scopus and CINAHL in August 2022. The reference lists of the included articles were searched. The Critical Appraisal Skills Programme was used for quality appraisal and a meta-synthesis was employed.

Findings This review includes 15 studies of overall high methodological quality. Barriers covered four themes: physical limitations, psychological and relational factors, the working context and support within health and social care systems. Facilitators were related to five themes: return to normality, enhancing well-being, financial concerns, the working context and support within health and social care systems.

Conclusion Our findings highlight that return to work following CVD is a complex process influenced by individual factors, as well as work-related factors, factors in the health and social care systems and social security policies and regulations. To improve return to work, this review illustrates a need for individualised, multidisciplinary and coordinated vocational rehabilitation programmes that accommodate potential barriers to re-employment. Similarly, this review highlights how vocational rehabilitation programmes should ensure individualised information and support early in the rehabilitation process, as well as the importance of engaging relevant stakeholders, such as employers, in making individualised return-to-work plans.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ This systematic review identified, appraised and synthesised the existing qualitative research on barriers and facilitators to return to work experienced by people with cardiovascular disease (CVD).
⇒ A robust methodological approach was employed to identify studies relevant for inclusion.
⇒ The included studies were of overall high methodological quality, which was revealed through a quality assessment conducted using the Critical Appraisal Skills Programme.
⇒ The included studies were published between 2011 and 2022 to ensure that contemporary issues related to return to work would be identified. This time frame, however, could have resulted in omittance of relevant studies published before 2011.

INTRODUCTION

Cardiovascular disease (CVD) constitutes a substantial disease burden with approximately 523 million cases worldwide, and is a leading cause of global mortality, despite improved survival rates.[1] CVD is increasingly common in the working-age population,[1 2] and for these individuals returning to work is often a significant rehabilitation goal. Return to work may facilitate a sense of normality,[3] and is crucial for self-esteem, social identity and quality of life.[3–5] Adding to this, return to work is of great societal importance, as CVD is associated with significant costs caused by patients being absent from work.[6]

As described in contemporary models of work disability, such as the Sherbrooke model,[7] returning to work is a complex process shaped by multiple factors on both micro, meso and macro level.[8 9] Predictors of return to work have been explored in recent quantitative studies,[10–18] and factors specifically associated with non-return to work include female gender,[12–15 17] older age,[12 13 15 17] lower educational level[12–15 17] and low income.[13 14 17] In addition, many people with CVD feel pressured to return to work,[19] and face numerous barriers, including physical and psychological limitations,[15–17] comorbidities[12–15 17] and lack of support at the workplace or from cardiac rehabilitation programmes.[19]

While return to work following CVD has mainly been explored in quantitative studies

and surveys,[10–18] qualitative studies have previously investigated patients' experiences of returning to work after CVD. However, to our knowledge, no systematic review has summarised the totality of evidence from the perspective of the individual. Understanding and categorising the factors that shape the return-to-work process following CVD is complex as factors interact and differ in importance as experienced by the patient. In addition, it is difficult to make a clear distinction between barriers and facilitators, as some factors might have a positive impact on return to work for some individuals and a negative impact for others. To improve vocational rehabilitation, there is a need to identify factors that hinder (barriers) and promote (facilitators) return to work after a CVD diagnosis. As such, the aim of this study was to conduct a systematic review and meta-synthesis of the existing qualitative evidence on barriers and facilitators to return to work for people with CVD.

METHODS

The reporting of this systematic review follows the Preferred Reporting Items for Systematic reviews and Meta-Analyses[20] and the Enhancing Transparency in Reporting the Synthesis of Qualitative Research statements[21] (see Research Checklist, online supplemental file A).

Study selection criteria

Eligible studies were defined as those including participants diagnosed with CVD (ischaemic heart disease, heart valve disease, heart failure or atrial fibrillation) of working-age (35–65 years), who were in paid employment before CVD-diagnosis. Studies with mixed populations where not all participants had engaged in paid work prior to diagnosis were also included, but only findings pertaining to the return-to-work process for those working prior to diagnosis were extracted from these studies. Eligible studies addressed barriers and/or facilitators associated with return to work. Studies where participants had not returned to work yet or had decided not to return were also included to ensure that barriers experienced by people on sick leave and by people who had left the workforce following their CVD were also explored. Eligible studies applied a qualitative or mixed-methods design and were published in Danish, English, Swedish, Norwegian or German. Studies were limited to those published in the past 11 years (2011 to August 2022) to ensure that the barriers and facilitators identified reflected contemporary issues, in particular changes in models of cardiac rehabilitation, policies related to sick leave and increasing retirement ages in many countries. Lastly, to ensure comparability in employment status prior to CVD, as this is expected to affect subsequent return-to-work experiences, we excluded studies that only considered unpaid work, such as volunteer work.

Information sources and search strategy

A preplanned and comprehensive, systematic literature search was conducted on 30 August 2022 in the following search engines: PubMed, Scopus, CINAHL (through EBSCOhost), PsycINFO (through EBSCOhost), Web of Science and Embase. Together these databases index a broad scale of qualitative and mixed-methods publications within the area of healthcare, occupational health and work reintegration.

The search-strategy contained exhaustive keyword combinations for each of the two concepts of interest, CVD and return to work. The searches included combinations of the following keywords related to CVD and return to work: heart patient OR cardiac patient OR heart disease OR cardiovascular disease AND return to work OR vocational rehabilitation OR work participation OR work reintegration OR employment. The full search strings used in each database are available in online supplemental file B.

Data collection process

The search was conducted by two reviewers (EBA and SMBJ), and the software tool Covidence was used for data management and selection of studies. First, titles and abstracts of the identified studies were imported, and duplicates were removed. After title/abstract screening, full texts of potentially relevant studies were assessed. If consensus was not reached between the two reviewers (EBA and SMBJ), a third reviewer was consulted (MK). Finally, the reference lists of the studies selected for inclusion were searched for additional relevant studies. The detailed data collection process is visualised in figure 1.

Descriptive information, data items and synthesis of results

Two reviewers (EBA and SMBJ) independently extracted descriptive information from each study, including study design, objectives, number and characteristics

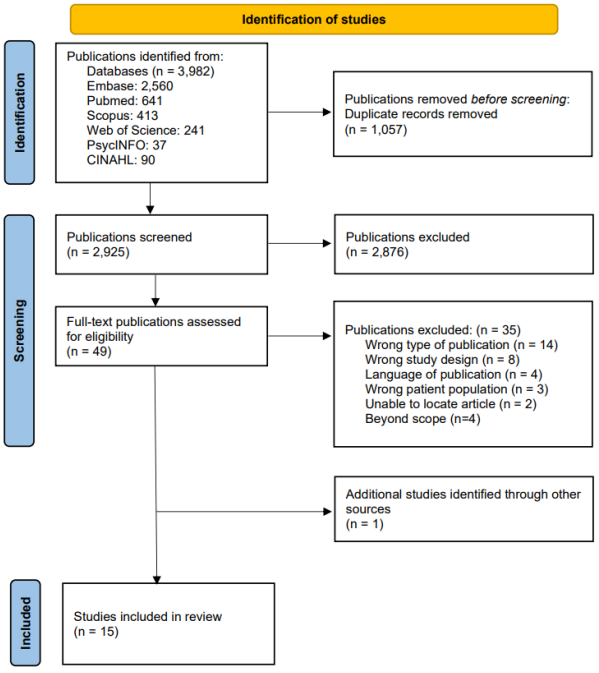

Figure 1 Preferred Reporting Items for Systematic reviews and Meta-Analyses flow chart of the study selection process.

Andersen EB, *et al*. *BMJ Open* 2023;**13**:e069091. doi:10.1136/bmjopen-2022-069091

of participants, including type of CVD, as well as pre-diagnosis employment status, return-to-work status and research methods. Additionally, a summary of the original findings was provided for each included study (please see table 1 and online supplemental table 1S, online supplemental file C). In this systematic review we employed a meta-synthesis in which unaltered texts of the included studies formed the data for analysis.[22] Two reviewers (EBA and SMBJ) independently extracted data related to facilitators or barriers to returning to work from the result sections of the included studies. Regarding studies applying a mixed-methods design, only the qualitative results were extracted for synthesis. Subsequently, going through the identified barriers and facilitators line-by-line, themes were discussed and established in a consensus discussion (EBA and SMBJ). Using an inductive approach when generating themes, related barriers and facilitators were grouped, categorised into relevant overarching themes and summarised into main findings.

Quality appraisal

The quality of the studies included in this review was evaluated using the Critical Appraisal Skills Programme (CASP), which is appropriate when conducting health-related qualitative syntheses.[23] Regarding the mixed-methods studies, only the qualitative components of these studies were assessed using CASP. The quality appraisal aimed to assess the reporting, methodological rigour and conceptual consistency of the studies. Studies were rated as being of high, medium or low quality if ≥8, 5–7 or ≤4 of the questions in the CASP tool could be answered positively ('yes' or 'somewhat'). Two reviewers (EBA and SMBJ) independently appraised the selected studies, whereafter consensus was reached.

Patient and public involvement

Patients or the public have not been directly involved in this specific publication. However, the study is part of a larger research project within The Danish Heart Foundation, which is a patient organisation that substantially involves patients, relatives and other relevant stakeholders in research and policy activities. Furthermore, to ensure that the findings of the present study are widely disseminated in order to inform practice, we will involve relevant members of the public in dissemination activities.

RESULTS

Study selection

The initial search yielded 3982 publications, of which 1057 were excluded based on duplication. The remaining 2925 were then screened based on title and/or abstract, resulting in the exclusion of 2876 publications. Two reviewers (EBA and SMBJ) independently assessed the full text of the remaining 49 publications. Subsequently, 35 publications were excluded due to wrong study design, type of publication, language, population, irrelevance or because we were unable to locate the publications. The reference lists of the 14 remaining studies were then searched, and 1 additional study was included.[24] Thus, 15 studies were included in the review. Two of the studies were based on the same primary data. However, they were included as two separate studies as they are published in separate papers with different aims and analytical focus.[25 26] Figure 1 visualises the systematic search and screening process.

Study characteristics

The characteristics of the 15 included studies are presented in table 1 and online supplemental file C. Most studies were conducted in European countries (n=8), with the remaining being conducted in Canada (n=3), Australia (n=2), Turkey (n=1) and Singapore (n=1). All studies included participants who had worked prior to diagnosis, with 10 studies including mixed populations with both working and none-working participants. Studies included between 6 and 93 participants (median 23 participants), with a total of 501 participants across all studies. Participants' age ranged from 35 to 83 years, and the studies covered a variety of CVD diagnoses, for example, acute coronary syndrome, acute myocardial infarction, out-of-hospital cardiac event, heart failure and ischaemic chest pain. Some studies did not specify the type of CVD. All studies were published between 2011 and 2022 and were based on qualitative methodologies. A mixed-methods design was applied in three of the studies.[27–29] Regarding the quantitative components of these studies, only two explored factors associated with returning to work,[28 29] whereas the third focused on patients' symptoms and needs in the early rehabilitation phase.[27]

Appraisal of studies

A summary of the methodological quality assessment of each study according to the CASP-tool is shown in online supplemental file D). Most of the studies were assessed to be of high quality. Only two studies were assessed to be of medium quality. All studies had a clear statement of the research aim and applied appropriate qualitative methodology. In addition, all studies clearly described the recruitment strategy, data collection procedure and included a clear statement of findings. Most of the studies reported that ethical approval was obtained. However, the relationship between the researcher and the participants, such as whether the researcher critically examined their own role, was only adequately evident in five studies.

Synthesis of results

Most studies identified both barriers and facilitators to return to work, while two studies only described either barriers or facilitators. In most studies, barriers and facilitators appeared in descriptions of participants' lived experiences of recovering from CVD, while other studies had a more explicit focus on participants' return-to-work process. While barriers and facilitators on micro and meso-level were identified in 15 and 11 studies, respectively, only

Table 1 Characteristics of studies included in this review

Author, year	Design	Country	Participants (n, sex, diagnosis, age)	Pre-diagnosis employment status described	Return-to-work status described	Findings (facilitators to return to work)	Findings (barriers to return to work)
1. Şahan *et al*[34] (2016)	Qualitative study	Turkey	N=12; M=12, AMI=12; Age: 32–49	Yes	9=RTW at time of study.	▶ Economic reasons. ▶ Male gender roles; being the breadwinner of the family.	▶ No professional support. ▶ Restrictions by social circles. ▶ Fear of death; experiences of discouragement. ▶ Feeling physically incompetent. ▶ Avoid work stress.
2. Pryor *et al*[37] (2014)	Qualitative study	Australia	N=9; F=5, M=4; AMI=8; Ischaemic chest pain=1; Age: 39–71	Partially*	Partially.*	▶ A desire to get life back to normal.	▶ Debilitating tiredness hinder everyday activities.
3. Slebus *et al*[35] (2012)	Qualitative study	The Netherlands	N=84; F=9, M=75, ACS=84; Mean age: 55	Yes	58%=RTW within 3 months.	▶ No reports. ▶ Information given by doctors. ▶ Work adjustments and environment.	▶ Physical and mental capacity. ▶ Comorbidity and course of disease. ▶ Social security. ▶ Employment terms and high work demands. ▶ Social relations at work.
4. Bhattacharyya *et al*[36] (2016)	Qualitative study	England	N=28; M=23, F=5, Acute cardiac event=28; Age: 44–88	Partially*	15=RTW at time of study.	▶ Returning to adapted role. ▶ Supportive colleagues. ▶ Financial concerns.	▶ Health status; physical and mental capacity. ▶ No workplace adaptions. ▶ No help to RTW in rehabilitation programme.
5. Kearney *et al*[28] (2020)	Mixed-methods study	Australia	N=23; M=85.2%; OHCA=23; Mean age: 54	Yes	20=RTW at time of study.	▶ Workplace accommodation.	▶ Physical and mental impairment. ▶ Medical restrictions.
6. Boot *et al*[29] (2016)	Mixed-methods study	The Netherlands	N=5; M=4; F=1; CVD=5; Age: 55–63	Yes	3=RTW at time of study.	▶ Economic reasons, and purpose in life. ▶ Work adjustments and characteristics. ▶ Work as a distraction. ▶ Support from supervisor and colleagues.	▶ Self-perception of workability.
7. Neo *et al*[32] (2020)	Qualitative study	Singapore	N=41; LVAD patients=30; caregivers=11; M: 83% of patients; Mean age: 56	Partially*	12=working full-time or part-time at time of study.	▶ Professional support. ▶ Economic reasons. ▶ Obtain self-confidence. ▶ Being meaningfully occupied. ▶ Increased awareness of the LVAD.	▶ Physical limitations. ▶ Occupations with heavy lifting and bending movements.
8. Solano-Ruiz *et al*[30] (2021)	Qualitative study	Spain	N=14; M=14; AMI=14; Mean age: 54.7	Yes	4=RTW at time of study.		▶ Inability to work/early retirement due to disability.

Continued

Table 1 Continued

Author, year	Design	Country	Participants (n, sex, diagnosis, age)	Pre-diagnosis employment status described	Return-to-work status described	Findings (facilitators to return to work)	Findings (barriers to return to work)
9. Lie *et al*[27] (2012)	Mixed-method study	Norway	N=93; F=9; M=84; CABG=93. Mean age: 62	Partially*	24=RTW at time of study, 11=on sick leave.	▶ Information on return to work. ▶ Freedom to decide own work schedule. ▶ Reduced physical labour. ▶ The importance of work.	
10. Lindbäck and Nordgren[38] (2014)	Qualitative study	Sweden	N=6; F=1; M=5; Heart failure=6; Age: 46–62	Yes	3=working full-time or part-time at time of study.	▶ Ability to work half-time. ▶ Work adjustments.	▶ Responsible for rehabilitation process alone. ▶ Abandonment by employers. ▶ Difficulties with understanding and applying legislation. ▶ Struggles to maintain self-image and identity.
11. Jbilou *et al*[33] (2019)	Qualitative study	Canada	N=93; M=93; CVD=93; (ACS=47); Age: 45–79	Partially*	17=RTW at time of study.	▶ Reinforce self-confidence; overcome stress. ▶ Sense of self as man in family and society.	▶ Not wanting to return to a stressful work.
12. Wagner *et al*[31] (2021)	Qualitative study	Denmark	N=32; F=8; M=25; OHCA=32, Age: 40–83	Yes	17=RTW 3 months to 11 years post-diagnosis.	▶ Return to normality. ▶ Professional support. ▶ Acceptance from colleagues.	▶ Physical and mental capacity and impairments.
13. O'Hagan (2019)[25]	Qualitative study	Canada	N=12; M=12; CVD=12; Age: 43–63	Yes	12=had or were in the process of RTW at time of study.	▶ RTW-programmes.	▶ Working conditions restrict conditions for work reintegration.
14. O'Hagan *et al*[26] (2012)	Qualitative study	Canada	N=12; M=12; CVD=12 (AMI=10); Age: 43–63	Yes	12=had or were in the process of RTW at time of study.	▶ Control over work demands. ▶ Medical reassurance. ▶ Occupational health department support. ▶ Monitoring of CVD health at the worksite. ▶ RTW-plans at the worksite.	▶ Worries about the effect of the work environment. ▶ The design of the job. ▶ Medical sanction for disability. ▶ Cardiac rehabilitation with limited impact on RTW.
15. Salminen-Tuomaala *et al*[24] (2012)	Qualitative study	Finland	N=28; F=12; M=16; MI=28; Age: 32–82	Partially*	Partially.*	▶ A wish to work and to return to normality. ▶ Breadwinner of the family. ▶ Feelings of shame and guilt.	▶ Emotional exhaustion; no trust in ability to RTW. ▶ Physical limitations. ▶ No knowledge on when and how to resume normal life and physical activity.

*Partially: A mixed population where the proportion of working and non-working participants before and/or after diagnosis was not specified.
LVAD; left ventricular assist devices; ACS, acute coronary syndrome; AMI, acute myocardial infarction; CABG, coronary artery bypass graft; CVD, cardiovascular disease; F, female; M, male; MI, myocardial infarction; OHCA, out of hospital cardiac arrest; RTW, return to work.

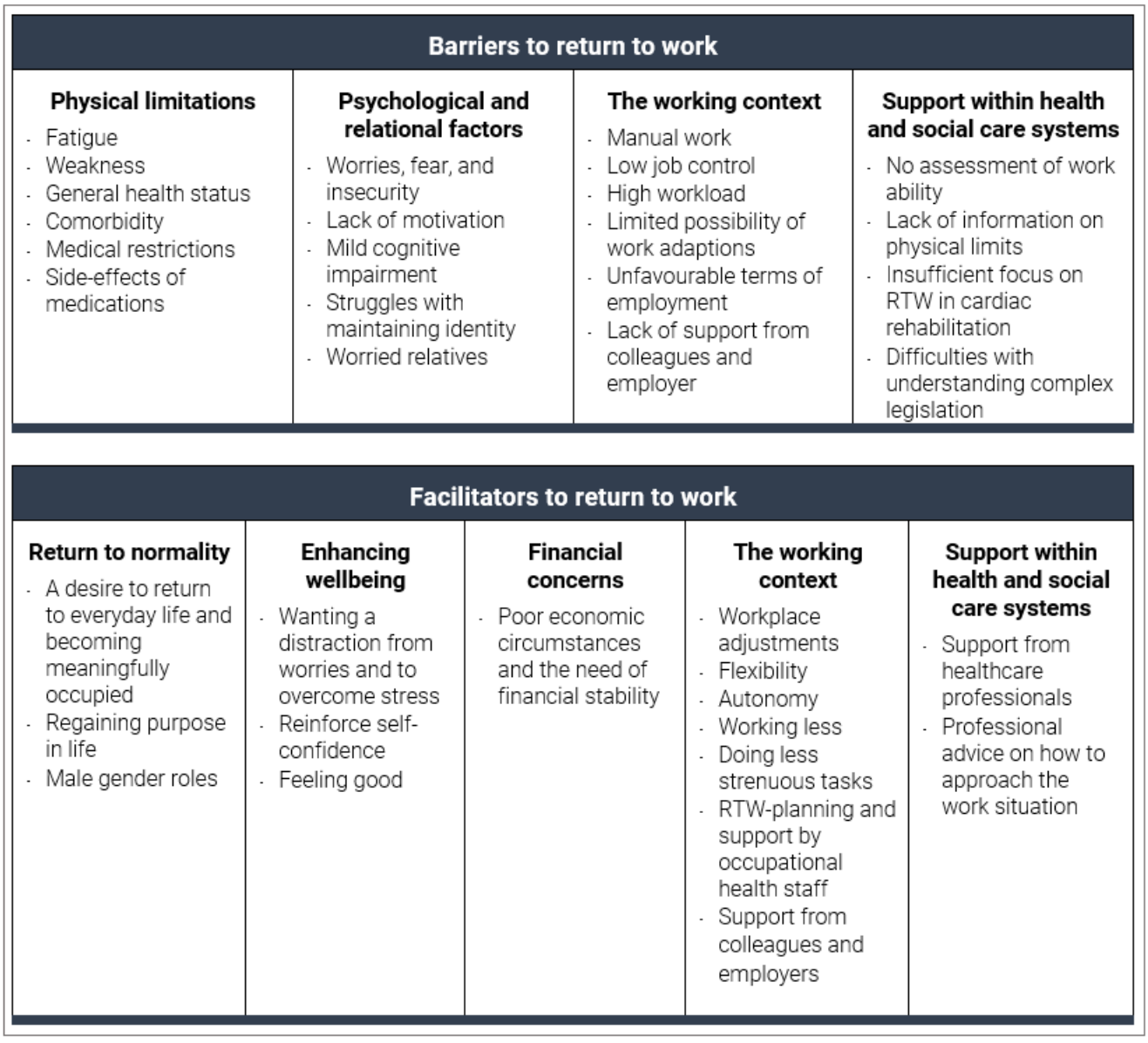

Figure 2 Identified barriers and facilitators to return to work following cardiovascular disease. RTW, return to work.

3 studies reported on macro-level factors impacting on return to work. The identified barriers were categorised under four themes: *physical limitations, psychological and relational factors, the working context* and *support within health and social care systems*. The identified facilitators were categorised under five themes: *return to normality, enhancing well-being, financial concerns, the working context* and *support within health and social care systems*. The themes are visualised in figure 2. Although barriers and facilitators are presented separately, it is important to acknowledge the complexity of each theme and the interplay between them. For example, as we will subsequently unfold, the working context both encompasses factors that hinder and facilitate return to work.

Barriers to return to work

Physical limitations

Physical limitations were among the most frequent factors hindering return to work, reported by participants in 12 studies.[24–26 28 30–37] Feeling physically impaired, tired, weak and experiencing long-term fatigue were reported to prevent participants from rejoining the workforce or reduce their capability to work.[28 30 31 34–37] In addition, comorbidity, general health status, medical restrictions, as well as side effects of medication were listed as barriers to re-employment.[25 26 28 30 32]

Psychological and relational factors

Internal challenges faced by participants in relation to return to work were reported in six studies. Worries, insecurity and lack of motivation were commonly reported barriers.[24 25 28 29 31 35] Mild cognitive impairment and lack of mental resources, including concentration difficulties, short-term memory problems and feeling irritable were also mentioned as barriers, as these impairments impacted on participants' work ability.[28 31 35–37] In addition, fear of not fitting in at work, struggles with maintaining identity

and self-perception of work ability were barriers to re-employment in several studies.[24 29 31 38] Feelings of discouragement, fear of work-stress and even fear of death often caused participants to reappraise their lifestyle, making them more interested in spending time with family than working.[33 34 38] In a Turkish study, similar fears were present among relatives and colleagues of participants, who requested that the participants worked less or not at all to take care of their health.[34]

The working context

Manual work, limited possibility of workplace adaptations, unfavourable terms of employment and lack of understanding and support from colleagues and employers were some of the factors that discouraged participants to return to work.[25 26 28 32 35 36 38] Among these factors, high work demands and low control as well as restrictive conditions for work reintegration emerged as primary barriers. For example, in two Canadian studies conducted among men working at an auto-manufacturing plant, the participants reported how an intensive and high continuous workload at the production line was the most significant impediment to return to work.[25 26]

Support within health and social care systems

Limited or no professional support from health professionals to assess work ability, insufficient focus on re-employment in cardiac rehabilitation and lack of knowledge on the limits of one's own physical condition were factors identified by participants as hindering work resumption.[24 25 31 34 36 38] In a Canadian study, participants described that they did not benefit from participating in cardiac rehabilitation, as it was of limited intensity, lacked specificity to work activities and focused on people of a higher age.[26] In a Swedish study, participants described how they had difficulty understanding and applying complex legislation and felt left alone with the responsibility of their own rehabilitation process and management of their sick leave.[38] Besides relational support, participants in a Dutch study expressed how public support, in terms of social security rights, acted as a barrier to returning to work, as it gave them the possibility of early retirement.[35]

Facilitators to return to work

Return to normality

Returning to work was an important aspect of returning to a meaningful life after CVD, and in seven studies a desire to return to a normal everyday life and becoming meaningfully occupied were factors identified as facilitators to return to work.[24 26 27 29 31 32 37] For many participants re-employment marked a return to normality, where rejoining the workforce meant resuming the life they had before turning ill.[24 27 29 31 32 37] Several studies reported how work was perceived as an integral part of life and identity and was an important means for regaining purpose in life.[24 26 27 29] Male gender roles, such as identifying as the breadwinner or the pillar of the family, were similarly identified as facilitators of work resumption.[24 33 34] In a Finnish study, a feeling of guilt and shame was explained by male participants as a facilitating factor. These participants found it particularly difficult to stay at home as they preferred working and participating in social life, wanting to resume the life they had before they fell ill.[24] Similarly, in a Canadian study, male participants reported feeling obliged to return to work due to a sense of masculinity both within the family and in society at large.[33]

Enhancing well-being

In several studies, participants expressed how returning to work was a way of enhancing personal well-being.[29 32 33 35] For some participants work served as a distraction from worries and gave a feeling of mastery[29 33] and self-confidence.[32 33] For others, early return to work, even against medical advice, was reported as a problem-solving strategy to reinforce self-confidence and overcome stress.[33] Additionally, one Dutch study reported how no physical complaints and feeling good after a cardiac event also served as facilitators of re-employment.[35] Lastly, participants in a Singaporean study mentioned that a greater awareness of left ventricular assist devices would be beneficial for return to work, as it would reduce their feeling of stigmatisation.[32]

Financial concerns

Frequently mentioned motivators for return to work were poor economic circumstances and the need for financial stability.[29 32 34 36] In a Turkish study, male participants described that they had resumed work to financially support themselves and dependent family members.[34] In a Danish study, participants additionally reported how they would have preferred to stay at home, had it been financially feasible.[31]

The working context

It emerged from many of the included studies that workplace accommodations, adjustments, flexibility and autonomy acted as significant enablers for return to work.[26–29 31 35 36 38] For some participants accommodations such as working part-time, doing less strenuous tasks or being able to control one's own work schedule helped to facilitate return to work.[26 29 36 38] Return-to-work planning by occupational health staff at the workplace played an equally important part. In example, seniority provisions allowed some participants to change to positions with less job strain or jobs with more control.[26] In addition, support from occupational health departments at the worksite, as well as support and acceptance from colleagues and employers were expressed by participants as encouraging work resumption.[25 26 28 31 36]

Support within health and social care systems

Within the health and social care systems, support from professionals, guidance on managing acquired impairments and specific assistance to reintegrate into the workforce acted as facilitators.[25 27 31 32 35] Uncertainty about returning to work was a concern for many participants,[25–27 35 36] and in a Norwegian study, professional

advice on how to approach the work situation, especially for those with manual work, served as a facilitator to return to work.[27] Good supervision from health professionals equally gave participants the reassurance that they could manage re-employment.[25]

DISCUSSION

This systematic review synthesised the qualitative evidence in relation to barriers and facilitators to return to work from the perspective of people living with CVD. By applying a comprehensive and robust methodology, a limited evidence base comprising 15 studies was revealed. Three of the studies applied a mixed-methods approach, where the quantitative evidence was diverse and limited. The included studies, which were of overall high quality and represented various settings and populations were synthesised through a qualitative meta-synthesis. Barriers were identified under four themes: physical limitations, psychological and relational factors, the working context and support within health and social care systems. Similarly, facilitators were identified under five themes: return to normality, enhancing well-being, financial concerns, the working context and support within health and social care systems. This review showed that returning to work following CVD is a complex process affected by multiple factors that may impact positively or negatively on re-employment. The identified barriers and facilitators to returning to work are interconnected and mirror components of contemporary biopsychosocial models of work disability, such as the Sherbrooke model.[7] In line with this model, our findings show that the return-to-work process is influenced by personal factors (eg, physical, and psychological well-being), factors in the workplace system (eg, workplace adaptation and assessment of work ability), the health and social care system (eg, information and support) and the legislative and insurance system (eg, social security policies and regulations).

First, regarding personal factors, we found that well-being, motivation, self-perception and identity and the desire to return to normality were key factors impacting on return to work across most studies. For some individuals, returning to work meant resuming a meaningful occupation and returning to life as it was pre-CVD. In this case, and in line with previous research, work was perceived as an integral part of life and identity.[3 9 39] For other individuals, the prospect of returning to work sparked fear and insecurity as they worried that they would not fit in at the workplace or would not be physically capable of performing their job. This is similar to the findings by Brannigan *et al*, who found that fear of failure to perform adequately at work serves as a barrier to returning to work for stroke survivors.[39] Worries and insecurities related to re-employment emphasise the need to include psychosocial counselling as part of comprehensive cardiac rehabilitation programmes, which has also been suggested in recent reviews and meta-analyses.[9 40] Another important barrier to work resumption was related to physical limitations, for example, long-term fatigue, weakness, comorbidity and general health status. Similarly, self-perceived health was a significant predictor of work status in one of the mixed-methods studies included in this review.[29] These findings are supported by several quantitative studies showing that comorbidity is a predictor of no-return to work,[12–15 17] and demonstrate the need for reintegration strategies that focus on each individual's disease and condition, as suggested in a recent systematic review and meta-analysis.[11] These results are also in line with a recent Cochrane review that identified evidence showing that interventions combining exercise and psychosocial counselling components may increase the number of patients returning to work in the first 6 months after diagnosis and probably reduce the time away from work.[9]

Second, our findings show that the workplace system encompasses both barriers and facilitators to returning to work. Facilitators included workplace adaptations, flexible working hours, assessment of work ability and understanding and acceptance from colleagues and employers. This illustrates the importance of involving the employer in making individualised return-to-work plans. Additionally, access to vocational rehabilitation programmes at the workplace played an important part, especially for participants with manual occupations. In line with these findings, a negative association between labour-intensive occupations and returning to work, was identified in one of the mixed-methods studies included in this review.[28] Furthermore, Reibis *et al* highlights, in a review addressing determinants of reintegration of patients experiencing acute coronary syndrome, a need to pay special attention towards patients with physically demanding jobs and how stepwise reintegration is a supportive return-to-work strategy.[10] Additionally, we found that acceptance and understanding from colleagues and employers are beneficial for work resumption, which corresponds well with other studies showing that social relations at the workplace are important for re-employment.[41]

Third, regarding factors in the healthcare system, we found that people with CVD often express a need for information and support from healthcare professionals during their recovery. Supervision and assistance from healthcare professionals to reintegrate into the workforce served as facilitators. Furthermore, some participants felt left alone with the responsibility of their own rehabilitation with lack of professional support. They similarly described an insufficient focus on re-employment in cardiac rehabilitation programmes, which mirror previous research, indicating that vocational rehabilitation is not adequately implemented within cardiac rehabilitation programmes[19 42 43] and that most European countries lack clear guidelines for vocational rehabilitation.[10] However, other researchers have documented that cardiac rehabilitation programmes hold potential in improving return to work,[9 11 44] and our findings illustrate the value of including vocational rehabilitation within cardiac rehabilitation efforts.

Fourth, this review shows how social security policies and regulations, including possibilities of withdrawal from paid employment, for example, for retirement, impact on participants' decision to return to work. It should be acknowledged that people with CVD living in countries with poor social security policies are more likely to experience difficulties with returning to work. Furthermore, the need for financial stability and the potential loss of income served as a significant motivator for re-employment in many studies. This was especially found among men who often self-identified as the breadwinner of the family. This supports previous research showing that people with CVD often feel pressured to return to work due to financial reasons.[19] Similarly, as described by Hegewald *et al*, delayed return to work can have negative financial consequences on individuals, especially when adequate financial support is not provided and this may be the main reason to decide if, and when, to return.[9]

Overall, this systematic review illustrates how multiple and diverse factors impact on the return-to-work process, and this knowledge should inform vocational rehabilitation programmes. There is a need for targeted interventions towards high-risk groups, namely those with high-disease burden, low socioeconomic status and high-work demands. The review further demonstrates the importance of ensuring individualised support and information as well as improving physical and psychosocial well-being within multidisciplinary and coordinated rehabilitation programmes, involving relevant stakeholders (eg, employers, healthcare professionals and social workers). To inform vocational support strategies, future studies could in more detail investigate patients' information and support needs and explore the perspectives of relevant stakeholders. We also suggest that future studies investigate the impact of the duration of sickness absence. In the included studies information on sickness absence was not systematically reported, and therefore we could not explore the influence of duration of sickness absence on the nature of barriers and facilitators. In addition, as a large proportion of the included studies focused on individual characteristics and factors operating at the level of health and social care systems, the findings of this review are somewhat skewed towards micro and meso level factors. Therefore, more knowledge is needed on the importance of macro level factors, such as the potential impact of legislation and inflation on return to work.

Strengths and limitations

To our knowledge, this is the first systematic review of qualitative research into barriers and facilitators to return to work among people with CVD. A robust methodological approach was employed to identify and select studies relevant for inclusion, and included studies underwent thorough quality appraisal. Overall, studies were of high quality. The consistent and systematic approach of the meta-synthesis allowed us to synthesise findings, making them more accessible for healthcare professionals, organisations and policymakers.

Nevertheless, results should be appraised in the light of the methodological limitations. First, we included studies published between 2011 and 2022 to ensure studies are from the same period, reflecting more recent contextual issues of relevance for the experience of returning to work. We cannot exclude the possibility that this time frame has resulted in omittance of relevant articles published before 2011. Second, the quality appraisal of the mixed-method studies[27–29] could have been done using the mixed-method appraisal tool, which is recommended for appraisal of mixed-method studies.[45] However, as this review only considered the qualitative components of the mixed-method studies, CASP was found appropriate. Third, the included studies were conducted in several countries. Hence, participants to some extent had different conditions for their return-to-work process, due to socio-political differences, including differences in pension systems and sick-leave legislation. On the other hand, this allowed us to achieve a deeper understanding of the diverse factors impacting on return to work. Fourth, in many of the included studies, return to work was not the primary focus. Many studies included mixed populations with both working and non-working individuals, and explored recovery from CVD more broadly, why some aspects of the return-to-work process still may need more exploration. In example, we suggest that the impact of macro-level structures shaping return to work, patients' information and support needs, as well as how to successfully involve stakeholders in making effective return-to-work plans, are areas worth further in-depth explorations.

Lastly, it is relevant to consider the process of extracting information on experienced barriers and facilitators to return to work. Specifically, the differential impact of factors should be recognised. In example, returning to work was a means of coping with worries and insecurities for some participants, while these internal challenges kept others from returning to work. In addition, as factors are often inter-related, it is difficult to make a clear distinction between barriers and facilitators and to prioritise between single factors. Accordingly, barriers and facilitators should not be considered as isolated and independent entities. Rather, to offer direction for future research and interventions, the complexity and interdependency within factors and across levels are important to understand and acknowledge.

In conclusion, by identifying, appraising and synthesising the existing qualitative research on barriers and facilitators to return to work for people with CVD, this systematic review contributes to a better understanding of how to improve vocational rehabilitation efforts. People with CVD experience diverse barriers and facilitators associated with returning to work, and to address the hindering factors, early identification of individuals at risk of poor work reintegration is important. By attending to the individual's physical and mental well-being, specific job characteristics and the surrounding context, social workers and healthcare professionals could be involved

in this process. Vocational rehabilitation should be part of comprehensive cardiac rehabilitation programmes, and to improve return-to-work outcomes and the lives of people living with CVD, this review illustrates a need for ensuring individualised, multidisciplinary and coordinated vocational rehabilitation efforts that address potential barriers for re-employment experienced by the individual.

Contributors SMBJ, EBA and MK contributed to the study concept and design. SMBJ coordinated the project. EBA and SMBJ conducted the literature search, screened identified articles, performed data extraction and analysis. EBA drafted the first version of the manuscript. EBA and SMBJ drafted the second version of the manuscript. MK critically revised the manuscript. All authors have read and approved the final manuscript. All authors agreed to be accountable for all aspects of the work.SMBJ is responsible for the overall content as guarantor.

Funding This study is fully funded by The Danish Heart Foundation (grant number 99905). MK is partially funded by a grant from Nordea-fonden (grant number 02-2013-0200).

Competing interests None declared.

Patient and public involvement Patients and/or the public were involved in the design, or conduct, or reporting, or dissemination plans of this research. Refer to the Methods section for further details.

Patient consent for publication Not applicable.

Ethics approval Not applicable.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement We have provided all data about all included studies, and the full search strings used in each database are available in online supplemental file B. Data are available on reasonable request. Data from the literature search and selection process are available on reasonable request to the corresponding author.

ORCID iDs
Emma Borre Andersen http://orcid.org/0000-0002-4963-7112
Maria Kristiansen http://orcid.org/0000-0003-2319-3637
Sidsel Marie Bernt Jørgensen http://orcid.org/0000-0002-7135-7168

REFERENCES

1 Roth GA, Mensah GA, Johnson CO, *et al*. Global burden of cardiovascular diseases and risk factors, 1990-2019: update from the GBD 2019 study. *J Am Coll Cardiol* 2020;76:2982.
2 Andersson C, Vasan RS. Epidemiology of cardiovascular disease in young individuals. *Nat Rev Cardiol* 2018;15:230–40.
3 Berg SK, Zwisler A-D, Pedersen BD, *et al*. Patient experiences of recovery after heart valve replacement: suffering weakness, struggling to resume normality. *BMC Nurs* 2013;12:1–8.
4 Cauter JV, Bacquer D, Smedt D, *et al*. Return to work and associations with psychosocial well-being and health-related quality of life in coronary heart disease patients: results from EUROASPIRE IV. *Eur J Prev Cardiol* 2019;26:1386–95.
5 Warraich HJ, Kaltenbach LA, Fonarow GC, *et al*. Adverse change in employment status after acute myocardial infarction: analysis from the TRANSLATE-ACS study. *Circ Cardiovasc Qual Outcomes* 2018;11:e004528.
6 Timmis A, Townsend N, Gale CP, *et al*. European Society of cardiology: cardiovascular disease statistics 2019. *Eur Heart J* 2020;41:12–85.
7 Loisel P. Handbook of work disability. *Handbook of Work Disability* 2013.
8 Knauf MT, Schultz IZ. Current conceptual models of return to work. 2016:27–51.
9 Hegewald J, Wegewitz UE, Euler U, *et al*. Interventions to support return to work for people with coronary heart disease. *Cochrane Database Syst Rev* 2019 Mar 14;2019;2019.
10 Reibis R, Salzwedel A, Abreu A, *et al*. The importance of return to work: how to achieve optimal reintegration in ACS patients. *Eur J Prev Cardiol* 2019;26:1358–69.
11 Sadeghi M, Rahiminam H, Amerizadeh A, *et al*. Prevalence of return to work in cardiovascular patients after cardiac rehabilitation: a systematic review and meta-analysis. *Curr Probl Cardiol* 2022;47:100876.
12 Rørth R, Wong C, Kragholm K, *et al*. Return to the workforce after first hospitalization for heart failure: a Danish nationwide cohort study. *Circulation* 2016;134:999–1009.
13 Butt JH, Rørth R, Kragholm K, *et al*. Return to the workforce following coronary artery bypass grafting: a Danish nationwide cohort study. *Int J Cardiol* 2018;251:15–21.
14 Smedegaard L, Numé A-K, Charlot M, *et al*. Return to work and risk of subsequent detachment from employment after myocardial infarction: insights from Danish nationwide registries. *J Am Heart Assoc* 2017;6. doi:10.1161/JAHA.117.006486. [Epub ahead of print: 04 Oct 2017].
15 Sun W, Gholizadeh L, Perry L, *et al*. Factors associated with return to work following myocardial infarction: a systematic review of observational studies. *J Clin Nurs* 2021;30:323–40.
16 Salzwedel A, Reibis R, Heidler M-D, *et al*. Determinants of return to work after multicomponent cardiac rehabilitation. *Arch Phys Med Rehabil* 2019;100:2399–402.
17 Gragnano A, Negrini A, Miglioretti M, *et al*. Common psychosocial factors predicting return to work after common mental disorders, cardiovascular diseases, and cancers: a review of reviews supporting a Cross-Disease approach. *J Occup Rehabil* 2018;28:215–31.
18 Kai SHY, Ferrières J, Rossignol M, *et al*. Prevalence and determinants of return to work after various coronary events: meta-analysis of prospective studies. *Sci Rep* 2022;12:1–12.
19 Bernt Jørgensen SM, Johnsen NF, Gerds TA, *et al*. Perceived return-to-work pressure following cardiovascular disease is associated with age, sex, and diagnosis: a nationwide combined survey- and register-based cohort study. *BMC Public Health* 2022;22:1059.
20 Page MJ, McKenzie JE, Bossuyt PM. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021;372:2020–1.
21 Tong A, Flemming K, McInnes E, *et al*. Enhancing transparency in reporting the synthesis of qualitative research: ENTREQ. *BMC Med Res Methodol* 2012;12:181.
22 Finfgeld DL. Metasynthesis: the state of the art--so far. *Qual Health Res* 2003;13:893–904.
23 Long HA, French DP, Brooks JM. Optimising the value of the critical appraisal skills programme (CASP) tool for quality appraisal in qualitative evidence synthesis. *Res Methods Med Health Sci* 2020;1:31–42.
24 Salminen-Tuomaala M, Åstedt-Kurki P, Rekiaro M, *et al*. Coping experiences: a pathway towards different coping orientations four and twelve months after myocardial Infarction-A Grounded theory approach. *Nurs Res Pract* 2012;2012:1–9.
25 O'Hagan F. Work, organisational practices, and margin of manoeuver during work reintegration. *Disabil Rehabil* 2019;41:172–81.
26 O'Hagan FT, Coutu MF, Thomas SG, *et al*. Work reintegration and cardiovascular disease: medical and rehabilitation influences. *J Occup Rehabil* 2012;22:270–81.
27 Lie I, Bunch EH, Smeby NA, *et al*. Patients' experiences with symptoms and needs in the early rehabilitation phase after coronary artery bypass grafting. *Eur J Cardiovasc Nurs* 2012;11:14–24.
28 Kearney J, Dyson K, Andrew E, *et al*. Factors associated with return to work among survivors of out-of-hospital cardiac arrest. *Resuscitation* 2020;146:203–12.
29 Boot CRL, de Kruif ATCM, Shaw WS, *et al*. Factors important for work participation among older workers with depression, cardiovascular disease, and osteoarthritis: a mixed method study. *J Occup Rehabil* 2016;26:160–72.

30 Solano-Ruiz MCarmen, Freitas GFde, Ugarte-Gurrutxaga MI, *et al*. Men's positive and negative experiences following acute myocardial infarction. *Int J Environ Res Public Health* 2021;18:1–10.
31 Wagner MK, Berg SK, Tang LH, *et al*. Understanding the lived experiences of short- and long-term consequences on daily life after out-of-hospital cardiac arrest. A focus group study. *J Adv Nurs* 2021;77:1442–52.
32 Neo SH, Ku JSM, Wong GCS. Life Beyond Heart Failure-What Are the Long-Term Challenges, Supportive Care Needs, and Views Toward Supportive Care of Multiethnic Asian Patients With Left Ventricular Assist Device and Their Caregivers?. *J Pain Symptom Manage* 2020;60:577–87.
33 Jbilou J, Grenier J, Chomienne M-H, *et al*. Understanding men's psychological reactions and experience following a cardiac event: a qualitative study from the MindTheHeart project. *BMJ Open* 2019;9:e029560.
34 Şahan C, Demiral Y, Kılıç B, *et al*. Changes in employment status after myocardial infarction among men. *Balkan Med J* 2016;33:419–25.
35 Slebus FG, Jorstad HT, Peters RJG, *et al*. Return to work after an acute coronary syndrome: patients' perspective. *Saf Health Work* 2012;3:117–22.
36 Bhattacharyya M, Stevenson F, Walters K. Exploration of the psychological impact and adaptation to cardiac events in South Asians in the UK: a qualitative study. *BMJ Open* 2016;6:e010195.
37 Pryor T, Page K, Patsamanis H, *et al*. Investigating support needs for people living with heart disease. *J Clin Nurs* 2014;23:166–72.
38 Lindbäck C, Nordgren L. To be on sick-leave due to heart failure: a qualitative perspective. *Disabil Rehabil* 2015;37:1732–8.
39 Brannigan C, Galvin R, Walsh ME, *et al*. Barriers and facilitators associated with return to work after stroke: a qualitative meta-synthesis. *Disabil Rehabil* 2017;39:211–22.
40 O'Brien L, Wallace S, Romero L. Effect of psychosocial and vocational interventions on return-to-work rates post-acute myocardial infarction: a systematic review. *J Cardiopulm Rehabil Prev* 2018;38:215–23.
41 Bosma AR, Boot CRL, Snippen NC, *et al*. Supporting employees with chronic conditions to stay at work: perspectives of occupational health professionals and organizational representatives. *BMC Public Health* 2021;21:1–13.
42 Supervia M, Turk-Adawi K, Lopez-Jimenez F, *et al*. Nature of cardiac rehabilitation around the globe. *EClinicalMedicine* 2019;13:46–56.
43 Lindström Egholm C, Rossau HK, Nilsen P, *et al*. Implementation of a politically initiated national clinical guideline for cardiac rehabilitation in hospitals and municipalities in Denmark. *Health Policy* 2018;122:1043–51.
44 Pedersen SM, Kruse M, Zwisler ADO. Return to work: does cardiac rehabilitation make a difference? Danish nationwide register-based study. *Scand J Public Health.* 2021.
45 Hong Q, Pluye P, Bregues SF. *Mixed methods appraisal tool (MMAT): user guide*. McGill, 2018: 1–11.