British Journal of CARDIAC NURSING

LITERATURE REVIEW

Perceived barriers to smoking cessation in patients with myocardial infarction: a systematic review

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Abstract

Myocardial infarction is a major cause of mortality and morbidity, with smoking being a major risk factor. However, a large proportion of patients continue to smoke following a myocardial infarction, suggesting that there are significant barriers to smoking cessation. This review aimed to understand the perceived barriers to, and facilitators of, smoking cessation among patients who have experienced a myocardial infarction and the health professionals involved in their care. A search of six electronic databases was conducted in April 2023: MEDLINE, EMBASE, CINAHL, PsycINFO, The Cochrane Library and Web of Science. The review followed the Joanna Briggs Institute guidance for mixed-methods systematic reviews, using the convergent integrated approach. Quantitative data were added to qualitative data and synthesised. Fifteen studies were included in the review (13 qualitative, one mixed-methods and one quantitative). Five key themes were identified: motivation for change; smoking as an identity; support; impact of health professionals; and lack of knowledge of smoking cessation interventions. These findings were used to present recommendations for health professionals and policymakers to provide more effective support for patients to quit smoking following myocardial infarction.

Key words: Acute coronary syndrome; Barriers; Facilitators; Myocardial infarction; Smoking cessation

Submitted: 15 April 2024; accepted following double-blind peer review: 19 September 2024

Introduction

Myocardial infarction is defined as the death of myocardial cells or heart muscle caused by a disruption in blood supply (Thygesen et al, 2018). Around 100 000 patients are admitted to hospital with myocardial infarction in the UK each year, of whom around 70% survive (British Heart Foundation, 2025).

Smoking tobacco has consistently been shown to increase the risk of myocardial infarction in the general population (Yusuf et al, 2004; Oliveira et al, 2007; Pedersen et al, 2016), with those who continue to smoke following a myocardial infarction having a near twofold increased risk of mortality compared to those who quit (Critchley and Capewell, 2003; Yudi et al, 2017). Following smoking cessation, this risk rapidly declines; for those with a lighter smoking history, the risk may be equivalent to that of someone who has never smoked after a period of 5 years (Cho et al, 2024).

Interventions delivered by health professionals can support patients to quit smoking (Rigotti et al, 2012), with some evidence suggesting that patients with a tobacco-related illness, such as myocardial infarction, may be more receptive to these interventions (McBride et al, 2003). Despite this, health professionals often perceive barriers to the delivery of smoking cessation interventions, such as lack of time, insufficient skills and lack of knowledge regarding which interventions are most effective (National Institute for Health and Care Excellence, 2012). Factors such as poor mental health, social isolation and multiple comorbidities can reduce the likelihood of quitting smoking after a myocardial infarction (Lovatt et al, 2021), while smoking rates are generally higher among these groups (Action on Smoking and Health, 2019).

The primary aim of this review was to understand the perceived barriers to, and facilitators of, smoking cessation among patients who have experienced a myocardial infarction. An additional aim was to identify the perceived barriers and facilitators to supporting smoking cessation in these patients among health professionals. These insights could be used to inform the development of more effective interventions to support patients to quit smoking.

How to cite this article:
Lovatt S, Chowdury N, Mallen C, Cooke A. Perceived barriers to smoking cessation in patients with myocardial infarction: a systematic review. British Journal of Cardiac Nursing. 2025. https://doi.org/10.12968/bjca.2024.0028

The review question was: 'what are the perceived barriers and facilitators to smoking cessation in patients with myocardial infarction?'.

Methods

The review was conducted in accordance with the Joanna Briggs Institute guidance for mixed-methods systematic reviews, following the convergent integrated approach (Stern et al, 2020). A review protocol was published prospectively before conducting the literature search (PROSPERO CRD42023410712). However, the research question was modified to 'perceived barriers', informed by observational studies covered in a previous review (Lovatt et al, 2021).

Search strategy and eligibility criteria

Searches were conducted in April 2023 using MEDLINE, EMBASE, CINAHL, PsycINFO, The Cochrane Library and Web of Science. The National Grey Literature database was also searched and citation tracking was used as a supplementary search method (Cooper et al, 2017). Searches were limited to papers published on or after 1 January 1990, as smoking cessation services developed substantially after this date (Owen and Youdan, 2006).

Primary studies involving adult patients who had undergone percutaneous coronary intervention, with acute coronary syndrome, ischaemic heart disease or coronary artery disease were included if the study involved patients with a history of myocardial infarction. Myocardial infarction may not have been adequately defined in some eligible studies, such as those where it was self-reported by patients. However, these studies were considered to still potentially provide useful information and were thus included following critical appraisal. Studies with patients undergoing angiography and those with angina pectoris or coronary artery disease without a diagnosis of myocardial infarction were excluded. Study settings were limited to high- or middle-income countries, given considerable differences in healthcare provision, socioeconomic and geopolitical contexts in low-income countries. Only studies published in English were included, as translation resources for this review were limited.

Data extraction

Study titles and abstracts were screened independently against eligibility criteria by two reviewers (SL and NC). Any uncertainty regarding inclusion was resolved following discussion with the remaining two authors (CM and AC). Included studies were downloaded and data extracted independently by two researchers in duplicate (SL and NC). Data were extracted into tables based on the Joanna Briggs Institute mixed-methods data extraction form (Aromataris et al, 2024), which was piloted with two studies following study selection.

Quality assessment and data synthesis

Included qualitative studies were appraised using the Joanna Briggs Institute critical appraisal checklist for qualitative research (Lockwood et al, 2015). The credibility of the findings of the included studies was also assessed (Lockwood et al, 2024). Only unequivocal or credible findings were included in the aggregation; unsupported findings are presented separately. Quantitative studies were appraised according to the study methodology, using the appropriate Joanna Briggs Institute appraisal tool. Data were synthesised according to the Joanna Briggs Institute meta-aggregation method (Lockwood et al, 2015).

Findings

Search results and study characteristics

A total of 13 601 records were retrieved through the electronic database search with a further two studies identified through citation tracking (**Figure 1**). Removal of duplicates resulted in 6798 titles and abstracts, which were screened against the inclusion criteria. A total of 6739 studies were excluded as they did not include patients who had experienced myocardial infarction, evaluate smoking cessation or present primary research. The remaining 59 studies were downloaded for in-depth review. Of these, a further 44 were excluded as they were poster or conference abstracts (n=13), had irrelevant outcomes (n=12), did not

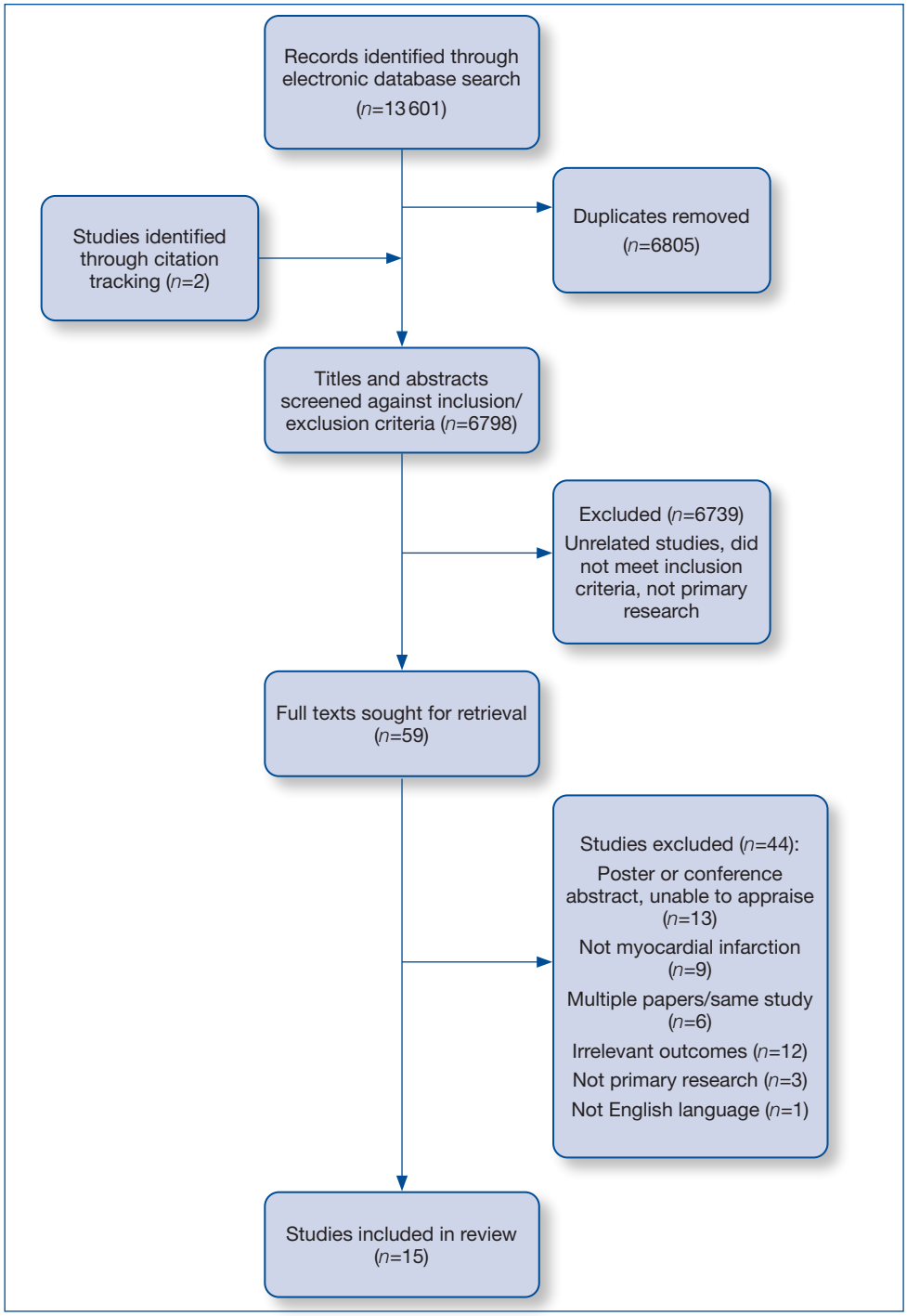

Figure 1. PRISMA flow chart showing the study selection process.

include patients with myocardial infarction (*n*=9), were multiple papers from the same study (*n*=6), were not primary research (*n*=3) or were not published in English (*n*=1). This left 15 studies, all of which were included in the final review following critical appraisal.

The characteristics of the 15 included studies are presented in **Table 1**. Although the studies were conducted over a 25-year period (1998–2023), most (*n*=9) were published after 2010. All studies were conducted in high-income countries, including the UK (*n*=4), Australia (*n*=3), the US (*n*=3), Norway (*n*=2), Germany (*n*=2) and Denmark (*n*=1).

Thirteen studies focused on patients with cardiovascular disease, with all including patients diagnosed with myocardial infarction. Seven studies also included patients with acute coronary syndrome and those undergoing percutaneous coronary interventions. Two studies

Table 1. Characteristics of the 15 included studies

Authors, year	Methodology and methods	Phenomena of interest	Study setting and country	Population	Approach to data analysis
Crane and McSweeney, 2003	Qualitative, elements of grounded theory (not discussed) Semi-structured interviews	Lifestyle change among older women after myocardial infarction	Participants' homes US	15 women aged >65 years who were discharged from hospital post myocardial infarction 3–12 months ago and did not participate in cardiac rehabilitation (six had history of smoking)	Content analysis, constant comparison
Darr et al, 2008	Qualitative Semi-structured interviews	Illness beliefs, causal attributions and lifestyle changes in South Asian and European patients	Community UK	65 people of South Asian and European ethnicity who had been hospitalised with acute coronary syndrome (74%) or coronary artery bypass graft (26%) in the previous year (29 women; age range 46–83 years)	Framework approach
Dullaghan et al, 2014	Deductive qualitative Semi-structured interviews	Illness perceptions and motivation for behavioural change following myocardial infarction	Participants' homes UK	15 patients, interviewed 1–4 weeks after hospitalisation for first myocardial infarction (four women; age range 44–73 years)	Framework analysis
Fålun et al, 2016	Descriptive qualitative Semi-structured interviews	Goals, resources and perceived barriers to future change among patients following myocardial infarction	Hospital Norway	20 patients admitted to hospital with myocardial infarction, interviewed before discharge (seven current smokers; eight women; age range 40–100 years)	Qualitative content analysis
Getz et al, 2023	Qualitative Semi-structured interviews	Barriers and facilitators to smoking cessation among patients with cardiovascular disease	Community, following discharge from hospital Norway	10 patients interviewed 5–9 months after admission for acute cardiovascular disease, including myocardial infarction (three women; age range 55–79 years)	Deductive/ inductive thematic analysis
Gregory et al, 2006	Exploratory qualitative Focus groups; semi-structured interviews	Barriers to and facilitators for lifestyle change and maintenance of change after myocardial infarction in the family setting	Community, following discharge from hospital UK	53 patients, 2–3 years after discharge from admission for myocardial infarction (two-thirds had attended cardiac rehabilitation; 18 women; all aged <65 years)	Constant comparative approach
Gulanick et al, 1998	Qualitative Focus groups	Patients' reactions to lifestyle change, barriers and facilitators to risk reduction	Community USA	45 patients, 3–18 months after percutaneous transluminal coronary angioplasty (29% with myocardial infarction; 42% had attended cardiac rehabilitation; 19 women; age range 34–74 years)	Thematic analysis, constant comparison
Hansen and Nelson, 2011	Qualitative, drawing on grounded theory Semi-structured interviews	Patients' experiences of smoking after hospitalisation for acute coronary syndrome and perceptions of doctors' role in smoking cessation	Participants' homes Australia	32 patients with low incomes, 12–36 months after hospital admission with acute coronary syndrome (seven employed; most with severe comorbidities; nine women; age range 40–74 years)	Constant comparison, concurrent data collection and analysis
Hansen and Nelson, 2017	Inductive qualitative, derived from grounded theory Semi-structured interviews	Processes of ongoing smoking or smoking cessation following hospitalisation for acute coronary syndrome	Participants' homes (three interviews via telephone) Australia	32 patients with low or very low income, 12–36 months after admission with acute coronary syndrome (seven employed; most with severe comorbidities; nine women; age range 40–74 years)	Constant comparison, concurrent data collection and analysis

Table 1. Characteristics of the 15 included studies (continued)

Authors, year	Methodology and methods	Phenomena of interest	Study setting and country	Population	Approach to data analysis
May et al, 2008	Qualitative, using framework analysis Semi-structured interviews	Attitudes and beliefs of health professionals regarding nicotine replacement therapy in acute cardiac inpatients	Hospital Australia	13 health professionals: six cardiologists, three cardiothoracic surgeons and six nurses	Framework analysis
McAnirn et al, 2015	Heideggerian phenomenology Semi-structured interviews	Issues encountered by younger patients with families attempting lifestyle change after myocardial infarction	Participants' homes or hospital office UK	Seven patients with family commitments, admitted to hospital with first myocardial infarction (one woman; all aged <50 years)	Framework analysis
Nicolai et al, 2018	Qualitative Semi-structured interviews	Subjective needs, attitudes and experiences of lifestyle change following myocardial infarction	Hospital office Germany	21 patients 2–32 months after discharge from hospital admission for myocardial infarction (eight women; age range 43–79 years)	Qualitative content analysis
Nissen et al, 2018	Qualitative Focus groups; semi-structured interviews with couples and individuals	The role of relationships in making lifestyle changes among patients with coronary heart disease and their partners	Cardiac rehabilitation centre (focus groups); participants' homes (individual and couples interviews) Denmark	10 couples (20 participants) with one partner having a history of treatment for acute coronary heart disease, who had recently completed a 6-week cardiac rehabilitation programme. Varied socioeconomic status and comorbidities (2/10 patients were women; age range 36–73 years)	Thematic analysis
Raupach et al, 2014	Mixed methods (only qualitative aspect relevant) Semi-structured interviews	Health professionals' experiences of delivering smoking cessation interventions	Hospital Germany	15 physicians and nurses caring for patients on cardiology wards	Thematic analysis
Riley et al, 2019	Cross-sectional analytical Survey	Patients' attitudes to smoking cessation and priorities for lifestyle change	Hospital US	81 patients hospitalised with cardiovascular disease, approximately 77% with myocardial infarction or percutaneous coronary intervention, survey completed before discharge (31% women; mean age 57±10 years)	Descriptive statistics

that explored health professionals' experiences of delivering smoking cessation, conducting interviews with nurses, physicians and cardiothoracic surgeons. Overall, the studies included 386 patients and 28 health professionals. Most patients were male (*n*=236, 61.1%) and the age range was 34–83 years. The studies were conducted at various points in the patient's recovery after myocardial infarction, from 1 week to 3 years following hospitalisation.

Quality assessment

The results of the quality assessment for the 14 qualitative studies are shown in Appendix 1 and Appendix 2. Several studies did not adequately meet three quality indicators: congruity between the philosophical perspective and research methodology (*n*=10); statement locating the researchers culturally or theoretically (*n*=9); consideration of the researchers' impact on the research or vice versa (*n*=8). However, these studies were still included, with the authors considering factors such as word limits on published qualitative research (Sidhu et al, 2017) and the fact that descriptive qualitative research often does not describe an epistemological position (Neergaard et al, 2009).

The following findings were not included in the meta-aggregation as they were unsupported by raw data:

Table 2. Qualitisation of quantitative results of Riley et al (2019)

Quantitative results	Qualitised findings
72.5% of participants who smoked consistently ranked smoking cessation as the most important behavioural change that they felt they should make following discharge from hospital	Motivation to quit smoking is high before discharge from hospital
Most participants (*n*=54, 66.7%) were confident in their ability to successfully quit smoking	High confidence in ability to quit smoking before discharge from hospital
20% of participants were not interested at all in quitting smoking	Some patients are not interested in quitting smoking
19% of all participants reported that they did not feel that any form of assistance would help them to quit smoking	Patients' perceive smoking cessation support to have poor efficacy
16% of participants disagreed or strongly disagreed that their current heart problem (the reason they were hospitalised) was related to their smoking habits, with an additional 24% reporting that they did not know whether there was a relationship between smoking and their current heart problem	Patients lack understanding of smoking as a risk factor for myocardial infarction

- Making other changes first as a justification for continued smoking (Fålun et al, 2016)
- Smoking being used as a 'crutch' to cope with stress (Gulanick et al, 1998)
- Positive impact of family support on smoking cessation (Nissen et al, 2018)
- Resistance to change coming from lack of communal coping among couples (Nissen et al, 2018).

One quantitative cross-sectional survey was included in the review (Riley et al, 2019). This study was conducted at a single centre, limiting generalisability. Furthermore, the study did not state whether patients had attended cardiac rehabilitation before answering the survey questions. The survey had a very good response rate (77%, *n*=81) and the results supported the findings of the qualitative studies. The process of qualitisation (converting the results from quantitative to qualitative findings) is shown in Table 2.

Review findings

The synthesis of findings from the included studies resulted in the development of 14 categories, which were grouped together into five overarching descriptors: motivation for change; support; smoking as an identity; lack of knowledge of, and confidence in, smoking cessation interventions; impact of health professionals (Table 3).

Motivation for change

Motivation for change contained four categories: taking control; the power of the teachable moment; further incentive to change; and understanding smoking as a risk factor for myocardial infarction. This synthesised finding relates to the patient's experience of myocardial infarction as a major life event and how this can be a facilitator for smoking cessation, providing the impetus for change. It is likely that motivation stems from the power of the teachable moment, as many patients will see smoking as a causative factor for myocardial infarction. This perception can be encouraged through brief but powerful interventions, delivered by health professionals. However, the impact of this teachable moment may diminish over time. This may be misunderstood by health professionals who assume that the power of the teachable moment is sufficient to facilitate continued impetus for change.

The power of the teachable moment is closely related to understandings of smoking as a risk factor. The findings indicated that patients are more likely to make changes if they believe there will be benefits. This relationship extends to those who continue to smoke after myocardial infarction, with the findings suggesting that this behaviour may result from a lack of understanding about smoking as a risk factor, or patients justifying continued smoking. Some patients may also have a fatalistic attitude to their health, believing that nothing can be done to reduce their risk of future myocardial

infarctions, which is contrary to strong opposing evidence for secondary prevention. Lack of understanding may be more common in patients with less severe presentations, such as non-ST segment elevation myocardial infarction, potentially because they see this as a less severe event.

Table 3. Synthesis of findings from the included studies (*n*=15), with recommendations from the present authors

Synthesised descriptor	Category	Findings	Recommendations
Motivation for change	Taking control	Patients' motivation and level of confidence in their ability to quit smoking is high before discharge (Riley et al, 2019)	Hospitalisation with myocardial infarction is a major event for patients. Well-timed brief interventions and patient education are essential to help patients identify smoking as a causative factor. However, the power of this 'teachable moment' may diminish with time and should not be the sole agent to promote behavioural change. Health professionals should consider other interventions to support patients to quit smoking and reinforce the message in future contact with patients
		Intrinsic motivation and self-determination to quit is important (Hansen and Nelson, 2011; Getz et al, 2023)	
		Patients have short-term goals at time of discharge and want to do it themselves (Fålun et al, 2016)	
		The decision to quit smoking is made in hospital or very soon afterwards (Hansen and Nelson, 2017)	
		Wanting to 'take control' of the myocardial infarction provides motivation for lifestyle change (Dullaghan et al, 2014)	
		Myocardial infarction provides motivation for change (McAnirn et al, 2015)	
	The power of the teachable moment	Pivotal moment for patients is being told by a doctor that if they kept smoking they would die or experience another heart attack (Hansen and Nelson, 2017)	
		The shock or frightening experience is a 'teachable moment' for patients as they become aware of their mortality, which can provoke behavioural change (Hansen and Nelson, 2017)	
		Hospitalisation and 'dramatic lectures' from health professionals can make a significant contribution to quitting smoking (Hansen and Nelson, 2011), but the power of this experience and lifestyle advice can diminish over time (Gregory et al, 2006; Hansen and Nelson, 2017)	
		Physicians' perceive brief interventions to be enough (May et al, 2008)	
	Further incentive to change	Concerns about health, hope for extended life and financial costs of smoking act as motivating factors to quit (Getz et al, 2023)	
	Understanding smoking as a risk factor for myocardial infarction	Motivation comes from perceived benefit and attributable causes (Nicolai et al, 2018), with lack of causal attribution providing justification for continued smoking (Darr et al, 2008)	
		Patients lack understanding of the causes of myocardial infarction (Nicolai et al, 2018) and of smoking as a risk factor (Riley et al, 2019)	
		Patients may feel powerless to stop disease progression (Gulanick et al, 1998); with those who continue to smoke having a fatalistic view, believing that nothing can change their future (Hansen and Nelson, 2017).	
		Perception of limited benefit of lifestyle changes (Nicolai et al, 2018)	
		Justifications for continued smoking used by patients include limited understanding of risk factors (Nicolai et al, 2018) and desire to make other lifestyle changes first (Fålun et al, 2016)	
		Motivation for lifestyle change differs between those with ST-elevation myocardial infarction and non-ST elevation myocardial infarction, with the latter patient group lacking clarity about whether their diagnosis is a myocardial infarction (Dullaghan et al, 2014)	

Table 3. Synthesis of findings from the included studies (*n*=15), with recommendations from the present authors (continued)

Synthesised descriptor	Category	Findings	Recommendations
Support	Fellowship	Useful sources of support includes positive social settings; social support from non-smokers; sense of fellowship; like-minded support from others; and group therapy (Getz et al, 2023)	The right support is crucial to initiate and maintain behavioural change. Health professionals can provide this by giving patients information on smoking cessation. However, further support is needed from those close to the individual, so health professionals should seek to involve wider social networks in interventions
	Family support	Support from and involvement of families facilitates change (McAnirn et al, 2015), with family support having a positive impact on smoking cessation (Nissen et al, 2018) Patients want to involve family in smoking cessation support (Gulanick et al, 1998) Resistance to change comes from a lack of communal coping among couples (Nissen et al, 2018) Partners continuing to smoke and lack of support are barriers to change (Getz et al, 2023)	
Smoking as an identity	Addiction and habit	Smoking is an addiction; patients had contact with other smokers and smoked for comfort, support and enjoyment, seeing it as part of their daily routine (Getz et al, 2023) Hospitalisation presents an opportunity to change habits, but previous routines and habits can influence patients to resume smoking as they return to normal life (Hansen and Nelson, 2017) Outside specific times, such as during interviews or hospitalisation (when smoking became visible and problematic), patients did not think about smoking much, it was 'just something they did' (Hansen and Nelson, 2017) Quitting smoking can be seen as impossible, especially if patients had tried before (Hansen and Nelson, 2017) Some patients are interested in quitting smoking (Riley et al, 2019)	Smoking is a highly addictive habitual activity. Difficulties quitting often arise from the person's strong identity as a smoker. This is enhanced for those facing additional challenges, such as comorbidities and stress. Health professionals and smoking cessation counsellors should identify these individuals and focus on strategies to manage stress, form new habits and develop self-awareness
	Challenging circumstances	Multimorbidity is a challenge, decreasing motivation to quit smoking (Getz et al, 2023) Patients experienced difficulties coping with stress (Gulanick et al, 1998), with smoking being used to manage stress (Crane and McSweeney, 2003) Patients use smoking for emotional regulation during difficult times (Getz et al, 2023) Smoking is both part of 'doing' stressed or anxious jobs and a way or coping with being stressed or anxious (Hansen and Nelson, 2017) Smoking can be seen as the last enjoyable aspect of life (Hansen and Nelson, 2017)	
Lack of knowledge and confidence in smoking cessation interventions	Nurses' role in the provision of smoking cessation support	Nurses lack knowledge regarding the efficacy of smoking cessation therapies (May et al, 2008) Patients report a lack of support from nurses to quit smoking, with perception that this is the role of the physician, not the nurse (Raupach et al, 2014) Smoking can be seen as a personal choice (Raupach et al, 2014) There is a desire among nurses for further training (Raupach et al, 2014) Clinical demands can be too high for nurses to engage in smoking cessation support (Raupach et al, 2014)	All health professionals involved in the care of patients with myocardial infarction should recognise the importance of smoking cessation. They should have excellent knowledge of evidence-based interventions to support patients to quit smoking and initiate these therapies in secondary care

Table 3. Synthesis of findings from the included studies (*n*=15), with recommendations from the present authors (continued)

Synthesised descriptor	Category	Findings	Recommendations
Lack of knowledge and confidence in smoking cessation interventions	Physicians' role in the provision of smoking cessation support	Cardiologists do not take responsibility for initiating smoking cessation therapy and may lack knowledge of therapies, leading to perceived risk of liability (May et al, 2008) Cardiologists have concerns about safety and risk of prescribing therapies, perceiving a research deficit (May et al, 2008) Physicians lack knowledge of smoking cessation therapy (Raupach et al, 2014)	All health professionals involved in the care of patients with myocardial infarction should recognise the importance of smoking cessation. They should have excellent knowledge of evidence-based interventions to support patients to quit smoking and initiate these therapies in secondary care
	Institutional barriers	Financial implications of prescribing smoking cessation therapies (May et al, 2008) and short duration of inpatient care are barriers to supporting smoking cessation (Raupach et al, 2014)	
	Patients' limited understanding of support for smoking cessation	Patients' perceived smoking cessation support to be of poor efficacy (Riley et al, 2019) Patients lack knowledge and understanding of therapies (Hansen and Nelson, 2011), behavioural strategies and the use of medications to manage craving (Getz et al, 2023) Patients struggle with feelings of hopelessness and side effects of therapies (Hansen and Nelson, 2011)	
Impact of health professionals	Stigmatisation	Stigmatisation is seen as discrediting identity of a patient who smokes, with smoking being perceived as the only thing doctors notice about them (Hansen and Nelson, 2011) Barriers can be created by moralising and condescending attitudes, lack of empathy and understanding (Getz et al, 2023), unsolicited advice, lecturing or patronisation from health professionals (Hansen and Nelson, 2011) Some patients may avoidance the truth or lie to avoid stigmatisation (Hansen and Nelson, 2011) Patients may see ongoing smoking as a personal failure (Hansen and Nelson, 2017), feeling like a failure, or a bad or weak person (Hansen and Nelson, 2017) Patients feel discriminated against because they smoke, and perceive that health professionals use smoking as 'an excuse for everything' (Hansen and Nelson, 2017)	Patients who have had a myocardial infarction can feel stigmatised, discredited and subject to discrimination if they smoke. Health professionals should recognise the highly addictive nature of smoking and respect the immense challenge that patients face in quitting. Care should be taken to reflect on one's on patients, aiming to treat the individual, develop good relationships and work with patients to support them to quit smoking
	Patients' sense of health professionals being 'on their side'	Well-delivered advice from GPs gives patients the sense that they are 'on the same side' (Hansen and Nelson, 2011) Good relationships with health professionals can positively influence and facilitate change, with well-delivered health promotion or advice changing perceptions (Getz et al, 2023) Nurses can increase patients' motivation to quit, as they are seen as knowledgeable in delivering brief interventions (Getz et al, 2023) Patients desire ongoing support from accessible health professionals (Gregory et al, 2006)	

Smoking as an identity

Smoking as an identify comprised two categories: addiction and habit; and challenging circumstances. It relates to smoking as a strong part of the person's identity and their environment, representing a barrier to quitting. It is likely that the more strongly a patient identifies as a smoker, the harder it will be for them to quit. Addiction also results in use of reasoning that justifies the behaviour, with some patients making other positive lifestyle changes to 'justify' continued smoking.

For many individuals, their identity as a smoker will not be questioned outside of a healthcare setting; when they are alone or with friends who also smoke, it is accepted as part of daily life. Many patients in the included studies also faced additional challenges, such as comorbidities, which represented an additional barrier to smoking cessation. These challenges may create a fatalistic attitude, reducing motivation to quit smoking. However, the review also suggested that surrounding oneself with non-smokers who do not share the smoker identify may help patients to change their habits.

Support

Support was comprised of two categories: fellowship; and family support. This synthesised finding related to the location of an individual within their social support network, which can act as both a facilitator and barrier to quitting smoking. Many participants described how their immediate family were influential in their decision to quit smoking and maintain their abstinence, indicating that family members can provide the motivation to quit and be a source of support through the process. However, close family relationships could also be barrier to cessation, such as if the patient's partner did not wish to quit smoking themselves.

Impact of health professionals

The impact of health professionals comprised the two contrasting categories of stigmatisation and patients' sense of health professionals being 'on their side'. This synthesised finding highlighted the impact that health professionals can have on smoking cessation, with patients who had experienced a myocardial infarction feeling stigmatised for smoking. Some patients found interactions with health professionals patronising, feeling that smoking was the only thing that was noticed about them. This perception may come from the delivery of brief interventions and the use of the teachable moment of hospitalisation; although these strategies could have a positive impact, they could also make patients feel stigmatised or discredited. This could result in patients not seeking support for smoking cessation or lying about quitting. The marginalising effect of stigmatisation could be avoided by working with patients, making them feel that the health professional is on their side by acknowledging the difficulties they face in a non-judgemental manner. This may include other aspects of advice and counselling, rather than focusing solely on smoking.

Lack of knowledge of smoking cessation interventions

The final synthesised finding related to patients' and health professionals' level of knowledge and confidence in the delivery of smoking cessation interventions. Physicians are often responsible for prescribing smoking cessation therapies, but the review found a sense of reluctance to do so, caused by misconceptions or lack of knowledge. This may result in therapies not being initiated in secondary care, leading to delays or barriers to access. This lack of knowledge may also extend to patients, especially if health professionals, including nurses and cardiologists, do not have the skills to provide education.

Discussion

This review highlighted the idea of the teachable moment (Lawson and Flocke, 2009), showing that while this is closely related to the patient's understanding or experience of their condition (Dullaghan et al, 2014), the impact of this moment can diminish over time (Gregory et al, 2006). The impact of teachable moments over time is not well understood (Flocke et al, 2014), so health professionals may believe that an initial brief intervention is sufficient to facilitate and maintain behavioural change (May et al, 2008). Consequently, they may not provide other interventions, such as medications, despite strong evidence that quitting smoking without

assistance is the least effective method (Public Health England, 2018). Health professionals involved in the care of patients who have had a myocardial infarction should consider long-term support for smoking cessation, using evidenced-based interventions.

The synthesised finding of smoking as an identity was associated with smoking as an addiction and a deeply ingrained habitual activity. This finding is widely supported in the literature around smoking cessation (Benowitz, 2008; 2010), negating the belief that smoking is a lifestyle choice that patients can easily change (Ekezie et al, 2020). Health professionals who are dismissive of the challenges associated with quitting smoking may not provide adequate support.

The finding that quitting smoking can be made more difficult by additional barriers is supported in the literature (Twyman et al, 2014; Huddlestone et al, 2022). In the reviewed studies, participants with multiple comorbidities, such as depression and other physical health problems, described how these challenges created barriers to quitting smoking. This was described as a kind of fatalism, where quitting smoking was a low priority among the other challenging aspects of patients' lives (Hansen and Nelson, 2017). Other patients felt that there was little to gain from quitting, as smoking provided one of their few pleasures. While it is crucial to maintain respect for autonomy, it is also important that people facing additional challenges can access adequate levels of support to quit smoking. There is a risk that these individuals may be discriminated against on the assumption that they will not change their behaviour (Huddlestone et al, 2022).

The concept of stigmatisation emerged from findings regarding the way patients who smoked felt during their interactions with health professionals (Hansen and Nelson, 2017). Participants described condescending or moralising attitudes from health professionals (Getz et al, 2023), feeling their smoking status was the only thing that was noticed about them (Hansen and Nelson, 2017). This stigmatisation of those who smoke has been described in the wider literature, with some authors attributing this to the reduced prevalence of smoking and the negative perceptions of smoking created by public health campaigns (Graham, 2012). The impact of stigmatisation may have only a 'transient' effect during the act of smoking, disappearing at other times (Ritchie et al, 2010). However, following a myocardial infarction, a person labelled as a smoker may perceive this as a permanent aspect of their identity. This could also lead to dishonesty about their smoking behaviours or difficulties in quitting, coming from a desire to avoid the a sense of personal failure (Hansen and Nelson, 2017), which may be a barrier to accessing support.

This challenge may be mitigated if patients feel that health professionals are on their side. Some participants in the reviewed studies described good relationships with health professionals, from whom they received well-delivered support without condescending or judgemental attitudes (Getz et al, 2023). All health professionals who care for patients following myocardial infarction should aim to act in a supportive, non-judgemental manner in order to foster good relationships and provide better smoking cessation support.

Implications for practice

The implications of this review for practice are shown in Table 3. It is intended that these recommendations are used to guide health professionals and policy makers to provide better support for patients to quit smoking following myocardial infarction.

Key points

- Many patients continue to smoke following an myocardial infarction, despite the high risk of severe health consequences.
- For patients who smoke, experiencing myocardial infarction may represent a 'teachable moment', providing motivation to quit. Well-timed, supportive interventions may help to facilitate change.
- Recognition of the difficulties that patients face in quitting smoking is important. Smoking is highly addictive, and compassionate and informed care is required to support patients to make changes and avoid stigma.

Reflective questions

- How do you feel about patients who continue to smoke after experiencing a myocardial infarction?
- How do your interactions with patients who have coronary artery disease and smoke impact their care?
- What support for smoking cessation is available in your area of practice?

Limitations

There is ongoing debate around the inclusion and exclusion of studies in qualitative systematic reviews (Carroll et al, 2012). The omission of some findings from the meta-aggregation may have strengthened certain categories, although including findings without supportive raw data arguably presented a greater problem, especially as this review aimed to make recommendations for clinical practice (Dixon-Woods et al, 2005). That said, it can be difficult for published studies to include sufficient raw data within the permitted word limit, so excluding papers on this basis may have represented a form of bias. Additionally, some papers in this review lacked clear presentation of their participants' background, so it is possible that some of the findings are from participants with other manifestations of coronary artery disease.

Conclusions

The results of this review highlight key recommendations for practice, including the need to acknowledge myocardial infarction as a potential turning point in patients' lives, recognise the difficulties that patients can face in quitting smoking and involving wider support networks in smoking cessation interventions. The review also emphasised the need to avoid stigmatisation and offer non-judgemental support. Health professionals must have up-to-date knowledge of the best interventions for smoking cessation and implement these where appropriate.

The consequences of continued smoking for patients following a diagnosis of myocardial infarction can be severe. The authors hope that this review contributes to a better understanding of this phenomenon, helping health professionals to address barriers and supporting the development of interventions that are designed with these barriers in mind.

No Smoking Day took place in the UK on 12 March 2025. Established in 1984, this day aims to encourage people to quit smoking. This year, the theme was 'take back your life this No Smoking Day'.

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Conflicts of interest

The authors declare that there are no conflicts of interest.

Declaration of funding

Saul Lovatt is funded by a National Institute for Health and Care Research pre-doctoral clinical and academic fellowship.

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Appendix 1.Qualitative critical appraisal based on the JBI critical appraisal tool (Lockwood et al, 2024)

Study	Is there congruity between the stated philosophical perspective and the research methodology?	Is there congruity between the research methodology and the research question or objectives?	Is there congruity between the research methodology and the methods used to collect data?	Is there congruity between the research methodology and the represent-ation and analysis of data?	Is there congruity between the research methodology and the interpretation of results?	Is there a statement locating the researcher culturally or theoretically?	Is the influence of the researcher on the research, and vice-versa, addressed?	Are participants, and their voices, adequately represented?	Is the research ethical according to current criteria or, for recent studies, and is there evidence of ethical approval by an appropriate body?	Do the conclusions drawn in the research report flow from the analysis, or interpretation of the data?
Crane and McSweeney, 2003	Unclear	Yes	Yes	Yes	Yes	No	No	Yes	Unclear	Yes
Darr et al, 2008	Unclear	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes
Dullaghan et al, 2013	Unclear	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes
Falun et al, 2015	Unclear	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes
Getz et al, 2023	Unclear	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Gregory et al, 2005	Unclear	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes
Gulanick et al, 1998	Unclear	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hansen and Nelson, 2011	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Unclear	Yes
Hansen and Nelson 2017	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Unclear	Yes
Jones et al, 2019	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
May et al, 2008	Unclear	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes
McAnirn et al, 2015	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Nicolai et al, 2018	Unclear	Yes	Yes	Yes	Unclear	No	No	Yes	Yes	Yes
Raupach et al, 2014	Unclear	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes

Appendix 2. Quantitative critical appraisal adapted from the JBI critical appraisal checklist for analytical cross-sectional studies

Study	Were the criteria for inclusion in the sample clearly defined?	Were the study subjects and the setting described in detail?	Was the exposure measured in a valid and reliable way?	Were objective, standard criteria used for measurement of the condition?	Were confounding factors identified?	Were strategies to deal with confounding factors stated?	Were the outcomes measured in a valid and reliable way?	Was appropriate statistical analysis used?
Riley et al, 2019	Yes	Yes	N/A	Unclear	Yes	No	Yes	Yes