

## Article

# Barriers to smoking interventions in community healthcare settings: a scoping review

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## Abstract

Smoking is one of the major causes of preventable death and is considered the greatest threat to global public health. While the prevalence of smoking has decreased, population growth has led to an increase in the absolute number of smokers. There are many proven smoking cessation interventions available to support smokers in their quit attempts. Most people who smoke, however, underutilize the treatments available to them. This scoping review aimed to identify the current barriers experienced by all stakeholders (smokers, service providers and policymakers) to existing evidence-based smoking cessation interventions in community healthcare settings. Five electronic databases (CINAHL, Ovid MEDLINE, PsycINFO, Scopus and Web of Science) were searched for relevant literature. A total of 40 eligible articles from different countries published between 2015 and 2022 were included in the review and content analysis carried out to identify the key barriers to smoking cessation interventions. Seven key themes were found to be common to all stakeholders: (i) literacy, (ii) competing demands and priorities, (iii) time, (iv) access to product, (v) access to service, (vi) workforce and (vii) motivation/readiness. These themes were mapped to the Capability, Opportunity, Motivation-Behaviour (COM-B) model. This study presents the effect the barriers within these themes have on current smoking cessation services and highlights priorities for future interventions.

**Keywords:** barriers, smoking cessation, evidence-based interventions, community, scoping review

## BACKGROUND

Worldwide, smoking is one of the greatest public health challenges (García-Gómez *et al.*, 2019). Although progress has been made to reduce the prevalence of smoking (Ng *et al.*, 2014; Drope *et al.*, 2018), tobacco use continues to be the leading cause of preventable death (World Health Organization, 2021b). The Global Burden of Diseases, Injuries, and Risk Factors Study (Reitsma *et al.*, 2021) found that while the prevalence of smoking had decreased, the absolute number of current smokers had significantly increased due to population growth. In 2019, it was estimated that 1.14 billion people were current smokers and that smoking tobacco was responsible for almost 8 million deaths a year (Reitsma *et al.*, 2021). Smoking has also been linked to multiple diseases and adverse health outcomes that affect nearly every organ in the body

(U.S. Department of Health and Human Services, 2014).

As the widespread consequences of smoking tobacco continue to grow, so too, does the scientific evidence about the health benefits of smoking cessation. Two new conclusions in the 2020 Surgeon General report on smoking cessation were that ‘smoking cessation improves health status and enhances quality of life’ and that ‘smoking cessation reduces the risk of premature death’ (U.S. Department of Health and Human Services, 2020). Given the profound impact quitting smoking has on health, helping smokers quit remains a public health priority (Dono *et al.*, 2022). Signatories of the World Health Organization (WHO) Framework Convention on Tobacco Control (FCTC) are encouraged to use the guidelines of the FCTC to fulfil their obligations of the Convention and protect public

### Contribution to Health Promotion

- This study identifies the extensive list of barriers experienced by smokers, service providers and policymakers to current smoking cessation interventions in community healthcare settings.
- There are seven shared themes related to the barriers that smokers, service providers and policymakers experience to smoking cessation interventions.
- These mutual barriers should be considered in future research, and in the design and implementation of future smoking cessation interventions to help more smokers successfully quit.

health. Article 14, a key element of the FCTC details the importance of implementing tobacco-dependence treatment measures in the healthcare setting ([World Health Organization, 2013](#)).

The WHO has recommended that all countries should focus on implementing evidence-based measures proven to reduce tobacco use ([World Health Organization, 2021b](#)). Investing in proven evidence-based smoking cessation interventions can help smokers successfully quit, protecting them from the harms of tobacco and thereby saving lives ([World Health Organization, 2021a, 2021b](#)). Current evidence-based interventions—that is ‘programmes, practices, and policies that researchers and others have demonstrated to be effective at improving targeted outcomes’ ([Leeman et al., 2017](#))—for smoking cessation include behavioural treatments (e.g. counselling ([Aveyard et al., 2012](#); [Patnode et al., 2015](#)), quitlines ([Matkin et al., 2019](#)), web-based support services ([Do et al., 2018](#)), etc.) and pharmacotherapy ([Aveyard and Raw, 2012](#); [Ghamri, 2018](#); [U.S. Department of Health and Human Services, 2020](#)). These interventions have demonstrated their effectiveness in helping people quit smoking when used on their own, and even greater smoking cessation success when pharmacotherapy and behavioural support are used in combination ([Stead et al., 2016](#)).

Despite the availability of evidence-based smoking treatments, there exists a gap between what is known to work and what is routinely followed in the real world ([Van Rossem et al., 2015](#); [Shelton and Lee, 2019](#)). The implementation of effective measures to help tobacco users quit has been slow ([Nilan et al., 2017](#)) and delivery of these evidence-based treatments is often suboptimal ([Papadakis et al., 2013, 2014](#); [Van Rossem et al., 2015](#); [Geletko et al., 2022](#)). Consequently, smokers, many

of whom want to quit ([Babb et al., 2017](#)), underutilize the existing smoking cessation treatments available to them ([Cokkinides et al., 2005](#)), preferring to quit unassisted, or to discontinue the use of cessation treatments prematurely ([Papadakis et al., 2020b](#)). While many smokers quit unassisted ([Soulikova and Crockett, 2016](#)), most tobacco-dependent smokers will be unable to quit without treatment ([Van Schayck et al., 2017](#)). Investing in the reach, appeal and use of evidence-based cessation treatments has the potential to help these smokers quit ([Orleans, 2007](#)).

While the FCTC recommends smoking cessation support and treatment should be provided in all healthcare settings ([World Health Organization, 2013](#)), this review will focus on community healthcare settings. Both developing and developed countries are being encouraged to reorient their health systems from hospital-centred services to community-based care ([Rosen et al., 2010](#)). Where the focus of community healthcare is on care in the home and neighbourhood ([Lankester, 2019](#)). Understanding the barriers to smoking interventions from all stakeholders in these settings can help inform the effective delivery of evidence-based smoking cessation interventions and subsequent cessation success ([Twyman et al., 2014](#); [U.S. Department of Health and Human Services, 2020](#)).

One approach to better understand the barriers to smoking interventions and achieve effective delivery of these interventions is the use of a theoretical model ([Mathijssen et al., 2023](#)). The Capability, Opportunity, Motivation-Behaviour (COM-B) model can be used to understand behaviour and develop interventions that aim to change behaviour. The components of the COM-B model include capability (psychological and physical capacity, knowledge and skills), opportunity (external factors, physical and social opportunity) and motivation (internal processes, emotional responding, analytical decision-making) ([Michie et al., 2011](#)). Using this model enables appropriate targets to be identified for effective interventions ([Atkins and Michie, 2015](#)).

A preliminary search for existing scoping reviews on barriers to smoking interventions in community healthcare settings conducted in the Web of Science, CINAHL, Ovid MEDLINE, PsycINFO, Cochrane and Scopus online databases did not locate any existing scoping reviews on this topic. This scoping review aims to address this gap and provide a comprehensive synthesis of the available literature on current barriers to smoking interventions in community healthcare settings.

The primary research question for this scoping review was: What barriers exist to implementing evidence-based smoking cessation interventions in community healthcare settings? The research subquestions include:

1. What barriers do smokers experience when accessing smoking cessation services?
2. What barriers do service providers experience when providing smoking cessation services?
3. What barriers do the policymakers experience or observe when designing and implementing smoking cessation services?

## METHODOLOGY AND METHODS

### Search strategy and search terms

This scoping review was guided by the Joanna Briggs Institute (JBI) Methodology for Scoping Reviews (Peters *et al.*, 2015). A systematic search of the literature occurred between March and July 2022, employing the three-step search strategy outlined in the JBI Reviewers Manual for Scoping Reviews (Peters *et al.*, 2015). In step one, an initial limited search in two online databases (Web of Science and MEDLINE (via PubMed)) was performed to assess the relevance of the retrieved records. Analysis of this pilot search resulted in the refinement of the search terms, search strategy and inclusion and exclusion criteria. A second search using the refined search terms and search strategy was conducted across five databases: CINAHL, Ovid MEDLINE, PsycINFO, Scopus and Web of Science. The third and final step involved screening the reference lists of all included articles to identify any additional relevant articles.

The research team (C.C., S.G.F. and R.N.) used a modified Population, Concept and Context framework to inform and refine the search terms (Table 1). The population was defined as smokers, who burn tobacco so they can breathe it in or taste the smoke (Department of Health and Aged Care, 2019). The first concept was evidence-based smoking interventions, the second concept was barriers to evidence-based smoking interventions and the context was community healthcare settings, defined as any setting where the smoker can easily access evidence-based healthcare, including primary healthcare centres, community venues, a quitline and the smoker's own home. The absence of a community healthcare settings definition in the literature, necessitated our definition, with Palmer *et al.* (2018) informing our context search terms.

### Inclusion and exclusion criteria

All relevant papers, published within the last 7 years to achieve a contemporary perspective, which focused on barriers to evidence-based smoking cessation interventions from a smoker, service provider or policy maker's experience were considered for inclusion. Selection was not limited by age group, given that there are benefits to stopping smoking at any age (U.S. Department of

Health and Human Services, 2020). This review included tobacco smoking only, as there are significantly more published studies looking at these interventions, and the effectiveness of interventions that target vaporized nicotine products (e.g. e-cigarettes and vaping) is still emerging (Sanchez *et al.*, 2021). Articles were excluded if the smoking cessation intervention was delivered outside of the home or neighbourhood, or in a setting that was not easily accessible by the general public, these included hospital and research settings, as well as a smoker's workplace. A comprehensive inclusion and exclusion criteria is included in Table 2.

### Methods

A single researcher (C.C.) conducted the search saving the retrieved publications for analysis. After removing duplicates, the remaining records were imported into Covidence (2022), a systematic review software application, where two reviewers (C.C. and R.N.) independently screened at the title and abstract level and then reviewed in full text, using the inclusion/exclusion criteria. Any conflicts regarding the eligibility of the studies were resolved by consensus between the two reviewers. The reference lists of the 30 included studies were searched for additional records. The additional records identified were read in full text by both reviewers before being added to the final retained records.

### Data extraction and analysis

A data extraction table was developed by the research team. The following information was manually extracted by one researcher (C.C.) and recorded in a summary table (Supplementary File S1): author, publication year, country of origin, study design and smoking cessation intervention (type, description, intensity, setting and provider). Data relevant to the primary research question and subquestions were also identified and extracted from the included studies, specifically the barriers to smoking cessation interventions. These data were collated according to the barriers identified by smokers, service providers and policymakers.

Inductive content analysis (Kygäs, 2020; Vears and Gillam, 2022), a method of qualitative data analysis used when research outcomes are intended to inform practical answers or applications (Vears and Gillam, 2022), was performed by one researcher (C.C.). The stages of content analysis included: (i) the decontextualization, (ii) the recontextualization, (iii) the categorization and (iv) the compilation, as outlined by Bengtsson (2016). This process was documented using memo writing to record thoughts, ideas and reflections (Wong *et al.*, 2017). Consistent with scoping review methodology, quality assessment of individual papers was not completed (Peters *et al.*, 2015). No barriers were deleted, all were retained.

**Table 1:** Summary of search terms

|                  | Search term 1<br>(population)   | Search term 2<br>(concept 1)                        | Search term 3<br>(concept 2) | Search term 4<br>(context) |
|------------------|---------------------------------|-----------------------------------------------------|------------------------------|----------------------------|
| Boolean operator | AND                             |                                                     |                              |                            |
| OR               | Smoke*                          | Smoking intervention*                               | Barrier*                     | Community based            |
|                  | Cigarette*                      | Nicotine replacement therapy                        | Obstacle*                    | Community clinic           |
|                  | Nicotine Cigar*                 | NRT                                                 | Difficult*                   | Community facility         |
|                  | Large cigar*                    | Combination NRT                                     | Obstruction                  | Community level            |
|                  | Cigarillo Little cigar          | Combination nicotine replacement therapy            | Opposition                   | Health care center         |
|                  |                                 |                                                     |                              | Health care centre         |
|                  |                                 |                                                     |                              | Health care clinic         |
|                  | Pipe*                           | Counselling                                         |                              | Health care practice       |
|                  | Hookah*                         | Counseling                                          |                              | Health care service        |
|                  | Water pipe*                     | Quitline                                            |                              | Health center              |
|                  | Rollies                         | Telephone counselling                               |                              | Health centre              |
|                  | Roll-your-own cigarette         | Telephone counseling                                |                              | Health clinic              |
|                  | Bidis                           | Strateg*                                            |                              | Health facility            |
|                  | Kreteks                         | Intervention*                                       |                              | Healthcare center          |
|                  |                                 | Treatment*                                          |                              | Healthcare centre          |
|                  |                                 | Tool*                                               |                              | Healthcare clinic          |
|                  |                                 | Smoking cessation                                   |                              | Healthcare facility        |
|                  |                                 | Behavioural support                                 |                              | Healthcare practice        |
|                  |                                 | Behavioral support                                  |                              | Healthcare service         |
|                  |                                 | Brief Advice                                        |                              | Primary health             |
|                  |                                 | Pharmacotherapy                                     |                              | Primary health care        |
|                  |                                 | Varenicline                                         |                              | Primary healthcare         |
|                  |                                 | Bupropion                                           |                              | Community care             |
|                  |                                 |                                                     |                              | Community health           |
|                  |                                 |                                                     |                              | Community health clinic    |
|                  | MeSH Term (Ovid MEDLINE only)   |                                                     |                              | Community healthcare       |
|                  | Smokers [MeSH]                  | Smoking cessation [MeSH]                            |                              | Community health care      |
|                  |                                 |                                                     |                              | Medical center             |
|                  | Subject Heading (PsycINFO only) |                                                     |                              | Medical centre             |
|                  | Nicotine [Subject Heading]      | Smoking cessation OR intervention [Subject Heading] |                              | General practice           |
|                  |                                 |                                                     |                              | Pharmacy                   |
|                  |                                 |                                                     |                              | Allied health              |
|                  | Subject Heading (CINAHL only)   |                                                     |                              | Telehealth                 |
|                  |                                 | Smoking cessation programs [Subject Heading]        |                              |                            |

\*The asterisk symbol is used to broaden search results and include various word endings.

Data analysis occurred: (i) within each group and (ii) across all three groups to identify common barriers. Barriers with similar content in each stakeholder group were organized into subthemes. Subthemes for each group were then synthesized into themes. The data abstraction process resulted in the identification of seven themes that were common to all stakeholders (smokers, service providers

and policymakers). These identified themes were then mapped to the appropriate COM-B element as described by [Michie and colleagues \(2011\)](#). Using the peer debriefing method ([Hadi and José Closs, 2016](#); [Creswell and Creswell, 2018](#)), this was reviewed by a second researcher (R.N.), followed by a discussion to help clarify interpretations and provide an additional perspective

**Table 2:** Inclusion and exclusion criteria for scoping review

| Inclusion criteria |                                                                                                                                                                                                 | Exclusion criteria |                                                                                                                                   |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| 1                  | Published between 2015 and 2022                                                                                                                                                                 | 1                  | >7 years since publication                                                                                                        |
| 2                  | Published and grey literature                                                                                                                                                                   | 2                  | Not written/published in English                                                                                                  |
| 3                  | Identified barriers to specific smoking interventions                                                                                                                                           | 3                  | The barriers described were referring to smoking cessation generally, not the barriers associated with the intervention           |
| 4                  | Conducted in any country                                                                                                                                                                        | 4                  | Not intervention specific                                                                                                         |
| 5                  | The primary focus of the service provided was smoking cessation                                                                                                                                 | 5                  | The focus of the study was on the success of the smoking intervention, rather than barriers to implementation                     |
| 6                  | Smoking cessation interventions that are evidence-based (NRT, bupropion, varenicline, behavioural support)                                                                                      | 6                  | Second-line or other pharmacotherapy options for smoking cessation (Nortriptyline, Clonidine, Cytisine, Nicotine Vaping Products) |
| 7                  | Smoking cessation intervention will include all age groups                                                                                                                                      | 7                  | Vaporized nicotine products (e.g. E-cigarettes)                                                                                   |
| 8                  | Tobacco smoking                                                                                                                                                                                 | 8                  | Delivery of the smoking intervention occurred within a research setting                                                           |
| 9                  | Full-text available                                                                                                                                                                             | 9                  | Delivery of the smoking intervention occurred within the smoker's workplace                                                       |
| 10                 | Delivery of the smoking intervention occurred within a community or healthcare setting (community pharmacy, general practice, dentist, quitline, school, health clinics, community house, etc.) | 10                 | Delivery of the smoking intervention occurred within a hospital inpatient or outpatient setting                                   |

## RESULTS

### Search results

Following the removal of duplicate records, 888 records were identified from the electronic database searching. These records were screened against the inclusion/exclusion criteria, 102 full-text articles were assessed for eligibility, 72 were excluded, with 30 studies retained. Of the 30, the reference lists were snowballed to identify 10 relevant papers. The final 40 articles that met the inclusion criteria were reviewed and analysed. The search results and review process are presented in the PRISMA flow diagram as recommended for scoping reviews (Page *et al.*, 2021; Figure 1).

### Study characteristics

The 40 articles selected for inclusion included the following study designs: qualitative study ( $n = 14$ ), randomized controlled trial ( $n = 11$ ), quantitative study ( $n = 3$ ), mixed methods study ( $n = 7$ ), cross-sectional study ( $n = 1$ ), cluster randomized step-wedge trial ( $n = 1$ ), cluster randomized parallel-group study ( $n = 1$ ), open-label trial ( $n = 1$ ) and quasi-experimental design ( $n = 1$ ).

These studies were conducted in 13 countries: United States ( $n = 16$ ), United Kingdom ( $n = 7$ ), Australia ( $n = 4$ ), Ireland ( $n = 3$ ), Qatar ( $n = 2$ ), Syria ( $n = 1$ ), Italy

( $n = 1$ ), Brazil ( $n = 1$ ), Mexico ( $n = 1$ ), Sweden ( $n = 1$ ), Greece ( $n = 1$ ), Canada ( $n = 1$ ) and Romania ( $n = 1$ ).

The community-based smoking interventions occurred more frequently in healthcare settings such as general practice, primary care, basic health units, family medicine centres and health clinics ( $n = 16$ ). Other interventions were delivered in community pharmacies ( $n = 5$ ), community health centres ( $n = 3$ ) or local community venues (e.g. resource centres, training venues, self-help centres) ( $n = 7$ ). While the remaining interventions were provided over the telephone (e.g. coaching or counselling calls, quitline, text messaging) ( $n = 6$ ), through a mobile stop smoking service ( $n = 1$ ), via telehealth ( $n = 1$ ), the internet ( $n = 1$ ) or in the smoker's home ( $n = 5$ ). Two studies did not specify the setting for the smoking cessation intervention.

Most tobacco treatment programmes delivered mixed interventions, where behavioural therapy strategies and pharmacotherapy were combined ( $n = 19$ ), behavioural therapy strategies were delivered with smoking cessation educational resources ( $n = 4$ ) or training sessions and quit smoking resources were offered to participants ( $n = 4$ ). Three of the included studies focused on individual cessation counselling ( $n = 3$ ), one study delivered a text messaging-based smoking cessation programme ( $n = 1$ ), while another provided very brief advice to patients following the 3A approach (Ask-Advise-Act)

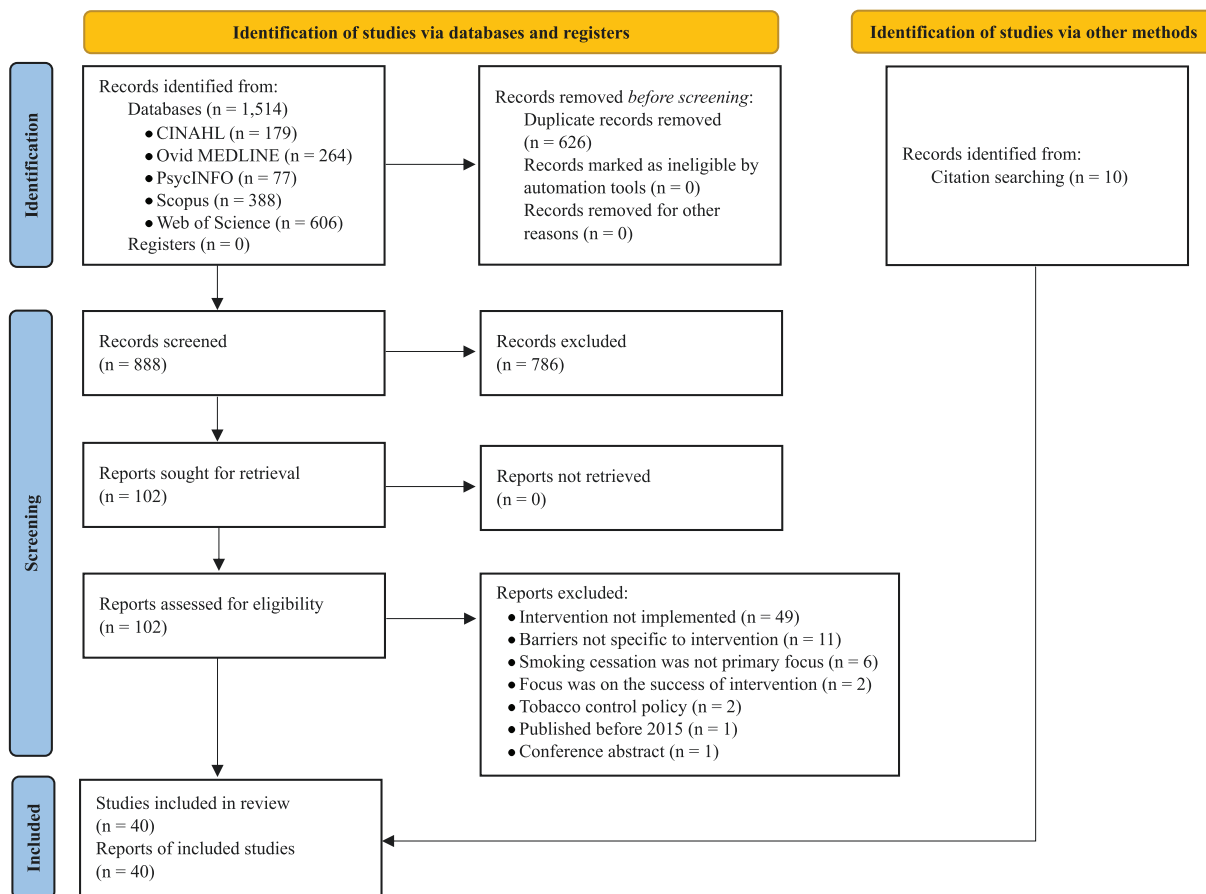


Fig. 1: PRISMA flow diagram for the scoping review process.

( $n = 1$ ). Group education programmes were delivered face-to-face either at a conference or at workshop sessions ( $n = 2$ ). Written material in the form of computer-tailored letters was sent to smokers ( $n = 3$ ) and an evidence-based tobacco decision tool to improve rates of ‘assisting’ smokers with a quit attempt in a family medicine clinic was developed for providers ( $n = 1$ ). The last two studies offered a facilitated quitline referral, prompting a quitline counsellor to contact the smoker ( $n = 2$ ).

Barriers to smoking interventions from a smoker’s perspective (Bains *et al.*, 2015; Griffin *et al.*, 2015; Selby *et al.*, 2015; Andrews *et al.*, 2016; Asfar *et al.*, 2016; Müssener *et al.*, 2016; El Hajj *et al.*, 2017, 2021; Estreet *et al.*, 2017; Gilbert *et al.*, 2017; Leon-Salas *et al.*, 2017; Mena *et al.*, 2017; Peterson *et al.*, 2017; Alexis-Garsee *et al.*, 2018; Claudio Pereira *et al.*, 2018; Rojewski *et al.*, 2018; Aschbrenner *et al.*, 2019; Askew *et al.*, 2019; Cupertino *et al.*, 2019; Kale *et al.*, 2019; Albert *et al.*, 2020; Lau *et al.*, 2020; Papadakis *et al.*, 2020a; Gao *et al.*, 2021; Joyce *et al.*, 2021; Darker *et al.*, 2022; Hayes *et al.*, 2022) were reported in 27 studies, 12

studies reported barriers to smoking interventions from a service provider’s perspective (Halcomb *et al.*, 2015; Selby *et al.*, 2015; Shen *et al.*, 2015; Sohanpal *et al.*, 2016; Caponnetto *et al.*, 2017; Estreet *et al.*, 2017; Steed *et al.*, 2017; Trofor *et al.*, 2018; Gould *et al.*, 2019; Bovill *et al.*, 2021; El Hajj *et al.*, 2021; Hayes *et al.*, 2022) and eight studies reported barriers experienced or observed by policymakers (Finch *et al.*, 2015; Neutze *et al.*, 2015; Andrews *et al.*, 2016; Asfar *et al.*, 2016; Madurasinghe *et al.*, 2017; Windsor *et al.*, 2017; Castello *et al.*, 2022; Hayes *et al.*, 2022). The list of barriers identified to smoking cessation interventions in these studies was extensive and is tabulated by subtheme according to the experiences of smokers (Supplementary File S2), service providers (Supplementary File S3) and policymakers (Supplementary File S4).

### Barriers identified by smokers to smoking cessation services

The content analysis of the barriers listed in this review by smokers led to the identification of 53 subthemes.

The most common subthemes were *change in circumstances, life stressors, priorities, schedules and difficulty attending scheduled sessions, availability, daily activities, work. Pharmacotherapy not offered, readily accessible, unavailable* was the next most cited subtheme, followed by *difficult access, transportation, availability*. The subtheme *not ready to quit, not interested, low motivation* was another main barrier for smokers to smoking cessation services.

### Barriers identified by service providers to smoking cessation services

Service providers were most concerned about the subtheme *time constraints, lack of time*, which was closely followed by *multiple competing demands, managing the workload*. These subthemes, along with the subtheme *budgetary challenges, remuneration, not financially reimbursed and relationship, communication and cultural barriers*, were identified by providers involved in the delivery of smoking cessation interventions and providers involved in training for the delivery of smoking cessation interventions. The most common subthemes specific to providers involved in the delivery of smoking cessation interventions were *difficulty initiating conversations, identifying, engaging, recruiting, motivating participants and following up with participants*.

### Barriers identified by policymakers to smoking cessation services

There were fewer papers that met our inclusion criteria and detailed barriers experienced or observed by policymakers to smoking cessation interventions. Despite the smaller representation, the barriers that were outlined by this group of stakeholders were diverse, with 31 subthemes identified. The most common subthemes were *timeline constraints, limited time; funding, budget constraints and staff/patient turnover*.

Furthermore, the content analysis identified that smokers, service providers and policymakers experience shared barriers to smoking cessation interventions. These common barriers have been synthesized into seven key themes and mapped to the corresponding components of the COM-B model (Table 3).

#### Capability

We identified one theme that influences the capability of smokers, service providers and policymakers to use smoking cessation interventions: literacy.

#### Opportunity

We identified five themes that influence the opportunity of smokers, service providers and policymakers to use smoking cessation interventions in community healthcare settings: (i) competing demands and priorities, (ii)

time, (iii) access to product, (iv) access to service and (v) workforce.

#### Motivation

We identified one theme that influences the motivation of smokers, service providers and policymakers to use evidence-based smoking cessation interventions: motivation/readiness.

## DISCUSSION

This scoping review provides insight into the many barriers that exist to implementing evidence-based smoking cessation interventions in community healthcare settings. We organized results into three categories to respond to the subquestions: What barriers do smokers experience when accessing smoking cessation services? What barriers do service providers experience when providing smoking cessation services? And what barriers do the policymakers experience or observe when designing and implementing smoking cessation services? The analysis of these results identified seven themes that were common to smokers, service providers and policymakers. These were: (i) literacy, (ii) competing demands and priorities, (iii) time, (iv) access to product, (v) access to service, (vi) workforce and (vii) motivation/readiness. These themes were then organized into the three components of the COM-B model, to identify the appropriate targets for effective interventions. The remainder of this section will examine these key themes and common barriers with the goal of informing future smoking cessation interventions.

#### Literacy

The literacy level of smoker participants receiving stop-smoking interventions was highlighted as a barrier to engagement (Darker *et al.*, 2022), recruitment (Castello *et al.*, 2022) and retention (Castello *et al.*, 2022; Hayes *et al.*, 2022) to stop-smoking interventions. Four of the five studies that cited low literacy as a barrier, offered group-based behavioural support programmes (Gao *et al.*, 2021; Castello *et al.*, 2022; Darker *et al.*, 2022; Hayes *et al.*, 2022), three of these also provided access to nicotine replacement therapy (Castello *et al.*, 2022; Darker *et al.*, 2022; Hayes *et al.*, 2022) and two offered additional tailored individual support (Gao *et al.*, 2021; Castello *et al.*, 2022). Most of these interventions were provided by community facilitators, either trained lay facilitators from the local community or community development and health staff (Castello *et al.*, 2022; Darker *et al.*, 2022; Hayes *et al.*, 2022). Despite community facilitators receiving specific training to respond to literacy needs (Darker *et al.*, 2022) and the adaptation of written materials for low literacy levels (Darker *et al.*,

**Table 3:** Key themes: barriers common to smokers, service providers and policymakers

| COM-B       | Theme                            | Smoker                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Provider (intervention delivery)                                                                                                                                                                  | Provider (intervention training)                                                                                                                                                                                                                                                        | Policy maker                                                                                                                                                                               |
|-------------|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Capability  | Literacy                         | Literacy/low educational level (Gao <i>et al.</i> , 2021; Darker <i>et al.</i> , 2022; Hayes <i>et al.</i> , 2022)<br>Readability/pitch of letter (Gilbert <i>et al.</i> , 2017)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Low literacy of the participants (Hayes <i>et al.</i> , 2022)                                                                                                                                     | N/A                                                                                                                                                                                                                                                                                     | Low literacy of the participants (Castello <i>et al.</i> , 2022)                                                                                                                           |
| Opportunity | Competing demands and priorities | Difficulty attending scheduled sessions/daily activities/work (Andrews <i>et al.</i> , 2016; ElHajj <i>et al.</i> , 2017, 2021; Mena <i>et al.</i> , 2017; Claudio Pereira <i>et al.</i> , 2018; Cupertino <i>et al.</i> , 2019; Kale <i>et al.</i> , 2019; Lau <i>et al.</i> , 2020; Papadakis <i>et al.</i> , 2020a; Hayes <i>et al.</i> , 2022)<br>Change in circumstances/life stressors/priorities/schedules (Bains <i>et al.</i> , 2015; Griffin <i>et al.</i> , 2015; Selby <i>et al.</i> , 2015; Andrews <i>et al.</i> , 2016; ElHajj <i>et al.</i> , 2017; Mena <i>et al.</i> , 2017; Rojewski <i>et al.</i> , 2018; Askew <i>et al.</i> , 2019; Albert <i>et al.</i> , 2020; Hayes <i>et al.</i> , 2022)<br>Busy with other activities (vacation/hobbies) (Peterson <i>et al.</i> , 2017)<br>Frequent travelling (ElHajj <i>et al.</i> , 2017)<br>Family issues/responsibilities (Papadakis <i>et al.</i> , 2020a; Hayes <i>et al.</i> , 2022)<br>Lack of childcare (Bains <i>et al.</i> , 2015; Estreet <i>et al.</i> , 2017) | Multiple competing demands/managing the workload (Halconb <i>et al.</i> , 2015; Sohanpal <i>et al.</i> , 2016; ElHajj <i>et al.</i> , 2021)<br>Other priorities (Sohanpal <i>et al.</i> , 2016)   | Multiple competing demands/managing the workload (Bovill <i>et al.</i> , 2021)<br>Other priorities (Caponnetto <i>et al.</i> , 2017)<br>Annual leave (Trofor <i>et al.</i> , 2018)                                                                                                      | Pharmacy is a business—selling and providing other services (Madurasinghe <i>et al.</i> , 2017)<br>Providers have multiple clinical/agency responsibilities (Windsor <i>et al.</i> , 2017) |
| Time        |                                  | Lack of time (Bains <i>et al.</i> , 2015; Claudio Pereira <i>et al.</i> , 2018; Kale <i>et al.</i> , 2019; Albert <i>et al.</i> , 2020; Papadakis <i>et al.</i> , 2020a)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Time constraints/lack of time (Halconb <i>et al.</i> , 2015; Shen <i>et al.</i> , 2015; Sohanpal <i>et al.</i> , 2016)<br>Inflexibility/duration of the programme (Sohanpal <i>et al.</i> , 2016) | Time constraints/lack of time (Caponnetto <i>et al.</i> , 2017; Gould <i>et al.</i> , 2019; Bovill <i>et al.</i> , 2021)<br>Lost clinic time/locum cover (Steed <i>et al.</i> , 2017; Gould <i>et al.</i> , 2019)<br>Too long (Trofor <i>et al.</i> , 2018; Gould <i>et al.</i> , 2019) | Timeline constraints/limited time (Andrews <i>et al.</i> , 2016; Windsor <i>et al.</i> , 2017; Castello <i>et al.</i> , 2022)<br>Implementation delays (Windsor <i>et al.</i> , 2017)      |



Table 3. Continued

| COM-B      | Theme                 | Smoker                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Provider (intervention delivery)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Provider (intervention training)                                                                                                                                             | Policy maker                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|------------|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|            | Access to product     | <p>Cost of pharmacotherapy/appointments (Rojewski <i>et al.</i>, 2018; Cupertino <i>et al.</i>, 2019; Papadakis <i>et al.</i>, 2020a)</p> <p>Pharmacotherapy not offered/readily accessible (Selby <i>et al.</i>, 2015; Asfar <i>et al.</i>, 2016; Leon-Salas <i>et al.</i>, 2017; Mena <i>et al.</i>, 2017; Lau <i>et al.</i>, 2020; Gao <i>et al.</i>, 2021)</p> <p>Obtaining a prescription for preferred pharmacotherapy (Selby <i>et al.</i>, 2015; Rojewski <i>et al.</i>, 2018; Darker <i>et al.</i>, 2022)</p> <p>Lost prescription/unable to access or print prescription (Selby <i>et al.</i>, 2015; Rojewski <i>et al.</i>, 2018)</p> <p>Completing necessary paperwork (Leon-Salas <i>et al.</i>, 2017)</p> | <p>Inadequate NRT stock to meet client demand (Sohanpal <i>et al.</i>, 2016)</p> <p>Free pharmacotherapy capped (Shen <i>et al.</i>, 2015)</p> <p>Prescriptions expired/not signed/not faxed (Selby <i>et al.</i>, 2015)</p> <p>Pharmacotherapy information not provided by physician, requiring additional counselling by pharmacist (Selby <i>et al.</i>, 2015)</p> <p>Contraindication to medication (Selby <i>et al.</i>, 2015)</p> <p>Varenicline licence for pharmacists to prescribe had been taken away (Sohanpal <i>et al.</i>, 2016)</p> | N/A                                                                                                                                                                          | <p>Cost and administrative barriers to access NRT (Castello <i>et al.</i>, 2022)</p> <p>Pharmacological agents used in tobacco treatment not registered for use in country (Asfar <i>et al.</i>, 2016)</p>                                                                                                                                                                                                                                              |
|            | Access to service     | <p>Difficult access/transportation (Estreet <i>et al.</i>, 2017; Claudio Pereira <i>et al.</i>, 2018; Cupertino <i>et al.</i>, 2019; Kale <i>et al.</i>, 2019; Papadakis <i>et al.</i>, 2020a; El Hajj <i>et al.</i>, 2021; Gao <i>et al.</i>, 2021)</p> <p>Unable/unwilling to contact doctor (Selby <i>et al.</i>, 2015; Rojewski <i>et al.</i>, 2018; Darker <i>et al.</i>, 2022)</p> <p>Process too difficult (Rojewski <i>et al.</i>, 2018)</p>                                                                                                                                                                                                                                                                    | <p>Lack of cooperation from some healthcare professionals (El Hajj <i>et al.</i>, 2021)</p> <p>Budgetary challenges/ remuneration/ not financially reimbursed (Sohanpal <i>et al.</i>, 2016; Estreet <i>et al.</i>, 2017)</p>                                                                                                                                                                                                                                                                                                                      | <p>Logistics of attending training sessions (Steed <i>et al.</i>, 2017)</p> <p>Budgetary challenges/ remuneration/not financially reimbursed (Gould <i>et al.</i>, 2019)</p> | <p>Logistical challenges (Asfar <i>et al.</i>, 2016)</p> <p>Inability to obtain local institutional review board approval (Finch <i>et al.</i>, 2015)</p> <p>Paying staff while they attend training and managing their cover (Madurasinghe <i>et al.</i>, 2017)</p> <p>Funding/budget constraints (Finch <i>et al.</i>, 2015; Castello <i>et al.</i>, 2022)</p> <p>Staff/patient turnover (Finch <i>et al.</i>, 2015; Windsor <i>et al.</i>, 2017)</p> |
|            | Workforce             | <p>High turnover of health providers who led the classes (Estreet <i>et al.</i>, 2017)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <p>Not enough staff (Caponnetto <i>et al.</i>, 2017)</p>                                                                                                                     | <p>Staff/patient turnover (Finch <i>et al.</i>, 2015; Windsor <i>et al.</i>, 2017)</p>                                                                                                                                                                                                                                                                                                                                                                  |
| Motivation | Motivation/ readiness | <p>Not ready to quit/not interested/low motivation (Griffin <i>et al.</i>, 2015; El Hajj <i>et al.</i>, 2017; Mena <i>et al.</i>, 2017; Alexis-Garsee <i>et al.</i>, 2018; Rojewski <i>et al.</i>, 2018; Kale <i>et al.</i>, 2019)</p> <p>Lack of personal willpower/being mentally ready (Peterson <i>et al.</i>, 2017; Papadakis <i>et al.</i>, 2020a)</p>                                                                                                                                                                                                                                                                                                                                                            | <p>Lack of patient motivation/ readiness to quit (Sohanpal <i>et al.</i>, 2016; El Hajj <i>et al.</i>, 2021)</p> <p>Difficulty initiating conversations/ identifying/engaging/recruiting/ motivating participants (Shen <i>et al.</i>, 2015; Sohanpal <i>et al.</i>, 2016; El Hajj <i>et al.</i>, 2021)</p>                                                                                                                                                                                                                                        | <p>Not motivated/interested/ incentivized (Trofor <i>et al.</i>, 2018; Gould <i>et al.</i>, 2019)</p>                                                                        | <p>Readiness of neighbourhoods (Andrews <i>et al.</i>, 2016)</p> <p>Participants not ready or able to quit (Castello <i>et al.</i>, 2022)</p>                                                                                                                                                                                                                                                                                                           |

2022; Hayes *et al.*, 2022), literacy challenges remained for the end users. Specific literacy barriers mentioned by service providers included difficulty reading instructions and completing assignments (Gao *et al.*, 2021), as well as the volume of papers and amount of writing required (Darker *et al.*, 2022). Some smokers and service providers, suggested that self-administered material should be avoided (Hayes *et al.*, 2022), and more support is required to assist smokers to complete forms and providers need more resources to respond to participants' literacy needs (Castello *et al.*, 2022). The simplification of forms and participant information leaflets was also recommended, as well as the production of short videos to reduce the amount of reading material (Castello *et al.*, 2022).

### Competing demands and priorities

The barriers most cited to smoking cessation interventions by all stakeholders related to competing demands and priorities. This encompassed stress, changes in life circumstances, work, family responsibilities, activities, busy schedules and other priorities. Albert *et al.* (2020) mentioned 'that stress from traumatic events or changing life circumstances made it difficult for many participants to begin or stick with the programme'. This finding was identified by smokers in community health centres (Albert *et al.*, 2020), a local community setting (Hayes *et al.*, 2022), indigenous primary health care services (Mena *et al.*, 2017; Askew *et al.*, 2019) and methadone maintenance clinics (Griffin *et al.*, 2015). Stress was also stated as the reason for smokers not acting on their general practitioner's very brief advice to quit smoking in general practice (Papadakis *et al.*, 2020a) and their inability to attend follow-up counselling sessions in the community pharmacy setting (El Hajj *et al.*, 2017).

Our study also revealed that family responsibilities prevented smokers from accessing services (Bains *et al.*, 2015; Estreet *et al.*, 2017; Cupertino *et al.*, 2019; Papadakis *et al.*, 2020a), work schedules impacted the ability of smokers to fully engage with available smoking cessation resources (Andrews *et al.*, 2016; Lau *et al.*, 2020) and smokers' activities and busy schedules impacted on the success of smoking cessation interventions (Selby *et al.*, 2015; Mena *et al.*, 2017; Peterson *et al.*, 2017; Claudio Pereira *et al.*, 2018). An already busy schedule for healthcare providers also proved challenging for the effective implementation of smoking cessation programmes in community settings (Halcomb *et al.*, 2015; Sohanpal *et al.*, 2016). Some healthcare providers reported they had other priorities to attend to, inhibiting the recruitment of smokers (Sohanpal *et al.*, 2016) and completion of smoking cessation programmes (Caponnetto *et al.*, 2017). These multiple personal and clinical factors should

be considered when implementing smoking cessation interventions in community settings.

### Time

The review found that time is a major barrier for advancing smoking cessation services. Smokers indicate that they lack the time to engage with quitline counselling (Albert *et al.*, 2020), attend mobile (Bains *et al.*, 2015) or local (Kale *et al.*, 2019) stop smoking services, adhere to a smoking cessation group at a basic health unit (Claudio Pereira *et al.*, 2018) or act on their general practitioner's very brief advice to quit smoking (Papadakis *et al.*, 2020a). Providers and health professionals also report a lack of time for the successful implementation of interventions (Halcomb *et al.*, 2015) and time constraints that make following-up participants in tobacco cessation programmes difficult (Shen *et al.*, 2015). In addition, practitioners highlighted needing more time for smoking cessation training, 'it takes time for us to participate and engage' (Steed *et al.*, 2017). It was noted by stop-smoking advisers that it also takes time for clients to quit (Sohanpal *et al.*, 2016). Similarly, it takes time to implement smoking cessation interventions in neighbourhoods (Andrews *et al.*, 2016) and to achieve community engagement (Castello *et al.*, 2022), which should be considered by policymakers. Some of these issues may be alleviated through better promotion of existing mHealth and eHealth resources—many of which have been found to be effective—and or the development of new, purpose-built tools (Whittaker *et al.*, 2019).

### Access to product

Several studies included in this review indicate that the cost or process required to access evidence-based pharmacotherapy for smoking cessation is a barrier to its use (Selby *et al.*, 2015; Leon-Salas *et al.*, 2017; Mena *et al.*, 2017; Rojewski *et al.*, 2018; Cupertino *et al.*, 2019; Lau *et al.*, 2020; Papadakis *et al.*, 2020a; Gao *et al.*, 2021; Darker *et al.*, 2022). Smokers reported not being able to afford nicotine replacement therapy (Mena *et al.*, 2017) and other smoking cessation medications (Cupertino *et al.*, 2019) due to the expense. In cases where pharmacotherapy was provided free of charge but required a prescription before being dispensed, the cost for seeing a primary care physician was reported as a barrier for not obtaining a prescription (Rojewski *et al.*, 2018). Where cost was not reported as a barrier, the additional step of going to a pharmacy to fill a prescription (Lau *et al.*, 2020), getting an available appointment to see their general practitioner (Darker *et al.*, 2022) or completing paperwork (Leon-Salas *et al.*, 2017) were all reasons provided for not commencing smoking cessation treatments. These findings clearly indicate that more

work needs to be done to improve the ease of access for smoking cessation medications.

Additional action required to fill a prescription has also been reported by pharmacists as a barrier to pharmacotherapy access for smokers (Selby *et al.*, 2015). Other studies cited licensing issues for pharmacists in some countries to prescribe varenicline (Sohanpal *et al.*, 2016), the inability to provide free pharmacotherapy beyond a capped amount (Shen *et al.*, 2015) as well as ‘other organisational factors such as inadequate stock of nicotine replacement products to meet client demand and having only one consultation room for cessation counselling that was often occupied’ (Sohanpal *et al.*, 2016). According to Asfar *et al.* (2016), ‘making these medications available in [*sic*] reasonable price is crucial in order to support smokers in their quitting’. Furthermore, removing the cost and administrative barriers to accessing pharmacotherapy would improve smoking cessation outcomes (Castello *et al.*, 2022).

### Access to service

Physical access to smoking cessation groups was identified by smokers as a barrier to adherence (Estreet *et al.*, 2017; Claudio Pereira *et al.*, 2018; Papadakis *et al.*, 2020a; El Hajj *et al.*, 2021) and the primary reason for attrition in group education on smoking cessation (Gao *et al.*, 2021). The lack of transportation (Estreet *et al.*, 2017; Gao *et al.*, 2021) and the distance required to travel to attend the smoking cessation service (El Hajj *et al.*, 2021) were the main concerns regarding access. Healthcare providers also expressed concerns about logistical issues, specifically providing care outside the clinical setting (Estreet *et al.*, 2017). The Syrian Centre for Tobacco Studies experienced several barriers to delivering tobacco treatment programmes in primary healthcare amidst civil war. Successful partnerships, adapting and becoming a virtual centre enabled the Syrian Centre for Tobacco Studies to continue to advance tobacco control science and capacity in the Eastern Mediterranean Region (Asfar *et al.*, 2016). Several strategies, such as those adopted by the Syrian Centre for Tobacco Studies, may help overcome challenges in the environment.

### Workforce

The movement of health providers and inadequate staff resourcing was considered a barrier to community smoking cessation interventions. The high turnover of health providers raised concerns for smokers attending group-based counselling sessions (Estreet *et al.*, 2017) and created implementation challenges for smokers receiving individual home-based, smoking cessation (Windsor *et al.*, 2017). Challenges in implementation

were also documented in community pharmacies, where projects were not completed because ‘they did not have enough staff dedicated to the project’ (Caponnetto *et al.*, 2017). Other community healthcare settings (e.g. primary care practices) simply chose not to be included in interventions due to staff turnover (Finch *et al.*, 2015). The inclusion of committed service providers in smoking cessation interventions has been recommended for community-based programmes (van Straaten *et al.*, 2020).

### Motivation/Readiness

The motivation of smokers to quit emerged as a barrier to smoking cessation programmes in this scoping review. For example, smokers with ‘low intrinsic motivation was the primary reason provided for low participation in coaching calls’ (Mena *et al.*, 2017). While in a pharmacist-delivered smoking cessation programme, a lack of motivation to quit was provided as the second most stated reason for not stopping smoking (El Hajj *et al.*, 2017). Additionally, pharmacists found it difficult to initiate discussions, motivate and follow-up patients who were not motivated to quit (El Hajj *et al.*, 2021). This finding is similar to a study performed in a community pharmacy by Sohanpal *et al.* (2016), where advisors mentioned that ‘engaging with smokers and motivating clients who enjoyed smoking or who were not interested in quitting was a challenge to programme recruitment and retention’. This same study also found that many advisers for the stop smoking programme, only selected and recruited smokers who were ready to quit, as these smokers were less likely to drop out (Sohanpal *et al.*, 2016). Participants’ typical reason for dropout in a community-based, peer-delivered smoking cessation intervention, as discussed by stakeholders at a knowledge exchange workshop, included feelings of not being ready to quit (Castello *et al.*, 2022). According to Mena *et al.* (2017), however, steps can be taken to recruit and engage smokers who are not motivated to quit. ‘We recommend that providers consider participant preferences which may include a focus on person-centred communication and the importance of interpersonally sensitive behaviours including empathy and nonjudgmental attitudes. Considering individual readiness... is also recommended’ (Mena *et al.*, 2017).

We believe the findings of this scoping review have implications for planning and implementing evidence-based smoking cessation interventions, in policy and in practice. By asking the question, ‘what barriers exist to implementing evidence-based smoking cessation interventions in community healthcare settings?’ we have provided unique insight into the barriers that are common for smokers, service providers and policymakers. Knowledge of these common barriers provide efficient solutions for service providers,

researchers and policymakers locally, nationally and internationally and should be considered in all future smoking cessation programme implementation efforts.

### Limitations

The purpose of this scoping review was to source all existing published and grey literature. A limitation of this study, however, was the lack of grey literature searched. We also recognize sources may have been omitted as we excluded articles that were not written/published in English and published before 2015. Additionally, the studies in the review are from a range of countries with differing levels of tobacco control policy maturity, which may make the generalisability of findings difficult. Similarly, the range of evidence-based cessation interventions used in the studies under review (e.g. calling a toll-free quitline versus attending face-to-face clinic), may make comparing barriers a challenge. We also focused on barriers to smoking cessation interventions to narrow the scope of our review, which may be identified as a limitation and influence whether the implementation of future smoking cessation interventions is successful. Another limitation of this review was the content analysis approach being completed by a single reviewer, with the second reviewer contributing only to the late stages of the analysis. Furthermore, a formal assessment of the methodological quality of the included studies was not performed as it was not otherwise specified, which may limit implications for practice (Peters *et al.*, 2015).

### Future directions

Future research must address the barriers experienced by smokers, service providers and policymakers to inform interventions to support quit attempts. The most value will be gained by designing smoking cessation interventions that are considerate of the seven key themes identified: literacy, competing demands and priorities, time, access to product, access to service, workforce and motivation/readiness. Interventions need targeted strategies to promote smoking cessation services within the community (Claudio Pereira *et al.*, 2018; Kale *et al.*, 2019). The needs of individuals should be met (Peterson *et al.*, 2017; Claudio Pereira *et al.*, 2018) by tailoring the services to personal situations (Mena *et al.*, 2017) and providing greater support such as access to transportation, more available times (Claudio Pereira *et al.*, 2018) and identifying alternative access to pharmacotherapy for smokers wanting to quit (Leon-Salas *et al.*, 2017). Smoking cessation service providers require additional training to ensure they can respond appropriately to smokers with low literacy (Hayes *et al.*, 2022), provide education on the benefits of cessation (Rojewski *et al.*, 2018), or broaden the workforce trained in smoking cessation (Madurasinghe *et al.*, 2017; Steed *et al.*, 2017). Services

also need to be integrated into practice management systems (Halcomb *et al.*, 2015) and more research is needed to understand in detail, the effects of remuneration structures on healthcare providers (Sohanpal *et al.*, 2016) to strengthen smoking cessation services.

## CONCLUSION

This scoping review sought to determine the barriers that exist to implementing evidence-based smoking cessation interventions in community healthcare settings. The review provides the first-known compilation of barriers that hinder the effective implementation of evidence-based smoking interventions from a smoker, service provider as well as a policy maker perspective. The contemporary data reveal seven key themes with common barriers that exist to evidence-based smoking cessation interventions for these stakeholders. These key themes have been shown to relate to the three components of the COM-B model. Further research should focus on these shared barriers to optimize smoking cessation interventions for smokers, service providers and policymakers. Furthermore, future interventions should be designed in such a way that mitigate or respond flexibly to these barriers, to help more smokers to successfully quit.

## SUPPLEMENTARY MATERIAL

Supplementary material is available at *Health Promotion International* online.

## AUTHOR CONTRIBUTIONS

C.C., S.G.F. and R.N. contributed to the study conceptualization and design. C.C. and R.N. participated in the analysis and interpretation of the data. C.C. prepared the first draft of the manuscript. S.G.F. and R.N. supervised the process, reviewed and commented comprehensively on the manuscript. All authors have read and approved the submitted manuscript.

## CONFLICT OF INTEREST STATEMENT

S.G.F. has provided expert advice to various pharmaceutical companies and has received researcher-initiated project grant funding (through the GRAND initiative) and travel funds from Pfizer. These companies are not involved in the current study. All other authors of this article declare they have no conflicts of interest.

## DATA AVAILABILITY STATEMENT

The data underlying this article are available in the article and in its online supplementary material.

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