This is a repository copy of *A systematic review of mental health professionals, patients and carers' perceived barriers and enablers to supporting smoking cessation in mental health settings*.

A systematic review of mental health professionals, patients and carers' perceived barriers and enablers to supporting smoking cessation in mental health settings

Lisa Huddlestone, PhD[1], Emily Shoesmith, PhD [1], Jodi Pervin, BSc [1], Fabiana Lorencatto, PhD [2], Jude Watson, PhD[1], Elena Ratschen, PhD [1]

[1] Department of Health Sciences, University of York, York.

[2] Centre for Behaviour Change, University College London, London, UK.

Corresponding author:

Emily Shoesmith, PhD

emily.shoesmith@york.ac.uk

Department of Health Sciences

Faculty of Sciences

University of York

Heslington

Y010 5DD

1

ABSTRACT

Introduction: Evidence-based smoking cessation and temporary abstinence interventions to address smoking in mental health settings are available, but the impact of these interventions is limited. Therefore, this review aimed to identify and synthesise the perceived barriers and enablers to supporting smoking cessation in mental health settings.

Method: Six databases were searched for articles reporting the investigation of perceived barriers and enablers to supporting smoking cessation in mental health settings. Data were extracted and coded using a mixed inductive/deductive method to the Theoretical Domains Framework (TDF), Key barriers and enablers were identified through the combining of coding frequency, elaboration, and expressed importance.

Results: Of thirty-one included articles, 56 barriers/enablers were reported from the perspectives of mental healthcare professionals (MHPs), 48 from patient perspectives, 21 from mixed perspectives, and 0 from relatives/carers. Barriers to supporting smoking cessation or temporary abstinence in mental health settings mainly fell within the domains: environmental context and resources (e.g. MHPs lack of time); knowledge (e.g. interactions around smoking that did occur were ill-informed); social influences (e.g. smoking norms within social network), and intentions (e.g. MHPs lack positive intentions to deliver support). Enablers mainly fell within the domains: environmental context and resources (e.g. use of appropriate support materials) and social influences (e.g. pro-quitting social norms).

Conclusion: The importance of overcoming competing demands on staff time and resources, the inclusion of tailored, personalised support, the exploitation of patients wider social support networks, and enhancing knowledge and awareness around the benefits smoking cessation is highlighted.

IMPLICATIONS

Identified barriers and enablers represent targets for future interventions to improve the support of smoking cessation in mental health settings. Future research needs to examine the perceptions of the carers and family/friends of patients in relation to the smoking behaviour change support delivered to patients.

INTRODUCTION

There are substantial inequalities in morbidity and premature mortality between individuals with mental health problems and those without [1]. One of the largest contributory factors to early mortality in this population is smoking [2]. Among individuals with a common mental health condition in England, smoking prevalence is over 50% [3], compared to 14% in the general population [4], and this difference increases further for more severe mental health conditions [5].

While the number of smokers in the general population has been steadily declining over recent decades [6], the number of people with mental health conditions who smoke have not been declining at the same rate [7]. Those with mental health conditions are more likely to display patterns of heavy smoking [3,5,8], greater dependence on nicotine, and more severe withdrawal symptoms when quitting, and lower quite rates [9-12]. Previous research has estimated the percentage of smokers with mental health conditions vary dependent on setting, but can reach up to 70% of inpatients smoking [13,14]. Yet, smokers with mental health conditions are equally, or more motivated to quit smoking than those without mental health conditions [15]. However, they are less likely to receive support compared with the general population [16]. There are many reasons for this, including the smoking culture within mental health services [16,17], often driven by misconceptions, for example, relating to the 'therapeutic' function of smoking in this population [18].

Despite this, the World Health Organisation recommends that all healthcare facilities are smokefree, a policy that is increasingly being adopted internationally [19]. However, the health care system and the respective development and implementation of tobacco control policies can vary substantially across countries [20]. These differences may present various contextual, political, and economic barriers that may impact on the success of quitting behaviours that require separate consideration. For example, economic barriers may limit

4

the potential to implement evidence-based smoking cessation interventions in healthcare settings [21], and there is a wide variation in the provision of smoking cessation advice offered by healthcare professionals dependent on setting [22]. Help-seeking behaviour may also differ by setting and influence smoking-related outcomes. Previous literature has reported individuals living in higher-income countries were more likely to seek advice from a healthcare professional to quit, and have higher use of quit smoking medications, compared to those in low- and middle-income countries [22]. As such, there are considerable differences between settings in regard to quitting behaviours and type of support used. Such variation reflects the differences in tobacco control implementation, the capacity of the country and the priority given to specific policies (for example, regulatory measures and the provision of cessation support) [22].

Regardless of setting, the evidence base reports that there are factors that can influence the success of quitting behaviours among vulnerable groups [23,24]. Within health behaviour literature, factors that hinder an individual from making a health behaviour change have been referred to as barriers, and factors that facilitate an individual to make a change are referred to as enablers. Barriers and enablers can be conceptualised as either individual or structural psychosocial factors [25]. Individual factors refer to subjective experience, and can be non-modifiable (e.g. age, ethnicity, nicotine dependence), whilst others are modifiable and thus, potentially amenable to intervention (e.g. plans to not smoke or a desire to quit) [26]. Structural factors include organisations and the relationship between these organisations and individuals. Likewise, some are non-modifiable (e.g. pharmacist's behavioural control of reconciling medications) [27], whilst others are modifiable (e.g. accessibility to smoking cessation interventions) [28].

Despite a growing evidence base in relation to barriers and enablers to the implementation of behaviour change interventions by healthcare professionals' [29], there remains a lack of focus on those factors that are shared across professional groups [30]. Given this limitation, it

5

is important to differentiate between the role that individuals involved in the delivering and receiving of smoking cessation interventions may play. For example, clinical staff are likely to be involved in the implementation and delivery of the intervention, and thus, the perceived lack of time is a frequently reported barrier [31,32], whereas non-clinical staff may report barriers at the commissioning and policy level (e.g. lack of adequate information on the cost, volume and quality of healthcare services) [33].

In addition to individual and organisational factors, barriers and enablers may also be conceptualised as socially influenced. For example, the family is an influential context in which smoking behaviour occurs [34]. Such social networks may play an important role in the individual's quit attempt, since cohabitants smoking status is a known major determinant for adult smoking behaviour change [35,36]. Indeed, previous research reports cases of family members actively discouraging quit attempts by people with mental illness, as well as encouraging the maintenance of smoking due to concerns about cessation adversely impacting the individual's mental health [37] or because smoking was perceived to be the individual's only source of enjoyment [38]. However, and somewhat paradoxically, research also reports that family relationships are a prime motivator to quit [38], indicating that family may also be a crucial enabler for smoking cessation.

Understanding these perceived barriers and enablers to quitting is important in order to facilitate our understanding of smoking, relapse and quitting-related behaviours, to inform appropriate policy, and to facilitate the development of more effective tailored smoking cessation interventions. Furthermore, due to the increased prevalence and overall reduced rates of successful cessation success among those with mental health conditions [9-12], a need identify the barriers and enablers to quitting smoking in mental health settings from the perspective of people with mental illness and mental health professionals and those providing mental health services is required.

6

Effective behaviour change interventions require an understanding of the broader context of the problem (e.g. the social and environmental context, and non-contextual influences on behaviour such as knowledge consequences and motivation) [39]. The Theoretical Domains Framework (TDF) is an integrative theoretical model that synthesises main behaviour change constructs across key theories into 14 domains, such as knowledge or goals [40]. The TDF is helpful for investigating implementation barriers and enablers, and provides a useful conceptual basis for assessing implementation problems, designing interventions to enhance healthcare practice, and understanding behaviour change processes [29].

Therefore, the aim of this systematic review was to identify and synthesise the evidence relating to the barriers and enablers that influence smoking abstinence, and the delivery of smoking cessation or temporary abstinence interventions in mental health settings from the perspective of those delivering and receiving such interventions. Specifically, the research questions are:

1. What are the modifiable barriers and enablers that influence smoking cessation or temporary abstinence for patients in mental health settings?
2. What are the modifiable barriers and enablers that influence the delivery of smoking cessation or temporary abstinence interventions for mental health professionals (MHPs) in mental health settings?
3. What are the modifiable barriers and enablers that influence the support of smoking cessation for relatives/carers in mental health settings?

METHODS

Search strategy

The systematic review was conducted in accordance with PRISMA guidelines and registered on PROSPERO (CRD42020193125).

Searches were conducted in four bibliographic databases (MEDLINE, EMBASE, PsycInfo, CINAHL), as well as the Cochrane Central Register of Clinical Trials, and the UK Clinical Research Network Portfolio database. The search strategy included search terms relating to the population (e.g. inpatients, mental health nurses, relatives/carers), intervention (smoking cessation or temporary abstinence), outcome (e.g. barriers, enablers), and relevant settings (e.g. mental health services). Supplementary Table 1 provides details of the search terms. Searches were limited to papers published in English, and from 1990 onwards due to pharmacological, behavioural and other counselling approaches not being widely available prior to 1990 [41].

Inclusion and exclusion criteria

Article inclusion were based on the population, intervention, comparator, outcome (PICO) method for eligibility, shown in Table 1. Articles utilising quantitative experimental (including randomised control trials (RCTs)) or observational methods, qualitative methods, or mixed-methods were eligible for inclusion. Systematic reviews, conference papers, or those articles that were not original research were excluded.

Data screening

Endnote X9 was used to record publications at all stages of the selection process. After removal of duplicates, two members of the research team (LH and ES) independently screened all identified titles and abstracts against the inclusion and exclusion criteria to ensure consensus. A third author (JP) re-screened 100 titles and abstracts to ensure reliability. Where disagreements arose, these were settled by discussion. Where exclusion could not be determined from the abstract, articles were included for full-text review. Full-text copies of potentially eligible studies were obtained and a final decision was made on inclusion by consensus amongst the review team.

Data extraction

Data were extracted using a customised spreadsheet by three authors (LH, ES, JP). The extracted study characteristics were country, research design, methods, setting (inpatient, outpatient, community), participants, and target behaviour (smoking cessation or temporary abstinence for patients; delivering smoking cessation support for MHPs). Authors identified and extracted quantitative and qualitative data reporting perceived barriers and enablers associated with target behaviours.

Quality assessment

Article quality was assessed using the Mixed Methods Appraisal Tool (MMAT) [42]. Two authors (ES and JP) rated independently rated included studies, and a third author (LH) independently assessed a random sample of 11 (35%) studies. Minor differences in opinion relating to the quality of studies were resolved through discussion.

Data analysis

In order to identify and understand the context of barriers and enablers to smoking behaviour change, the Theoretical Domains Framework (TDF) was utilised. The approach to data analysis followed the combined three-step method reported by Graham-Rowe et al. [43], in which content and framework analysis approaches are combined:

1. Deductive content analysis was conducted by coding the extracted data to the TDF. Two authors (LH and ES) coded the extracted data from all studies according to which domain they were judged to best represent. For example, the extracted data point 'barriers that were notably endorsed by psychiatrists were 'lack of time (49%)' [44] would be coded to the domain 'environmental context and resources', and 'social norms, attitudes and behaviours toward smoking as an undesirable social behaviour helped some participants in the quitting process' [45] would be coded to the domain 'social influences'. Coding was guided by the definitions of the TDF domains outlined by Cane et al. [40] Three authors (LH, ES, JP) reviewed and verified each coded item.

2. Inductive thematic synthesis was conducted to combine similar data points coded to the same domain, and inductively generating a summary theme label and corresponding sub-themes. Coding was conducted independently by two authors (LH and ES), with discussion to identify consistency in the development of themes and sub-themes. Discrepancies between coders were resolved through discussion with a third author (JP). Themes were then categorised as either a barrier, enabler or mixed influence, and as relating to the perception of patient, carer, family member, friend, MHP, or organisation.

3. Key barriers and enablers were then identified by ranking TDF domains in terms of importance using established criteria [46]: (1) frequency (number of studies that

identified each domain); (2) elaboration (number of thematic sub-themes and themes) within each domain, and (3) expressed importance (a statement from the authors' discussion or direct quotations from the study participants expressing importance). The frequencies from each of the three categories were combined and a median frequency with standard deviation was calculated. TDF domains exceeding this calculated mean frequency were considered as being of importance.

RESULTS

Description of studies

Database searches yielded a total of 11,445 articles. After the removal of duplicates and screening of titles, abstracts, and full-text articles, 31 papers were included in the review [31,44,45,47-74] (Figure 1).

Fourteen studies were observational quantitative studies, eight utilised a qualitative methodology, six were RCTs, and three adopted a mixed-methods design. A total of 8,626 participants were recruited across 30 of the included studies, with one quantitative study not reporting a sample size [69]. Most studies were conducted in community mental health settings (n = 12), followed by inpatient settings (n = 9), and outpatient clinics (n = 5). A number of studies gathered data in mixed mental health settings (n = 5). Seventeen studies recruited only patients, seven studies recruited a range of clinical and non-clinical MHPs, five included both patients and MHPs, and two obtained the perceptions of mental health

11

service managers and directors). Studies recruiting carers, family members, or friends of individuals with mental health problems could not be identified. Full study characteristics are presented in Supplementary Table 2.

Quality assessment

All studies clearly stated their research questions or research objectives. The majority provided the requisite information required by the MMAT. Those which lacked the required information included four RCTs, where it was not possible to ascertain the appropriateness of randomisation [73] and blinding procedures [48,51,59,73], and three quantitative descriptive studies lacked sufficient information to assess the risk of non-response bias [61,62,69]. All studies used established methods that were appropriate to answer the research questions. Full detail of the included studies is provided in Supplementary Table 3.

Frequency of identified barriers and enablers to the delivery and receipt of smoking behaviour change interventions

A total of 75 barriers and 50 enablers were identified across the included articles. Fifty-six barriers and enablers were elucidated from the perspectives of MHPs or organisations (44 barriers; 12 enablers), and forty-eight from the perspective of patients (17 barriers; 31 enablers). Twenty-one were from a mixed (patient/MHP/organisational) perspectives (14 barriers; 7 enablers).

Barriers and enablers were identified across 13 of the 14 TDF domains. The majority of these fell within the domains environmental context and resources (n = 20 barriers; 9 enablers); knowledge (n = 15 barriers; 5 enablers); intentions (n = 10 barriers; 5 enablers), and social influences (n = 7 barriers; 7 enablers).

12

Supplementary Table 4 presents the themes inductively generated for each TDF domain, organised by perspective (patient, MHP, organisation, mixed), and influence (barrier, enabler, mixed). Supplementary Table 5 also presents all the themes and sub-themes generated in the 13 identified domains of the TDF, organised by perspective (patient, MHP, organisation, mixed), and influence (barrier, enabler, mixed).

Identification of important TDF domains

Frequency of coding to domains

Data were coded most frequently to the domains of: environmental context and resources (n = 16 articles); knowledge (n = 12 articles); social influences (n = 10 articles); intentions (n = 9 articles); beliefs about capabilities (n = 8 articles), and emotion (n = 7 articles).

Level of elaboration

The level of elaboration was calculated from the number of themes and sub-themes generated within each domain identified in the inductive analysis. Environmental context and resources had the highest number of themes (n = 3) and sub-themes (n = 23), followed by intentions and emotion (n = 2 themes; 9 sub-themes in each domain), and social influences and knowledge (n = 2 themes; 8 sub-themes in each domain)

Importance expressed by study authors

Fifteen authors interpreted study findings as identifying important influences. Important domains were: environmental context and resources (15 items in 16 studies); knowledge (9 items in 12 studies); social influences (10 items in 10 studies); intentions (8 items in 9 studies), and emotion (7 items in 7 studies).

13

Ranking criteria convergence

Domains ranked according to the importance criteria of frequency, elaboration and expressed importance are presented in Figure 2. Accordingly, the most important domains were: environmental context and resources, knowledge, social influences, intentions and emotion. These are summarised narratively below.

Environmental context and resources

Overall, environmental context and resources appeared to have a mixed influence on the delivery and receipt of interventions to support smoking cessation or temporary abstinence following discharge from a mental health setting. The theme 'integration of services' related to the organisation and cooperation within and between mental health and other health services, and was reported by both patients, MHPs and organisations. For many of these participants, 'integration of services' identified barriers concerning the absence or cohesion of referral and smoking cessation support pathways, and the availability of resources [31,44,47,63].

The theme of 'presence or absence of available support' related to the availability and accessibility of a range of preference-based support, and the materials and format of the support. For example, these barriers included access to nicotine replacement therapy (NRT) while admitted to a smokefree mental health setting, as well as the inaccessibility of NRT due to financial costs following discharge [55,61,62]. Moreover, MHPs reported that resources were not adequate (e.g. lack of referral and/or clinical resources), and this negatively impacted the implementation of either the smokefree policy or the smoking cessation

14

support available [44,56,61,70]. In terms of the support materials, MHPs and patients perceived the format of the support materials as an enabler, if they were easy to use, colourful, and incorporated useful information [52]. However, a barrier would include potential literacy issues for some patients, but this could be overcome with the additional use of technology, if resources were available [52].

Finally, the theme of 'task rich and time poor' exemplified the perceived competing demands on MHP's time and resources as a barrier to the delivery of smoking cessation interventions. Competing demands included: limited clinical time to address mental health needs and tobacco use, the need to prioritise the support offered individually to patients, and immovable organisational and service level responsibilities [44,50,60,61,63].

Knowledge

Several studies reported a lack of awareness about tobacco use, its links to mental illness, and treatment both during admission and within the community as barriers to both the delivery and receipt of interventions [31,47,52,55,56,60,62,63,70]. Lack of knowledge and misinformation was widespread across both groups. For example, one study identified that interactions around smoking that did occur were ill-informed in relation to inaccurate advice [52]. Another study identified a lack of knowledge and information with regard to strategies to support stopping smoking, especially the use of NRT products [55]. Lastly, MHPs were found to actively discourage smoking cessation attempts due to concerns about the impact on patients' mental health or due to a perception that stop smoking medications are unsuitable for people with a mental health condition [63].

Conversely, when MHPs were perceived to have a greater awareness and knowledge regarding tobacco use and its links to mental illness, this was perceived as an enabler to patient engagement [63]. Additionally, patients identified access to a wide range of information

15

as an enabler (e.g. more detailed information about the health consequences, social impact of smoking, and pharmacological support) [49,51,52]. Thus, providing training and education was identified as a crucial component by both MHPs and patients, including evidence-based pharmacotherapies and behavioural interventions [56]. One study reported that both patients and MHPs acknowledged the importance of education about the harmful effects of tobacco use versus the potential benefit of symptom control [56].

Social influences

A mixture of barriers and enablers were identified within the domain of social influence, all from the perspective of the patients. The theme 'influence of social network members' captures the smoking norms, attitudes and behaviours of social network members, and how these impacts on the individual. A number of patients reported that smoking was normative in many social contexts, and as a result, quit attempts were challenging due to their peers and family smoking around them [45,55,58]. Conversely, when social network members considered smoking an undesirable behaviour, this helped some patients in their quit attempt [45,55,57]. One study identified that almost all patients (92%) could identify a key support person in their life on whom they could rely on to provide assistance and general support, and 70% of participants with a partner believed the partner would be supportive of them making a quit attempt [66].

The theme 'smoking culture within a mental health context' highlights that many patients identified the smoking culture as a barrier. For example, frequently observing tobacco use among MHPs and other patients challenged one's own quit attempt [52,56]. One study reported that when social activities were available, these reinforced smoking behaviours. Indeed, patients frequently commented on how difficult it was to consider quitting when those around them smoked. Both MHPs and patients viewed smoking as a social event, and a way to connect with family, peers and staff [56]. However, another study reported that some MHPs

16

acknowledged how smoking was once an activity shared between staff and patients, but the Trust had progressed in de-normalising the social culture that was once ingrained into the mental health context [31].

Intentions

The theme 'stability of intentions and stages of change' relates to the patient's intentions and their readiness to quit. Many patients were determined and motivated to quit, and had intentions to do so, despite a potential lack of self-belief in their ability [57]. One study did report that measures of motivation (stages of change, thoughts about abstinence scales) predicted abstinence status significantly [59], indicating that positive intentions are an enabler for smoking cessation. A number of studies identified that MHPs perceived patient's lack of intention or interest to quit as a barrier for the individual to engage with smoking cessation support [44,50,60,61].

Lastly, one study reported on the lack of intention of MHPs to deliver smoking cessation interventions. For example, nursing staff had lower scores than medical staff with regards to the intention to provide tobacco treatment [67]. The findings reported that staff attitudes were independently associated with intentions to provide tobacco treatment [67].

Emotion

All of the data coded to the domain of emotion was identified as barriers to the delivery and receipt of interventions to support smoking cessation or temporary abstinence. The theme 'coping mechanisms for stress' highlighted that smoking was often used to cope with acute stressors (e.g. health scares, bereavements), everyday stresses of life, and also as a coping mechanism specifically in relation to one's mental health diagnosis [52,56-58,62]. One study

17

reported that the majority of MHPs agreed at least in part with the statement that 'smoking relieves efficiently from daily tensions or stress' [62].

In addition, the theme 'lack of meaningful activities' was predominantly identified as a barrier by patients, and frequently referred to boredom, inactivity and time alone that would subsequently lead to smoking behaviour as an activity to fill time or manage cravings [52,55-57]. Furthermore, one study reported that boredom was common among patients in both hospital and community settings, and individuals maintained they smoked in the absence of other meaningful daily activities [56].

DISCUSSION

This paper presents a systematic, theoretically informed approach to the identification of perceived barriers and enablers to supporting smoking cessation in mental health settings. Our findings identify five TDF domains as being important influences on delivery or receipt of smoking cessation or temporary abstinence support: 1) environmental context and resources; 2) knowledge; 3) social influences; 4) intentions, and 5) emotion.

This systematic review emphasises the need for smoking cessation support for people with mental health conditions to be integrated within and between mental health and other health services. Many of the factors identified by MHPs as barriers to addressing smoking in mental health settings link directly to the environmental context and resources. For example, the importance of integration of services, and overcoming competing demands on staff time and resources [44,50,60,61,63]. These findings emphasise the importance of a protected space with allocated time to focus on smoking cessation support outside of routine work in mental health settings [63]. Furthermore, such findings are also acknowledged by other researchers who highlight that people with mental health conditions can be disadvantaged by fragmented care [75]. Likewise, authors have also demonstrated that if MHPs were provided with protected

space and time to focus on smoking cessation, they were able to effectively liaise between primary and secondary services [63].

Similarly, through the identification of the barriers concerning the absence or cohesion of referral and smoking cessation support pathways, the need to consider the additional challenges that people with mental health conditions encounter when undertaking cessation attempts is indicated. Indeed, authors note that the variability and complexity of mental health service provision may result in confusion for patients, particularly when they are required to self-refer to cessation services following discharge from a mental health inpatient setting [76]. Lastly, attention is drawn to the importance of available and accessible preference-based support. Moreover, in alignment with previous research, the personalisation of support within a mental health context has been shown to enable changes in smoking behaviour (73). Indeed, results from the SCIMITAR+ trial confirm the positive influence of bespoke smoking cessation interventions in this population, finding a doubling of the likelihood of quitting at six months in comparison to the control group [77].

Within the TDF domain of 'knowledge', a lack of awareness and comprehension was frequently reported in relation to tobacco use, its links to mental illness, and the support available [31,47,52,55,56,60,62,63,70]. What is more, MHPs who receive specialist training to offer services designed to improve an individual's mental health have a crucial role in reducing tobacco smoking among people with mental health conditions, as they are best placed to encourage and support smokers to quit [78]. However, the findings from this review highlight a need for increased specialist training in smoking cessation interventions, as well as broader education to challenge misconceptions about smoking cessation in the context of mental illness and mental health services. Additionally, improved access to flexibly delivered mandatory training (with periodic refreshers) for MHPs should improve the consistency of smoking-related health messages delivered to patients. Correspondingly, previous research advocates for additional training of smoking cessation advisors in the UK working with people with mental health conditions [79].

19

The TDF domain of social influence appeared to have mixed consequences on smoking cessation in mental health settings, and patients frequently identified support networks as either a barrier or an enabler. These findings are consistent with a social norms perspective on health behaviour change, whereby individual choices are significantly influenced by the behaviours and opinions of important others [80]. Awareness of ex-smokers and those within a patient's social network who are also undertaking quit attempts may be particularly important for populations that experience a high prevalence of smoking [28,81]. Thus, the exploitation of patients wider social support networks may be an effective strategy for supporting smoking cessation among individuals with mental health conditions.

Despite intentions of the authors to understand the barriers and enablers to addressing smoking in people with mental health conditions from the perspective of their carers, family members or friends, the included studies did not yield evidence on this. To date, there has been little attempt to understand how family and friends of those with mental health conditions understand, experience, and respond to the smoking behaviours of those they support. Although informal carers can provide a strong source of emotional and practical support for their relative, family members and friends can lack awareness of available resources and fear social stigma [82]. Therefore, they tend to adapt negatively to the individual's smoking-related behaviour [82], possibly providing an explanation for the dearth of literature within this population. However, such an absence of evidence highlights the need for further investigation into the role of informal support networks and the needs of informal carers, to increase their involvement in supporting attempts at changing smoking behaviour.

The domain of intentions was also identified as influencing changes in smoking behaviours. In particular, the patient's intentions and lack of interest in smoking cessation was identified as a barrier to engagement [44,50,61]. Despite this, compelling evidence exists that indicates most people with mental health conditions do want to quit and intend to do so, and that

smoking cessation interventions targeting this population are effective [15]. It is important therefore, that fluctuations in motivation or intentions are not equated with wanting to disengage with support, but rather to allow the flexibility for individual's to re-engage when they wish to do so [63].

Finally, our findings indicate that many of the factors identified by patients as barriers to smoking cessation or temporary abstinence related to the TDF domain of 'emotion'. It was frequently reported that smoking was used as a coping strategy for everyday stressors and in relation to one's mental health diagnosis [52,56-58,62]. Similarly, psychosocial stressors have been implicated as risk factors for tobacco use in a range of populations, including people living with other health conditions [83], those from disadvantaged communities [84,85], those in the military [86], and those in the general population [87]. Accordingly, this indicates the need to develop tailored interventions that target the identification and implementation of alternative coping strategies for individuals with mental health conditions.

Limitations and strengths

This review included studies comprising various methodological designs, and which included the perspectives of a range of stakeholders in variety of mental health settings. Even with this diversity of mental health settings, there appeared to be consistency in the findings across these contexts. Therefore, this review offers a comprehensive overview of the barriers and enablers to addressing smoking in mental health settings. However, a number of limitations should be acknowledged. This review only included studies from high-income countries, which limits the generalisability of our conclusions, since low- and middle-income countries may present different contextual, political, and economic barriers that were not explored. The data analysed was obtained from the interpretation of the of the study findings from the article authors. Therefore, the potential for reporting bias cannot be excluded.

21

Importantly, authors may have selectively reported findings on barriers and enablers, potentially drawing conclusions from those that aligned neatly with the research question, or which were perceived as controversial or interesting.

Conclusion

Environmental context and resources, knowledge, social influences, intentions, and emotion are key factors influencing smoking cessation in mental health settings. Specific barriers to the delivery of intentions by MHPs include competing demands on time and resources and limited knowledge in relation to tobacco use and its links with mental health. Enablers to enhance patients' engagement with smoking cessation support include tailored, personalised support and the teaching of alternative coping strategies, and the inclusion of social networks with pro-quitting social norms. Targeting or exploiting these factors are more likely to result in successful interventions. Future research should explore the enablers and barriers to smoking cessation in low- and middle-income countries to identify contextual differences that may have an impact on smoking-related behaviours. Lastly, further research is required to seek the perception of the informal carers and patients' social networks in relation to the support offered to address smoking in mental health settings.

Funding

Declaration of Interests

None declared.

23

References

1. Brose LS, Brown J, McNeill A. Mental health and smoking cessation—a population survey in England. *BMC Medicine.* 2020;18(1):161.
2. Jochelson K, Majrowski B. Clearing the air: debating smoke-free policies in psychiatric units. King's Fund Published 2006. Accessed.
3. Richardson S, McNeill A, Brose LS. Smoking and quitting behaviours by mental health conditions in Great Britain (1993-2014). *Addict Behav.* 2019;90:14-19.
4. Statistics OfN. Adult smoking habits in the UK: 2019 https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandlifeexpectancies/bulletins/adultsmokinghabitsingreatbritain/2019. Published 2020. Accessed.
5. Psychiatrists RCo. Smoking and mental health. Royal College of Physicians Published 2013 Accessed.
6. Cheeseman H, Harker H. The stolen years: The mental health and smoking action report. Published 2016. Accessed.
7. Peckham E, Arundel C, Bailey D, et al. Smoking Cessation Intervention for Severe Mental Ill Health Trial (SCIMITAR+): study protocol for a randomised controlled trial. *Trials.* 2017;18(1):44.
8. Cook BL, Wayne GF, Kafali EN, Liu Z, Shu C, Flores M. Trends in smoking among adults with mental illness and association between mental health treatment and smoking cessation. *Jama.* 2014;311(2):172-182.
9. McClave AK, McKnight-Eily LR, Davis SP, Dube SR. Smoking characteristics of adults with selected lifetime mental illnesses: results from the 2007 National Health Interview Survey. *Am J Public Health.* 2010;100(12):2464-2472.
10. Lasser K, Boyd JW, Woolhandler S, Himmelstein DU, McCormick D, Bor DH. Smoking and mental illness: A population-based prevalence study. *Jama.* 2000;284(20):2606-2610.
11. Bowden JA, Miller CL, Hiller JE. Smoking and mental illness: a population study in South Australia. *Aust N Z J Psychiatry.* 2011;45(4):325-331.
12. Gierisch JM, Bastian LA, Calhoun PS, McDuffie JR, Williams JW, Jr. Smoking cessation interventions for patients with depression: a systematic review and meta-analysis. *J Gen Intern Med.* 2012;27(3):351-360.
13. McDonald C. Cigarette smoking in patients with schizophrenia. *British Journal of Psychiatry.* 2000;176(6):596-597.
14. McCreadie RG, Kelly C. Patients with schizophrenia who smoke. Private disaster, public resource. *Br J Psychiatry.* 2000;176:109.
15. Brose LS, Brown J, Robson D, McNeill A. Mental health, smoking, harm reduction and quit attempts – a population survey in England. *BMC Public Health.* 2020;20(1):1237.
16. Ratschen E, Britton J, Doody GA, Leonardi-Bee J, McNeill A. Tobacco dependence, treatment and smoke-free policies: a survey of mental health professionals' knowledge and attitudes. *Gen Hosp Psychiatry.* 2009;31(6):576-582.
17. Lawn S, Feng Y, Tsourtos G, Campion J. Mental health professionals' perspectives on the implementation of smoke-free policies in psychiatric units across England. *Int J Soc Psychiatry.* 2015;61(5):465-474.
18. Prochaska JJ. Smoking and mental illness--breaking the link. *N Engl J Med.* 2011;365(3):196-198.
19. Freiburghaus T, Raffing R, Ballbè M, Gual A, Tönnesen H. The right to smoke and the right to smoke-free surroundings: international comparison of smoke-free psychiatric clinic implementation experiences. *BJPsych Open.* 2021;7(3):e81.
20. Feliu A, Filippidis FT, Joossens L, et al. Impact of tobacco control policies on smoking prevalence and quit ratios in 27 European Union countries from 2006 to 2014. *Tobacco Control.* 2019;28(1):101.

21. Gollust SE, Schroeder SA, Warner KE. Helping smokers quit: understanding the barriers to utilization of smoking cessation services. *Milbank Q.* 2008;86(4):601-627.
22. Borland R, Li L, Driezen P, et al. Cessation assistance reported by smokers in 15 countries participating in the International Tobacco Control (ITC) policy evaluation surveys. *Addiction (Abingdon, England).* 2012;107(1):197-205.
23. Graham H, Inskip HM, Francis B, Harman J. Pathways of disadvantage and smoking careers: evidence and policy implications. *J Epidemiol Community Health.* 2006;60 Suppl 2(Suppl 2):7-12.
24. Hiscock R, Bauld L, Amos A, Platt S. Smoking and socioeconomic status in England: the rise of the never smoker and the disadvantaged smoker. *J Public Health (Oxf).* 2012;34(3):390-396.
25. Melnyk KA. Barriers: a critical review of recent literature. *Nurs Res.* 1988;37(4):196-201.
26. Shoesmith E, Huddlestone L, Lorencatto F, Shahab L, Gilbody S, Ratschen E. Supporting smoking cessation and preventing relapse following a stay in a smoke-free setting: a meta-analysis and investigation of effective behaviour change techniques. *Addiction.* 2021;n/a(n/a).
27. Kennelty KA, Chewning B, Wise M, Kind A, Roberts T, Kreling D. Barriers and facilitators of medication reconciliation processes for recently discharged patients from community pharmacists' perspectives. *Research in Social and Administrative Pharmacy.* 2015;11(4):517-530.
28. Twyman L, Bonevski B, Paul C, Bryant J. Perceived barriers to smoking cessation in selected vulnerable groups: a systematic review of the qualitative and quantitative literature. *BMJ Open.* 2014;4(12):e006414.
29. Francis JJ, O'Connor D, Curran J. Theories of behaviour change synthesised into a set of theoretical groupings: introducing a thematic series on the theoretical domains framework. *Implementation Science.* 2012;7(1):35.
30. Keyworth C, Epton T, Goldthorpe J, Calam R, Armitage CJ. Delivering Opportunistic Behavior Change Interventions: a Systematic Review of Systematic Reviews. *Prev Sci.* 2020;21(3):319-331.
31. Smith CA, McNeill A, Kock L, Shahab L. Exploring mental health professionals' practice in relation to smoke-free policy within a mental health trust: a qualitative study using the COM-B model of behaviour. *BMC Psychiatry.* 2019;19(1):54.
32. Ratschen E, Britton J, Doody GA, McNeill A. Smoke-free policy in acute mental health wards: avoiding the pitfalls. *Gen Hosp Psychiatry.* 2009;31(2):131-136.
33. Gardner K, Davies GP, Edwards K, et al. A rapid review of the impact of commissioning on service use, quality, outcomes and value for money: implications for Australian policy. *Australian Journal of Primary Health.* 2016;22(1):40-49.
34. Taylor AE, Howe LD, Heron JE, Ware JJ, Hickman M, Munafò MR. Maternal smoking during pregnancy and offspring smoking initiation: assessing the role of intrauterine exposure. *Addiction.* 2014;109(6):1013-1021.
35. Monden CW, de Graaf ND, Kraaykamp G. How important are parents and partners for smoking cessation in adulthood? An event history analysis. *Prev Med.* 2003;36(2):197-203.
36. Pisinger C, Vestbo J, Borch-Johnsen K, Jørgensen T. It is possible to help smokers in early motivational stages to quit. The Inter99 study. *Prev Med.* 2005;40(3):278-284.
37. Kerr S, Woods C, Knussen C, Watson H, Hunter R. Breaking the habit: a qualitative exploration of barriers and facilitators to smoking cessation in people with enduring mental health problems. *BMC Public Health.* 2013;13(1):221.
38. Johnston V, Thomas DP. Smoking behaviours in a remote Australian Indigenous community: the influence of family and other factors. *Soc Sci Med.* 2008;67(11):1708-1716.
39. !!! INVALID CITATION !!! (35).

40. Cane J, O'Connor D, Michie S. Validation of the theoretical domains framework for use in behaviour change and implementation research. *Implementation Science.* 2012;7(1):37.
41. Fiore MC, Novotny TE, Pierce JP, et al. Methods used to quit smoking in the United States. Do cessation programs help? *JAMA: The Journal of the American Medical Association.* 1990 263(20):2760-2765.
42. Hong QN, Gonzalez-Reyes A, Pluye P. Improving the usefulness of a tool for appraising the quality of qualitative, quantitative and mixed methods studies, the Mixed Methods Appraisal Tool (MMAT). *J Eval Clin Pract.* 2018;24(3):459-467.
43. Graham-Rowe E, Lorencatto F, Lawrenson JG, et al. Barriers to and enablers of diabetic retinopathy screening attendance: a systematic review of published and grey literature. *Diabet Med.* 2018;35(10):1308-1319.
44. Chen L-S, Baker T, Brownson RC, et al. Smoking Cessation and Electronic Cigarettes in Community Mental Health Centers: Patient and Provider Perspectives. *Community Ment Health J.* 2017;53(6):695-702.
45. Aschbrenner KA, Naslund JA, Gill L, et al. Qualitative analysis of social network influences on quitting smoking among individuals with serious mental illness. *J Ment Health.* 2019;28(5):475-481.
46. Patey AM, Islam R, Francis JJ, Bryson GL, Grimshaw JM. Anesthesiologists' and surgeons' perceptions about routine pre-operative testing in low-risk patients: application of the Theoretical Domains Framework (TDF) to identify factors that influence physicians' decisions to order pre-operative tests. *Implement Sci.* 2012;7:52.
47. Ballbè M, Nieva G, Mondon S, et al. Smoke-free policies in psychiatric services: identification of unmet needs. *Tob Control.* 2012;21(6):549-554.
48. Bennett ME, Brown CH, Li L, Himelhoch S, Bellack A, Dixon L. Smoking Cessation in Individuals With Serious Mental Illness: A Randomized Controlled Trial of Two Psychosocial Interventions. *J Dual Diagn.* 2015;11(3-4):161-173.
49. Dickerson F, Bennett M, Dixon L, et al. Smoking cessation in persons with serious mental illnesses: The experience of successful quitters. In: International Association of Psychosocial Rehabilitation Services and Department of Rehabilitation Counseling, Sargent College of Health and Rehabilitation Services, Boston University; 2011:311-316.
50. Brown CH, Medoff D, Dickerson FB, et al. Factors influencing implementation of smoking cessation treatment within community mental health centers. *Journal of dual diagnosis.* 2015;11(2):145-150.
51. Brunette MF, Ferron JC, Robinson D, et al. Brief Web-Based Interventions for Young Adult Smokers With Severe Mental Illnesses: A Randomized, Controlled Pilot Study. *Nicotine & Tobacco Research.* 2017;20(10):1206-1214.
52. Burns A, Webb M, Stynes G, et al. Implementation of a Quit Smoking Programme in Community Adult Mental Health Services-A Qualitative Study. *Front Psychiatry.* 2018;9:670.
53. Guo S-E, Wang A-L, Shu B-C. Self-efficacy in providing smoking-cessation services among psychiatric nurses in central and southern Taiwan: An exploratory study. *International Journal of Mental Health Nursing.* 2015;24(2):158-168.
54. Hall SM, Tsoh JY, Prochaska JJ, et al. Treatment for cigarette smoking among depressed mental health outpatients: a randomized clinical trial. *Am J Public Health.* 2006;96(10):1808-1814.
55. Huddlestone L, Sohal H, Paul C, Ratschen E. Complete smokefree policies in mental health inpatient settings: results from a mixed-methods evaluation before and after implementing national guidance. *BMC Health Serv Res.* 2018;18(1):542.
56. Morris CD, Waxmonsky JA, May MG, Giese AA. What do persons with mental illnesses need to quit smoking? Mental health consumer and provider perspectives. *Psychiatric Rehabilitation Journal.* 2009;32(4):276-284.

26

57. Peckham E, Bradshaw TJ, Brabyn S, Knowles S, Gilbody S. Exploring why people with SMI smoke and why they may want to quit: baseline data from the SCIMITAR RCT. *J Psychiatr Ment Health Nurs.* 2016;23(5):282-289.

58. Prochaska JJ, Fromont SC, Wa C, Matlow R, Ramo DE, Hall SM. Tobacco use and its treatment among young people in mental health settings: a qualitative analysis. *Nicotine Tob Res.* 2013;15(8):1427-1435.

59. Prochaska JJ, Hall SE, Delucchi K, Hall SM. Efficacy of initiating tobacco dependence treatment in inpatient psychiatry: a randomized controlled trial. *American journal of public health.* 2014;104(8):1557-1565.

60. Rogers ES, Gillespie C, Smelson D, Sherman SE. A Qualitative Evaluation of Mental Health Clinic Staff Perceptions of Barriers and Facilitators to Treating Tobacco Use. *Nicotine Tob Res.* 2018;20(10):1223-1230.

61. Himelhoch S, Riddle J, Goldman HH. Barriers to implementing evidence-based smoking cessation practices in nine community mental health sites. *Psychiatr Serv.* 2014;65(1):75-80.

62. Keizer I, Gex-Fabry M, Bruegger A, Croquette P, Khan AN. Staff representations and tobacco-related practices in a psychiatric hospital with an indoor smoking ban. *International Journal of Mental Health Nursing.* 2014;23(2):171-182.

63. Knowles S, Planner C, Bradshaw T, Peckham E, Man M-S, Gilbody S. Making the journey with me: a qualitative study of experiences of a bespoke mental health smoking cessation intervention for service users with serious mental illness. *BMC Psychiatry.* 2016;16(1):193.

64. Metse AP, Hizam NAN, Wiggers J, Wye P, Bowman JA. Factors associated with retention in a smoking cessation trial for persons with a mental illness: a descriptive study. *BMC Medical Research Methodology.* 2018;18(1):177.

65. Metse AP, Wiggers J, Wye P, et al. Uptake of smoking cessation aids by smokers with a mental illness. *J Behav Med.* 2016;39(5):876-886.

66. Metse AP, Wiggers J, Wye P, et al. Smoking and environmental characteristics of smokers with a mental illness, and associations with quitting behaviour and motivation; a cross sectional study. *BMC Public Health.* 2016;16(1):332.

67. Okoli CTC, Otachi JK, Kaewbua S, Woods M, Robertson H. Factors Associated With Staff Engagement in Patients' Tobacco Treatment in a State Psychiatric Facility. *Journal of the American Psychiatric Nurses Association.* 2017;23(4):268-278.

68. Okoli CTC, Otachi JK, Manuel A, Woods M. A cross-sectional analysis of factors associated with the intention to engage in tobacco treatment among inpatients in a state psychiatric hospital. *J Psychiatr Ment Health Nurs.* 2018;25(1):14-25.

69. Ortiz G, Schacht L, Lane GM. Smoking cessation care in state-operated or state-supported psychiatric hospitals: from policy to practice. *Psychiatr Serv.* 2013;64(7):666-671.

70. Parker C, McNeill A, Ratschen E. Tailored tobacco dependence support for mental health patients: a model for inpatient and community services. *Addiction.* 2012;107 Suppl 2:18-25.

71. Ratier-Cruz A, Smith JG, Firn M, Rinaldi M. Staff attitudes to completely smoke-free policies and smoking cessation practices in a mental health setting. *J Public Health (Oxf).* 2020;42(2):403-411.

72. Rogers ES, Friedes R, Jakes A, Grossman E, Link A, Sherman SE. Long-term abstinence and predictors of tobacco treatment uptake among hospitalized smokers with serious mental illness enrolled in a smoking cessation trial. *J Behav Med.* 2017;40(5):750-759.

73. Rogers ES, Smelson DA, Gillespie CC, et al. Telephone Smoking-Cessation Counseling for Smokers in Mental Health Clinics: A Patient-Randomized Controlled Trial. *American Journal of Preventive Medicine.* 2016;50(4):518-527.

74. Wilson SM, Thompson AC, Currence ED, et al. Patient-Informed Treatment Development of Behavioral Smoking Cessation for People With Schizophrenia. *Behav Ther.* 2019;50(2):395-409.

75. Planner C, Gask L, Reilly S. Serious mental illness and the role of primary care. *Curr Psychiatry Rep.* 2014;16(8):458.

76. Heron P, McCloud T, Arundel C, et al. Standard smoking cessation services in sites participating in the SCIMITAR+ trial for people with severe mental ill health. *BJPsych Bulletin.* 2020;44(1):6-11.

77. Gilbody S, Peckham E, Bailey D, et al. Smoking cessation for people with severe mental illness (SCIMITAR+): a pragmatic randomised controlled trial. *Lancet Psychiatry.* 2019;6(5):379-390.

78. Ziedonis D, Hitsman B, Beckham JC, et al. Tobacco use and cessation in psychiatric disorders: National Institute of Mental Health report. *Nicotine Tob Res.* 2008;10(12):1691-1715.

79. Simonavicius E, Robson D, McEwen A, Brose LS. Cessation support for smokers with mental health problems: a survey of resources and training needs. *J Subst Abuse Treat.* 2017;80:37-44.

80. Reid AE, Cialdini RB, Aiken LS. Social norms and health behaviour. In: Steptoe A, ed. *Handbook of behavioural medicine: Methods and applications.* New York, NY: Springer; 2010:263 - 274.

81. Mitchell SA, Kneipp SM, Giscombe CW. Social Factors Related to Smoking among Rural, Low-Income Women: Findings from a Systematic Review. *Public Health Nursing.* 2016;33(3):214-223.

82. Lawn S, McNaughton D, Fuller L. What carers of family members with mental illness say, think and do about their relative's smoking and the implications for health promotion and service delivery: A qualitative study. *International Journal of Mental Health Promotion.* 2015;17:261-277.

83. Cioe PA, Gordon REF, Guthrie KM, Freiberg MS, Kahler CW. Perceived barriers to smoking cessation and perceptions of electronic cigarettes among persons living with HIV. *AIDS Care.* 2018;30(11):1469-1475.

84. Memon A, Barber J, Rumsby E, et al. What factors are important in smoking cessation and relapse in women from deprived communities? A qualitative study in Southeast England. *Public Health.* 2016;134:39-45.

85. Webb MS, Carey MP. Tobacco Smoking Among Low-Income Black Women: Demographic and Psychosocial Correlates in a Community Sample. *Nicotine & Tobacco Research.* 2008;10(1):219-229.

86. Stein RJ, Pyle SA, Haddock CK, Poston WSC, Bray R, Williams J. Reported Stress and Its Relationship to Tobacco Use among U.S. Military Personnel. *Military Medicine.* 2008;173(3):271-277.

87. Siahpush M, Carlin JB. Financial stress, smoking cessation and relapse: results from a prospective study of an Australian national sample. *Addiction.* 2006;101(1):121-127.

Table 1. Criteria for article inclusion based on the PICO method for eligibility

Population	• Adult smokers using community, outpatient, and acute inpatient mental health services and their family, friends, carers, and visitors • Members of staff working inpatient and outpatient, or community mental health settings
Intervention	• Smoking cessation (including cutting down to quit) • Temporary abstinence (in the context of an inpatient admission) • Interventions aimed at promoting cessation or preventing relapse after temporary abstinence/quitting (e.g. in the context of discharge from an inpatient admission).
Comparator	Not applicable
Outcome	• Reported barriers to and enablers of the use, implementation, and delivery of evidence-based smoking cessation interventions • Other influences on the use and uptake of interventions may include type of provider, specification of pathways; type of intervention (e.g. frequency; duration), and intended and unintended consequences of interventions

Figure 1. Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram
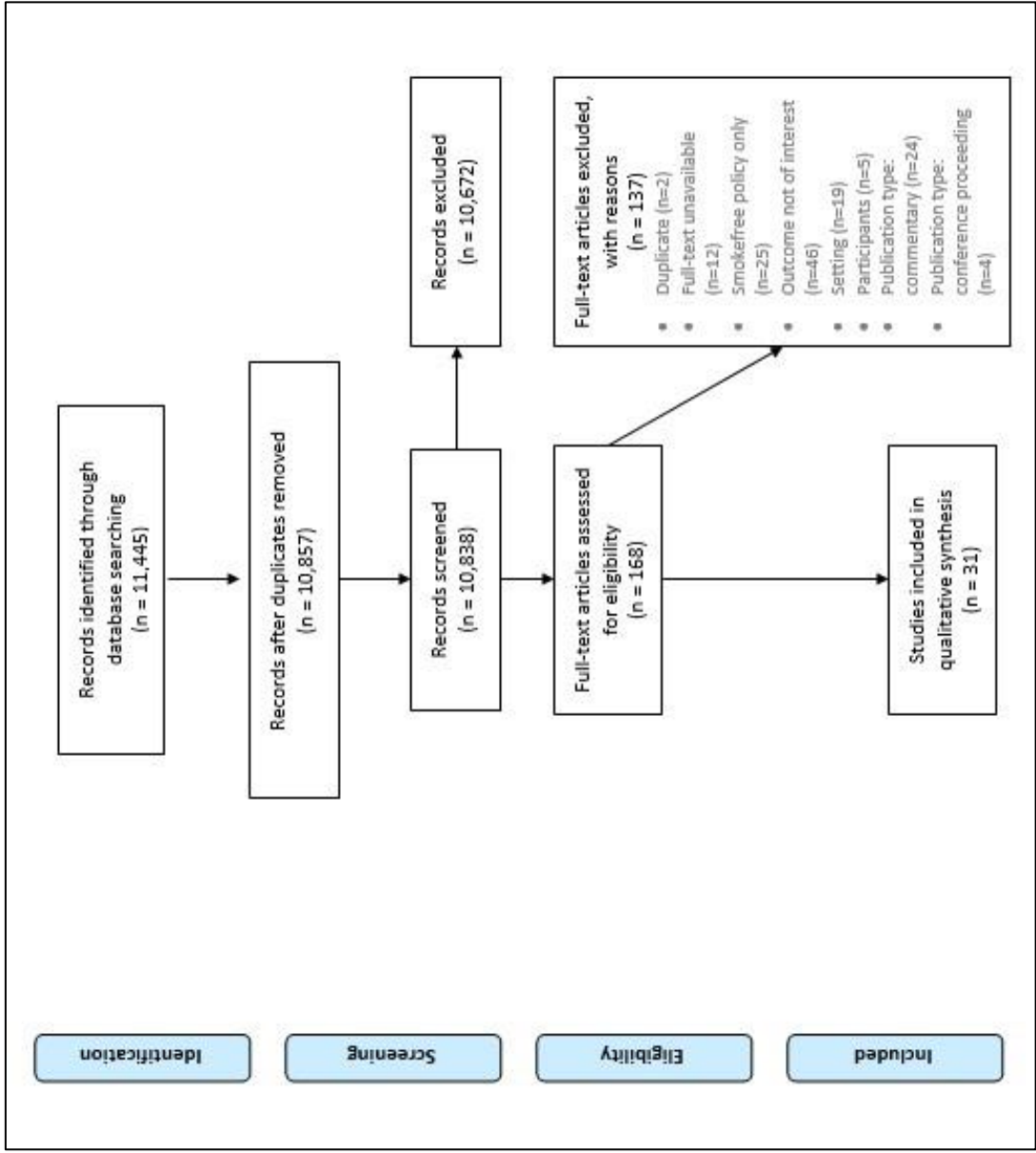
Figure 2. Domains ranked according to the importance criteria of frequency, elaboration and expressed importance.
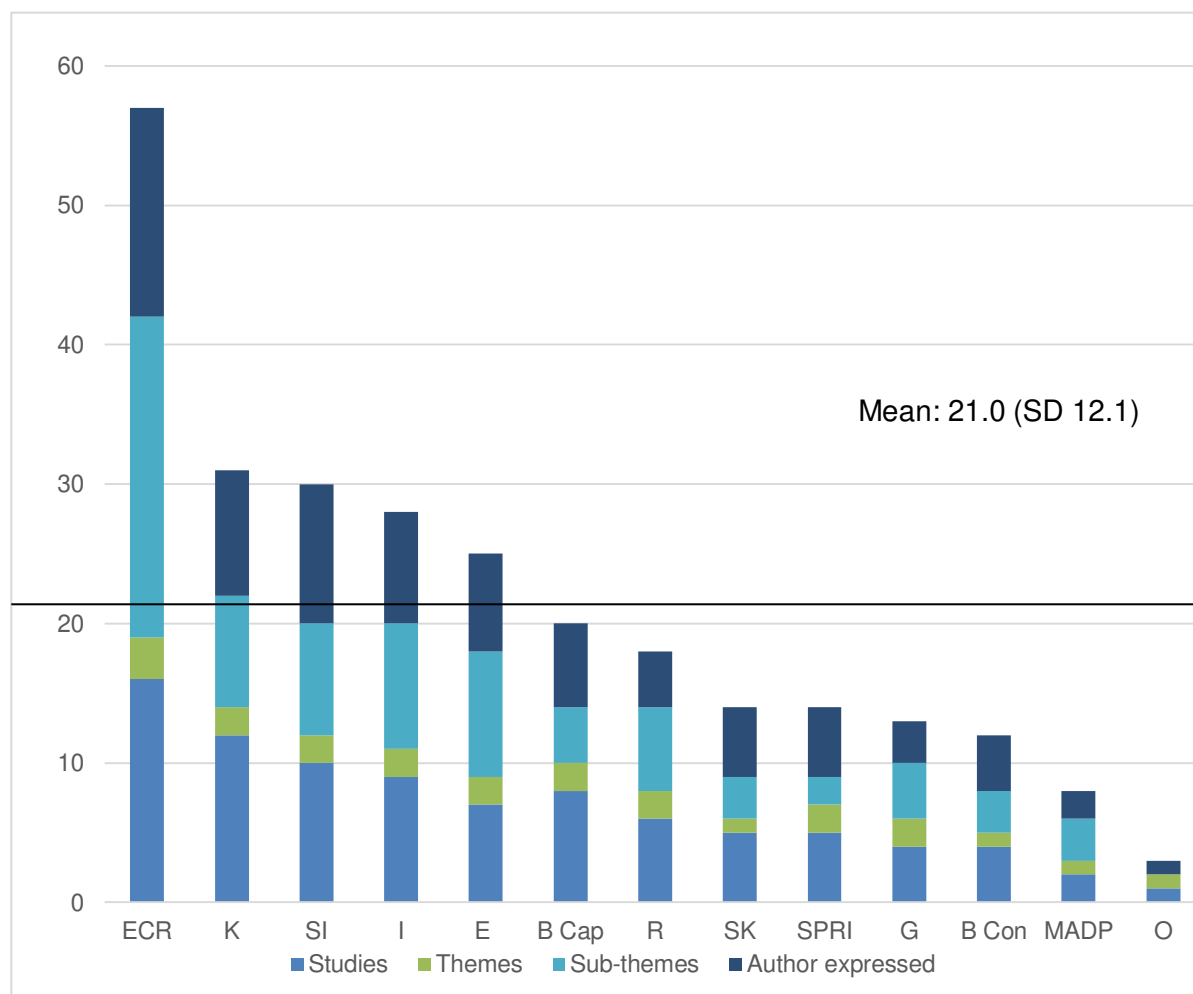
ECR: Environmental context and resources; K: Knowledge; SI: Social influence; I: intentions; E: Emotions; BCap: Beliefs about capabilities; R: Reinforcement; SK: Skills; SPRI: Social/professional role identity; G: Goals; BCon: Beliefs about consequences; MADP: Memory, attention, and decision processes; O: Optimism.