A meta-ethnography of adult smokers' exploring the meanings of tobacco dependency medications adherence behaviours during smoking cessation

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A META-ETHNOGRAPHY OF ADULT SMOKERS' EXPLORING THE MEANINGS OF TOBACCO DEPENDENCY MEDICATION ADHERENCE BEHAVIOURS DURING SMOKING CESSATION.

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INTRODUCTION

This paper reports findings of a meta-ethnography of published qualitative research on smokers' experiences, views and beliefs of tobacco dependence medications in community settings. Cigarette smoking remains the most important preventable cause of premature death and disability worldwide (Killen et al., 2000). Tobacco dependence medications (TDMs) are effective at aiding initial abstinence and decreasing lapse risk but the likelihood of long-term success remains relatively low (Hughes, Keely, & Naud, 2004; West, 2016). There are seven first-line TDMs: five variants of nicotine replacement therapy (NRT), varenicline (Chantix), and bupropion sustained release (Zyban). The use of TDMs should be encouraged based on the evidence that they make quitting easier (NICE, 2015). However, instead of using one or more of the available TDMs, most quit attempts are unassisted (Solberg, Asche, Boyle, McCarty, & Thoele, 2007).

Nursing interventions can increase people's success in quitting smoking (Rice, Hartmann-Boyce, & Stead, 2013). People who are active participants in managing their health and care have better outcomes than those who are passive recipients of care (Foot et al., 2014). Shared decision‐making is key to evidence-based practice and aligns with professional regulatory bodies which require clinicians to work in partnership with patients (Coulter & Collins, 2011; Greenhalgh, 2014; NICE, 2009). Most smokers try to stop but relapse repeatedly (Kirchner,

Shiffman, & Wileyto, 2012). Relapse is the fundamental barrier to the management of addictive behaviours and the predominant outcome of behaviour change efforts (Brandon & Litvin, 2007). The development of TDMs for SC and use of evidence-based guidelines for health professionals has increasingly medicalised tobacco dependence (TD), potentially undervaluing unassisted quitting and neglecting the views of smokers (Morphett, Partridge, Gartner, Carter, & Hall, 2015).

Poor adherence to treatment is a worldwide problem; adherence to long-term therapy for chronic illnesses in developed countries averages 50%, the rates are even lower in developing countries (WHO, 2003). People are active decision makers who access various sources of information regarding medications; they are not passive receivers of medical advice (Britten, 1996; Pound et al., 2005). Smokers' evaluate TDMs and form judegments that are influenced by positive beliefs about unassisted quitting (Morphett et al., 2015). Motivation, willpower and commitment have been found to be important to smokers who quit without TDMs (Smith, Chapman, & Dunlop, 2015). Chapman and McKenzie (2010) argue "that unassisted quitting, or "cold turkey", has the greatest impact on reducing smoking prevalence and accordingly should receive greater clinical and research attention". Medicine taking behaviour *per se* is complex (Osterberg & Blaschke, 2005). Non-adherence to medication is a significant problem; it is estimated that 50% of people with a chronic condition are non-adherent to their prescribed medications (Bowry, Shrank, Lee, Stedman, & Choudhry, 2011; WHO, 2003). Therefore, improved adherence potentially could help improve population health (Haynes, McDonald, Garg, & Montague, 2002). Most interventions for enhancing medication adherence are not widely effective (Nieuwlaat et al., 2014). Poor adherence with TDM compromises efficacy (Hollands et al., 2015).

The nature of TD provides a unique treatment context with specific adherence issues. Research is needed to explore the association between TDM adherence and quitting success (Raupach, Brown, Herbec, & West, 2013). It is important to optimise adherence with TDMs, to achieve a deeper understanding of smokers' perceptions and why smokers behave in the way they do with available TDMs. There is a paucity of qualitative literature regarding the experiences and meaningfulness of TD pharmacotherapy. A systematic overview of this work has not been previously conducted and it is difficult to draw generalisable conclusions for practice. This paper reports use of meta-ethnography to synthesise findings from qualitative research studies focused on adult smokers' experiences, meanings and beliefs regarding tobacco dependence medications and their importance to adherence behaviours.

THE REVIEW

Aim

This study aimed to identify and synthesise the best available qualitative evidence on adult smokers' experiences, meanings and beliefs regarding TDMs and their importance to adherence behaviours.

Review question

What are the tobacco dependence medication experiences of adult smokers' and how do these influence their adherence behaviours?

Design

This review is a synthesis of qualitative research using the methods of meta-ethnography as proposed by Noblit and Hare (Noblit & Hare, 1988). Meta-ethnography is the most commonly used meta-synthesis technique for qualitative synthesis (France, Wells, Lang, &

Williams, 2016). A robust meta-ethnography can construct new conceptual understandings of complex healthcare issues and contribute to the understanding of patient experiences (Atkins et al., 2008; Campbell et al., 2011). Meta-ethnography continues to develop and guidance to inform the decision-making process at key stages of the qualitative synthesis has been developed. Authors became aware of the eMERGe project (France et al., 2015) after undertaking this study and have retrospectively carefully considered the eMERGe reporting guidelines (France et al., 2019) to assure best practice in conducting and sharing our meta-ethnography has been followed.

Search methods

Published literature from Europe and America, written in English between April 2006–February 2014 was identified from databases during April 2016: CINAHL, MEDLINE, EMBASE, British Nursing Index, ASSIA, Web of Science and PsycINFO. Keyword searching was used initially by breaking down the research question into the overall main ideas; these main ideas formed simple keywords which were used to search library databases. Search syntax included terms smoking, smoking cessation, tobacco dependency, medication adherence, meaning, experience, belief, attitude, qualitative and various TDM names. These terms were used in several combinations using the Boolean operations "AND", "OR". Truncation enabled searching for a word that could have multiple endings. The authors also checked for spelling variations and synonyms. Further, phrase searching helped to narrow the search results by allowing authors to define precisely how we wanted the words to appear, for example "medication adherence". Hand searches of reference lists of retrieved articles and journals was undertaken; this aimed to ensure complete coverage of articles which may not have been indexed by databases. Titles and abstracts of all studies found from the literature searches were considered for eligibility. Full text of studies believed potentially eligible were obtained and reviewed by authors. Our search aim was not to produce an exhaustive search or

comprehensive sample (Noblit & Hare, 1988); rather, the systematic search was utilised to determine a final set of studies via an iterative inclusion and exclusion process that identified conceptually rich data in order to contribute to the synthesising of interpretations across studies (Malpass et al., 2009).

Search outcome

The search yielded 724 potentially relevant papers; of these, 704 were excluded because they were duplicates, irrelevant, or not qualitative in design. 13 articles were excluded owing to a lack of relevance to the review and/or ineligible study design e.g. they did not provide an explicit account of a theoretical framework or a clear description of methodology (Figure 1).

Figure 1 Flow chart of study inclusion and exclusion (PRISMA 2009)

Quality appraisal

A sample of 13 papers were obtained for quality appraisal. Authors firstly considered each study's clarity and methodological quality utilising a standardised appraisal tool from the Joanna Briggs Institute (JBI, 2014) (Supporting Information File S1). Secondly, studies were evaluated to determine the extent to which they provided a rich account of participants' experiences of TDMs and how these influenced adherence behaviours. Any disagreements that arose between authors were resolved through discussion and consensus. A summary description of the 7 included studies is given in Table 1.

Table 1 Table of included studies

Data abstraction and synthesis

A synthesis of qualitative studies of adult smokers' perspectives of TDMs published between April 2006-February 2014 was undertaken using meta-ethnography. The data was combined by following Noblit and Hare's (1988) rigorous process of reciprocally translating the findings from each included study into those from all the other studies in the synthesis (Noblit & Hare, 1988). Findings were systematically reviewed and integrated. Extracted data were organised by gathering and then organising concepts that contributed to the development of three themes (Table 2; Supporting Information File S2). Following this, the synthesis was then expressed as a 'line of argument' and presented as our model of smokers' TDMs adherence and non-adherence behaviours (Figure 2).

Table 2 Translations and lines of argument

Data synthesis consisted of studies that explored the perceptions, experiences and expectations of NRT amongst ethnically diverse adult smokers: four studies also included Bupropion; none of the studies investigated Varenicline or E-Cigarettes. Study characteristics were extracted from the papers using the standardised JBI data extraction tool for Interpretive & Critical Research (Supporting Information File S3). The data extraction process was undertaken by CJS and checked by AL. First-order findings (quotations) were used to support second-order interpretations (authors' analyses) to gain new insight into the relationships between smoking cessation and TDM adherence.

Active and repeat reading of the included studies determined the final concepts. In this process primary themes were located in the results section and interpreted as reflecting participants' understandings, attitudes, meanings and expectations of TDMs within the context of smoking cessation (as reported in the included studies). Secondary themes, located in the discussion and conclusion section of each study, were understood as authors' interpretations of participants' understandings. The included papers were processed in

chronological order. The first three papers provided the structure into which the remaining four papers were translated. *Reciprocal Translation Analysis* (RTA) (Noblit & Hare, 1988) provided the process approach for integrating the data into a coherent argument. This allowed for codes to be compared, contrasted and provisionally grouped into broad areas of similarity. This generated a reduced set of translations about how TDMs were perceived and experienced within the context of smoking cessation in different cultures. Following discussions among reviewers (CJS and AL), seven "translations" were created expressed as "*lines of argument*" (Noblit & Hare, 1988) in order to depict facilitators or barriers of TDM adherence. All the review themes and subthemes were supported with quotations from the original studies and were agreed by all the authors as accurately representing the findings. Following the theme development, a *refutational analysis* (RA) (Noblit & Hare, 1988) was undertaken to examine differences across studies. The RA yielded very few differences and all authors agreed the findings were coherent with no alternative explanations. This might be due to the context of the studies; all the studies were conducted in developed countries where participants could access TDMs and support for SC.

FINDINGS

Evidence from seven papers reported the views, perceptions, attitudes, expectations beliefs and experiences of 370+ encompassed diverse cultural/ethnic backgrounds of former or current smokers of both genders and aged ≥18 years. Interpretations were mostly limited to a description of TDMs use or non-use within a biomedical model, interpreting TDM underuse as a deviant behaviour. The rationality of TDM taking and barriers to TDM use was predominantly conceptualised as relating to cultural factors, individual misconceptions or inadequate understanding of the medication.

Participant quotes extracted from included studies are tabulated within Table 3. Resistance to medication emerged from the synthesis as important. Smokers' discourse about TDMs challenged medical evidence rather than depicting a passive acceptance of it. The synthesis indicated that decision making about TDMs was associated with dynamic processes of dealing with Nicotine Withdrawal Symptoms (NWSs) within the context of psychosocial factors that mostly supported smoking behaviour and rejected TDM use. Findings are presented in three main themes: (i) psychosocial context of TDM behaviours; (ii) willpower predilection and (iii) resisting medications.

Table 3: Participant quotes extracted from included studies

Psychosocial context of TDM behaviours

Smokers face difficult and emotional challenges when they attempt to quit. Habitually smoking was seen to be helpful to alleviating high levels of stressful events and compatible with social environments. Participants' narratives suggest TDMs use is embedded in a psychosocial context, which is not influenced by existing guidelines for SC. The meaning of smoking and cessation were strongly fashioned via dynamic social interactions, conflicts and shared cultural traditions and roles. Narratives conveyed a complex, uncomfortable and dynamic lived experience of SC. Smokers described conflicts within themselves and with their significant others about their smoking choices and subsequent behaviours.

> *''I think that made a big impression on me…'Hey when I grow up I'm going to smoke.'' ''one of the obstacles against quitting I think is friends and family that smoke.''* (Burgess et al., 2007)

This psychosocial context caused abrupt termination of SC decisions resulting in a relapse to smoking. In contrast to positive ideas about smoking, some participants expressed strong

dislike of it, explaining the negative impact that smoking has on them personally and also their family relationships. Smokers' narratives revealed conflicting thoughts about SC. Some were influenced by their personal relationships to stop smoking but personally had low motivation to do so. Most participants were unaware of available TDMs and behavioural support. Smokers' narratives suggested cognitive dissonance (Festinger, 1957) about smoking (e.g. believing smoking is harmful and simultaneously holding importance to their social interactions). Such conflicting beliefs were uncomfortable and accordingly destabilised adherence to TDMs as smokers tended to alter their beliefs intentionally in order to stop the cognitive dissonance.

> *"Why would you take something to stop smoking and then get three or four different side effects? When you only got one with smoking."*(Fu et al., 2007)

Smoking was a well-established, common behaviour amongst participants; consequently, the ease of availability of cigarettes and normalisation of smoking behaviour was evident. The presence of smoking among family members and peer groups contributed to the early formation of smoking behaviours and was a strong barrier to cessation. Within the included studies most beliefs about TDMs had been formed within social contexts where medications were feared. Smokers felt they were behaving correctly when they resisted TDMs as rejection of medicines was the social norm. Most participants had little understanding of TDMs and worried about taking them; paradoxically, the use of TDMs conflicted with their desire to stop smoking.

> *"Like in every commercial you can see they have like those gross side effects. You know, I'm so surprised they only put them on TV. I wouldn't want any of that type of and I'm so afraid of damaging the liver and all the organs inside from taking medicines …"* (Burgess et al., 2007)

Perceptions of TDMs' properties detracted from TDM initiation and adherence. Participants, who expressed a desire to stop smoking, feared unpleasant nicotine withdrawal symptoms (NWSs) and although aware of TDMs their negative perceptions of them stopped them from using them. Decisions to use TDMs are not made solely by isolated persons, but rather they reflect choices made by groups of people associated to each other both directly and indirectly. Smokers are psychosocially connected; this influences their adherence to TDMs fear.

Willpower predilection

Unaided SC was cited as the most popular method of quitting. Participants had low motivation to use TDMs. Reasons for avoidance of TDMs included fear of side effects, a general aversion to medication, connotations of mental illness, or belief that willpower alone controls successful cessation. Many participants feared becoming dependent on medicinal treatments. They described smoking as more of a personal weakness and a failure of their willpower than an illness. These negative attitudes toward pharmacotherapy were linked to feelings of mistrust in conventional health care, with natural interventions considered to be more desirable. Participants preferred to "*tough it out*" or use non-medicinal substances to help them stop smoking, for example, chewing gum, chamomile tea, fruit, exercise and sweets (candy). They used these strategies to alleviate cravings during quitting; these "*natural*" methods were supported by their family members.

> *"… it's just sort of if you take pills to me it's sort of somehow a sign of giving up and being weak. I'd rather do it myself and find the strength myself."* (Vogt, Hall, & Marteau, 2008)

Family members validated the idea that willpower determined SC success rather than using TDMs. The perception that "*willpower*" is superior to TDMs was reinforced by concerns about safety quitting using willpower alone provides a sense of accomplishment and

demonstrated strength of character. Participants believed that willpower is vital to quitting and not having enough willpower a smoker would not be able to stop smoking:

> *''Well I think it is mainly the willpower. If somebody wants to give the cigarettes up it depends how strong he is…nowadays there are lots of expensive cigarette patches and everything on the market. I don't believe they can help somebody to stop smoking if they don't want to''* (White, Bush, Kai, Bhopal, & Rankin, 2006).

Use of TDMs was perceived as a weakness and an uncomfortable reflection of having a lack of willpower. A perceived lack of willpower was used to justify their inability to stop smoking. Male narratives associated willpower with bravery and strength of character. Taking TDMs conflicted with a strongly held belief amongst participants that willpower is the remedy to smoking. Capacity for *active* willpower was limited and not a constantly available resource. Inconsistent adherence to TDMs regimens and SC behaviours was influenced by the person's willpower.

Resisting medications

'Resistance to TDMs' emerged as an important theme for smokers who sought to reconcile their smoking, quitting choices and behaviours within complex contexts of long smoking histories, failed quit attempts, chronic deprivation and cultural factors. Beliefs and interpretations of TDMs were not fixed but oscillated within different SC circumstances. These interpretations arguably align with an existing general tendency for people to resist taking medicines (Britten, 1996).

> *"I just don't like to take pills,"* (Levinson, Borrayo, Espinoza, Flores, & Perez-Stable, 2006)

This predilection to resist medicines resulted in dynamic behaviour with TDMs; deliberately choosing to avoid or reduce TDMs was a theme recurring in the studies. Participants had knowledge of TDMs (e.g. over the counter NRT) but perceived the taking of medicines as undesirable and many of the participants' feared dependence and strongly resisted TDMs.

> ''*I'm not very much of a pill person…. I think someone taking pills for quit[ting] smoking, I'd think they're crazy….*''(Burgess et al., 2007).

Non-adherence to TDMs was common because of fears of taking medicines, risk of dependency and smokers' suspicions about the plausibility of their ability to help them stop smoking. Worry about side effects is augmented by (i) inaccurate knowledge about the potential risks and (ii) the perception of incidence of likely occurrence of harm.

Paradoxically smoking was often considered safer than using TDMs. Participants actively assessed TDMs especially their safety and addictive potential. NRT and bupropion were regarded differently as TDMs. NRTs were partially understood regarding how they stopped cravings or replaced the purpose of cigarettes (or not). Some participants understood that the nicotine in NRT reduced or stopped cravings for cigarettes. However, not all participants shared this view of NRT and were unconvinced nicotine replacement was plausible. Some participants recognised that NRT was safer than continued smoking, but this belief was incongruent with stronger negative opinions and scepticism of NRT.

The idea of taking bupropion met with more apprehension amongst participants than NRT use. Bupropion was perceived more as a medicine owing to its oral dose form; this connected strongly with attitudes against medication and intensified worries about side effects. Bupropion was considered a potent drug; this led to perceptions of it being dangerous, a powerful chemical substance and unnatural. For some participants the interpretation of

bupropion as being powerful was the attraction for its use. However, participants quickly rejected it if they knew it as an anti-depressant.

> *"They say it's an antidepressant . . . and I don't take antidepressants, so I don't take Zyban® [bupropion]."* (Levinson et al., 2006)

> *''I am quite sceptical about tablets and stuff so I wouldn't want to get into that habit. I wouldn't be happy about using Zyban''* (White et al., 2006)

This knowledge provoked negative views associated with mental health problems, fear of side effects, and general dislike of medicines. Bupropion was generally perceived as having dangerous adverse effects and was viewed as interfering with the body's natural state.

Perceptions about TDMs appear to also be formed within an economic discourse; e.g. comparing the financial costs of TDMs with that of cigarettes. Resistance to TDMs appeared to be a complex combination of individual and social group beliefs. The extent to which TDMs were resisted depended on how they were perceived within their social network and strength of preference for resisting medication.

In summary, the synthesis findings show that while smokers aspire to quit smoking and consider using TDMs, the psychosocial context, predilection for willpower and "natural" methods to achieve quit success and a tendency to resist medications undermine their medication adherence behaviours. TDM adherence emerged as multifactorial with different 'moderators' being shaped by different contexts. Beliefs and perceptions surrounding the importance of willpower in the SC process emerged as important. High resistance towards TDMs was evident, despite participants struggling to stop smoking. This indicates that smokers may have specific reasons for poor medication adherence compared to other medication conditions. There was a strong preference for "natural" methods to aid cessation.

There are several key factors involved here. Facilitators and barriers are neither constant nor binary influences on smokers' TDM adherence behaviour. Participants were uncertain about safety, efficacy and functional benefits of TDMs. Smokers perceptions of TDMs appeared to be shaped by their judgement of the ability of TDMs to control cravings to smoke. Most participants preferred to avoid the use TDMs. A dislike of medications in general contributed to a negative view of TDMs specifically. This dynamic cognition undermines the dominant medical discourse regarding SC that strongly asserts the efficacy of behavioural support and TDMs for SC (Stead et al., 2012).

> *"I don't think that people can follow directions very well, so that is one main reason why it doesn't work."* (Carpenter, Ford, Cartmell, & Alberg, 2011)

'Resistance' regarding medication taking emerged as a concept from a previous qualitative synthesis. Medication resistance has previously been defined as "*the ways in which people take medicines and attempt to minimise their intake*" (Pound et al., 2005). This work has been further developed (Britten, Riley, & Morgan, 2010) and the concept of resistance has been updated as referring to the various ways in which people behave with medicines. Although most participants resisted TDMs, some positive attributes of TDMs were expressed, mainly by those who had experienced the benefits of TDMs in previous quit attempts. Most participants preferred willpower alone; this has been found in other studies (Etter & Schneider, 2013; Smith, Carter, Chapman, Dunlop, & Freeman, 2015). Willpower preference and resistance to TDMs needs to be acknowledged by nurses and used to inform tailor TDM adherence advice. Arguably willpower is an underestimated concept, though commonly associated with SC by smokers, clinicians and researchers. It is likely that different stakeholders within SC have a different understanding of what willpower means. It would be

beneficial to explore willpower within health behaviour change and establish its relationship to medication adherence.

Developing the model

The line of argument synthesis generated a model of smokers TDMs adherence and non-adherence behaviours (Figure 2). The model depicts the inter-relationship between the identified themes illustrating smokers' TDM adherence and non-adherence behaviours. It depicts oscillation between psychosocially driven beliefs about TDMs that mostly do not resonate with the current medical model of TD treatment. TDMs were mostly judged ineffective, resisted and rejected because of potential side effects, not as effective as willpower and inability to address reasons for smoking other than nicotine addiction. Factors identified from the line-of-argument translation operate as facets of smokers' experiences of smoking, SC and medication beliefs within the real world. All which create an insecure *milieu* for TDM adherence behaviour; which oscillates in response. The model does not classify smokers into fixed categories or locate them on a specific trajectory of adherence behaviour at a given time point. The complexity of the effect of facilitators and barriers is significant; they are neither constant and nor binary influences on smokers' TDM adherence behaviour. Unpleasant NWSs fit with the medical model of TD addiction and need for a pharmacological approach; this conflicts with a preference for willpower and natural methods to quit smoking.

Figure 2 A model of smokers TDMs adherence and non-adherence behaviours

Central to the model is the smoker within their dynamic TDM adherence behaviours. Smokers' narratives revealed the presence of psychological discomfort from conflicting attitudes or beliefs about SC and use of TDMs, which resonated with Festinger's cognitive

dissonance theory (Festinger, 1957). TDMs emerged as ambiguous aids to quitting whose meanings were still being negotiated. Arguably smokers' oscillating SC thoughts and TDM use is a representation of inconsistent beliefs owing to numerous and conflicting social interactions. Smokers' experience and discourse about TDMs challenged medical evidence rather than passive acceptance of it. This synthesis indicates that decision making about TDMs was associated with dynamic processes of dealing with NWSs within the context of psychosocial factors that mostly supported smoking behaviour and rejected medication use. Nurses should ascertain smokers concerns about TDMs. Smokers' views about the value of different TDMs were not independent: attitudes about TDMs were fashioned by positive attitudes towards unassisted quitting and willpower.

DISCUSSION

The aim of this meta-ethnography was to contribute to the debate about adherence to TD medication. Meta-ethnography is a robust method for qualitative synthesis which can produce new conceptual understandings of complex health care issues useful to researchers, policy makers, managers and practitioners. The reviewers aimed to produce new interpretations that surpassed the individual studies on which it is based. However, some limitations apply. Because of the intensive work involved in this specific methodology, there is a time-lag between the original database searches and publication. It is recognised that searching the qualitative literature can be problematic (Hannes & Macaitis, 2012). Despite attempts to undertake a comprehensive search, some studies may have been missed. Studies included were descriptive and used thematic analysis; it was unclear if the studies analysed the data based on pre-specified theoretical assumptions. None of the papers included a definition or theoretical position on medication adherence. Instead, authors presented findings as inherently characteristic of smokers' concerns and the difficulties of SC. This generalised

the needs and experiences of smokers and did not address the complexities of adherence to TDMs regimens. None of the studies worked from a definition of adherence or within any of the available typologies of medication adherence, despite the extensive base of theorisation in the literature (Osterberg & Blaschke, 2005; Vermiere, Hearnshaw, Van Royen, & Denekens, 2001). Included studies were from either the UK or USA, where SC programmes align with similar guidelines and best practices. However, it is acknowledged that the studies were undertaken in differently funded systems of health care limiting the transferability of the present findings.

The synthesis revealed diverse concerns and perceptions of TDMs that led to nonadherence behaviour. Many of the issues identified were potentially modifiable by behavioural interventions. The psychosocial context of TDM behaviours, TDMs resistance and preference for willpower emerged from the synthesis as important as this translated into deliberate non-adherence. Low confidence in TDMs and experienced failure of TDMs to address multi-faceted and often conflicting reasons for smoking augmented the predilection for willpower. These factors legitimised non-adherence behaviours. TDMs were incompatible with individuals views and beliefs about taking medications, especially for a long duration. Complete TDM adherence and persistence was unachievable within powerful anti-medication social contexts and an individual's desire to be in control of their lives. Findings of a systematic review (Hollands et al., 2015) found limited evidence that interventions focusing on improving adherence to TDMs through providing information and facilitating problem solving can improve adherence. Resistance to TDMs, the role of willpower, the psychosocial context of TDM adherence behaviours, the fear of dependency and the preference for "natural" methods all need further investigation. A better understanding may help people achieve long-term SC.

The role of a nurse is well suited to providing SC interventions (Rice et al., 2013). A recent meta-synthesis (Malone, Harrison, & Daker White, 2018) found tensions between mental health nurses' perspectives on their role and responsibilities in providing SC support and fulfilling service users' expectations. It is critical for all health professionals to assess the person seeking to stop smoking in order to foresee the possible causes of their nonadherence. Nurses should facilitate SC by ascertaining TD treatment perceptions, encouraging openness about TDM concerns and tailoring support to the individual. In order to improve both the quality and the process of TD treatment it is recommended that clinical practice guidelines are formulated to optimise medication adherence with TDMs; this would contribute to improving the desired outcome – a further reduction in smoking prevalence. Adherence support needs to be part of patient-centered care and shared decision-making (NICE, 2009); respecting a person's beliefs about TDMs is fundamental to nursing practice and supporting adherence (NMC, 2015).

CONCLUSIONS

This paper is the first metasynthesis to explore TDM adherence. The findings increase understanding of the complexity of adult smokers' experiences, meanings and beliefs regarding TDMs and their importance to adherence behaviours. Interventions to improve TDM adherence should consider the overarching concepts identified by this meta-ethnography. TD services and wider healthcare systems need to create policies to support an improvement in TDM adherence. The findings from this meta-ethnography contribute, through smokers' narratives, to articulate the less visible aspects of medication adherence in the context of TD. Nurses should work in partnership with smokers and involve other health professionals to help improve TDMs adherence to help achieve improved long-term quit outcomes. Research to further understand how a smoker's predilection for willpower

augments the resistance to TDMs is required. Personalised TDM adherence interventions are likely to be most effective interventions to help improve long-term SC outcomes. The findings of this meta-ethnography are important to future clinical practice guideline development if health professionals are to contribute to the further reduction of smoking prevalence.

SUPPORTING INFORMATION

Additional Supporting Information (appendices S1-S3).

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