Applying health psychology theory to practice: encouraging health related behaviour change in diet, physical activity and substance misuse in a public health setting

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Submitted in fulfilment of the requirements of the Professional Doctorate in Health Psychology

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September 2018

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Acknowledgments

In the Name of God, the Most Gracious, the Most Merciful.

‘Oh my Lord! Open my chest for me and make my task easy for me and untie the knot from my tongue so that they understand my speech.’
Surah Taha, verses 25 – 28
Qur’an

When I started this doctorate back in 2014, I never thought it would take me almost four years to finish. Much has happened in this time and it has certainly not been without its challenges. But I am proud to have come this far and I am indebted to the following people.

To my academic supervisors, Dr Hayley McBain, Dr Angeliki Bogosian and Dr Fabiana Lorencatto. All of the constructive advice and guidance was useful but I am even more grateful for all the encouragement and motivation to keep on going.

To all of my colleagues at work who have taken an interest in my doctorate and provided me with words of encouragement, I feel lucky to have such supportive colleagues.

To my fellow doctorate students, I am grateful to have shared this journey with you and look forward to celebrating more of our successes together.

To all of the healthcare professionals and research participants who kindly offered their time to take part in the study and for giving me the opportunity to gain an insight into their experiences.

Last but by no means least, to my wonderful husband, family and friends. I really and truly could not have done it without the love and support from everyone. Thank you for encouraging me to pursue my passion.

Declaration

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SECTION A - PREFACE

Preface

The portfolio showcases the candidate's development as a trainee health psychologist over the course of almost four years of working in a local authority public health department. Completing the stage 2 training has allowed the trainee to inject a stronger health psychology focus into their work.

Section B – Research Dissertation

The trainee entered this training working in a local authority public health department. As part of this role, there was a gap in the provision of services available to support those wishing to quit khat. Khat is a leaf that is chewed by people from a variety of African and Middle Eastern backgrounds e.g. Somali and Ethiopian communities. Khat was banned in the UK in June 2014. At the time there was a large Somali community in Islington and anyone wanting support was offered generic drug support.

The research was a qualitative research study looking at the barriers and enablers to quitting khat from the perspective of users and ex-users and the barriers and enablers to supporting people to quit from the healthcare professional's perspective. Ten khat users and three healthcare professionals were interviewed, using the Theoretical Domains Framework (Cane, O'Connor and Michie, 2012) as the basis for the interview schedules and analysis. The findings were mapped onto the behaviour change taxonomy (Michie et al., 2013) to develop two behaviour change interventions to support people to quit khat, and support healthcare professionals to deliver care.

For khat users, there were a number of influential factors that encouraged khat use and a number of barriers and enablers to quitting. The five most important domains for khat users were beliefs about consequences, social influences, knowledge, behavioural regulation and optimism. Users were concerned about the potential health and social consequences if they continued to use khat. The influence of their family and friends and the knowledge of current legislation were both enablers to quitting. Users made attempts to change their existing habits and adopt new strategies to prevent further khat use. Participants were confident they could stay away from using khat in the future.

The healthcare professionals revealed the complexity of their role and highlighted a number of barriers and enablers to supporting people to quit. The five most important domains were social influences, social / professional role and identity,

environmental context and resources, skills and beliefs about consequences. The support from their colleagues was instrumental in their role. They identified a number of skills that were key, but identified that clients could only successfully quit khat if they were motivated to do so. All the services were operating in times of diminishing funds, which impacted on the service they were able to offer.

The development of two behaviour change interventions were hypothesised and the strengths and limitations of this approach are identified. The research was presented as an oral presentation at the British Psychological Society (BPS) Division of Health Psychology (DHP) annual conference in September 2017 and as a poster presentation at the European Health Psychology Society (EHPS) annual conference in September 2017.

Section C - Professional Practice

Teaching and training

Teaching and training were conducted with two separate groups; healthcare professionals and university students.

Healthcare professionals were trained in delivering a six week cook and eat programme called Family Kitchen. The programme is designed to support parents and children under five to develop healthy eating habits. The programme is based on the Health Belief Model (HBM) (Rosenstock, 1974) and the social learning theory (Bandura, 1977). This was articulated in the training, with a clear emphasis on empowering the parents to make health behaviour changes in healthy eating. In order to enhance learning outcomes, an active learning approach (Lawson, 2006) was implemented. This included a practical activity, where a typical Family Kitchen session was delivered as part of the training with the participants taking the role of parents.

A lecture was also delivered to undergraduate psychology students on the development of behaviour change interventions in a public health setting. As part of the lecture, the use of health psychology theory and behaviour change taxonomy (Michie et al., 2013) and the behaviour change wheel (Michie, van Stralen and West, 2011) were highlighted.

Consultancy

The trainee was engaged by researchers in the School of Health Sciences at City, University of London on a study looking at self-titration of insulin in patients with type 2 diabetes. The qualitative study used the Theoretical Domains Framework (Cane, O'Connor and Michie, 2012) as the basis for the interview schedules and analysis, to look at the barriers and enablers to self-titrating. Eighteen participants took part, recruited from a diabetes clinic in East London NHS Foundation Trust. The trainee conducted the interviews, including two in Bengali, which she also translated and transcribed. The analysis of the interview data formed the basis of the consultancy work, following the expert model of consultancy (Schein, 1978). A poster of the study was presented at the BPS DHP annual conference in September 2015 and the study has also since been published in Diabetic Medicine in October 2016.

Behaviour change interventions

For this competency, the trainee was asked to devise a behaviour change intervention designed to support parents of children aged five and under to make healthy lifestyle changes. From 2010 to 2012, Islington Public Health had been funding the delivery of Mind, Exercise, Nutrition – Do it! (MEND) 2-4 in all 16 of the children's centres in the borough. MEND 2-4 is a 10-week healthy lifestyles programme for children and their parents, which focuses on making small healthy lifestyles changes for a healthy lifestyle. The programme has a robust evidence base and has been shown to improve diet and physical activity in the families that take part (Chadwick et al., 2010). Due to problems with intervention fidelity, the author and colleagues were asked to devise an alternative intervention for use in early years settings in Islington.

The trainee worked with a dietitian colleague to devise a behaviour change intervention called Small Steps for Big Changes (SS4BC) to encourage dietary and physical activity related behaviour change. The behaviour change techniques used in MEND were identified using the behaviour change taxonomy (Abraham and Michie, 2008). The programme contained six key topics (encouraging good eating habits, child size portions, healthy eating for young children, planning healthy meals for less, get active and be screenwise) and used established behaviour change techniques to make behaviour change as practical as possible for parents to implement. The trainee devised the programme, trained staff to deliver it (delivering the intervention as part of the training) and supported staff in a local primary school

to deliver and evaluate it. The development of this behaviour change intervention also formed the basis of the teaching lecture completed as part of the teaching and training competency.

General professional competency

The trainee reflected on the knowledge and skills developed over the course of the stage 2 training programme in practising as a competent practitioner psychologist. Over the course of the four years of DPsych candidacy, the trainee held two positions funded by the public health department. For the first two years, the candidate was employed by Children's Services in a role focusing on supporting colleagues in early year's services with health promotion within the department's key health priority areas (diet, physical activity and substance misuse, amongst others). This included supporting early years settings with obtaining Healthy Early Years programme accreditation, through supporting them to evidence their health related work for families. For the latter two years, the candidate was employed by public health working within the data team, specialising on conducting qualitative research projects to support the department's wider strategic priorities. This included using qualitative methodology to explore under-researched topics (such as the effects of living in temporary accommodation on residents' health and wellbeing) and conducting project evaluations, such as evaluating the utility of a support service designed to help residents with mental health needs access and retain employment. The trainee is able to implement these skills and ways of working in their current role at a local authority public health department.

Section D - Systematic review

Research looking at fidelity in intervention delivery is a growing area. Fidelity is defined as the extent to which an intervention is delivered as intended. The trainee conducted a systematic review looking at the fidelity of smoking cessation interventions, using the Behaviour Change Consortium (BCC) fidelity framework (Bellg et al., 2004), which covers five key dimensions; design, delivery, training, enactment and receipt. Forty-two studies were included in the review. The results showed that delivery was most commonly assessed and reported, but fidelity was still considered to be low. A number of methods were used to assess fidelity, such as audiotaping and intervention checklists.

The review was presented as a ‘works in progress’ poster at the BPS DHP conference in September 2017. To the best of the author’s knowledge, this review is the first to look at fidelity in smoking cessation interventions using the BCC framework and has made a unique contribution to the field. The trainee will be pursuing publication upon completion of the doctorate.

Conclusion

The portfolio demonstrates how the trainee clearly applied health psychology principles and practice successfully within the context of public health. The portfolio demonstrates a clear interest in wider public health promotion and health related behaviour change (e.g. diet, physical activity and substance misuse). This has been further developed to support behaviour change by devising evidence based behaviour change interventions and considering other key issues e.g. intervention fidelity.

SECTION B - RESEARCH

The experiences of people who chew khat and the health care professionals who support them to stop

Abstract

Background and aims: Very little is known about khat use in the UK. The aim of this study was to explore the barriers and enablers to quitting khat from the perspective of those using it and the barriers and enablers to supporting users to quit from the healthcare professional (HCP) perspective.

Methods: A qualitative study using semi structured interviews with users and HCPs in London. The Theoretical Domains Framework (TDF) was used to collect and analyse the data. The important domains were mapped onto the Behaviour Change Techniques Taxonomy (BCTT_v1) and two interventions targeting khat users and healthcare professionals were designed.

Results: A total of 10 khat users and 3 HCPs were interviewed. The beliefs held by khat users regarding the consequences of continued use facilitated their decision to quit. The social influences from those around them were a barrier and enabler. For healthcare professionals, the social influence of other colleagues and working together was key in enabling them to support clients. Social / professional role and identity was also an important enabler, as the healthcare professionals saw supporting users to quit as an integral part of their role. A range of BCTs were identified as potential ways in which quit attempts could be more successful, from the user and HCP perspective.

Conclusions: The study has highlighted key factors in enabling khat users to quit and HCPs to support them to do so. It has clear implications for current quit khat services and demonstrates how to target interventions by focusing on key barriers and enablers to quitting khat and supporting HCPs to deliver services. Recommendations for practice in the field of substance misuse and areas for future research have been identified.

Introduction

Khat

Khat (also known as catha edulis) is a plant for which the leaves are chewed in small bundles to release the juices or stewed to drink in an infusion. It is a common practice in African and Middle Eastern countries such as Ethiopia, Somalia and Yemen and these communities living in the UK (Iversen, Mathewson and James, 2013). The leaves contain two main stimulating drugs, which can speed up the mind and body of the user (Frank, 2017a). The main effects of chewing khat are similar to amphetamines, but not as strong. Amphetamines (or 'speed') can make people feel very energetic, alert and talkative (Frank, 2017b). Chewing khat has very similar effects (Cox and Rampes, 2003). The key psychoactive compounds in the leaves are cathine and cathinone, which can be two to 10 times less active in khat than in amphetamine (Pennings, Opperhuizen and van Amsterdam, 2008). Khat is typically used for long periods of time in social groups with family members and friends (Frank, 2017). People may chew for long periods of time, ranging from one to two hours up to an entire evening and night spanning nine to 12 hours (Corkery et al., 2011).

Prevalence

Prevalence rates vary considerably outside of the UK. In Yemen, 44% of 568 doctors use khat, either occasional, frequent or daily use (Kassim et al., 2015). Of 1500 Yemenite Jews, 6.8% reported using khat for more than three years (Kassim et al., 2015), whilst a study of 10,468 khat users in Ethiopia found that 8.7% self-reported as being daily khat users (Estifanos et al., 2016).

At present, there is little published data regarding the prevalence of khat use in Europe (Iversen, Mathewson and James, 2013). Previous estimates from the 2005 Advisory Council on the Misuse of Drugs (ACMD) estimate that there are approximately 88,000 users in the UK, with 50,000 users in London (ACMD, 2005). Some London boroughs are thought to have a higher concertation of users, such as Hillingdon with estimates reaching 10,000 users (ACMD, 2005).

Patel, Wright and Gammampila (2005) surveyed 602 respondents across four UK cities (London, Sheffield, Birmingham and Bristol). The majority of the sample were of Somali origin (82.3%) with the remaining identifying their ethnicity as Somali / Somali British Black British (10.2%), Black British (7.2%) and mixed race (0.3%).

Whilst 61% reported that they had never used khat, 38% had said they had chewed khat at least once before and 34% in the last month. Of these users, 47% used khat daily. Gatiso and Jembere (2001) found that khat was also the most commonly used substance amongst the Ethiopian community in south London, with 73% of their 250 respondents reporting they used it. In terms of levels of dependency in a sample of 204 UK khat chewers, 51% were classed as most probably dependent and 32% had a severe level of dependence (Gossop et al., 1995). Using more recent DSM-IV criteria for substance dependence (American Psychiatric Association, 2000) in a sample of 204 UK resident adult male khat chewers who chewed khat regularly (at least once a week) in the preceding 12 months, a third of the sample showed symptoms that were indicative of dependence syndrome and 17% displayed withdrawal symptoms (Kassim, Croucher and al'Absi, 2013).

UK Khat ban

Khat was classified as a class C illegal drug by the UK government in 2014. A review looking at khat, its usage and the effects of using it on the individual and society was conducted by the UK's ACMD in 2013 (Iversen, Mathewson and James, 2013). This report recommended that khat was not banned in the UK due to insufficient evidence of the harms associated with khat use. The review made a number of recommendations, such as taking a multi-agency approach to address health inequalities to ensure the community is supported. Despite this recommendation, the decision was taken to ban khat in the UK to 'protect vulnerable members of our communities and send a clear message to our international partners and khat smugglers that the UK is serious about stopping the illegal trafficking of khat' (Khat Parliament statement, 2013).

Khat was also banned in Finland, Germany and New Zealand in 1981, Norway and Sweden in 1989, Italy in 1990 and Denmark in 1993. These decisions do not however, appear to be based on any form of assessment or investigation into khat use or its potential harms (Iversen, Mathewson and James, 2013). The USA put restrictions in place for the compounds present in khat (cathine in 1988 and cathinone in 1993), as did Switzerland (in 1996) and Canada (in 1997) (Iversen, Mathewson and James, 2013). Most recently, it was banned in the Netherlands in 2013 (Khat Parliament statement, 2013). If an individual is caught in possession of khat in the UK they face up to two years in prison, an unlimited fine or in some cases, both. If caught supplying or producing khat, the sentence greatly increases to

up to 14 years in prison, an unlimited fine or both (Gov.uk Drugs Penalties, 2017). The ban has meant that there is a restriction on the fresh leaves being imported into the UK. There are suggestions that it is now being brought in a dry, powdery form from Africa. This is mixed with water and taken as a drink. The positive effects obtained from taking the khat leaves in this form is said to be much milder than when the leaves are directly chewed (Hassan, Gunaid and Murray Lyon, 2007). This is in line with other synthetic cathinones that are sold in a powdered form, often sold as 'bath salts' (Valente et al., 2014).

The effects of khat use

There have been several studies that have looked at the way in which khat is used and its effects. The main comprehensive systematic review in this area was conducted by Thomas and Williams (2013) to explore the harms of using khat amongst UK residents and to society. The authors searched and presented their findings according to the 16 criteria for drug harms specified by the UK's ACMD, nine of which are concerning harms to the individual user (dependence, cardiovascular effects, respiratory system effects, oral and gastrointestinal system pathologies, liver, pregnancy, psychiatric effects, cognitive impairment and links to mortality) and the remaining seven concern harms for wider society (unemployment, family breakdown, income diversion, anti-social behaviour, violence, crime and criminal networks and integration). A total of 669 papers were reviewed, including systematic reviews, literature reviews, two ACMD reports, controlled and uncontrolled observational studies. The review concluded that the majority of those using khat chewed it in moderation (up to two bundles of khat per day) and the associated harms (e.g. lethargy and problems with sleeping) were low.

One of the primary literature reviews included by Thomas and Williams (2013) included that of Cox and Rampes (2003), which appraised the existing literature on khat usage and its effects. The authors concluded that users report a number of both positive and negative effects of using khat. Positive effects include feeling very happy and a general sense of wellbeing. Khat is often chewed in groups with family members and friends, and users often feel sociable and talkative in the first instance. When small amounts are used, users also report feeling more alert, increased levels of concentration and improved communication skills. Quite often their ability to imagine new scenarios and formulate new ideas also increases. For example, many users report making business plans and have an increased

entrepreneurial spirit. Those that chew it for longer and later in the day tend to experience insomnia and, in some cases, hallucinations (Cox and Rampes, 2003). After approximately two hours of usage, however, users often start to feel negative. These include feeling anxious, tense or restless. These effects continue after they have stopped chewing and are often coupled with low mood, an inability to concentrate and insomnia. Khat has also be shown to be associated with an increased conflict response (Colzato et al., 2012).

The effects on physical health

In a review of studies looking at khat related deaths (Corkery et al., 2011), it was found that the physical health harms of using khat (such as oral health problems and liver failure) were greater for those who chewed khat excessively (more than two bundles daily), particularly for those with existing mental health conditions. However, the relationship was correlational and therefore the direction of causality could not be established.

Although khat has been shown to have a low addictive potential (Pennings, Opperhuizen and van Amsterdam, 2008), the long term negative impacts are usually related to malnutrition. Al-Motarreb, Al-Haborib and Broadley (2010) reviewed a wide range of studies on the health effects of using khat and found negative effects on the gastrointestinal, cardiovascular and other peripheral systems within the body. However, they expressly mentioned that these conclusions were based on small numbers of case reports and only a small number of controlled studies. In those that use large amounts of khat, there is an association with negative health effects such as heart rhythm disorders, hypertension, loss of appetite and insomnia (Al-Motarreb, Al-Haborib and Broadley, 2010). Other evidence has also suggested that there is a higher prevalence of cancers within the digestive tract in those who use khat (Pennings, Opperhuizen and van Amsterdam, 2008).

The effects on mental health

The evidence for khat use affecting mental health has been mixed (Pennings, Opperhuizen and van Amsterdam, 2008). In a review of the neuropharmacological properties of khat, Feyissa and Kelly (2008) concluded that the data was not sufficient to suggest that there was a causal relationship between using khat and long term psychopathology. Warfa et al. (2007) critically reviewed the evidence

regarding khat use and mental illness and concluded that excessive amounts of khat use could exacerbate existing psychological problems in users. However, they found no clear link between using khat and developing a mental health condition. They also commented on the small number of studies within this field. Whilst in the UK, 30% of the users reported experiencing mild to severe anxiety and 26% mild to moderate depression. This was however, self-reported data, not verified to ascertain whether participants had clinical diagnoses or were using this terminology to indicate low mood (Patel, Wright and Gammampila 2005).

Other users have cited the positive psychological effects of khat use, as an aid to relieve fatigue and in self medicating for depression (Deyessa et al., 2008). This has however, been refuted by the World Health Organisation (WHO), who have concluded that using khat has no therapeutic potential (WHO, 2006). This was based on a critical review of psychoactive substances conducted by the WHO Expert Committee on Drug Dependence. For khat, the evidence was reviewed pertaining to the identification of the substance, any previous reviews, similar known substances and their effects on the central nervous system, dependence potential, actual abuse or evidence of likelihood of abuse and the therapeutic usefulness (WHO, 2006).

Effects of quitting khat

The withdrawal symptoms from quitting khat are not as severe as other drugs, but can leave the user feeling hot, lethargic and with a desire to continue chewing khat (Corkery et al., 2011). Other reported symptoms include nightmares and a slight trembling a few days after quitting (Corkery et al., 2011).

Predictors of khat use

There has been limited research exploring the predictors of khat use, in the UK or worldwide. The studies that have been conducted indicate that gender and substance misuse are associated, primarily using cross-sectional survey designs, rather than predictive of khat use.

Gender

Patel, Wright and Gammampila's (2005) surveyed UK residents of Somali origin, with 324 male (54%) and 278 female respondents. Of females, 14% disclosed using khat recently and 16% reported using it at least once before. Male khat use was

much higher, with 51% reporting they had recently used khat and 58% reporting using it at least once before. The authors concluded that the higher prevalence amongst males was “in accordance with the greater cultural acceptance of men rather than women using it”. In line with this conclusion, 29% of respondents agreed that it is acceptable for women to chew khat. This indicates that there is a stigma attached to women using khat, even amongst khat users living in the UK. Other studies however, indicate that it may be more acceptable for women to chew khat in the UK than in Somalia due to the wider environment being more accepting of women using drugs (Nabuzoka and Badhadhe, 2000).

Patel, Wright and Gammampila’s (2005) also found that the frequency of usage was similar within male and female respondents; two days a week for females and three days a week for males. The reasons for usage were also similar in male and female respondents. 62% and 65% of female and male users, respectively, said they used khat for enjoyment or socialising.

Outside of the UK, in those who intend to quit using khat in Ethiopia, the majority believed khat usage was higher in men than in women (Estifanos et al., 2016). A cross-sectional survey by Wedegaertner et al. (2010) in Yemen found that male participants strongly identified with khat use, whilst females were more ambivalent in this regard. More females expressed that khat was a bad habit than males. For female participants, worries about the impact of using khat on their health and losing honour or esteem within their family if their khat usage was discovered was associated with abstinence. In a sample of 189 Yemen university students that used khat and tobacco concurrently, Nakajima et al., (2013) found the frequency and intensity of khat use was higher in males than females when smoking tobacco cigarettes. In their sample females who smoked tobacco on a daily basis used more khat, but this was not the case for males (Nakajima et al., 2013). The female participants used tobacco in the form of waterpipe smoking and 87% said they only used it whilst chewing khat (Nakajima et al., 2013). Research however, has shown that khat is often used to enhance studying potential through increasing concentration (Brenneisen et al., 1990) and so participants from a student population may have a more favourable view of khat than that of non-student khat users.

Substance misuse

Many studies have identified that khat is often used in conjunction with other substances, such as tobacco or alcohol (Manghi et al., 2009). Patel, Wright and Gammampila (2005) found that 13% of the respondents who identified as using khat also smoked cigarettes concurrently and one person used shisha alongside khat. Kassim et al. (2015) conducted a systematic review of nine studies looking at tobacco usage amongst khat users. The review included quantitative studies (cross-sectional and cohort) outlining tobacco usage amongst khat users. The authors concluded that tobacco usage amongst khat users was significant, particularly daily cigarette smoking. Khat and tobacco use in these studies was however self-reported and so the figures may be biased, especially amongst females where there is a stigma attached to khat and tobacco use (Patel, Wright and Gammampila, 2005).

Furthermore, two of the studies were in a student population, who may not be representative of the general population of khat users, as highlighted previously. Since this review Kassim and Farsalinos (2016) have postulated that electronic cigarettes could be useful in helping those with a tobacco and khat addiction quit the use of both, as they have been useful in reducing tobacco usage.

Barriers and enablers to quitting khat

In the UK Patel, Wright and Gammampila (2005) found that 68% of 150 recent khat users did not wish to quit khat. The reasons included it being part of socialising (28%), personal enjoyment (23%), khat use causing no problems (16%), it being a cultural / traditional activity (8%), experiencing positive psychoactive effects (7%), chewing khat for a long time (4%), khat relaxing them / relieving stress (3%), family and friends using khat (3%), no alternative activity to do (3%), feeling addicted (3%) and fear of substituting khat with other substances (2%). This study was conducted prior to the ban and indicates that many khat users enjoyed using khat and did not wish to quit.

Outside of the UK, in their survey of university students in Yemen, Nakajima et al., (2013) found that 70.2% had thought about quitting and 41.5% had made a quit attempt. In a mixed methods study exploring khat use in Ethiopia, Estifanos et al. (2016) assessed participants intentions to quit using khat, but not actual khat quitting behaviour. The quantitative part of the study surveyed 726 participants for

their willingness to quit according to the Stages of Change model (Prochaska and Diclemente, 1983). The qualitative aspect included three focus groups with a total of 21 participants and interviews with a further five participants. Both the quantitative and qualitative aspects of the study explored participants views on khat use and ascertained their willingness to quit khat. There were a number of factors significantly associated with the intention to stop using khat, many of the themes supporting the work conducted by Patel et al. (2005) in the UK. Participants who had been educated to preparatory and diploma level were twice as likely to have the intention to stop than those who were illiterate. Users who had not previously experienced any withdrawal effects were 2.6 times more likely to display the intention to stop using khat in comparison to those users who had previously experienced some form of withdrawal symptoms. Those chewing everyday were 94% less likely to have an intention to quit than those who chewed khat on a more infrequent basis. The results also highlighted gender differences, with females being 1.76 times more likely to have the intention to stop chewing khat than males. When asked about the barriers to stopping khat, many participants cited joblessness as a reason for continuing as they had excessive leisure time but not many activities to fill it with, hence khat was used as a way to pass the time. These factors could also be considered predictors of khat usage in addition to being barriers to quitting. The study however, failed to assess quit attempts. They only assessed intention and as research indicates intentions do not always lead to behaviour change (Sheeran, 2002). Some of the findings of this study resonate with Patel et al.'s (2005) findings, such as using khat due to not having any alternative activities. The two populations have similar demographics in terms of the khat users but the environment is very different. For example, half the participants in Estifanos et al.'s (2016) study (50.5%) were employed, 12.7% were students and the rest of the sample (36.8%) were unemployed. The economic environment in Ethiopia is very different to that of the UK and therefore factors such as joblessness may not necessarily be a barrier to quitting in a UK population where there are greater job opportunities.

Support services to help khat users to quit

Very little research has looked at the support services that are available or are effective in helping khat users to quit and the behaviour change techniques that may be useful in this regard (Kassim, Croucher and Al-Absi, 2013). There is no published evidence or information available about the quit support programmes

available in the countries in which the substance is banned, indicating it may well be up to the individual to quit using khat of their own accord.

In their study looking at the severity of khat dependence, Kassim, Croucher and Al-Absi (2013) used interview questionnaires for 204 UK resident male Yemeni khat users recruited from khat sale outlets. They did not collect data on the support available to quit khat. The authors reflected on the implications of their research and made a number of recommendations, which may not necessarily be evidence based. One of the implications of their research into khat dependence was being able to develop guidelines to support professionals to recognise varying levels of khat dependence. They drew upon the recommendations of the ACMD (2013) report and noted that the support options available for those wishing to stop using khat should be evaluated in future research, specifically the mode of delivery of these services (such as via community based services or general practice). They also commented that the crucial period after a quit attempt in which relapse may occur and the link to factors such as the concurrent use of khat and tobacco should be explored further. For example, research (e.g. Shaffer et al., 2004) suggests one possibility is to explore the relationship between treating one addiction (e.g. using nicotine replacement therapy for tobacco addiction) and any possible related effects on khat usage. Identifying such factors will allow for a more sustainable model of stop khat support to be developed. This was one of the few studies conducted in a resident UK population and has a larger sample size than other studies. The use of the DSM-IV for khat chewing dependence syndrome was shown to be statistically valid and reliable.

One of the recommendations from the ACMD report was that services are made available for those who would like support to stop using khat (Iversen, Mathewson and James, 2013). At the time of publishing the ACMD report there were six khat programmes aiming to support users to quit in England, one of which has since been dissolved. Details of these services are limited, hence their content and the evidence for their effectiveness remain unknown. It is known that the support services available in London have been delivered within other services, such as part of existing substance misuse services in Islington and part of mental health support services in Tower Hamlets (Mind, 2015). There is still variation within the services, with some offering service users' generic advice and support that is applicable to all substance misuse and others targeting khat specifically. In such cases the services are tailored by support workers who understand the cultural and religious norms of

the community they are working with. They may be of the same ethnic background and have personal experience of using khat, as the two support workers in Mind Tower Hamlets were (Mind, 2015), which is a recommendation of Public Health England (PHE) (PHE, 2014).

With regards to the therapeutic approach taken within these support services, the National Institute for Health and Care Excellence (NICE) guidelines for drug misuse endorse psychosocial interventions, such as cognitive behavioural therapy (CBT) and motivational interviewing (MI). This is based on evidence from existing literature across a number of drugs, including khat (NICE, 2007). These guidelines are based on evidence showing that khat users display a number of symptoms of dependence, such as withdrawal symptoms (Kassim, Croucher and Al-Absi, 2013; Nakajima et al., 2014) and other criteria that are included in ICD-10 (WHO, 1992) and DSM–IV (American Psychiatric Association, 1994), such as prioritising drug use over other social activities and loss of control. Although it is noted that these are not essential factors in the diagnosis of dependence on a substance. The report is not clear on whether CBT and MI has been tested specifically in khat users. It may have been evidenced in other drugs and assumed effective in khat. The findings have been generalised from other populations but they are not necessarily applicable to khat users.

The present study

The present study explored the experiences of khat users quitting and healthcare professionals supporting people to quit in the UK. Exploring the views of both groups strengthens the study and allows for exploration of how these perspectives combine and complement each other. The results can be used to design future evidence and theoretically-based interventions by ensuring the relevant barriers are addressed and facilitators are enabled.

Research aims and objectives

1. To identify the key barriers and facilitators of quitting khat from the user perspective, using semi structured interviews guided by the Theoretical Domains Framework (TDF) for behaviour change (Cane, O'Conner and Michie, 2012).
2. To identify the key barriers and facilitators that health care professionals face in supporting those who use khat to quit, using semi structured interviews guided by the TDF for behaviour change (Cane, O'Conner and Michie, 2012).

3. To illustrate how interventions could be devised by using existing mapping matrices linking the TDF domains to the Behaviour Change Taxonomy (Michie et al., 2013).

Methods

Epistemology

The research is based on the positivist epistemology, which suggests that the world can be viewed and analysed in a rational manner (Yardley, 1999). Conte (1798 to 1857) coined the term ‘positivism’ and postulated that social sciences should try to be objective and avoid bias by distancing the researcher from the subject they are researching (Holloway, 1997). Positivists take the opinion that the knowledge of the world must be gleaned through observation of controlled environments. Research is often based on a theoretical framework and moves from a general theory to specific research questions. It is argued that there is an objective reality and so findings from one particular group can be generalised to others.

A realist epistemological perspective is based on a number of assumptions. It takes the stance that an objective reality exists that is free of values. Observations of this reality might be distorted by sources of error. Science is a form of observation in the search for truth and participants are sources of data that are error prone. The realist position aims to accurately and objectively measure concepts and apply generalisable laws to them. They often use empirical methodology to confirm laws and assess whether their observations fit established theories. The researcher will aim to avoid bias and remain objective at all times. Research from this stance usually employs quantitative methodology. Historically, the realist position has been associated exclusively with quantitative methodology and the constructivist approach with qualitative methodology. However, more recently King and Horrocks (2010) argue that this is an obstructive way to approach research and that research can benefit from using quantitative and qualitative approaches in a complementary way.

In this vein, this research has used qualitative methodology, but from a realist perspective. The participants in this study are experts in their own lives; they know first-hand what it is like to quit khat and what it is like to support people to stop using it. In some cases, the same individual has experience of both sides of the spectrum, which has helped to enhance their professional practice.

Design

This was a qualitative study using individual semi-structured interviews guided by the TDF for behaviour change (Cane, O'Conner and Michie, 2012).

Participants

Two groups of participants were interviewed, khat users and healthcare professionals (HCP).

Khat users

Inclusion/exclusion criteria

Participants were included if they were aged 18 or over and self-reported using khat, either previously or currently. Participants who could not speak English were excluded. Participants with existing self-reported mental health conditions (e.g. depression, anxiety and psychosis, amongst others) were also excluded, established by the screening questionnaire (see appendix B1). Evidence suggests that chewing khat may exacerbate existing mental health conditions (Thomas and Williams, 2013) and taking part in the study may have exposed them to psychological distress due to the sensitive nature of the questions.

Healthcare professionals

Inclusion/exclusion criteria

HCP were those working in substance misuse services in the UK with direct experience of supporting users to quit.

Procedures

Khat users

Snowball sampling was utilised to recruit participants, and recruitment was predicted to be difficult. The primary researcher (SB) contacted a number of organisations working with people using khat based in London (see appendix B2 for full list), as well as colleagues who work with families within the London Borough of Islington who may have experience of khat (such as Bilingual Family Support Workers).

The khat support workers and the Bilingual Family Support workers each contacted individuals they worked with who met the inclusion criteria and passed on the

information sheet (see appendix B3) for this study. Eligible participants were asked to contact the researcher via email or phone if interested in taking part.

When the service users initially made contact with the researcher, the research was explained further and any questions were answered. Service users were also screened using a screening form by the researcher to ensure their eligibility to take part (see appendix B1). They were then sent another copy of the information sheet and a copy of the consent form (see appendix B4) with a stamped, addressed envelope. After a week, they were contacted by telephone by the primary researcher and asked if they had read the information sheet and consent form and verbal consent was obtained. A time and place for the interview was then negotiated. Interviews could be held either at City, University of London, Islington Council or on the telephone. Those opting for a face-to-face interview were asked to bring the consent form with them when they came for interview. Those opting for telephone interviews were asked to return the consent form in the stamped, addressed envelope provided. At the point of obtaining consent, participants were reminded they can opt out of the study at any point up to four weeks after data collection and any data collected so far would be destroyed.

All of the interviews were conducted by the primary researcher and recorded digitally. The data was collected over a period of one year (August 2015 to August 2016). At the end of the interview, participants were provided with a copy of the signed consent form and a debrief sheet (see appendix B5). They were also asked if they would like to receive a written summary of the findings. This was sent out to all participants that requested it after the study was completed (see appendix B6).

Participants in the khat user group were given a £10 high street shopping voucher as a thank you for taking part. These were given immediately after the interviews, either to the participants themselves or to the contact person within the organisation if the participant opted for a telephone interview.

Healthcare professionals

Snowball sampling was utilised to recruit HCP. Recruitment began in khat-specific quit services within inner London (see appendix B2 for full list) however, the area was expanded to include UK wide services (see appendix B2 for full list) and telephone interviews were offered due to poor recruitment.

The organisations were contacted (either a named khat support worker if available or a generic contact email) with a brief summary of the study (see appendix B7 for the recruitment email). If a generic email address was used, the email included a request for it to be forwarded to the khat support workers. Any interested HCP were asked to contact the primary researcher via phone or email. Those interested were sent the information sheet and consent form (see appendix B8 and B9, respectively), and asked to let the researcher know their availability for interview if they were interested in taking part. They were asked to post their consent form back to the primary researcher. Interviews were organised and the HCP gave their verbal consent over the telephone.

The HCP data was collected over a period of eight months (August 2016 to April 2017). All of the interviews were conducted by the primary researcher and recorded digitally. At the end of the interview, participants were provided with a copy of the signed consent form and a debrief sheet (see appendix B10). They were also asked if they would like to receive a written summary of the findings. This was sent out to all participants that requested it after the study was completed (see appendix B11).

Interview topic guide

Two interview topic guides were produced; one for khat users and another for the HCP (see appendix B12 for interview topic guides). The interview schedules were based on the TDF and designed to elicit barriers and enablers across each of the 14 domains and their relationship to quitting khat for service users and supporting people to quit for HCP.

The interview topic guides for the khat users contained 33 items (ranging from one to five questions per domain) and for the HCP 31 items (ranging one to six questions per domain). For the khat users, the barriers and enablers to quitting were explored. For HCP, the interviews aimed to elicit their experiences of supporting people to quit using khat and the barriers and enablers in doing so. Both of the interview schedules included at least one question relating to each of the domains in the TDF (see table 1 for an example). The questions were developed by applying the behaviour of interest (quitting khat or supporting someone to quit) to the domain definitions as cited in Cane, O'Conner and Michie (2012) and from other studies that have used the TDF in this way (McBain et al., 2016, Francis et al., 2009). The

questions were ordered in a sequence that would be logical for participants and where questions may naturally lead on from the previous question.

Table 1 - Theoretical Domains Framework (from Cane et al., 2012)

Domain (definition[1])	Constructs	Sample question from this study (khat user / HCP)
1. Knowledge (An awareness of the existence of something)	• Knowledge (including knowledge of condition / scientific rationale) • Procedural knowledge • Knowledge of task environment	What do you know about what the law currently says about using khat in the UK? Are you aware of any interventions available to support people to stop using khat?
2. Skills (An ability or proficiency acquired through practice)	• Skills • Skills development • Competence • Ability • Interpersonal skills • Practice • Skill assessment	What skills do you need to make sure you don't start using khat again? What skills do you need to support a service user to stop using khat?
3. Social/Professional Role and Identity (A coherent set of behaviours and displayed personal qualities of an individual in a social or work setting)	• Professional identity • Professional role • Social identity • Identity • Professional boundaries • Professional confidence • Group identity • Leadership • Organisational commitment	How does your culture impact on your use of khat? To what extent do you consider helping someone to stop using khat part of your role?
4. Beliefs about Capabilities (Acceptance of the truth, reality, or validity about an ability, talent, or facility that a person can put to constructive use)	• Self confidence • Perceived competence • Self-efficacy • Perceived behavioural control • Beliefs • Self-esteem • Empowerment • Professional confidence	How confident are you that you could stop using khat if you wanted to? How confident do you feel to support a service user to stop using khat?
5. Optimism (The confidence that things will happen for the best or that desired goals will be attained)	• Optimism • Pessimism • Unrealistic optimism • Identity	How hopeful are you that you will stay away from using khat in the future? How hopeful are you that your service users will stay away from using khat in the future

6. Beliefs about Consequences (Acceptance of the truth, reality, or validity about outcomes of a behaviour in a given situation)	• Belief outcome expectancies • Characteristics of outcome expectancies • Anticipated regret • Consequents	Have you ever experienced any positive effects from using khat? What positive outcomes have those who used your service for support with stopping khat reported from attending your service?
7. Reinforcement (Increasing the probability of a response by arranging a dependent relationship, or contingency, between the response and a given stimulus)	• Rewards (proximal / distal, valued / not valued, probable / improbable) • Incentives • Punishment • Consequents • Reinforcement • Contingencies • Sanctions	What would encourage you to stop using khat? What encourages you to support service users to stop using khat?
8. Intentions (A conscious decision to perform a behaviour or a resolve to act in a certain way)	• Stability of intentions • Stages of change model • Transtheoretical model and stages of change	Do you think you will start using khat again? Do you intend to support your next service user reporting using khat to stop?
9. Goals (Mental representations of outcomes or end states that an individual wants to achieve)	• Goals (distal / proximal) • Goal priority • Goal / target setting • Goals (autonomous / controlled) • Action planning • Implementation intention	How important is stopping using khat for you? How important is it for you to support service users to stop using khat?
10. Memory, Attention and Decision Processes Memory (The ability to retain information, focus selectively on aspects of the environment and choose between two or more alternatives)	• Attention • Attention control • Decision making • Cognitive overload / tiredness	How much of your day involves thinking about using/or using khat? What factors are important for you in deciding how you will support someone to stop using khat?
11. Environmental Context and Resources (Any circumstance of a person's situation or environment that discourages or encourages the development of skills and	• Environmental stressors Resources / material resources • Organisational culture / climate • Salient events / critical incidents	Are there certain situations that you might use khat/find it difficult to not use khat? Do you have enough of the necessary resources to support service users to stop?

abilities, independence, social competence, and adaptive behaviour)	• Person x environment interaction • Barriers and facilitators	
12. Social influences (Those interpersonal processes that can cause individuals to change their thoughts, feelings, or behaviours)	• Social pressure • Social norms • Group conformity • Social comparisons • Group norms • Social support • Power • Intergroup conflict • Alienation • Group identity • Modelling	What impact did/do your family and friends have on your decision to use khat? How does the service user influence your approach to supporting them to stop using khat?
13. Emotion (A complex reaction pattern, involving experiential, behavioural, and physiological elements, by which the individual attempts to deal with a personally significant matter or event)	• Fear • Anxiety • Affect • Stress • Depression • Positive / negative affect • Burn-out	If you think about stopping using khat, how does that make you feel? To what extent do emotional factors influence whether or not you support someone to stop using khat?
14. Behavioural Regulation (Anything aimed at managing or changing objectively observed or measured actions)	• Self-monitoring • Breaking habit • Action planning	If you wanted to stop using khat, how would you do this? In your role as a professional, what do you see as the barriers to people stopping khat?

[1] All definitions are based on definitions from the American Psychological Associations' Dictionary of Psychology (APA, 2007).

The development of the interview schedules was an iterative process. For the khat users, the interviews were originally proposed as three interview schedules; one for those who were currently using khat, one for those who had already quit and one for those who had previously quit and relapsed. After conducting the first interview and further discussion with a health psychologist (HM) who has experience of using the TDF, it was decided that one interview schedule would suffice (see appendix B12 for the full interview schedule and appendix B13 for the three original versions). The interview topic guides were continually discussed by the researchers as the interviews progressed to ensure that they were eliciting the information of interest. The same process was followed for the HCP interview schedule.

The interview schedules were used as a guide to direct the interview. Any areas that seemed to be important to participants in relation to them quitting khat or their role in supporting people to stop, were explored further.

Sample size

The study aimed to recruit 10 to 13 participants, in each group or until saturation of themes occurred (Francis et al. 2010). Data saturation was deemed to have been reached when no new themes were emerging from participants in each particular area.

Analysis

Three of the khat user interviews were transcribed verbatim by the primary researcher. The remaining khat user and HCP interviews were transcribed by an external transcription company. The primary researcher checked all of the transcriptions against the original recordings and made the necessary amendments. All of the transcripts were anonymised.

The TDF was utilised as a basis for analysing the data guided by studies with similar aims (Islam et al., 2012, Patey et al., 2012 and McBain et al., 2016). The analysis took a combined content (Pope, Ziebland and Mays, 2000) and framework analysis approach (Ritchie and Lewis, 2003). Microsoft Word and Excel were used to analyse the results in four main stages as outlined in Figure 1a and 1b. The results were analysed separately for khat users and HCP, using a continuous consultation and critique process by SB and FL.

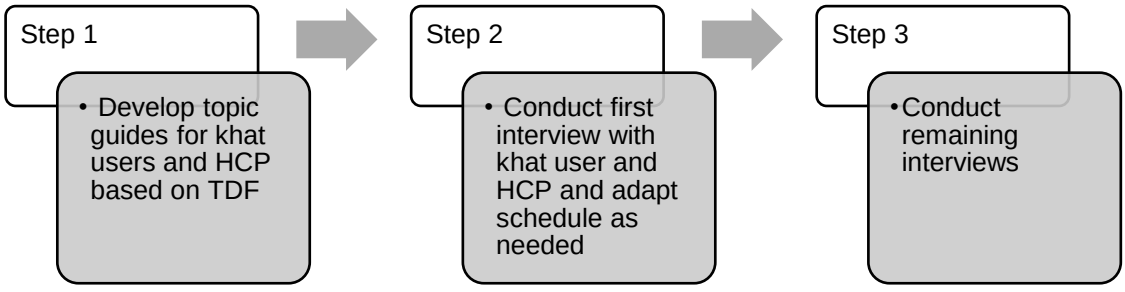

Figure 1A - Data collection process

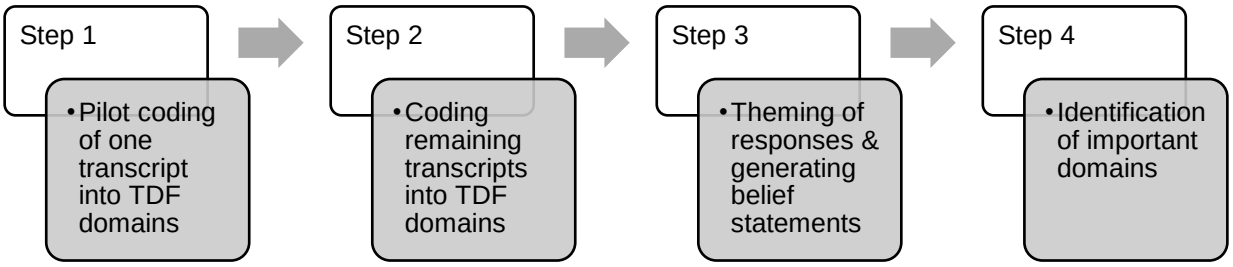

Figure 1B - Data analysis process

Figure 1A and 1B, data collection and data analysis process

1. Pilot coding of transcripts

During an initial joint pilot coding phase, the primary researcher and secondary researcher (FL) each coded a transcript concurrently. Any discrepancies were discussed until agreement was reached and a heuristics/code book was developed. This featured notes to track how certain ideas and concepts were coded e.g. when HCP spoke about working in partnership with other organisations, this was coded as social influences rather than social/professional role and identity. The percentage of agreement and disagreement between the two researchers was calculated with the first transcript the primary researcher coded for khat users and HCPs. The number of codes the two researchers agreed and disagreed on was tallied and represented as a percentage of the total number of codes present within the transcript. Agreement was defined as instances where the two researchers agreed on the codes. Disagreement was defined as instances where one researcher coded an utterance and the second researcher disagreed with it and either coded it as a different domain or did not code it at all. Two separate scores were calculated for the khat user and HCP transcripts.

2. Coding of participant responses into TDF domains

The primary researcher coded all of the remaining transcripts independently. This involved looking through the transcripts and coding participant utterances into the TDF domains that it best represented. If an utterance was deemed to be relevant to more than one domain, it was coded into multiple domains.

3. Theming of responses and generating belief statements

Utterances with a similar theme were then grouped together within a domain and assigned a broad theme label (e.g. health related consequences under beliefs about consequences), known as a belief statement. FL then critiqued all themes to verify that the theme label reflected the quotes, and the theme fitted within the domain. FL also critiqued the final results tables. All discrepancies were resolved through consensus discussions until agreement was reached. The transcripts and agreed coding were then uploaded onto a Word document. New belief statements were created until no new beliefs remained. Polarised quotes that represented opposing views within the same domain were categorised under the same general belief statement with the opposite viewpoint expressed in parentheses.

The two researchers then held a consensus meeting to review the belief statements identified within each domain. This involved looking at the statements allocated to each domain and the contributing quotes. The researchers made two judgements; the first to assess whether the belief statement accurately reflected the quotes within it and the second considered whether it was a good fit within the domain. This was discussed until consensus was reached on all of the belief statements.

4. Identification of important domains

The number of belief statements that appeared within each domain (elaboration) was calculated and how often that particular belief statement emerged across participants (frequency). Any instances of 'expressed importance' (where participants specifically mentioned the importance of a particular theme in relation to quitting khat or supporting people to quit) were also noted. The presence of conflicting beliefs within a domain, was also taken into account. This was in line with the methodology from other studies (e.g. Graham-Rowe et al., 2016).

The two datasets (khat users and HCPs) were compared on any domains where connections between the two samples could be made, such as social, professional role and identity where the perceived role of the HCP as a substance misuse support worker may overlap with what khat users perceive the role of the HCP to be in supporting them to quit.

Intervention development

The intervention content was established in two phases: mapping the important TDF domains found within the qualitative data onto Behaviour Change Techniques

(BCTs) from the Behaviour Change Technique Taxonomy v1.0 (Michie et al., 2013) and then assessing these against the APEASE (Acceptability, Practicability, Effectiveness / cost-effectiveness, Affordability, Safety/side-effects, Equity) criteria (Michie, Atkins and West, 2014) for final inclusion.

Mapping TDF domains onto BCTs

There has been extensive work looking at how the TDF relates to BCTs (Michie et al., 2008), allowing interventions to target BCTs that will change TDF domains. Cane et al. (2015) linked BCTs from the comprehensive BCT taxonomy (Abraham and Michie, 2008) to the refined 14 domain TDF (Cane, O'Connor and Michie, 2012). With the exception of social/professional role and identity and memory, attention and decision processes, all of the domains had between one and 17 BCTs attached to it (see appendix B14 for table outlining all of the TDF domains and their relevant BCTs). Moving systematically through the TDF domains felt to be important to the behaviour of interest, the relevant BCTs were selected for each of the beliefs statements within the domain and translated into a technique which could be integrated into an intervention to change behaviour. Where there were a range of BCTs associated with a particular TDF domain, the ones that were judged to be most relevant to the barrier or enabler identified were selected.

APEASE criteria

The APEASE criteria (Michie, Atkins and West, 2014) are a set of six criterion that can be used to ascertain whether it is feasible to include a specific BCT in an intervention (see table 2).

Table 2 - *APEASE criteria for intervention*

Criteria	Definition
Affordability	Can it be delivered to budget?
Practicability	Can it be delivered as designed?
Effectiveness and cost-effectiveness	Does it work (ratio of effect to cost)?
Acceptability	Is it judged appropriate by relevant stakeholders (publicly, professionally, politically)?
Side-effects/safety	Does it have any unwanted side-effects or unintended consequences?
Equity	Will it reduce or increase the disparities in health/wellbeing/standard of living?

The final behaviour change techniques selected for inclusion in the intervention would be a combination of those deemed easiest to implement with regards to

quitting khat chewing behaviour and those fitting the APEASE criteria. For example, for affordability, the BCTs that would allow the interventions to be delivered with as low cost as possible were selected. This was to ensure the intervention would be as accessible for services where there may be limited funding. For practicability, BCTs that could be implemented with minimal resources were selected, to enable a wider range of settings to deliver the intervention. For effectiveness and cost-effectiveness, the literature would need to be consulted on the evidence for the effectiveness of all of the BCTs used in the field of substance misuse, where possible. Due to time limitations, it was not possible to do a full assessment in the present study. A cost benefit analysis looking at the cost of implementing the intervention compared to the costs saved to the state (e.g. savings on cost of health care for those who no longer use khat and experience an improvement in health) could also be done. For acceptability, relevant stakeholders (such as HCPs delivering the intervention, those who may commission substance misuse services and the khat users themselves) would be consulted for their views on the acceptability of the intervention. For side effects / safety and equity, the intervention would need to be delivered and evaluated thoroughly to ascertain whether there were any unintended consequences and whether it reduced health inequalities. It was not possible to fully carry out the assessments for the latter four criteria (effectiveness, acceptability, side effects / safety and equity) due to the limited scope of this study.

Ethics

The study was approved by City, University of London, Psychology Research Ethics Committee (Reference: PSYCH(P/F) 14/15 113).

Results

Participant characteristics

Khat users

Participants were recruited from two main sources; through collaboration with Bilingual Family Support workers and through London based khat support services. Fifteen parents were approached by a family support worker at the children's centre to take part in the study. Two (20%) female participants were recruited from this group. The remaining parents declined to participate. One khat support service approached 30 clients who were on their current caseload and met the inclusion and exclusion criteria. Eight (80%) participants were recruited via this route.

After analysis of the first 10 interviews, data saturation was assessed. No new beliefs were identified therefore, data saturation was achieved and no further interviews were conducted (data saturation table is in appendix B15).

The majority of participants were male (70%) and the average age was 43 years (SD = 16.1; range 22 to 68 years). All of the participants were of Somali origin (first and second generation) and lived in London.

Healthcare professionals

Two organisations were approached who offered khat-specific quit support. The first organisation was in the London Borough of Tower Hamlets who had two substance misuse support workers specialising in khat, both of whom took part in the study (one male, one female). The second organisation was based in Southall, Middlesex and had three substance misuse support workers specialising in khat. One (33%) HCP (male) took part in the study and the other two members of staff declined to participate.

Of the three HCPs who were interviewed two were male (66%). They had been in their roles for an average of 10 years (SD = 2.3; range 9 to 13 years). All were specialist khat support workers that supported people to stop using khat.

Analysis of these three interviews revealed the emergence of many similar belief statements, however, data saturation was not reached. Due to difficulties with recruitment within London recruitment was opened up to services nationwide.

Unfortunately, no additional HCP could be recruited (data saturation table is in appendix B15).

Interviews

The khat user interviews were on average 25 minutes long (SD = 13.6; range 10 to 50 minutes). The HCP interviews were on average 65 minutes long (SD = 25.7; range 36 minutes to one hour 21 minutes).

Agreement

For the khat users, there was 69% agreement (31% disagreement) between the two researchers and for HCP, there was 79% agreement (21% disagreement).

TDF domains

Khat user results

For khat users, a total of 616 participant utterances were coded into 11 of the 14 TDF domains and synthesised into 75 belief statements (analysis step 3). All of the belief statements were classified as enablers or barriers to quitting, or both (analysis step 4) and will be discussed in turn by domain. The belief statements within the domain and how they relate to quitting khat will be discussed (level of elaboration). The domains are presented in order according to their thematic content (e.g. related belief statements are presented in sequence). Full data tables for each domain outlining the belief statements, number of participants expressing it and example quotes can be found in appendix B16.

With the exception of skills, reinforcement and emotions all of the domains were mentioned by at least one service user and had a number of associated belief statements, which were barriers or enablers to quitting, or in some cases both.

Behavioural Regulation

This domain contained seven belief statements, which were either a barrier or enabler to quitting khat, or in some cases both. Khat users talked about their patterns of khat usage and how this contributed to sustaining their chewing of the substance. The barrier most commonly mentioned by all but one of the participants was having set routines for using khat. This often involved using khat at certain times and / or days of the week:

“[I used khat] From 4 o’clock, 5 o’clock to 8, 8.30 maximum maximum late, with my friends you know, until 9 o’clock.” P7

These patterns were maintained by ensuring they always had khat leaves to hand, so that if they wanted to chew khat they could do:

“I bought two bags of leaves in a day.” P8

One participant also spoke about changing the way in which they used khat so they could continue to use it rather than stop altogether. Here, the participant is referring to the dried form of khat leaves that are now available in the UK, as the fresh leaves cannot be imported in due to the ban.

“One day a week I’m eating garabo.” P11

These utterances demonstrate that chewing khat was such an ingrained behaviour that users would organise their lives around using khat and not the other way around.

Participants spoke about two main approaches to the process of quitting khat. Two participants described a gradual reduction of their khat usage before eventually quitting:

“You can't just cut down the whole thing straight away so that makes you think I’m gonna stop completely because you can maybe reduce the numbers of hours maybe because you can’t decide to completely cut it off, you should go one week off, one week on. Because you can't completely just cut it off and say, "I've decided not to do now." One Saturday or one Saturday off, like that gradually… together that's how we do, yes.” P9

Whilst three participants simply took a decision to stop using khat suddenly:

I start like at same time like 1 o'clock, and after 1 o'clock, 3 o'clock after and after, when it's 3. When I went, I finish about eight or 7:30. And I went home, and I had the same thing, like alcohol. It's like breakfast. Then after, I decided, "You know what? Just give up." P1

Along with having set routines to using khat, three participants also spoke about changing their behaviour in order to enable and support their quit efforts. Participants mentioned the importance of having other routines or regular activities organised in order to prevent them thinking about and using khat once they had quit:

> *“Weekend I just keep myself busy… Every week I go spa, sauna. Every week I make myself a plan. I would do different activities, do different things, plan ahead and that really help”. P9*

Seven participants spoke about taking active steps to stay away from khat now that they had quit. Participants varied in their approaches, with them taking up new activities in order to keep themselves busy (n=7). Participants also spoke about spending more time with their family (n=4) and avoiding the people they used to chew khat with and making new friends (n=4):

> *“I go mosque, football, running, swimming, chilling so all my friends they still all do the same thing, but not me. I choose different go the right side.” P1*

> *"The health risk is always going to be at the back of my mind every time. It's going to destroy your health and money and children and time and plus the good thing about is I'm always active, I've got the children. I'm doing a lot of things on my time”. P9*

> *"See the family, make yourself-- the children they are coming to family. You make them and yourself busy. There are a lot of things that you can do… So, now you can reach to the family. Make family your friends.” P4*

> *“Not really because I don't socialise with those people anymore so I don't surround myself with those who are associated with khat”. P8*

Knowledge

Knowledge was mentioned at least once by all 10 participants. It contained two belief statements, both of which were enablers to quitting. All of the participants were aware of UK legislation around khat use and possession and the effect this

had on the availability of khat. This in turn encouraged service users to quit the substance (see quote from participant 8 in the beliefs about consequences domain and participant 7 in the beliefs about capabilities domain).

> *'It was banned in July 2014…. I don't read much on the law relating to khat. But one thing I know, it's a criminal offence…If you know that the khat was banned and you chewed it, it's a criminal offence.' P7*

One participant also expressed an awareness of how khat is classified as a stimulant:

> *"It's a stimulant… you know? So you like to share ideas and you know exchange ideas with others..." P7*

Beliefs about Consequences

This domain was mentioned by every participant and contained 12 belief statements. Almost all of the belief statements were centred on the negative consequences of chewing khat and so were enablers to the process of quitting. Participants often discussed the effects they experienced whilst using khat and the benefits they experienced after quitting in the same utterances.

All of the participants spoke extensively about the physical effects of using khat, such as problems with eating, sleeping and their oral health. Quitting khat alleviated these problems and acted as an enabler to quitting:

> *"I will be crazy not good. It's not good for health. It's not good at mental, physically, but it affect you, damage you… So many things happen to you. Gum, your teeth, your mental, physically also… You going to be crazy. If you use a lot, if you use it daily, and you spend a lot of money on -- You just only -- you don't eat, you drink coffee, water, something like that." P5*

All of the participants also spoke about the effects of using khat on their mental health, such as on their mood or feeling stimulated by khat. For many, the negative effects were more salient than the positive effects and the benefits they experienced from quitting khat outweighed the positive effects experienced from chewing it:

"The drug used to make me lazy as well. Not interested in anything. It used to stop my going to see my family and friends. Just sleep, get up, not eating properly, not sleeping properly, it used to do that. Sometimes it used to make me dream but not an actual dream -- You know when you're like daydreaming, it used to make me daydream. It used to give me that low feeling, it used to give me depression. Sometimes it used to give me [thoughts of] suicide as well." P1.

Nine of the participants also mentioned difficulties with attention and motivation when using khat. They were unable to go about their daily activities whilst using the substance, which encouraged them to quit:

"I find that every time I used it in the week I wasn't in any state to be able to go to work, to do anything. I was tired. I wasn't concentrating so it was only on the weekends." P8

Eight participants discussed the financial effects that khat had. Buying khat was deemed as very expensive and quitting saved money, making it an enabler to quitting. For one participant, he expressed the importance of quitting for the sake of his physical health and financial gain:

"You know it has a bad impact, health wise, money wise, social wise." P7

"It's very important [to not starting using khat again] for your health being and also for your financial wellbeing. You'll be safe from those two, that's the main thing". P3

For six of the participants, their khat usage impacted on their family and social relationships in a negative way and therefore was an enabler to them quitting. After they had stopped, their relationships improved. For one participant, she expressed the importance of staying abstinent from khat due to the detrimental effect she felt it would have on her family life:

"Family conflict. Because (pause) if somebody's husband responsible for the family, sometimes he doesn't fulfil his responsibility, because of the khat, you see? So while he was supposed to take the children from school he's sleeping, you see? Because he chew the whole night. This is one thing that

can cause, you know? A wife alone cannot do all the things. He has to help her, you know?" P7

"[It is] very important [I stay away from khat] because I know now that my husband is not staying with me if I do that and now it is my children. I wouldn't dare." P8

Almost half of the participants also spoke of their concerns about continuing to use khat post ban and it leading to prosecution, which was a clear enabler to quitting:

"I think it was more because it was illegal and I didn't want anything to come of it." P8

For two of the participants using khat was a way to forget their surroundings and escape their problems, which they perceived to be a positive effect for them. For them, chewing khat served a very specific purpose and so acted as a barrier to quitting:

"[I thought to myself] Let me not remember that, let me do this", so I'm going to use khat this way." P8

One participant mentioned that he was still using khat, but it was not the same quality that it was before the ban, which was an enabler to quitting for him:

"The price is totally different. And the quality is totally… totally… well to be honest with you, it's close to crap… It's more expensive." P6

For two of the participants, using khat led to the use of other substances, such as alcohol and smoking tobacco cigarettes. This concurrent use was a barrier to quitting, as using one would tempt them to use others. For one participant, this meant he quit using all substances together:

"It made me-- because I used to drink as well, so Khat made me drink as well. I smoke cigarette but I stop now. So I stop drinking, I stop khat, I stop at smoking." P1

One participant felt that khat affected society overall and so the ban was a positive thing that encouraged him to quit:

> *“Because it has a mental effect, social effect, for a society and on a individual level.” P7*

Participants also spoke about the difference between using khat in the UK and abroad. Participants expressed opposing views. Two users felt that chewing khat was unhealthier in the UK than it was in other countries due to the farming methods. For example, one participant thought the khat available in the UK was grown with additional chemicals in comparison to the khat he had used in Somalia:

> *"This khat from Somalia, which one I used to eat in Somalia, is different than with the fluoride. But here they are brought from Kenya, too much chemicals. It's not healthy, it's unhealthy. The khat in Somalia which we use to eat, so normal. But here others, there're some people, they make -- display a lot of chemicals and something like that. It's unhealthy. It's not well.” P5*

Whilst another participant felt that the khat was more potent in Somalia than it was in the UK:

> *“[Khat in the UK did not] taste like same but it was like fresh. It was like you get more high.” P1*

These last two beliefs were both enablers to quitting as participants recognised the negative effects of using khat (whether at home or abroad) and so this encouraged them to quit.

Beliefs about Capabilities

There were three belief statements within this domain; participants spoke about their perceptions of quitting khat and how they felt about staying abstinent in the future. Participants varied in their experiences of quitting. For four of the participants, quitting khat was not difficult and so it enabled them to quit easily:

> *“No I don’t, I don’t find it difficult at all. Maybe in the past I did, but not right now”. P6*

For six participants, not having the willpower to quit themselves was a barrier and so the khat ban was instrumental in the quitting process. For one participant, khat was not important to him, but the ban was still needed to encourage him to quit as he found it difficult:

> *"A big effect because I think if it wasn't banned and it was still available, there'll be a big temptation and I probably will get it all and then it will affect my whole family life." P8*

> *"I don't feel that I lost something important to me but I feel that (pause) the ban was good for me because if khat was available it would be difficult for me to decide, you know, voluntarily." P7*

For half of the participants, now that they had quit, they were confident they could remain abstinent. This was a clear enabler to the quitting process:

> *"Interviewer: How confident are you that you can continue not using khat? Interviewee: Very confident. Absolutely." P2*

Environmental Context and Resources

This domain contained five belief statements around the availability of khat and how participants used it. Four of the participants spoke about using khat in conjunction with other substances. This could be both a barrier and an enabler to quitting khat, as the associations between the different substances could encourage the use of one at the same time as the other:

> *"So not only when you chew the khat you need, you need the tea, you need the milk, you need (pause) er soft drink together. So in a session, for one single person, you can spend reasonable price you add all the other complimentary elements you see?" P7*

> *"Yes, social for me personally. I was a more drinker than a chewer. I was drinking too much alcohol not khat." P2*

More than half of the participants mentioned the availability of khat. When it was easily available they were tempted to use it, but not having access to it took away the temptation, making it both a barrier and an enabler to quitting:

> *"I worry, if I see khat in the street I will go there and say, "Let me have one or two pieces" and I'll buy it again. I don't want to start it again and be in it. What I will do, if I see khat, I will buy it and I will chew it. That's what I'm saying. If I don't see it, I won't do it. But if I see it, I might, "Let me chew today. Only today." Then next day, then next day." P1*

Three participants also described khat as being part of the ritual of eating, with the two behaviours intrinsically linked for some. Participants spoke about it being an integral part of the meal and that there was an expectation that if someone was inviting family or friends around for a meal, khat would be included. Khat helped to facilitate conversation and this tradition happened both in Somalia and in the UK. This may have made it a barrier to quitting, as every time someone was in a social environment having a meal they may be tempted to also chew khat:

> *"People have it for dessert, people-- If you invite someone to your house [for a meal] you have to give Khat for them. It's something normal in our culture." P9*

> *"It's same here also, if someone invites you, if someone invites you for lunch, it's expected that after lunch you start chewing khat after lunch you know?" P7*

Two key enablers to quitting within this domain were the price of khat and the khat ban. Half of the participants commented on how expensive khat was (especially post ban) and so they could not afford to chew it, forcing them to stop using it:

> *"It was waste of money. Chew Khat was expensive. One pack would cost about £3.50, £4. And do you know something? If an airline just stopped or things like that, the demand would be high and the price would go up… but it's expensive, Khat. That's part of why I stopped as well. Khat is very expensive to be honest with you. Because some of my friends used to have Khat and they used to buy cigarette and it cost a lot of money. Khat is expensive, so that's the downside to it as well." P9*

Seven participants also spoke about the khat ban and how that lead them to quitting khat, making it a clear enabler:

> *"The ban was good for me because if khat was available it would be difficult for me to decide, you know, voluntarily." P7*

Social Influences

This was a well elaborated domain with 10 belief statements. Within this domain, participants broadly spoke about the influences of their family and friends, culture and religion. Culture was a key social influence for all of the participants, but individuals differed in whether they thought it was or was not part of their culture. Nine participants felt that khat was a normal part of their culture, making it a barrier to quitting:

> *"It's something with the heritage it has and our people back home chew it but as a person… you mean, your kinship – they chew it as well." P6*

For one participant however, he disagreed and was clear that khat was not part of his Somali culture. He felt that it was something that was introduced later amongst people in Somalia and so it was a habit rather than a cultural practice. Therefore, for him perceived cultural links could be considered an enabler to quitting, as it may be easier to break a habit than to dismiss a cultural practice:

> *"No, it's not a part of Somali culture, I wouldn't say culture, some time ago, Somali people they don't chew at all, you know? So it's not part of culture you know? But it's a part of entertainment. So people go to bars, you know, to drink the alcohol. Not because of their culture you know, because of their habit I would say. So Somali people they chew the khat you know? (inaudible) they chew more, more. But in the south they start chewing very late, maybe 6 years ago? So it's not a part of their culture always, you know, but part of their past time, you know, to entertain themselves so it's not part of their culture. It's not part of Somali culture. p7*

Eight of the ten participants spoke about their family and friends also using khat, which was a barrier to quitting. Two participants spoke about the importance of

using khat with their friends. It stimulated conversation and offered protected time to spend with their friends. It was the norm in terms of socialising:

> *"I think it's obviously, it's a cultural thing, you kind of get used to it and everybody else around you is doing it. It's the norm and you don't think any different of anybody. I know all my friends used to use it as well, so it is more of a social thing." P8*

> *"It was important. It was something, like I said, it was something for me to look forward to in a weekend. It'd be me and my friends chilling. We'd be like-- we would have a chat. We'd be catching up with things and it was no interruption whatsoever. So I did use to look forward to the weekend. The kids are not with me at the time, it was me and my friend, it was something for me to look forward to." P9*

All of the participants however, said that their family and friends encouraged them to quit, by reminding them of the consequences of using khat and encouraging them to spend time together as a way of distracting them from thinking about using the substance. This was an enabler to quitting. They also actively helped them to stay abstinent for two participants:

> *"People don't like us. You're embarrassed, your parents, the all people, they don't like you chewing khat. So now you've stopped, they are very happy, very glad to be stopped these things". P5*

> *"See the family, make yourself-- the children they are coming to family. You make them and yourself busy. There are a lot of things that you can do and you see, it's not even enough… Make family your friends…It's in my families. They are here, you know." P4*

Almost all of the participants spoke about using khat in social situations (n=8), which was a barrier to quitting. One participant discussed how important it was to her to have this protected time with her friends to do something she enjoyed. After quitting, participants discussed avoiding socialising with the friends they used to chew khat with in a bid to enable them to stay abstinent:

“I would say that it’s a kind of social gathering. And you know, people, they like to socialise, and er… to meet friends er… to see news, and mainly to talk about back home situations, you know? yeah they want to know what is happening in Somalia you know? sometimes things related to politics, you know?... You need the company. You can’t enjoy alone chewing khat.” P7

“It was important. It was something, like I said, it was something for me to look forward to in a weekend. It'd be me and my friends chilling. We'd be like-- we would have a chat. We'd be catching up with things and it was no interruption whatsoever. So I did use to look forward to the weekend. The kids are not with me at the time, it was me and my friend, it was something for me to look forward to.” P9

“No, I don't see them anymore. Because, you are afraid that one day, no this is history.” P4

For one participant she used khat when she was lonely, which was in contrast to all of the other participants saying they used it socially.

“For me when I started to chew it, I was still doing my chore in the house, like I was taking the kids to school. I was to bring them back and do my things but it was like a chilling thing as well, something to-- like sometimes when you're lonely or sometimes it's just something to turn to.” P9

Within this domain, one female participant spoke about the difficulty of disclosing that she used khat:

“If you had asked me a few years ago, I wouldn’t have spoken to you. It was all a secret and I never talked about it.” P8

Participants also spoke about the ways in which they sought help in quitting. For one participant, his religious beliefs enabled him to quit:

“I go to Kaaba. The Qur’an, you have to read the Qur’an. People there are very clean, they support you. They were saying, "This is a drug, this is not good for you." It's good to go back to your religion, it's going to be help you…

We are human, we are making mistakes. But Allah [God] say, "You'll never forbid my forgiveness." That's why I said, "No." P4

For two of the participants, seeking professional help enabled them to quit. One participant mentioned the vital support he received from his substance misuse support worker:

"[Support worker name] helped me, he helped me. I used to tell him, drink when I get home. Because I used to drink a lot as well… He gave me advice and, because he used to help people and stop khat as well." P1

Social / Professional Role and Identity

This domain contained three belief statements and was mentioned by three participants. Individuals spoke about how their khat usage defined them, but also how their identities influenced their khat usage. Within this domain, participants differed in whether they felt that chewing khat was a big part of their lives or not. One participant felt it was, whilst another did not and she was able to fit it into the context of her home / family life:

"Yes because [khat] it's obviously been a big major part of my life" P8

"For me when I started to chew it, I was still doing my chore in the house, like I was taking the kids to school. I was to bring them back and do my things but it was like a chilling thing as well, something to-- like sometimes when you're lonely or sometimes it's just something to turn to." P9

One of these participants, who repeatedly raised gender as an issue, felt it was less acceptable for women to chew khat. This enabled her to quit as her usage was hidden from her family and her husband and she was finding it increasingly difficult to continue using khat in a secretive way.

"You know what? Me and my friend used to do it. Obviously, we're not allowed to do it because for women it's very-- People, they say as a culture, it's all right for a man to chew, but it's not all right for a woman to chew. So if your family really did. My family didn't know about it, and that's why I could say it is okay. Because obviously my family did not know. I used to drive

family back obviously if they do find out they might cut me off thinking, "Oh my God, women don't smoke, women don't chew in our culture." So, yes. But for men, it was all right. It was okay. We never used to-- like I said, in the culture it was all right to chew for men. It was okay... But obviously as a woman, chewing of Khat, they see it as a big thing, so obviously you have to hide it." P9

For one participant, he felt that if he had not quit and had continued using khat, it would define him as an addict, encouraging him to quit:

"[If I had continued to use khat] I would have been an addict probably. I would be addicted to it, you know? But luckily I never got addicted to it you know?" P3

Memory, Attention and Decision Processes

All of the belief statements within this domain centred around how participants viewed khat and their decision to use or not use the substance. One participant felt that khat was a major part of her life, making it a barrier to quitting:

"Yes because it's obviously been a big major part of my life." P9

Eight participants talked about the attention and focus that they placed on their khat use, which was both a barrier and enabler to quitting. Whilst they were using khat, four participants indicated they spent a lot of time thinking about it, but this decreased after quitting for all eight participants:

"I would say [I thought about khat] about 60 to 75% of the time." P6

"Interviewer: At the moment, how much do you think about using it? Interviewee: None." P2

One participant described the main reason for using khat as boredom, which was a barrier to quitting:

"I think a lot of people, even with friends-- Some of my friends, they're using Khat back in the day, even they used to say they do it out of boredom." P9

Whilst another participant indicated that she used khat with her friends and felt they were all in denial about the consequences of using it. This was a barrier to quitting because they did not recognise the negative consequences they were experiencing as being related to their khat usage:

> *"I think we were all in a bit of denial, in a sense" P8*

Finally, one participant spoke about how the decision to quit had to be one that an individual made for themselves:

> *"It's only the willpower. You have the decision, you have to make a decision on your own". P4*

Goals

Within this domain there were four belief statements in which participants spoke about the importance of using or not using khat. Four participants differed in whether or not khat was important to them when they chewed it, with two saying it was important (therefore a barrier to quitting) and two saying it was not important (an enabler to quitting):

> *"It was important." P9*

> *"No, it wasn't important to me". P2*

For one of the participants who said it was important, she elaborated further and said using khat was something she looked forward to doing, making it a barrier to quitting:

> *"It was important. It was something, like I said, it was something for me to look forward to in a weekend. It'd be me and my friends chilling. We'd be like-- we would have a chat. We'd be catching up with things and it was no interruption whatsoever. So I did use to look forward to the weekend. The kids are not with me at the time, it was me and my friend, it was something for me to look forward to." P9*

One participant discussed wanting to quit using khat so that he could pursue other goals, which was an enabler to quitting:

> *"[I was encouraged to quit khat due to] education… I like to start-- the course, go back to education. But, I can't concentrate sometimes, because of my medications. Sometimes, I don't concentrate anything." P4*

For two of the participants, they expressed the importance of not using khat again now that they had quit, which was a clear enabler to quitting and staying abstinent:

> *"[It is] Very important... Alcohol and Khat is a destroyer. Mentally and financially." P2*

Intentions

This was a frequently mentioned domain, with nine participants saying that they had no plans to start using khat again.

> *"None. It's been six years, none". P9*

> *"Very important because I know now that my husband is not staying with me if I do that and now it is my children. I wouldn't dare". P8*

Optimism

This domain had two belief statements, both of which were enablers to quitting. Nine participants were hopeful they could stay away from using khat in the future and they expressed the importance of not starting again:

> *"I'm very hopeful (pause) and God willing, I think I will not." P7*

> *"Interviewee: I don't think, I'll go back to start again, no. I don't think I'm going to go back.*
>
> *Interviewer: Okay, so it's very important to you that you don't start it?*
> *Interviewee: Yes, no more." P4*

One participant went a step further to say that he felt that using khat actually made him lose hope for the future:

> *"Before that, I used to go to work, study. But when I start chewing… I feel like chewing today or tomorrow… I think a lot about my future, I lost my future. I lost my step. I lost my family, you keep losing your family. You keep losing your -- You're not interested in anything. You just feel like chewing and chewing and you aren't done yet. Just chewing with your friends everyday." P1*

Summary of all domains

In summary, 11 of the 14 domains were mentioned by participants. Table 2 shows that beliefs about consequences, social influences and knowledge were the three domains mentioned by all 10 khat users. Behavioural regulation, optimism, intention, memory, attention and decision processes and environmental context and resources were all commonly reported domains, with at least 70% of participants mentioning them at least once. Beliefs about consequences and social influences were the two domains with the highest level of elaboration, with 12 and 10 belief statements within the domains, respectively.

Table 2 - Ranked domains and level of elaboration for khat users

TDF Domain (rank order)	**No. of participants mentioning domain (max = 10)**	**Level of elaboration**	
		No. of belief statements within domain	No. of belief statements with expressed importance
1. Beliefs about Consequences	10	12	2
2. Social Influences	10	10	2
3. Knowledge	10	2	0
4. Behavioural Regulation	9	7	0
5. Optimism	9	2	1
6. Intention	9	1	1
7. Memory, Attention and Decision Processes	8	5	0
8. Environmental Context and Resources	7	5	1

9. Beliefs about Capabilities	6	3	1
10. Goals	4	4	3
11. Social / Professional Role and Identity	2	3	0
12. Emotions	0	0	0
13. Reinforcement	0	0	0
14. Skills	0	0	0

Healthcare professionals results

For HCP, a total of 444 participant utterances were coded into 13 of the 14 TDF domains and synthesised into 82 belief statements (analysis step 3). All of the belief statements were classified as enablers or barriers to supporting to quit, or both (analysis step 4) and will be discussed in turn by domain. The belief statements within the domain (level of elaboration) and how they relate to quitting khat will be discussed. All except one of the domains (memory, attention and decision processes) were mentioned by at least one participant and had a number of associated belief statements, which were barriers or enablers to supporting an individual to quit, or in some cases both. Full data tables for each domain outlining the belief statements, number of participants expressing it and example quotes can be found in appendix B16.

Knowledge

This domain had three belief statements within it, all centred on the HCP knowledge of the law and how best to support the clients they worked with. All of the belief statements were enablers to them offering someone support to quit. Two participants mentioned their awareness of the legislation around the khat ban and the importance of their clients also being aware of this:

> *"[Clients need to] realise that there's a reason for this government to ban it. That's really important for me." P12*

One participant showed an awareness of the service guidance they had within their organisation regarding how to support clients and using this in her work:

> *"Ideally what it says on the book, on paper, ideally it should be a year. If someone starts with our programme and if they're progressing the way*

they're supposed to, which says on the book and on paper, it will take almost 12 months till the person comes to our services with our system". P10

The same HCP also mentioned having an awareness and using existing research to inform her work to support khat users to quit:

"We draw all of this information for the research starting down in the UK- across the world. We just pulled all of that information together… We had to talk about all of that…. We linked all of that to health, to physical health as well as to the mental health, with paranoia, hearing voices, becoming aggressive after-- a lot of patient of Khat. We did a lot of -- so, it's a big priority for us." P10

Skills

As well as having the knowledge of khat legislation and the guidance for supporting people, participants also spoke about the importance of having the relevant skills in supporting clients to quit. Participants highlighted the specific skills they felt were needed, as well as principles for best practice in enabling them to support clients. Coupled with the knowledge domain, their skills helped them to support clients effectively. There were seven belief statements within this domain, which were all enablers to supporting someone to quit with the exception of one belief statement, which was both a barrier and an enabler.

All of the participants spoke about how working with their clients to help them quit could take a long time. This could be considered both a barrier and enabler to offering support as their caseload and how much time they had to work with each client would vary over time:

"Because some of them the outcome, they may never change sometimes. Some of them they might gradually change but very slow. The encouragement and also the support we offer each other. That's really important to us because it's a very difficult job. It can be challenging sometimes it's one week. We say that, "I've been working with a client and I think maybe you can start working with him and I think that that might help." P12

The participants all spoke about the skills required to tailor their support and working with clients in different ways to support them according to their individual needs and situation. Having these skills acted as an enabler to support:

> *"Because we run different projects, we're able to involve people affected with Khat in our different projects. For example, when people come to us who are affected by Khat, often they have multiple needs and multiple issues. You find that often they have problems, they're homeless, they're unemployed, and also they might even have mental health issues. They might need much more help and advice". P13*

All of the HCPs mentioned needing good interpersonal skills, such as empathy and a non-judgemental approach to enable them to support clients.

> *"Also you have to know what you're talking about and how to have that address. If you treat that with respect then they open up, and try to follow the interventions and help, what you offer them." P12*

> *"I think you have to be creative, you have to have empathy, you have to have the skills you need to help someone that-- you have to have knowledge about what you're talking about, and what you're saying to the client. Yes, because that's very important that if you want someone to engage, and get down and change, that you have to have the right skills." P12*

Two HCPs also spoke about the importance of ensuring their work remained confidential:

> *"I think this is really a good question because the people who use khat they worry about the confidentiality and the trust. They might be worried about that you're going to tell other people. When you're working with someone you know that person a lot. You know what their income, you don't know what they're doing, if they have mental issue, if they have any other drugs, if they have or the issues that—If the person is open, that person may be worried about what you're going to do with the information, how you're going to react to, what you're going to tell his family or you're going to talk about him in the community". P12*

"Sometimes in terms of confidentiality like if someone is maybe a danger to themselves, you can't just say it's confidentiality and we have to authorise that. It's really that important and very sensitive because a lot of people-- Somali community are very closely associated community and they're very open to each other and they know each other. If someone, anything goes out, then your credibility is really damaged. You have to be very vigilant and very careful about that." P12

They also highlighted self-motivation as an important skill in enabling them to support clients and keep the clients motivated:

"You have to motivate yourself; you have to from the beginning. It is one of the negative things seeing people relapsing and not wanting to change. It can be difficult for us but you can't afford to be demotivated for long. You have to motivate yourself and start again for the client's sake because if they see you depleted and demotivated you can imagine how they will feel." P10

One participant felt that the longer he worked with clients, the more skilled he became in supporting them:

"Also, really you learn from them, because each time you help someone or you deal with someone, you learn something new". P12

Whilst another participant highlighted the need for further psychological training for himself and his colleagues to improve the support they offered:

"I think also training, if there would be more training, especially counselling training for volunteers that we are able to get our volunteers trained and our staff as well to be counsellors or to be able to offer brief counselling. That will be fantastic if we can get that... Could be specialist mental health training. Something like that." P13

Social, professional role and identity

The nine belief statements within this domain were all enablers to offering support. Within this domain, HCP spoke about the requirements of their role and how they

enacted these. All three participants specifically mentioned that helping people to stop using khat was part of their role:

> *"My role is mainly to support substance abusers who are suffering from mental health and who also have a Khat misuse." P10*

> *"It's very, very important that we look at all the area and we support client to stop or reduce their khat use because I think that's my job." P10*

The HCP did this in a number of ways, including enabling clients to monitor their khat usage or quit status (n = 2), helping clients to problem solve (n = 2), develop action plans and set goals for quitting (n = 2), teaching clients about the consequences of using khat and the benefits of stopping (n = 2) and for one HCP providing emotional support:

> *"Because even sometimes we've set short goals and sometimes don't attain goals, and then sometimes you can then measure the change. We use a tool that can measure the change that they're making and the journey of their recovery". P12*

> *"You're working with them and speaking to them and gaining that trust to find out what's the root cause. Once that is dealt with, the khat can be dealt with then. It's similar with any other drugs. There's always a root cause that makes people become addicted in a substance." P13*

> *"I set up a plan with them whereby they would use their time, for example, in something constructive or something that is meaningful i.e. diverse activity and in sports, going to the gym, learning how to swim." P10*

> *"They would get access in how Khat has impact on the health and the mental and physical harm and family and finances." P10*

> *"We just make sure that we follow them up to make sure that if they're having any problem, we're there to help and support them. We also do emotional support work whereby we have one-to-one where they talk about different issues they might be experiencing, emotional issue, family issue,*

and if they are ready to do some counselling or psychological therapy, we refer them onto that as well". P10

All of the HCP had personal experience of khat, either through their own usage or that of their family and friends. This helped them to empathise with their clients through reflecting on their own experiences of quitting khat and the support they would have liked at the time:

"I feel really personally, because I remember years ago when I used to chew khat, and I talk from experience, at that time there was no one to help, there was no help available at that time. I used to struggle, really. And to help someone, I think, come out of their difficulties, that's really rewarding." P12

"It is very important for me. For me, I got in this when-- it's not only as a job but also being affected. I have two family members, and many friends who are affected because of Khat usage, which led to many issues including mental health issues. For me, I have personal interest in making sure that I help these people change and give up Khat. I'm also an ex-user, so I know the effect of Khat, and how Khat can affect someone's health." P13

They all also mentioned how their own religious principles and understanding of culture guided their practise:

"We took the approach of spirituality as well because we know, most of our families, high percent Muslim. We took the approach of spirituality." P10

"What I usually do I read the confidentiality policy for the organisation and also it's something Islamically when someone trusts you with information or anything that they trust you with, you must not tell anyone else. To get their trust is really important." P12

For one HCP, he felt that he had a duty as a practitioner to support people whatever their circumstances:

"I think sometimes you feel that this is your role and your duty to help. Sometimes even though they can impact your emotions" P12

Social influences

As well as their professional roles, HCP also spoke about the influences of others on their ability to support clients. They discussed the characteristics of their clients in detail and how this affected their work. There were 10 belief statements within this domain, which were a mixture of both barriers and enablers to offering support.

All three HCPs spoke about working closely with other professionals, such as colleagues in local mental health and housing services, to ensure their clients were supported, an important enabler to supporting users to quit:

> *"We have to contact the housing and we'll say, "We work for this client, we're supporting this client, can you please keep in contact with us, we will be all supporting them". P10*

> *"That's really important to us [to support each other] because it's a very difficult job. It can be challenging sometimes it's one week. We say that, "I've been working with a client and I think maybe you can start working with him and I think that that might help." P12*

They all also spoke about the positive influence of their colleagues on their work, such as being able to seek practical and moral support from them. This was an important enabler to supporting clients to quit:

> *"I think a lot of support and a lot of motivation. I and my colleague we support each other by giving positive support and motivation and sometimes when you can't deal with a client alone or you're really tired of it, they will sometimes work with you if he or she would work with you and then we'll do a vice versa. A lot of support I think we really support each other really really well." P10*

> *"The encouragement and also the support we offer each other. That's really important to us because it's a very difficult job." P12*

Two of the HCPs also mentioned how other ex-khat users were a useful support mechanism in enabling them to support clients by using them as role models, showing current clients an example of how someone had successfully quit khat:

"Because we run different projects, we're able to involve people affected with Khat in our different projects". P13

They spoke about the influence of the local community impacting on their role. As the community did not see khat as a drug, this acted as a barrier to them offering support:

"It took us a very long time for us to build this group of client and to come and use our centre to access our services because the community did not see Khat as a drug at all. It was actually a big, big struggle for us". P10

HCP also spoke about the clients themselves and how they influenced the way in which they worked. All three mentioned the gender of their clients as being an influencing factor in enabling them to offer support. Female clients expressed the opinion that women should not use khat and so they only told people who they felt they could trust about their khat usage. They were more concerned about ensuring confidentiality and worried about being judged for using khat than male clients. Females therefore specifically wanted to receive support from a female support worker:

"There's a big stigma about Somali women and using khat and as well other drugs. The women are very secretive, they only tell people who they trust". P12

"Sometimes the females are not very comfortable coming to a male for help, so we have a female who can see them." P13

All of the professionals spoke about how client motivation affected their ability to support them. If clients were motivated to change then this enabled them to support them effectively, but if their clients were not motivated to change, this made it difficult to offer support:

"I think the willingness, the level of wanting to change if it's within the client side, they want to change, and that eagerness and motivation. It's very important factor for me because it will make my life and my job ten times easier". P10

Once a client had stopped using khat, it enabled HCP to support them further and made the process easier:

> *“They'll self-medicate themselves with Khat. I think with Khat once thrown out of their system they've realised they have problems or they have health problem”. P10*

HCP also identified individual difficulties in working with clients. One barrier mentioned by all three HCP was the difficulties in supporting people when they had other issues for example, mental health problems, other addictions or language barriers. If the client was experiencing issues that were more salient to them than quitting (i.e. mental health concerns), then the priority would be for the HCP to address these issues first (either by working with them directly or referring the client to another support organisation). For other clients, the practicality of addressing their additional needs meant that the support offered took longer (e.g. arranging interpreters for those with language barriers):

> *“I think that sometimes it's time consuming. Sometimes it's very, it can affect you in a way that if the time you had with someone don't work, you have to be creative and to say that, “How can I get this person engaged?” It's really time consuming and so the resources as well, because sometimes we have to visit clients sometimes, we have to meet them, with the social workers, like if they have mental issues. I think sometimes there is a disadvantage, I guess that could be a disadvantage.” P12*

In a similar vein, HCP felt it was hard to help people when they could not see that they had a problem. One HCP expressed the importance of clients understanding that their khat usage was causing the problems they had sought support for:

> *“Some people, it has been their lifestyle and they don't want to change that, but some people because of the environment and the influence and they don't have anything else positive, that’s different, they just adapt to it but once that was no longer available the mafrishes, the khat houses were no longer available they realise they never wanted it but because they did not know any other way, it's the only way that they've learned to make friends and communicate with others, once it's no longer available they actually*

embrace a want to change and do something that was more positive. Training courses or wanting to go to play or some actually wanted to get married, make a family and all of that, so I am very hopeful that they will stay away". P10

"The most important factor is that whether they see-- how they see the problem. They say that the problem khat is causing, and how motivated they are. At what stage they are in. Because people go different stages, they've gone pre-contemplation. They're doing actions and then moving on. Sometimes what stage they are in and how much support they need and how motivated they are is important". P12

Another barrier cited by one of the HCP was that her support was dependent on how much khat clients were using:

"It depends on how much Khat they're using, the quantity they're using and also how they wanted to have it, how much they want and how they want it. It will depend on them". P10

Beliefs about capabilities

There were two belief statements within this domain. All of the HCP's were confident in their ability to support people chewing khat:

"After 9 years I am 100% confident". P10

Two HCP also commented on the difficulty of changing people's behaviour and the importance of supporting each other in this, as echoed in the social influences domain above:

"Because some of them the outcome, they may never change sometimes. Some of them they might gradually change but very slow. The encouragement and also the support we offer each other. That's really important to us because it's a very difficult job." P12

Emotion

This domain contained just one belief statement that could be both an enabler and a barrier to offering support. HCP spoke about how their supporting role had the potential to affect them personally, it was therefore important for them to separate their emotions from their work with clients in order to support them effectively:

> *"We try to leave all our emotions outside when we're working with clients, look at the client and support them as a person and see them as someone who needs help. We don't let any of our emotions affect how we work with the client." P13*

Optimism

There was only one belief statement in this domain. HCP were optimistic their clients could quit successfully:

> *"I am very hopeful. In few I've seen who have been successful, I'm very hopeful that they will definitely stay away from Khat." P10*

Reinforcement

Within this domain, there were four belief statements. HCP spoke about key aspects of their job that motivated and encouraged them to support an individual to quit khat. All of the HCP spoke about the positive effects of people quitting, and how these were an encouraging factor in continuing their work:

> *"Because of our achievement, we feel that we are very confident. Because we see that a lot of people that when you support them with their practical issues, it is much easier to deal with their khat addiction. We are very confident of our method of helping these people". P13*

> *"I think the important thing is that the client does something about the problem that they have and they are moving forward and that's the main benefit for us". P10*

The positive responses they received from their clients and the community also encouraged them to continue their work and was an enabler to supporting people:

“A lot of women have welcomed our approach and it really encouraged us to carry on.” P10

One participant also spoke about the positive feelings he experienced when he went above the call of duty to support a client, which was a reinforcing factor to him continuing to support clients to quit:

“We go extra miles really and I really feel good about that”. P12

However, a key barrier for two HCPs was the demotivating effects of their clients failing to quit:

“It can demotivate you.” P10

Goals

This domain contained two belief statements that were both enablers to supporting clients for all three HCPs. For all three HCP their roles were multifaceted, but supporting their clients was an important aspect of it:

“It is very important for me. For me, I got in this when-- it’s not only as a job but also being affected. I have two family members, and many friends who are affected because of Khat usage, which led to many issues including mental health issues. For me, I have personal interest in making sure that I help these people change and give up Khat. I’m also an ex-user, so I know the effect of Khat, and how Khat can affect someone’s health.” P13

All of the HCPs also mentioned that addressing someone’s khat use was, however, not always the top priority when working with clients. Some of the clients they encountered had a range of issues they needed support with. Quitting khat could not be addressed until more salient issues (such as their current housing or financial situation) were addressed first. This would ensure a more stable environment for the client, after which their khat use could be addressed.

"When people come to us who are affected by Khat, often they have multiple needs and multiple issues. You find that often they have problems, they’re

homeless, they're unemployed, and also they might even have mental health issues. They might need much more help and advice." P13

Intentions

There was only one belief statement within this domain. Two HCPs spoke about their intentions to always support clients to the best of their ability:

"I have to always support. I can't choose, I have to always support." P10

Beliefs about consequences

This domain had five belief statements, which were a mixture of barriers or enablers to supporting people to quit, or both. Participants spoke broadly about their services, about the effects of using khat that they see in their clients and how they offered them support. All of the HCP commented on the negative effects of using khat and the benefits to quitting across many aspects of their client's lives, such as physical health, mental health, family life, financially, socially, psychologically and their work lives. This encouraged them to offer quit support:

"At the moment, we have people who are accessing our services, who as I said they've never worked before and now they are contributing to society, they're contributing to their family, they are stable, their health is good. It's huge improvement and that's just because they have been able to access our services and we've been able to sit down with them and offer that specialist support." P13

A clear barrier to offering quit support was, however, the subsequent issues that came to light or other substances the client started using when they had quit khat:

"Also, another trend came and took place is the cannabis use. Cannabis being a stimulant just like Khat. They used the Cannabis in order to get that effect of having the stimulant substance". P10

HCP were mixed in their views on the effectiveness of their service. Participants felt their services were effective in supporting people to quit, but also acknowledged that clients were not always successful in their quit attempts:

“As far as I know this is the most effective project.” P12

“I think that sometimes it's time consuming. Sometimes it's very, it can affect you in a way that if the time you had with someone don't work, you have to be creative and to say that, “How can I get this person engaged?” It's really time consuming and so the resources as well, because sometimes we have to visit clients sometimes, we have to meet them, with the social workers, like if they have mental issues. I think sometimes there is a disadvantage, I guess that could be a disadvantage. Or sometimes when you don't meet your target, and sometimes you might think, “Oh, goodness. How can I-- that didn't work.” P12

One HCP felt that the work they did had an impact on the wider community, as well as with the individual and their family, which encouraged them to continue their work:

“It was a lot of anger, but from our part there's a lot of frustration because we could see how it was destroying the families and the community. Some of them really welcome us and some really did not like us to interfere with this, and I think it was a mixed approach but I think at the end when they realise, we're helping them stop the problem, the health problem, the health issue that we're talking about all the time. They realise that this is causing a problems so they can no longer deny and be angry about us talking about the khat. It was mixed at the beginning, but I think towards the end, it was very positive”. P10

Two of the three HCPs also mentioned the effect their role had on them personally, which acted as both a barrier and an enabler to supporting clients. Though their work was often very draining on them emotionally, their compassion also encouraged them to continue:

“I did everything I could. My colleague supported me, works with him, nothing worked. When he come back, he comes with a big problem worse than before. We don't stop there and say that, "Okay, because you didn't help us to help you." Then, if he's got problem we say that, "Okay help." I have a feeling sometime-- my heart sometimes, I feel sorry for him.” P12

Environmental context and resources

This was a well elaborated domain with several belief statements broadly centred on the wider environment for clients and the organisations within which the HCP worked and how these affected their ability to support someone to stop using khat. The belief statements were a mixture of barriers, enablers or both. Two HCPs felt that the ban had increased the number of people that accessed their service, which was a barrier to supporting clients as they had more people accessing the service but diminishing resources to support them:

> *"We just see more people coming for help now than before. Khat is still available and it's just gone underground, so basically, if you want khat, I can get khat in five minutes just by going out. Khat is still there. The only thing is just price has gone up. We still have people chewing, it comes every day and you can buy very easily. For us, the difference is not there. It's just people with money now can afford to buy unlike before." P13*

One HCP mentioned that he was able to make referrals to other colleagues within his organisation if he felt it was appropriate, which enabled him to offer more tailored support to clients:

> *"When you see someone if [female support worker name] is available then I usually refer the female clients to [female support worker name]. If [female support worker name] isn't available, I explain to her that we have a female worker who do this for you but for this reason she is not available, she's on leave or maybe she's off. I can ensure that, I would respect your confidentiality and I understand that you have issues, I can support you without judging you." P12*

All three of the HCP also mentioned that their services were the only ones in their area. This was both a barrier and enabler to offering support, as it meant that people within their area could access support from them, but they were limited in the support they could offer to those people from further afield:

> *"Almost 11 years, and we tried to liaise with other projects in other parts, but we only found one that used to be in Harrogate, and they only used to do like, outreach but they don't do extensive work like we do. There was*

another project in Hounslow, west London, and as far as I know that's the only two project apart from us who are helping people with khat issues". P12

All three of the HCP also commented on the limited resources they had available to them, including sports and exercise equipment to loan clients and diminished funds to subsidise / fund gym passes:

"For us, I think it's because of the demand. We don't have enough resources to be able to do away properly in terms of enough staff that can meet the demand of the people that we are supporting". P13

This was particularly problematic for one HCP who felt that supporting people to quit was resource intensive:

"It's really time consuming and so the resources as well, because sometimes we have to visit clients sometimes, we have to meet them, with the social workers, like if they have mental issues." P12

One HCP mentioned the use of incentives as being an important part of helping them support people to quit:

"Sometimes food is a big incentive for them because when we have a really hot meal cooked at the centre, they will just come and it would only cost them one pound". P10

All HCPs mentioned that despite the ban, khat was still available to purchase, but for one participant this was at a higher price.

"The fresh one or one that is not fresh, dried, we can never buy it in dried leaves because, in order to smuggle it into the country, they needed to minimise the content of Khat". P10

"When they lose their friends. I think that's really important for them… Because when someone has been using khat for a long time, and then they, because environmental change is very important, what we advise them the social environment and the physical environment, they both, because before they used to go to the khat cafe or houses, khat houses, where they have a

lot of friends and socialise and talk to them and different issues. Even the khat houses are not there anymore, except some. In town there's one that's still open." P12

"We just see more people coming for help now than before. Khat is still available and it's just gone underground, so basically, if you want khat, I can get khat in five minutes just by going out. Khat is still there. The only thing is just price has gone up. We still have people chewing, it comes every day and you can buy very easily. For us, the difference is not there. It's just people with money now can afford to buy unlike before". P13

Behavioural regulation

This domain contained two belief statements, both of which were enablers to support. Participants spoke about the techniques they adopted in order to help them support every client. One HCP mentioned adapting their plans for individual clients, taking into account their various needs:

"You have to adapt a game plan according to their use, according to the issue they have, according to the emotional issue or the problem they might have. It always depends, it's never straightforward". P10

In a similar vein, another HCP spoke about formulating plans and setting goals for themselves as a way of supporting their clients:

"I think we have some poster which is alternative to khat. We have to explore the alternative. Sometimes they say though, "What do you want to do today?" they say, "I don't know." But when you bring the alternative, maybe twice of them or sometimes more they say that, "I'm going to the gym. I'm going to an evening class. I'm going to the library. I'm going to the park. I'm going to the--" maybe visiting a relative or a friend that doesn't chew, maybe some volunteer." P12

Summary of all domains

In summary, 13 of the 14 domains were mentioned by the HCP. Table 3 shows that eight domains (social influences, social / professional role and identity, environmental context and resources, skills, beliefs about consequences,

reinforcement, beliefs about capabilities and goals) were mentioned by all three HCPs. All of the domains with the exception of memory, attention and decision processes were mentioned by at least one HCP. Social influences and social / professional role and identity were the two domains with the highest level of elaboration, with 10 and 9 belief statements within the domains, respectively.

Table 3 - Ranked domains and level of elaboration for healthcare professionals

TDF Domain (rank order)	No. of participants mentioning domain (max = 3)	Level of elaboration	
		No. of belief statements within domain	No. of belief statements with expressed importance
1. Social Influences	3	10	3
2. Social / Professional Role and Identity	3	9	3
3. Environmental Context and Resources	3	8	1
4. Skills	3	7	5
5. Beliefs about Consequences	3	5	0
6. Reinforcement	3	4	1
7. Beliefs about Capabilities	3	3	1
8. Goals	3	2	0
9. Knowledge	2	3	1
10. Intention	2	1	0
11. Emotions	2	1	0
12. Optimism	2	1	0
13. Behavioural Regulation	1	2	0
14. Memory, Attention and Decision Processes	0	0	0

Comparison of khat users and healthcare professionals

The khat users and HCPs identified different domains as being most salient to them. Beliefs about consequences and social / professional role and identity were the only domains where there was some overlap between the two groups of participants. Gender also came up as an important issue with some overlap in both groups, featuring in social / professional role and identity for the khat users and social influences for the HCPs. Table 4 below shows the belief statements and the

presence in khat user and HCP results for the beliefs about consequences domain. The table shows the beliefs that the khat users held about the consequences of their khat use and the beliefs the HCP held about their support and the service they offered. Part of their support includes educating users about the consequences of using khat, which overlaps with the beliefs held by the users and is shown in table 4.

Table 4 - Convergence table showing similar themes within beliefs about consequences domains

Belief statements	Present in khat users	Present in HCP within the support they offer users
BELIEFS ABOUT CONSEQUENCES		
Khat affects society	X	
Khat affects your physical health e.g. teeth, sleep, eating habits. Quitting improves this (including more time for sports etc)	X	X
Khat affects your mental health (e.g. headaches, mood, including feeling social, stimulated). Quitting improves this	X	X
Khat affects your attention and motivation. Quitting improves this	X	X
Khat affects you financially. Quitting improves this	X	X
Khat affects your family / social relationships. Quitting improves this	X	X
Using khat could lead to prosecution	X	
Using khat helped me to forget my surroundings and escape my problems	X	
Chewing khat in the UK is unhealthier than in other countries	X	
Using khat made me drink more alcohol	X	X
Khat is stronger in Somalia than in UK	X	
The quality of khat is not what it used to be	X	
The work I do has had an impact on the wider community		X
There are many negative effects of using khat and benefits to quitting khat (e.g. physical health, mental health, family life, financially, socially, psychologically, physically, work life)	X	X
When a person stops using khat other issues come to light (e.g. other substance misuse)	X	X
Our service is (not) always effective in supporting people to quit		X
My role can have an effect on me personally		X

This was a well elaborated domain for khat users. They discussed the various negative effects they had experienced from using khat in the past and how quitting had improved these for them, making it an enabler to quitting. They also spoke about the differences of using khat at home and abroad. HCPs spoke about the effects of khat use and the effectiveness of their service in supporting people to quit khat, which encouraged them to continue supporting individuals. They also mentioned how their role had a personal effect on them.

When looking at convergence between the two groups, there were eight similar belief statements out of a total of 17 (47% convergence). These belief statements all revolved around the positive and negative effects of using khat and the use of khat alongside other substances.

For social, professional role and identity, the overlap between the two groups highlighted the parts of a HCP role that were identified by the HCP and seen as important enablers to quitting from the users perspective. HCP reported that helping clients to develop action plans and set goals for quitting was part of their role and users reported these techniques as useful when attempting and successfully quitting khat.

Gender was also an important issue where there was an overlap. The khat users spoke of the stigma attached to women using khat within social/professional role and identity and how they kept their khat use hidden from their family and friends. Similarly, the HCPs highlighted their female clients were concerned about confidentiality and being judged when seeking support and wanted support from a female support worker.

Intervention development

The present research identified a number of barriers and enablers to quitting khat from the perspective of current and previous khat users and to supporting individuals to quit khat from the perspective of healthcare professionals. It is therefore possible to identify the active content of two interventions; the first to support users to quit and the second to support HCP to deliver quit services, drawing on existing BCTs identified by the HCP (e.g. problem solving and action planning), the BCT taxonomy (Abraham and Michie, 2008) and the APEASE criteria (Michie, Atkins and West, 2014).

Devising the intervention

Understanding the behaviour

The most important domains for each group can be found in table 5.

Table 5 - The most important domains for khat users and HCPs

Khat users	HCPs
1. Beliefs about Consequences	1. Social Influences
2. Social Influences	2. Social / Professional Role and Identity
3. Knowledge	3. Environmental Context and Resources
4. Behavioural Regulation	4. Skills
5. Optimism	5. Beliefs about Consequences
6. Social / Professional Role and Identity	

Identifying intervention content

Khat users

Table 6 maps the most important domains and associated belief statements for khat users onto relevant BCTs, which have then been translated into the specific techniques that could be integrated into an intervention.

Although social/professional role and identity has not been linked to any BCTs (Cane et al. 2015) the BCTs that are relevant to the other domains may also be appropriate for addressing the identified beliefs, such as identification of self as role model.

Table 6 - Table showing the TDF domains, belief statements, selected BCTs and translation for khat users

Salient domains	Domain belief statements	Selected behaviour change techniques	Translation of behaviour change techniques within the intervention
Beliefs about Consequences	• Khat affects society • Khat affects your physical health e.g. teeth, sleep, eating habits. Quitting improves this (including more time for sports etc) • Khat affects your mental health (e.g. headaches, mood, including feeling social, stimulated). Quitting improves this • Khat affects your attention and motivation. Quitting improves this • Khat affects you financially. Quitting improves this • Khat affects your family / social relationships. Quitting improves this • Using khat could lead to prosecution • Using khat helped me to forget my surroundings and escape my problems • Chewing khat in the UK is unhealthier than in other countries	• Emotional consequences • Anticipated regret • Comparative imagining of future outcomes	• Encourage users to record how they feel when they are tempted to use khat but manage to refrain from it • Users are asked to anticipate the potential consequences and related regrets of continued use of khat • Users are asked imagine their lives if they quit khat and compare this to a future life if they did not quit

	• Using khat made me drink more alcohol • Khat is stronger in Somalia than in UK • The quality of khat is not what it used to be		
Social Influences	• My family and friends encouraged me to use khat • My family and friends encouraged me to stop using khat • My family and friends helped me to not return to using khat • I no longer see the friends I used to chew khat with • Getting professional support helped me to quit khat • It is difficult to disclose that you are chewing Khat • Religion helped me to quit • I use khat when I am lonely • Khat is (not) a normal part of my culture • I use khat in social situations	• Social support (emotional) • Social support (practical) • Identification of self as a role model • Framing/reframing	• Users should be directed to self-identify potential areas for emotional and practical support • Encourage users to think of who they may be a role model to (e.g. their children) and inform them that if they quit, that may be a good example for them. • If religion is an important factor to users, they could think their khat chewing behaviour from a religious perspective and think about how quitting khat might make them a better person, such as being a better role model for their children
Knowledge	• I am aware of legislation around khat use • I know the mechanisms through which khat works	• Anticipated regret • Health consequences • Antecedents • Feedback on behaviour	• Users are asked to anticipate the potential legal consequences and related regrets of continued use of khat or if caught in possession of khat

			• Users should be informed about the health consequences of using khat • Users should record a daily diary of events and feelings to identify triggers to khat chewing • Users should be given feedback on their progress towards quitting khat
Behavioural Regulation	• I had set routines for using khat • I always made sure I had khat available for me to use • I take active steps to staying away from khat • I changed the way I used khat so I could continue to use it rather than stop • I decided to gradually reduce my khat use before quitting • I gave up khat suddenly • Having other routines / regular activities means that I don't think about khat anymore	• Self-monitoring of behaviour	• Users should record a daily diary of khat chewing behaviour
Optimism	• I'm hopeful that I will not chew khat in the future • Using khat makes you lose hope for the future	• Verbal persuasion to boost self-efficacy	• Support workers, family and friends of users should encourage and support them to quit
Social / professional role and identity	• Chewing khat is (not) a big part of my life	• No associated BCTs	

	• It is less acceptable for women to chew khat • Chewing khat makes you an addict		

Healthcare professionals

Table 8 maps the most important domains to supporting people to quit from the HCP perspective and associated belief statements onto relevant BCTs, which have been translated into the specific techniques that could be integrated into an intervention.

Although social / professional role and identity has not been linked to any BCTs (Cane et al. 2015), BCTs such as behavioural experiments may be relevant.

Table 7 - Table showing the TDF domains, belief statements, selected BCTs and translation for HCP

Salient domains	Domain belief statements	Selected behaviour change techniques	Translation of behaviour change techniques within the intervention
Social Influences	• My colleagues have a positive influence on my work • I work closely with other professionals to ensure my clients are supported • The gender of our clients affects the way in which we support them they use khat • How much I can help someone depends on how much they are using • It is more difficult to support people when they have other issues e.g. mental health problems, other addictions, language barriers • The local community do not see khat as a drug • It's hard to help people who don't think they have a problem • Once a person has stopped using khat it's easier to support them • Ex users help us to support users to quit khat • Clients need to be motivated to change	• Social support or encouragement (general) • Restructuring the social environment • Modelling or demonstrating the behaviour	• Develop partnerships with other HCPs in relevant fields • Work closely with colleagues to ensure that all the clients that come to the service can be supported e.g. through offering male or female support workers as clients request • Set up peer support within own organisations and with other relevant partners • Use own quitting experiences (where relevant) and share them with clients

Social / Professional Role and Identity	• Helping people to stop using khat is part of my role • I help clients to monitor their khat usage or quit status • I help clients to problem solve • It is part of my role to help clients develop action plans and set goals for quitting • It is part of my role to teach clients about the consequences using khat & benefits of stopping • It is part of my role to provide clients with emotional support • I have experience of using or someone close to me using Khat • My own religious principles and understanding of culture guide my practise • I have a duty as a practitioner to support people whatever their circumstances	• No associated BCTs	
Environmental Context and Resources	• Our work is supported by the wider community • Within our organisation, I have specific tools to supports in helping people to stop chewing khat • The khat ban has increased the number of clients in our service	• Restructuring the social environment • Avoidance/changing exposure to cues for the behaviour	• Set up peer support within own organisations and with other relevant partners to encourage partnership working in supporting clients • Provide HCP with information about the local and national resources available to them, and

	• We have limited access to resources to help us support clients to quit • There are no other services in my area to support khat users to quit • Khat is easily available • Client incentives help me support people to quit • I am able to refer people to other colleagues if needed • Supporting people to quit khat is resource intensive • Khat is expensive		where they can refer service users on to • Identify cues indicating that working with the clients may not be successful and change support/refer on as appropriate
Skills	• Supporting clients to stop chewing khat can take a long time • I work with each client in a different way according to their individual needs and situation • Further psychological training would improve the support my colleagues and I offer • You need good interpersonal skills to work with people who use khat • It is important that my work remains confidential • It's important for me to be self motivated • The longer you work with clients, the more skilled you become	• Graded tasks • Habit reversal • Habit formation	• Provide HCPs with training on how to tailor their approach to individual clients and identify the most effective way to support clients to gradually reduce the amount/how often they are using khat • Provide training on behaviour change and suggesting techniques for reforming existing habits which are associated with khat usage • Provide training on behaviour change and ways to encourage clients to form new habits that have no association to khat chewing

Beliefs about Consequences	• The work I do has had an impact on the wider community • There are many negative effects of using khat and benefits to quitting khat (e.g. physical health, mental health, family life, financially, socially, psychologically, physically, work life) • When a person stops using khat other issues come to light (e.g. other substance misuse) • Our service is (not) always effective in supporting people to quit • My role can have an effect on me personally	• Emotional consequences • Social and environmental consequences • Comparative imagining of future outcomes	• Encourage HCPs to seek managerial/peer support for issues related to emotional, social and environmental consequences • Ask HCPs to create case studies of successful outcomes for clients and outline how the HCPs have helped, or in possible unsuccessful ones, look at how they could have done things differently • Map out different routes for support and possible outcomes for clients, addressing most salient issues first

Discussion

The aims of the present study were to identify the key barriers and enablers to quitting khat from the perspective of khat users and to identify the key barriers and enablers that HCPs face when supporting those who use khat to stop. The third aim was to use the findings to design the content of two interventions to target each population, using established intervention development methods.

Barrier and enablers to quitting from the user perspective and the relevant BCTs identified

There were a number of influential factors that encouraged khat use and a number of barriers and enablers to quitting. The most important domains for khat users were beliefs about consequences, social influences, knowledge, behavioural regulation, optimism and social/professional role and identity.

Beliefs about consequences

Users spoke extensively about the negative consequences of using khat and the benefits they experienced once they had quit. The consequences were broadly grouped around effects on physical health (including effects on eating, sleeping and oral health), mental health (including mood), motivation and attention, financial effects (including costs of using khat and financial loss through unemployment) and the effects on their family and social relationships. The negative effects of using khat encouraged them to quit and the positive effects they experienced after quitting encouraged them to stay abstinent. There has been a wealth of research cataloguing the reported effects of khat use that resonate with the findings of this study. The most recent and comprehensive review by Thomas and Williams (2013) identified the negative effects of chewing khat as poor oral and respiratory health, feeling anxious, tense or restless, experiencing low mood, inability to concentrate and insomnia. Participants in the present study identified both positive and negative effects on their mood, such as feeling very social and as well as an exacerbation of existing mental health conditions. Thomas and Williams' (2013) review and another study by Deyessa et al. (2008) were the only studies to highlight the perceived positive effects of khat use. Participants also spoke about the differences between using khat here in the UK and abroad. The khat in the UK was thought to be unhealthier and therefore harder to quit than when abroad. Findings are however, mixed about user's opinion on the strength of khat. Patel, Wright and Gammampila (2005) suggest that 28% of khat users felt that khat was stronger in Somalia than

the UK, 27% felt it was stronger in the UK than Somalia and 45% felt there was no difference.

Participants discussed the reasons they used khat, such as to forget their surroundings, which reflects the reports of users of other substances. For example, Boys, Marsden and Strang (2001) surveyed lysergic acid diethylamide (LSD, a hallucinogenic drug), cannabis, alcohol and cocaine users and found that 75% of their sample used at least one of these substances to stop worrying. To relax or counter stress was also identified as a reason for using khat by the participants in Patel, Wright and Gammampila's (2005) study.

Khat was used in conjunction with other substances, such as with refreshments, tobacco and alcohol. This supports a review conducted by Kassim et al. (2015) in which a majority of the studies found that khat users also used tobacco, usually on a daily basis in the form of smoking cigarettes. This maybe because smoking is thought to enhance the effects of khat use (Kassim, Islam and Croucher, 2011). Similarly, Patel, Wright and Gammampila (2005) found that 13% of their khat users also smoked cigarettes concurrently (one person used shisha alongside khat) and Manghi et al. (2009) identified khat is often used alongside alcohol or tobacco. In order to enhance users understanding about the negative consequences of using khat, the BCTs identified were emotional consequences, anticipated regret and comparative imagining of future outcomes. This would involve asking khat users to record how they feel when tempted to use khat but successfully refrain and to anticipate how they may feel if they continued using it and did not quit. Anticipating the potential consequences and related regrets of continued use of khat and to imagine their lives if they quit khat and compare this to a future life if they did not quit, may also be suitable strategies to implement. A recent study has shown that sending text messages targeting anticipated regret and encouraging self-monitoring decreased the consumption of processed meat (Carfora, Caso and Conner, 2017). Using similar methodology to encourage users to think about the consequences of continued khat use may be effective.

Social influence

Participants spoke about the influence of their family and friends, their cultural norms and religious beliefs on their khat chewing behaviour. Many of the participants used khat in social settings with their friends and in some cases, their

family members. Users did, however, recognise the impact that using khat could have on their family and more often family members encouraged them to quit using khat, stay abstinent and supported them to do so. Almost all of the participants however, felt that chewing khat was a cultural practice that was a normal part of family and other social gatherings. The participants in this study were similar to those in the UK study by Patel, Wright and Gammampila (2005), in which 70% of recent khat users stated that their family were aware of their khat use, 4.4% felt using khat was part of the Somali tradition and 40.3% used it to socialise. This could indicate that for UK khat users, whilst their families are aware of the khat use and perhaps may have a more relaxed attitude towards usage, they would still like their family members to quit using it. Practising religion outwardly (reading the Qur'an) and inwardly (repentance and seeking forgiveness) also influenced and encouraged quitting behaviour. This is similar to findings found within the smoking cessation literature, where it has been demonstrated that highlighting Islamic religious beliefs and rulings can potentially increase the effectiveness of stop smoking campaigns (Ghouri, Atcha and Sheikh, 2006).

Seeking professional support was found to be useful in helping participants to quit using khat. This was a key finding to emerge from the study, as it indicates there is a need for khat support services, whether that is a khat specific quit service or a support service staffed by workers who understand the wider context around using khat. As indicated by the ACMD report (Iversen, Mathewson and James, 2013) however, and the primary researchers' attempts at recruiting HCPs for the study, there are very few services available in the UK and where there are services available, there is a lack of evidence for their effectiveness.

The associated BCTs for this domain would focus on emotional and practical social support and the identification of self as a role model. Khat users could be encouraged to seek out sources of emotional and practical support and other ways they could relax instead of using khat. They could also think about who they may be a role model to in order to encourage them to quit and set a good example, such as their children. This is closely linked to framing / reframing, where users for whom religion is an important factor could think their khat chewing behaviour from a religious perspective and think about how quitting khat might make them a better person, such as being a better role model for their children. Social support was found to be one of the most commonly used BCTs in a meta-analysis of maintaining

abstinence from smoking (Brose, Simonavicius and McNeill, 2017), indicating that it may be effective in those seeking to quit khat.

Knowledge

Participants showed an awareness of the new laws and the consequences of being caught using or in possession of khat. Together these beliefs encouraged participants to quit and stay quit. Participants did, however, speak about the temptation to use khat if it was available and even attempts to change the way in which they consumed it to avoid prosecution, for example using the dried form of khat (garabo) instead of using the fresh leaf form. This can still be imported into the UK, unlike the fresh leaves. In Patel, Wright and Gammampila's (2005) UK study prior to the ban, nearly half of all respondents (including khat and non khat users) were in favour of banning khat in the UK. Although 35% did not feel a ban was justified and 8% did not express a strong view either way. This indicates that even before the ban was implemented, khat users were mixed in their views of whether it would be a positive thing for society and the individual. Reuter and Stevens (2007) analysed UK drug policy for the UK Drug Policy Commission. They found that in the UK, much of the government's funds allocated to drugs is spent on ensuring drug laws are enforced. However, the authors concluded there is little evidence from the UK (or other countries) showing that drug related policy has an effect on the number of drug users or the number of users who are dependent. They noted other cultural and social factors seem to be more important, such as the growing trend of drug use in the UK. Whilst the participants in this study indicated that fear of prosecution was an important reason to quit khat, the UK Drug Policy Commission report indicates this finding may not be generalisable to the wider population and field of substance misuse as policy changes do not seem to have an effect on the number of users. However, the participants here may potentially have given what they perceived as socially acceptable answers. They may feel it is important to be seen to follow the law, despite assurances of confidentiality and anonymity.

In order to address knowledge, making them aware of the UK khat policy and anticipating regret by asking users to think about the potential legal consequences if they were caught using or in possession of khat could be an important approach and links with beliefs about consequences above. Other BCTs include providing an understanding of how khat works and informing users of the health consequences of using khat, encouraging them to record the possible triggers or antecedents to

using it and providing feedback on their progress towards quitting. Increasing awareness of health consequences is frequently used in interventions for encouraging self-care in for example diabetes (Presseau et al, 2015) and health knowledge gained from warnings on cigarette packaging about the health consequences of smoking has been strongly associated with intentions to quit (Hammond et al., 2006). Therefore, it may also be effective in encouraging other cessation such as quitting khat.

Behavioural regulation

Participants spoke about having set routines for using khat, making sure it was always available to them. These utterances indicated that it was an ingrained behaviour. Research shows that habit formation is affected by the complexity of the behaviour and that habits involving simpler behaviours (such as eating and drinking) may be formed more quickly than more complex behaviours (such as exercise routines) (Lally et al., 2010). For participants in this study, the habit of khat chewing may have formed fairly quickly due to the simplicity of the behaviour. Research also indicates that for those with strong habits, as khat chewing appears to be for participants in this study, having clear goals can motivate them when the environmental context reminds them of the behaviour (Neal et al., 2012). Participants in this study expressed a clear intention to not use khat in the future and were optimistic about achieving this. This is in contrast to the findings of Estifanos et al. (2016), which found that 55.9% of khat users in Ethiopia had low confidence that they could refrain from using khat, 27% were highly confident and 16.8% felt their confidence would depend on the individual circumstances of the situation. The high optimism of the participants in this study could therefore be due to the fact that khat is not as readily available in the UK as it is in Ethiopia. Also, the participants in the present study were commenting on their hopes that they would be successful in their attempts, whereas the participants in Estifanos et al.'s (2016) study were commenting on their self belief on being about able to achieve abstinence. For the participants in the present study, holding these strong beliefs could have therefore helped them to remain abstinent when in situations where they may be otherwise tempted to use khat. Although habit does assume some level of automaticity (Neal et al. 2012), some participants in the study found they spent a lot of time thinking about using khat but this decreased for all participants once they had quit. Along with goal setting, as suggested by Neal et al (2012), the BCT identified here was self-monitoring of khat use, which could be achieved through

keeping a daily diary of khat chewing behaviour and maybe a useful technique to support people during a quit attempt. In a meta-regression of effective techniques in healthy eating and physical activity, it was found that interventions combining self-monitoring with at least one other technique derived from control theory were significantly more effective than the other interventions (Michie et al., 2009), suggesting it could be effective in encouraging other health behaviour change, such as quitting khat.

Participants described the process they went through once they had decided they were going to quit. Whilst some participants gradually reduced their usage then stopped, others stopped using khat suddenly. Research within smoking cessation has looked at the prompts behind encouraging smokers to make a quit attempt (Ussher et al., 2014). When individuals are prompted by health professional advice, their quit attempts are more likely to involve a gradual decrease in smoking using pharmacological treatments rather than abrupt cessation but they are not more likely to succeed. NHS stop smoking services, however, encourage individuals to plan a quit date and stop completely on that day (Public Health England, 2014b). A systematic review conducted by Bauld et al. (2009) concluded that intensive NHS treatments for smoking cessation are effective in helping people to quit. This is likely to be due to a number of factors within the smoking cessation intervention and it is unclear to what extent setting a quit date and encouraging users to stop completely contributes to the overall effectiveness of the intervention.

Optimism

Within this domain, the khat users were hopeful that they could abstain from using khat in the future. The identified BCT here was verbal persuasion to boost self-efficacy, in the form of support workers, family and friends of users encouraging those who still use khat to quit and to encourage those not using it to stay abstinent. A multimodal trial to promote healthy lifestyle factors in preventing cardiovascular disease amongst women was found to reduce smoking levels and verbal persuasion was one of the BCTs included (Anderson et al., 2006). This indicates it could be useful in supporting people to decrease and quit their khat usage.

Social professional role and identity

Of the three female participants in this study, one was very open about her khat usage amongst family and friends. For the other two, they discussed the stigma

attached to using khat and mentioned keeping it hidden from their family members. They did not reveal their usage to their family until after they had quit. This suggests that despite a more relaxed view on female drug usage at a society level (Nabuzoka and Badhadhe, 2000), this may not have penetrated closed communities (such as the Somali community) and there may still be a taboo attached to women using khat. This echoes the findings of Wedegaertner et al. (2010), which found that female users in Yemen identified concerns about losing honour or esteem within their family if their khat usage was discovered. Similarly, in Patel, Wright and Gammampila's (2005) UK study, some of the female respondents felt it was particularly important to ensure that senior members of their family were unaware of their khat use. They also kept it a secret from their children and immediate family. Others had quit khat and never disclosed their usage to anyone. The present study and existing research therefore indicates there may still be stigma attached to female khat usage, even amongst a UK population. Although social/professional role and identity has not been linked to any BCTs (Cane et al. 2015) the BCTs that are relevant to the other domains may also be appropriate for addressing the identified beliefs, such as the identification of self as a role model. Here, the users would be encouraged to think about who they may be a role model to (e.g. their children) and encouraged to quit to set a good example for them.

Barriers and enablers to providing quit support from the HCP perspective and the relevant BCTs identified

HCPs revealed the complexity of their role and highlighted a number of barriers and enablers to supporting people to quit. The most important domains identified by HCPs were social influences, social / professional role and identity, environmental context and resources, skills and beliefs about consequences.

Social influences

HCPs spoke about the benefits of working closely with other professionals inside and outside of their organisations to better support their clients to quit. These relationships were also directly beneficial to the HCPs, in that they were able to access advice, feel supported and also motivated by their colleagues. The literature suggests that multidisciplinary working can be advantageous in treating substance misuse, but good working relationships are needed in order to facilitate this (McMurran, 2007). Multidisciplinary working is also highlighted as a

recommendation in the practice standards for working with young people with substance misuse problems (College Centre for Quality Improvement, 2012).

Participants also spoke about the clients themselves and how their characteristics and behaviours affected their ability to support clients to quit. For example, they highlighted a number of factors that made it more difficult to support clients to quit, such as if their clients were using other substances (e.g. alcohol) or were experiencing other health problems (e.g. mental health issues), did not have self-awareness of their substance misuse issues or were currently using khat. The NICE guidance on managing multimorbidity defines it as the presence of two or more long term health conditions, including physical and mental health conditions and substance misuse problems (NICE, 2016). The guidelines recommend that HCPs consider how the person's health conditions and the treatments they may be having interact and the effect of these on their quality of life. HCPs are advised to discuss ways of maximising the benefit from existing treatments with the individual and consider treatments that could be stopped because of limited benefit. Non-pharmacological treatments such as diets or exercise programmes that could be beneficial to the individual are also recommended. The HCPs in the present study indicated that they had discussions of this nature with their clients and recognised when quitting khat may not always be the top priority for their clients. They also encouraged their clients to pursue other avenues for increasing their well-being overall, such as pursuing sports and other activities. In order to enhance the effects of social influence, or indeed develop this in a new service, social support or encouragement, restructuring the social environment and modelling or demonstrating the behaviour are potentially important BCTs. HCPs could be encouraged to develop partnerships and peer support relationships with other HCPs, as well as use their own experiences of quitting to motivate clients. Restructuring the environment has been identified as one of seven BCTs to encourage general practitioners to order laboratory tests for patients (Cadogan et al., 2016) indicating it could be effective in encouraging HCP behaviour change in this area.

HCPs spoke about how the gender of their clients affected how they offered support. Female clients were concerned about ensuring confidentiality and worried about being judged for using khat and specifically wanted to receive support from a female support worker. One participant also raised the issue of gender differences in the acceptability of khat use, highlighting the stigma associated with women using

khat, supporting the reports of users within this study and also previous research (Wedegaertner et al., 2010; Patel, Wright and Gammampila, 2005). Here, the BCT of social support would be useful in encouraging HCPs to work in partnership with their colleagues to ensure they are able to collectively support all clients that come to the service. Additionally, adapting interventions specifically for female clients to include issues around stigma and providing female support workers may also be useful in working with this client group.

Social professional role and identity

HCPs defined their role as including supporting their clients to quit through problem solving, developing goals and action plans and monitoring khat usage and quit status. There is a wide evidence base for the specific techniques identified by the HCPs and their role in encouraging behaviour change. Brose, Simonavicius and McNeill (2017) conducted a systematic review looking at maintenance of smoking cessation in those with high mental health comorbidity. They found that problem solving was one of the most common BCTs used, with the meta-analyses indicating positive effects in favour of intervention. Action planning has also been shown to be beneficial in encouraging behaviour change in a review of dietary and physical activity changes in those with type 2 diabetes. Cradock et al. (2017) found that action planning was one of four BCTs associated with a reduction in Hba1c in participants. Prompting self-monitoring of behavioural outcomes has also been shown to be one of the most effective BCTs for maintenance of physical activity (Murray et al., 2017). All three of these systematic reviews show that the BCTs identified by HCPs as being part of their role are effective in encouraging behaviour change in other fields and are may therefore have positive effects in encouraging clients to quit khat, although this as yet has not been formally evaluated. The domain of social/professional role and identity has not been linked to any BCTs (Cane et al. 2015). In this particular context, strategies that help HCPs to clearly define their role at an organisational level would be useful. Behavioural experiments, such as testing different approaches to helping khat users to problem solve may also be helpful in allowing HCPs to identify which approaches yield the best results. For example, when an individual decides to stop smoking, they can try to quit using a self help programme or seek smoking cessation behavioural support on a one-to-one / group support basis through their local stop smoking service. A recent review (Stead, Carroll and Lancaster, 2017) concluded that group therapy was more effective in helping people to stop smoking than self-help programmes

were, but there was insufficient evidence to conclude whether group or one-to-one support was more effective. This indicates that quitting with the support of a HCP is more effective than trying to quit individually, but that interventions delivered in different formats are likely to be effective in different ways and would need to be explored further to explore the effectiveness of individual components. Trialling different methods of offering quit khat support may also be advantageous within a stop khat service.

In the UK, Patel, Wright and Gammampila (2005) found that there was a reluctance amongst khat users to seek support from a doctor or any other services for support with the negative effects of chewing khat and even if a khat user did approach a professional, there was a lack of awareness about khat usage and its effects amongst those professionals who do not originate from khat chewing communities (i.e. Somali or African background). This is in line with the sentiments expressed by the HCPs in the present study, who felt that their experiences of khat (either their own usage or that of a family members) helped and encouraged them to support clients to quit more effectively. They felt that it was their duty to support clients to quit and were led by their own religious values and understanding of the client's culture. Evidence suggests that peer support can be useful in supporting quit attempts. MacArthur et al. (2016) conducted a systematic review looking at the effect of peer-led interventions for preventing substance misuse (tobacco, alcohol and/or drug use) amongst young people aged 11 to 21 years. They concluded that peer interventions may be effective in preventing substance misuse amongst young people. However, they noted the evidence base is limited and consists mainly of small studies, of low quality. Not all HCPs working with khat users or substance misuse workers supporting users to quit will be ex-users themselves and so reflecting on what it is like to be a service user, or asking service users to attend the sessions may be helpful.

Environmental context and resources

HCPs discussed how the ban had affected their work, namely encouraging more clients to come forward to seek quit support, but identified that khat was still available despite the ban. This made it harder for them to encourage their clients to quit. Making client referrals to other organisations was useful in ensuring clients were supported. Despite the ban HCPs in this study spoke about the financial constraints placed upon their services and the resultant limitations on what they

could provide. This differs to for example, smoking cessation services, which are funded by the NHS. Cigarette smoking is more widespread than khat chewing is, with an estimated 15.8% of the UK population smoking cigarettes (Office for National Statistics, 2016) compared to the small numbers of khat users identified in the ACMD report (Iversen, Mathewson and James, 2013). Smoking is also known to cause greater health harms than chewing khat (NHS Smoke, 2018). Therefore, it is reasonable to assume that the NHS would fund smoking cessation services, providing long terms savings in terms of the costs of treating people living with related health conditions (Public Health England, 2015). Relevant BCTs here could target and enhance the environmental and structural effects of a service, where restructuring the social environment may be needed. This would involve setting up peer support or links within their own organisations and with other relevant partners to encourage partnership working when supporting clients. Providing HCP with information about the local and national resources available to them, and where they can refer service users on to would also be useful. Avoidance/changing exposure to cues for the behaviour would also be useful, involving supporting HCPs to identify cues indicating that working with the clients may not be successful and change support/refer on as appropriate. These BCTs could ensure the current service is as effective as it can possibly be, whilst operating in a position with limited funds.

Skills

Participants did have a desire for more training in psychological concepts and therapeutic approaches and identified the need for good interpersonal skills, the ability to tailor support to individual clients and maintaining confidentiality in their work. Tailoring smoking cessation support to the individual client was a key theme in Everson-Hock et al.'s (2010) study. The smoking cessation advisors in this study felt they had to support their clients to think about the various changes that would be beneficial for them and consider them together to decide whether smoking cessation would be the main priority for them. This was especially important when clients were making more than one change e.g. quitting smoking and being more physically active. Similarly, in this study HCPs recognised that quitting khat may not necessarily always being a priority for their clients in the context of other aspects of their lives and that other goals may need to be achieved before khat use could be stopped. Here the relevant BCTs identified include graded tasks, habit reversal and habit formation and training the HCPs in identifying the most effective way to

support clients to gradually reduce the amount/how often they are using khat. The training would include techniques on tailoring their support to ensure it is offered at a pace that clients can cope with. The training would also involve supporting clients to change existing habits and create new ones.

Beliefs about consequences

Participants in this study did however, speak about their individual organisations and the how important and some cases effective they were in supporting people to quit khat. They recognised that their service was not always successful if people did not have the willpower to quit or were experiencing other, more pressing issues. They also noted that their roles could have an effect on them personally. The present study included HCPs from two London-based community support services, one a stand-alone khat support service and the other integrated into a mental health support service. The HCPs in both organisations felt their services were effective in supporting clients. Supporting the recommendations of Kassim, Croucher and Al-Absi (2013) however, further research comparing these services, with each other and to those within general practice is important. The BCTs for beliefs about consequences would include emotional consequences, social and environmental consequences and comparative imagining of future outcomes. This involves encouraging the HCPs to seek peer/managerial support for issues arising in their work and to work with clients to map out different possible outcomes. HCPs would also be asked to create case studies of successful outcomes for clients and outline how they helped, or in unsuccessful case studies, they would be asked to reflect on things they could have done differently.

Implications for practice

The study reveals the complexity of khat chewing and quitting from the perspective of khat users. It also identifies the many barriers and enablers that HCPs experience when supporting individuals to quit. There is little evidence for the effectiveness of current quit khat services or little information outlining how they were developed. Current services would benefit from ensuring the BCTs identified in this study are addressed in the support they offer, both from the perspective of the khat users to encourage them to quit and from the perspective of the HCP to facilitate the quit khat support. The services would also benefit from evaluating the effectiveness of the interventions using established methodology, such as that

outlined in the Medical Research Council Guidance for Complex Interventions (Craig et al., 2008).

Implications for research

There were a number of interesting findings that emerged relating to gender differences in khat use, from both the khat user and the HCP perspectives, supporting previous research. Unfortunately, due to a small sample size, it was not possible to explore gender differences in the sample of khat users. Future research in this area should allow for the gender of the user and the HCP to be considered in intervention development.

Further research would also be needed to test the effectiveness and cost-effectiveness of the proposed interventions, as well as undertaking a process evaluation to establish the effective components of the intervention, intervention fidelity and acceptability. The intervention may need to be tailored to fit specific boroughs or local authority settings and tested to see if it could be delivered in an effective way. Further co-production methods would be beneficial, in order to further develop the intervention into one that maybe more acceptable to service users, carers, intervention facilitators and commissioners. The location of these services would also need establishing in terms of comparing specialist khat support services or generic substance misuse services, and also those operating within an individual organisation to those services operating in other contexts e.g. within general practice.

Strengths and limitations

The study has a number of strengths and limitations. One of the strengths of this study was being able to obtain access to a closed group of participants in order to discuss a traditionally taboo subject, known as privileged interviewing (Griffiths et al., 1993). The primary researcher was able to achieve this through making links and networking with other professionals who work within the Somali community, as part of an existing role in a local authority public health department. Very little research has been conducted looking at khat chewing behaviours in a UK Somali population. To date, there have not been any studies that have looked at the perspective of HCPs supporting khat users to quit or that have used a theoretical framework to explore this area systematically. There are a number of strengths and limitations of using the behaviour change taxonomy approach to move from

behavioural diagnosis to intervention development. One of the major strengths includes utilising methodology that allows intervention developers to consider the full range of barriers and enablers to behaviour and of BCTs, and make an informed decision about which techniques would fit the intervention based on current evidence (Michie et al., 2014). Using this approach also ensures that the intervention is developed in systematic, evidence-based fashion.

There are however, also limitations with using this methodology. This method of devising an intervention has not been previously tested in developing an intervention designed to support khat users. Therefore, it is unknown whether this methodology can be used to produce an effective intervention. Further testing is required. Further guidance of how to implement the BCTs within a cultural context whilst ensuring the intervention is still relevant for a wider group would also be beneficial. In designing the interventions, the APEASE criteria were used in the most accurate way possible however, a number of assumptions were made. For example, the scope of the present research meant that it was not possible to conduct a full analysis of the costs of delivering the suggested intervention components (affordability). It was assumed, given the findings of the study, that the organisation would have limited funds and so the selected BCTs were ones that would be relatively low cost to implement. Due to time limitations, it was not possible to conduct a full assessment of the evidence base on the effectiveness of the BCTs suggested in the field of substance misuse (effectiveness) and so a partial assessment has been conducted. Similarly, it was also not possible to go back to stakeholders (HCPs or potential intervention recipients) to assess whether the intervention would be acceptable to them (acceptability). To reflect on the findings in the wider substance misuse context, the findings of this present study were compared to the closest body of literature within substance misuse and smoking cessation. Whilst this provides some useful comparisons, smoking cigarettes and chewing khat are very different behaviours. Smoking is not illegal in the UK and there is a greater wealth of public health messages pertaining to smoking cessation than there is for quitting khat. There is also a much broader range of support available for those wishing to quit smoking (such as behavioural support, nicotine replacement therapy and medicated support). Therefore, the comparisons between smoking cessation and quitting khat literature do not always allow for a direct comparison. The next stage in intervention development would be to consider, within the context of the individual organisation, how feasible and acceptable the proposed intervention components would be.

An alternative approach to designing the intervention could be the intervention mapping approach. This involves five key steps: (i) specifying the programme objectives, (ii) selecting intervention methods and strategies (based on theory), (iii) designing the programme, (iv) specifying an implementation plan and (v) generating plans for the evaluation of it (Bartholomew, Parcel and Kok, 1998). This method has been shown to be effective in generating other interventions (e.g. obesity prevention intervention in children, Lloyd et al., 2011) but can generate vast numbers of methods and strategies, which would have to be considered in the context of the current intervention. Drawing on existing research, such as randomised control trials, can support intervention development further, however there is little in this area of study. Both the current approach of mapping the TDF domains onto the BCTs and the intervention mapping approach may also benefit from being combined with a co-production approach, which puts service users at the heart of the design of a service (Realpe and Wallace, 2010). This would involve designing a khat support service in partnership with people who may potentially use the service and incorporating their feedback of what they feel may or may not work.

The study does have a number of other limitations. Participants were recruited until data saturation was achieved for the khat user group, but despite attempts to replicate this method the HCP group remained small. The study would have benefitted from larger numbers of participants in this group to allow for further investigation of the key issues from the perspective of different organisations. However, this is also limited by the restricted number of services within the UK and therefore the number of eligible professionals to recruit from is also small. Therefore, the decision to stop recruitment for HCP was taken on the basis that it was unlikely that it would be possible to recruit sufficient HCPs to obtain saturation within the study timeframe. Recruitment overall was challenging. Despite the primary researcher's connections with professionals working with the Somali community it was difficult to recruit participants to take part, especially females. This could indicate that there may be cultural stigma associated to female khat use. Initially, the aim was to recruit even numbers of male and female participants but this was not possible due to a reluctance from female participants to be interviewed. A decision was taken to continue recruiting either males or females until saturation was reached. All of the female khat users in this study opted for telephone interviews as they did not want to meet the researcher face-to-face. This may indicate that there is still a taboo for female khat users even amongst a UK

population, where attitudes towards female substance misuse are more relaxed than other countries (Nabuzoka and Badhadhe, 2000).

Another limitation of the study is that data was not explicitly collected from the khat users regarding who was a current or previous user and how many quit attempts they had made. Collecting this data would have allowed the data to be analysed in view of their previous experiences. It is therefore not possible to say to what extent the identified barriers and facilitators actually impacted on behaviour, further modelling of these relationships would be needed.

The findings are also not generalisable to all khat chewers. Data saturation was considered to be achieved for the khat users, as the interviews were conducted until no new barriers and facilitators to quitting khat were identified by the users themselves or no novel barriers and facilitators that have not already been identified in the literature emerged. However, all of the participants in this study (both the khat users and the HCPs) identified themselves as being from a Somali background and were based in London. The findings, therefore, cannot be generalised to other Somali populations around the UK.

There may be other barriers and facilitators to quitting that are important for users of other ethnicities who are known to use khat, such as those of a Yemeni or Ethiopian descent. This may be especially important in considering the cultural implications of using and quitting khat. Wray and Bartholomew (2010) use the terms ‘insider’ and ‘outsider’ identities to discuss the issue of researchers being part of the group they are researching i.e. through sharing a similar ethnic or religious background (insider identity). Dwyer and Buckle (2009) have cited the positive and negative aspects of both approaches, but argue that it is important for the researcher to reflect upon the ‘space in between’, which encourages reflection on the identity of the researcher as both a member of the group and a researcher, especially in conducting qualitative research. The data in this study was collected by the primary researcher (SB), whose ethnicity and religious identity is outwardly visible. Many of the participants may have identified as holding the same religious beliefs as the researcher and may have considered the researcher an ‘insider’. This could have either encouraged them to share their honest views or made them less willing. Some of the participants, however, opted for telephone interviews and would not have seen the researcher face-to-face. They may have surmised the researcher’s ethnicity or

religious background from the initial introductions, but these issues may not have been as salient as in the face-to-face interactions.

Finally, the belief statements were not coded back into the domains by a blinded researcher, due to time constraints. This would have increased the reliability of the data, ensuring that the belief statements accurately reflected the TDF domains.

Conclusions

Khat users

It was clear that there were a number of influential factors that encouraged khat use and a number of barriers and enablers to quitting. The top domains for khat users were beliefs about consequences, social influences, knowledge, behavioural regulation, optimism and social/professional role and identity. The negative physical and mental effects, as well as the social impact of chewing on family relationships and finances were important reasons for quitting. The knowledge of these effects and the current UK legislation were also important. Family and friends were both encouraging influences to use khat, as well as to quit. Participants identified regular routines for using khat, but were all intent and optimistic that they could stay away from using khat in the future. Gender influences were also important, with female participants discussing having to hide their khat usage from their family and friends due to perceived stigma. There were a wide range of BCTs identified that were relevant to the domains to encourage khat quitting behaviour, such as comparative imagining of future outcomes, practical and emotional support and self-monitoring of behaviour.

Healthcare Professionals

HCPs showed the complexity of their role and highlighted a number of barriers and enablers to supporting people to quit. The top domains in this group were social influences, social / professional role and identity, environmental context and resources, skills and beliefs about consequences. HCPs spoke about the benefits to working closely with other professionals, inside and outside of their organisation, to better support their clients to quit. Their role included supporting their clients to quit through a range of techniques and skills, such as ensuring confidentiality and taking a non-judgemental approach and BCTs such as goal setting. The UK ban had affected their work by encouraging more clients to come forward to seek quit support, but identified that khat was still available despite the ban. They identified

relevant skills needed to work with clients to support them to quit, such as being able to tailor the support offered and interpersonal skills. They also discussed their beliefs about the positive effects of their support on their clients. There were a wide range of BCTs identified that were relevant to the domains to support in encouraging users to quit khat, such as seeking social support from other colleagues and using their own experiences of khat (where relevant) to support clients.

This study has clear implications for current quit khat services and demonstrates how to target interventions by focusing on key barriers and enablers to quitting khat and supporting HCPs to deliver services. It has made an original contribution to the literature and advanced the field of khat research by applying a theoretically informed approach to quit khat behaviour to develop a robust, evidence-based intervention to effectively support users to quit in the future.

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Appendices

B1 Participant screening questionnaire

CITY UNIVERSITY LONDON

Screening questionnaire

Name _____-

_____

Telephone number

_____

Email address

_____

1. **Do you currently chew khat?**
   Yes ☐ No ☐

   a. **If no, have you ever chewed khat in the past more than three separate times?**
      Yes ☐ No ☐

2. **Have you ever been diagnosed with a mental health condition, either now or in the past?** Please tick all that apply below

Depression	Phobias	Post traumatic stress disorder (PTSD)	Psychosis
Anxiety	Obsessive compulsive disorder (OCD)	Eating disorders	Bipolar disorder
Mixed anxiety and depression	Panic disorder	Schizophrenia	Suicidal thoughts
Self harm			

Thank you very much for your time. If you have any questions please contact Suhana at [redacted]

B2 List of khat organisations contacted for recruitment

Organisation	Named contact	Address	Email	Phone/website
Somali Community in Kilburn	Aar		sbfcentre@yahoo.com	[redacted]
Somali Development Group	Dalmar Osman			
Ocean Somali Community Association			info@oceansomali.org.uk	
Enfield Somali Community			info@enfieldsomali.co.uk, enfieldsomali@googlemail.com	
British Somali Community		104-108 Grafton Road London NW5 4BD www.britishsomali.org	[redacted]	[redacted]
Camden Somali Cultural Centre		Kingsgate Community Centre 107 Kingsgate Road London NW6 2JH somaliculturalcentre.org	info@somaliculturalcentre.org	[redacted]
Chadswell Healthy Living Centre, BAME support project		Lower Ground Floor Chadswell Flats Harrison Street London WC1H 8LD	[redacted]	[redacted]
Kentish Town Somali Welfare Association		45 Ashdown Crescent London NW5 4QE	ktswass@yahoo.co.uk	[redacted]
Mind in Tower Hamlets and Newham		13 Whitethorn Street London, E3 4DA	info@mithn.org.uk	[redacted]
Regents Park Somalian Welfare Association		Corner of Robert Street and Hampstead Road London NW1 3ED	rpswa1@yahoo.co.uk	[redacted]
Somali Community Centre		1-2, Lismore Circus London NW5 4QF www.somalicentre.org	admin@somalicentre.org	[redacted]
Somali Community Development Trust		62A St. Pauls Crescent London NW1 9XZ	somalidev@yahoo.co.uk	[redacted]
Somali Education and Development Agency		90 Cromer Street London WC1H 8DD	sedac50@yahoo.co.uk	[redacted]

Somali Speakers Association		12 Barnsbury Road London N1 0HB	somali.speakers@yahoo.co.uk	[redacted]
Somali Youth Counselling and Rehab Action Group	Abdi Guleid	21 Tottenhall Ferdinand Street London NW1 8EX	[redacted]	[redacted]
Somali Youth Development and Resource Centre		7 Dowdney Close London NW5 2BP www.sydrc.org	admin@sydrc.org	[redacted]
St Pancras Community Centre Drop In		30 Camden Street London NW1 0LG	[redacted]	[redacted]
West Hampstead Women's Centre		The Old Library 26-30, Cotleigh Road London NW6 2NP www.whwc.org.uk	info@whwc.org.uk	[redacted]
Sahan Society Centre		18-20 East Avenue Hayes Middlesex, UB3 2HP	sahancentre@yahoo.co.uk	[redacted]
One True Voice			http://onetruevoice.org.gridhosted.co.uk/	[redacted]
Ealing khat service	Abdi Ali [redacted]			
Kik It		153 Stratford Road, Sparkbrook, Birmingham, B11 1RD	info@kikitproject.org	http://www.kikitproject.org/contact/ [redacted]
Westminster Drugs Project		Barnet	barnet@wdp.org.uk	http://www.wdp.org.uk/find-us/london
Westminster Drugs Project		Brent	Brent@wdp.org.uk	
Westminster Drugs Project		Camden	enquiries@wdp.org.uk	
Westminster Drugs Project		City of London	city.enquiries@wdp.org.uk	
Westminster Drugs Project		Enfield	enquiries@wdp.org.uk	
Westminster Drugs Project		Hackney	hackney@wdp.org.uk	
Westminster Drugs Project		Harrow	harrow@wdp.org.uk	

Westminster Drugs Project		Havering	Havering@wdp.org.uk	
Westminster Drugs Project		Hillingdon	arch.hillingdon@nhs.net	
Westminster Drugs Project		Kingston	Kingston.wellbeingservice@nhs.net	
Westminster Drugs Project		London	recoverylondon@wdp.org.uk	
Westminster Drugs Project	Bedfordshire and Luton	Dunstable	enquiries@wdp.org.uk	
Westminster Drugs Project		Luton DIP	enquiries@wdp.org.uk	
Westminster Drugs Project	Passmores House		enquiries@stabilisationservices.org	
Adfam	Adfam 2nd Floor 120 Cromer Street London WC1H 8BS		admin@adfam.org.uk	http://www.adfam.org.uk/contact, 020 3817 9410

B3 Khat user information sheet

Exploring experiences of people using khat

Suhana Begum, [redacted]

We would like to invite you to take part in a research study. Before you decide whether you would like to take part it is important that you understand why the research is being done and what it would involve for you. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information.

What is the purpose of the study?

The London Borough of Islington has approximately 3,000 residents of a sub Saharan demographic, where khat is commonly used (Census, 2011). At the moment, there is no specific programme in Islington which is targeted at helping khat users to quit. This study is aiming to explore the reasons behind why someone may or may not choose to quit khat and whether this may be easy or difficult for them. This information will be used to develop a programme to help people to quit. The study will take approximately one year to complete. I am undertaking the research as part of completing a doctorate in Health Psychology at City University London.

Why have I been invited?

You have been invited because you chew khat or have done previously. We are seeking approximately 15 people over the age of 18 who speak English to take part in this study. Anyone who has a mental health condition will not be able to take part in the study.

Do I have to take part?

No, you do not have to take part in this study. If you do decide to take part, please keep this information sheet for future reference. If you take part, you can withdraw at any stage without being asked for a reason and without being disadvantaged in any way. You do not have to answer all of the questions that are asked. It is up to you to decide whether or not to take part. If you do decide to take part you will be asked to sign a consent form. If you decide to take part you are still free to withdraw at any time and without giving a reason.

What will happen if I take part?

If you consent to taking part in the study, you will be asked to take part in one interview that will last no longer than one hour. I will arrange with you a convenient time to conduct an interview. The interview can be done over the phone or can take place at your local children's centre, City University or at Laycock PDC, depending on what is easier for you. You will be asked a series of questions about your experience of khat and what you think might be helpful when trying to help someone to quit using khat. There are no right or wrong answers. The researchers want to find out about your views and experiences and we will record the interview so that we can write it up and study it at a later date. Any data collected from the interviews will be kept confidential.

What are the possible disadvantages and risks of taking part?
The main disadvantage is simply the time and effort it will take. It is also possible that talking about your experience with khat may be uncomfortable for you. However, we do not feel that this will pose any risks for you. If at any stage of the study you feel uncomfortable, you are free to skip questions, take a break or decide not to continue with the interview.

What are the possible benefits of taking part?
We cannot promise the study will help you but some people find talking about their experiences helpful and interesting. Furthermore, the findings collected from this study will be used to develop a programme that will support people to quit using khat. At the moment, there is nothing like this in Islington. It will be made available to all Islington residents so anyone who would like some support to quit khat can get help.

What will happen when the research study stops?
The procedures for handling, processing, storing and destroying data are compliant with the Data Protection Act 1998. We will link data about you to a number rather than your name in order to maintain anonymity. We will store information about you securely and only members of the research team will have access to this information. We will use your interviews only for the purposes of the current study. When we write up the research for publication (not more than five years), we will dispose all your information securely.

Will my taking part in the study be kept confidential?
All information which is collected from you during the course of the research will be kept strictly confidential and will only be used for research purposes. Once it has been collected, your data will be anonymised so that you cannot be personally identified. If you have consented to being contacted by the research team for future research, your contact details will be stored separately for this purpose only. Only the research team will have access to the data collected. The data will be stored electronically under password protection and in locked cabinets for 10 years, after which it will be destroyed in accordance to the Data Protection Act 1998.

What will happen to the results of the research study?
The data will be analysed and submitted as part of a research project. It will also be submitted for publication in a research journal and may be presented at conferences and/or meetings where other people can benefit from the findings. In all cases, anonymity will be maintained. If you would like to receive a summary of the findings once the study has been completed, please let the interviewer (Suhana) know.

What will happen if I don't want to carry on with the study?
You can choose to withdraw from the study at any time without anyone asking why or without any disadvantages to yourself. You can withdraw your data up to four weeks after it has been collected.

What if there is a problem?
If you would like to complain about any aspect of the study, City University London has established a complaints procedure via the Secretary to the University's Senate Research Ethics Committee. To complain about the study, you need to phone 020 7040 3040. You can then ask to speak to the Secretary to Senate Research Ethics Committee and inform them that the name of the project is 'Exploring experiences of people using khat'.

You could also write to the Secretary at:
Anna Ramberg, Secretary to Senate Research Ethics Committee
Research Office, E214, City University London
Northampton Square, London, EC1V 0HB
Email: [redacted]

City University London holds insurance policies which apply to this study. If you feel you have been harmed or injured by taking part in this study you may be eligible to claim compensation. This does not affect your legal rights to seek compensation. If you are harmed due to someone's negligence, then you may have grounds for legal action.

Who has reviewed the study?
This study has been approved by City University, Psychology Research Ethics Committee.

Further information and contact details
Dr Angeliki Bogosian, Lecturer in Health Psychology (supervisor), Department of Psychology, City University, EC1V 0HB
Email: [redacted]

Thank you for taking the time to read this information sheet.
Please note that neither City University, nor the researchers undertaking this study, condone the use of khat. Taking part in this study should therefore not be seen as providing any support or encouragement for the use of illegal drugs.

B4 Khat user consent form

CITY UNIVERSITY LONDON

Exploring experiences of people using khat

Please initial box

1.	I have had the project explained to me, and I have read the participant information sheet dated February 2015 (version 0.3), which I may keep for my records. I understand this will involve: • being interviewed by the researcher • allowing the interview to be audio taped • completing questionnaires asking me about my demographic information (such as age)	
2.	This information will be held and processed for the purpose of developing and evaluating an intervention to support khat users to quit. I understand that this information will be used only for the purpose(s) set out in this statement and my consent is conditional on the University complying with its duties and obligations under the Data Protection Act 1998.	
3.	I understand that my participation is voluntary, that I can choose not to participate in part or all of the project, and that I can withdraw at any stage of the project without being penalised or disadvantaged in any way.	
4.	I understand when the research is published it may include direct quotations from my interview but that I will not be identified as an individual. No information that could lead to the identification of any individual will be disclosed in any reports on the project, or to any other party. No identifiable personal data will be published. The identifiable data will not be shared with any other organisation.	
5.	I am 18 years old or above	
6.	I agree to take part in the above study	
7.	I agree to be contacted by the researcher with information about future research projects	

_____	_____	_____
Name of Participant	Signature	Date
_____	_____	_____
Name of Participant	Signature	Date

When completed, 1 copy for participant; 1 copy for researcher file.

B5 Khat user debrief sheet

CITY UNIVERSITY LONDON

The development and evaluation of a behaviour change intervention for stopping khat use

Debrief sheet

Thank you very much for taking part in the study. The aim of the study is to explore people's experiences of chewing khat and to come up with a way to help people stop using khat.

The overall study has two main stages. In the first stage, people are interviewed about their experiences of using khat and what they think might be useful in helping people to stop using khat. This information will be used to develop a programme to help people to stop using khat. In the second stage of the study, the programme will be tested and those that take part will be asked to give some feedback on how useful it was.

The study was approved by the City University Psychology Research and Ethics Committee, number: (Reference: PSYCH(P/F) 14/15 113).

If you have any questions about the study or you would like to talk to someone about anything further, please contact Suhana on [redacted]
If you feel upset or distressed by anything that has happened whilst you were taking part in the study, please contact the study supervisor Dr Angeliki Bogosian on [redacted]

All psychoactive drugs tend to be harmful to health and wellbeing, including legal substances such as alcohol and nicotine. All of the illegal drugs tend to be harmful and some can be very damaging. For further information about drug effects or for further support, we advise you to visit http://www.talktofrank.com/ or contact CASA Family Service on 020 7561 7490
http://blenheimcdp.org.uk/services/casa-family/

Furthermore, we advise all drug uses to quit using drugs, or at least to limit their consumption.

B6 Khat user summary of findings

The experiences of people who chew khat and the health care professionals who support them to stop

Summary of findings

Thank you very much for taking part in the study, your contribution was really valued. The aim of the study was to explore people's experiences of chewing khat and to look at ways to help people stop using khat. As part of the research, people were interviewed about their experiences of using khat and what they think might be useful in helping people to stop using khat.

People identified a number of reasons that encouraged them to use khat, as well as a number of reasons that encouraged them to quit. All of the people who took part were concerned about the potential health problems they might experience if they continued to use khat, such as problems with their teeth and sleeping. People said their family and friends encouraged them to quit using khat. People were also worried about the khat ban and what might happen if they were caught using khat. This encouraged them to quit. After people had quit, they tried to change their habits and start new ones to stay away from using khat. Everyone felt confident they could stay away from using khat in the future.

The study was approved by City, University of London, Psychology Research Ethics Committee (Reference: PSYCH(P/F) 14/15 113).

If you have any questions about the study or you would like to talk to someone about anything further, please contact Suhana on [redacted]
If you feel upset or distressed by anything that has happened whilst you were taking part in the study, please contact the study supervisor Dr Hayley McBain on [redacted]

All psychoactive drugs tend to be harmful to health and wellbeing, including legal substances such as alcohol and nicotine. All of the illegal drugs tend to be harmful and some can be very damaging. For further information about drug effects or for further support, we advise you to visit http://www.talktofrank.com/ or contact CASA Family Service on 020 7561 7490
http://blenheimcdp.org.uk/services/casa-family/

Furthermore, we advise all drug uses to quit using drugs, or at least to limit their consumption.

B7 HCP recruitment email

Dear colleague,

My name is Suhana and I work for Camden and Islington public health. I am also a DPsych Health Psychology student at City, University of London. I am trying to recruit participants for my study and I wonder if you could help? I am interviewing health care professionals about their experiences of supporting people to stop using khat. I am interested in their views on the barriers and facilitators to people stopping using khat and have attached an information sheet with further details.

The interviews will take no more than 45 minutes and can be done over the phone. All of the data will be kept confidential, and there will be no information included in the write-up that could be used to identify anyone. The study has received full ethical approval from City, University of London Psychology ethics committee.

Please pass on this information to anyone that you think may be interested in taking part. If you or anyone else is interested in taking part in the research, please do not hesitate to contact me. If there is a specific contact for the khat support workers, please forward this on.

I look forward to hearing from you,

Thank you very much,

Kind regards

Suhana Begum
Trainee Health Psychologist
[redacted]

B8 HCP information sheet

Exploring experiences of people using khat and healthcare professionals in cessation services

Suhana Begum, [redacted]

We would like to invite you to take part in a research study. Before you decide whether you would like to take part it is important that you understand why the research is being done and what it would involve for you. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information.

What is the purpose of the study?
The London Borough of Islington has approximately 3,000 residents of a sub Saharan demographic, where khat is commonly used (Census, 2011). This study is aiming to explore the reasons behind why someone may or may not choose to quit khat and whether this may be easy or difficult for them. The study is also interested in finding out the views of healthcare professionals and what they feel may be barriers or enablers of quitting. The study will take approximately one year to complete. I am undertaking the research as part of completing a doctorate in Health Psychology at City University London.

Why have I been invited?
You have been invited because you currently or have previously supported someone to stop using khat. We are seeking approximately 15 people over the age of 18 who speak English to take part in this study.

Do I have to take part?
No, you do not have to take part in this study. If you do decide to take part, please keep this information sheet for future reference. If you take part, you can withdraw at any stage without being asked for a reason and without being disadvantaged in any way. You do not have to answer all of the questions that are asked. It is up to you to decide whether or not to take part. If you do decide to take part you will be asked to sign a consent form. If you decide to take part you are still free to withdraw at any time and without giving a reason.

What will happen if I take part?
If you consent to taking part in the study, you will be asked to take part in one interview that will last no longer than one hour. I will arrange with you a convenient time to conduct an interview. The interview can be done over the phone or can take place at City University London or at Laycock PDC, depending on what is easier for you. You will be asked a series of questions about your experience of supporting someone to stop khat and what you think might be helpful when trying to help someone to stop. There are no right or wrong answers. The researchers want to find out about your views and experiences and we will record the interview so that we can write it up and study it at a later date. Any data collected from the interviews will be kept confidential.

What are the possible disadvantages and risks of taking part?
The main disadvantage is simply the time and effort it will take. It is also possible that talking about your experience may be uncomfortable for you. However, we do not feel that this will pose any risks for you. If at any stage of the study you feel uncomfortable, you are free to skip questions, take a break or decide not to continue with the interview.

What are the possible benefits of taking part?
We cannot promise the study will help you but some people find talking about their experiences helpful and interesting. Furthermore, the findings collected from this study may be used to further develop existing support services, which will mean an enhanced service for those who access it.

What will happen when the research study stops?
The procedures for handling, processing, storing and destroying data are compliant with the Data Protection Act 1998. We will link data about you to a number rather than your name in order to maintain anonymity. We will store information about you securely and only members of the research team will have access to this information. We will use your interviews only for the purposes of the current study. When we write up the research for publication (not more than five years), we will dispose all your information securely.

Will my taking part in the study be kept confidential?
All information which is collected from you during the course of the research will be kept strictly confidential and will only be used for research purposes. Once it has been collected, your data will be anonymised so that you cannot be personally identified. If you have consented to being contacted by the research team for future research, your contact details will be stored separately for this purpose only. Only the research team will have access to the data collected. The data will be stored electronically under password protection and in locked cabinets for 10 years, after which it will be destroyed in accordance to the Data Protection Act 1998.

What will happen to the results of the research study?
The data will be analysed and submitted as part of a research project. It will also be submitted for publication in a research journal and may be presented at conferences and/or meetings where other people can benefit from the findings. In all cases, anonymity will be maintained. If you would like to receive a summary of the findings once the study has been completed, please let the interviewer (Suhana) know.

What will happen if I don't want to carry on with the study?
You can choose to withdraw from the study at any time without anyone asking why or without any disadvantages to yourself. You can withdraw your data up to four weeks after it has been collected.

What if there is a problem?
If you would like to complain about any aspect of the study, City University London has established a complaints procedure via the Secretary to the University's Senate Research Ethics Committee. To complain about the study, you need to phone 020

7040 3040. You can then ask to speak to the Secretary to Senate Research Ethics Committee and inform them that the name of the project is ‘Exploring experiences of people using khat and healthcare professionals in cessation services’.

You could also write to the Secretary at:
Anna Ramberg, Secretary to Senate Research Ethics Committee
Research Office, E214, City University London
Northampton Square, London, EC1V 0HB
Email: [redacted]

City University London holds insurance policies which apply to this study. If you feel you have been harmed or injured by taking part in this study you may be eligible to claim compensation. This does not affect your legal rights to seek compensation. If you are harmed due to someone’s negligence, then you may have grounds for legal action.

Who has reviewed the study?
This study has been approved by City University, Psychology Research Ethics Committee.

Further information and contact details
Dr Angeliki Bogosian, Lecturer in Health Psychology (supervisor), Department of Psychology, City University, EC1V 0HB
Email: [redacted]

Thank you for taking the time to read this information sheet.

Please note that neither City University, nor the researchers undertaking this study, condone the use of khat. Taking part in this study should therefore not be seen as providing any support or encouragement for the use of illegal drugs.

B9 HCP consent form

CITY UNIVERSITY LONDON

Exploring experiences of people using khat and healthcare professionals in cessation services

		Please initial box
1.	I have had the project explained to me, and I have read the participant information sheet dated March 2016 (version 0.1), which I may keep for my records. I understand this will involve: • being interviewed by the researcher • allowing the interview to be audio taped	
2.	This information will be held and processed for the purpose of possibly further developing quit khat services. I understand that this information will be used only for the purpose(s) set out in this statement and my consent is conditional on the University complying with its duties and obligations under the Data Protection Act 1998.	
3.	I understand that my participation is voluntary, that I can choose not to participate in part or all of the project, and that I can withdraw at any stage of the project without being penalised or disadvantaged in any way.	
4.	I understand when the research is published it may include direct quotations from my interview but that I will not be identified as an individual. No information that could lead to the identification of any individual will be disclosed in any reports on the project, or to any other party. No identifiable personal data will be published. The identifiable data will not be shared with any other organisation.	
5.	I am 18 years old or above	
6.	I agree to take part in the above study	
7.	I agree to be contacted by the researcher with information about future research projects	

_____	_____	_____
Name of Participant	Signature	Date
_____	_____	_____
Name of Participant	Signature	Date

When completed, 1 copy for participant; 1 copy for researcher file.

B10 HCP debrief sheet

CITY UNIVERSITY LONDON

Exploring experiences of people using khat and healthcare professionals in cessation services

Debrief sheet

Thank you very much for taking part in the study. The aim of the study is to explore people's experiences of supporting people to stop chewing khat.

The overall study has two main stages. In the first stage, people are interviewed about their experiences of using khat and what they think might be useful in helping people to stop using khat. In the second stage of the study, health care professionals who currently or have previously worked with people to support them stop using khat are being interviewed.

The study was approved by the City University Psychology Research and Ethics Committee, number: (Reference: PSYCH(P/F) 14/15 113).

If you have any questions about the study or you would like to talk to someone about anything further, please contact Suhana on [redacted].
If you feel upset or distressed by anything that has happened whilst you were taking part in the study, please contact the study supervisor Dr Angeliki Bogosian on [redacted]

All psychoactive drugs tend to be harmful to health and wellbeing, including legal substances such as alcohol and nicotine. All of the illegal drugs tend to be harmful and some can be very damaging. For further information about drug effects or for further support, we advise you to visit http://www.talktofrank.com/ or contact CASA Family Service on 020 7561 7490
http://blenheimcdp.org.uk/services/casa-family/

Furthermore, we advise all drug uses to quit using drugs, or at least to limit their consumption.

B11 HCP summary of findings

The experiences of people who chew khat and the health care professionals who support them to stop

Summary of findings

Thank you very much for taking part in the study, your contribution was really valued. The aim of the study was to explore people's experiences of chewing khat and to look at the experience of those supporting them to quit. As part of the research, people were interviewed about their experiences of using khat and what they think might be useful in helping people to stop using khat. Health care professionals who currently or have previously worked with people to support them stop using khat were also interviewed.

People identified a number of reasons that encouraged them to use khat, as well as a number of reasons that encouraged them to quit. All of the people who took part were concerned about the potential health problems they might experience if they continued to use khat, such as problems with their teeth and sleeping. People said their family and friends encouraged them to quit using khat. People were also worried about the khat ban and what might happen if they were caught using khat. This encouraged them to quit. After people had quit, they tried to change their habits and start new ones to stay away from using khat. Everyone felt confident they could stay away from using khat in the future.

The healthcare professionals mentioned that the support from their colleagues was instrumental in their role, an important part of which was to support people to quit. They identified a number of skills that were key to their role but identified that clients could only successfully quit khat if they were motivated to do so. All the services were operating in times of diminishing funds, which impacted on the service they were able to offer.

The study was approved by City, University of London, Psychology Research Ethics Committee (Reference: PSYCH(P/F) 14/15 113).

If you have any questions about the study or you would like to talk to someone about anything further, please contact Suhana on [redacted]
If you feel upset or distressed by anything that has happened whilst you were taking part in the study, please contact the study supervisor Dr Hayley McBain on [redacted]

All psychoactive drugs tend to be harmful to health and wellbeing, including legal substances such as alcohol and nicotine. All of the illegal drugs tend to be harmful and some can be very damaging. For further information about drug effects or for further support, we advise you to visit http://www.talktofrank.com/ or contact CASA Family Service on 020 7561 7490
http://blenheimcdp.org.uk/services/casa-family/

Furthermore, we advise all drug uses to quit using drugs, or at least to limit their consumption.

B12 Interview topic guides

Khat users

Topic guide for semi-structured interviews – GENERAL

Barriers and facilitators in stopping khat use

Introduction: Thank you for agreeing to take part in this interview. We are conducting this study to help us understand about people's experience of using khat. I am not interested in where you buy khat from but only your experience of using it and any attempts you have made to stop.

This information will be used to help develop a programme to help people to stop using khat in the future. Some of the questions might seem like they are quite similar or obvious to answer but we are trying to understand the topic from different people's experiences so please bear with me. Take as much time as you need and answer as frankly as possible.

I don't work in the khat field so it is important for me to understand as much as possible about your experience so please include as much detail as you can.
If at any stage of the study you feel uncomfortable, you are free to skip questions, take a break or decide not to continue with the interview.

Are you happy to get started?

A. KNOWLEDGE

Can you tell me about your experiences of using khat, either now or in the past?
Prompts: when did you start, how often do/did you use it, how did you take it (chew, stew, drink juice, powdered), what were the effects of using it

What do you know about what the law currently says about using khat in the UK?

B. SOCIAL AND PROFESSIONAL ROLE

How much is/was using khat part of who you are/were?

How does your culture impact on your use of khat?
Prompt: when you started, when you stopped/or have tried to stop

C. BELIEFS ABOUT CONSEQUENCES

Have you ever experienced any positive effects from using khat?
Prompts:

- *positive – feeling relaxed, facilitating conversation, aiding concentration*

Have you ever experienced any negative effects from using khat?
Prompts:

- *negative – damage to teeth and gums, sleeping problems, mental health*

What do you think will happen if you continue to use khat? OR What do you think would have happened if you had continued to use khat?

What do you think will happen if you decided to stop using khat?

What do you think the benefits are to stopping using khat?

D. SOCIAL INFLUENCES

What impact do your family and friends have on your decision to use khat?

Prompt: use it together, buys it for them

What impact did your family and friends have on your decision to stop using khat previously?

What would your family and friends think if you decided to stop using khat?

What impact do you family and friends have on staying not using khat anymore?

E. GOALS

How important is stopping using khat for you?

How important is it that you don't start using khat again?

F. MEMORY, ATTENTION AND DECISION PROCESSES

How much of your day involves thinking about using/or using khat?

G. ENVIRONMENTAL CONTEXT AND RESOURCES

Are there certain situations that you might use khat/find it difficult to not use khat?

Prompts: social gatherings such as going to dinner at someone else's house, a party eating out, with others

Did you use khat in your home country?

Prompt / follow up: is it different to how you use it/used to use it here in the UK?

What are the main differences between using khat in your home country and using khat here?

What effect has the khat ban had on your decision to use/stop using khat?

Prompt: not being able to get any khat

H. EMOTION

If you think about stopping using khat, how does that make you feel? OR Now you have stopped using khat, how does that make you feel?

I. REINFORCEMENT

What encourages/discourages you from stopping khat?

What would encourage you to stop using khat? OR What encouraged your to stop using khat?

J. **BELIEFS ABOUT CAPABILITIES**

How confident are you that you could stop using khat if you wanted to?

How confident are you that you can continue not using khat?

What problems or difficulties do you/think you may encounter?

K. **SKILLS**

What do you think you would need to do to stop using khat? OR What skills did you use to help you stop using khat previously?

What skills do you need to make sure you don't start using khat again?

L. BEHAVIORAL REGULATION

If you wanted to stop using khat, how would you do this?
What steps would/did you take?

M. INTENTIONS

Do you plan to stop using khat in the future?

Do you think you will start using khat again?

N. OPTIMISM

How hopeful are you that you can successfully stop using khat in the future? OR how hopeful are you that you will stay away from using khat in the future?

ADDITIONAL QUESTIONS

Using khat – if you wanted to stop using khat, what would help you do this?

Quit khat – when you stopped using khat, what did you find useful?

Quit khat relapse – when you previously stopped, what did you find useful?
What prompted you to start using khat again?
If you wanted to stop again, what things would be useful?

Close: That's all the questions I have for you, has anything occurred to you about this topic during the interview that we haven't discussed?

Thank you for taking part.

Healthcare professionals

Topic guide for semi-structured interviews – HEALTH CARE PROFESSIONALS

Barriers and facilitators in stopping khat use

Introduction: Thank you for agreeing to take part in this interview. We are conducting this study to help us understand about people's experience of supporting someone to stop using khat.

This information will be used to help further develop existing programmes to help people to stop using khat. Some of the questions might seem like they are quite similar or obvious to answer but we are trying to understand the topic from different people's experiences so please bear with me. Take as much time as you need and answer as frankly as possible.

I don't work in the khat field so it is important for me to understand as much as possible about your experience so please include as much detail as you can. When answering the questions, please think about a specific service user you have worked with or a group of service users. Please do not use any identifying details. If at any stage of the study you feel uncomfortable, you are free to skip questions, take a break or decide not to continue with the interview.

Are you happy to get started?

A. KNOWLEDGE

Can you tell me about your experiences of supporting someone to stop using khat, either now or in the past?

Prompts: when did you support someone, how did you do it, what process did you go through?

What do you know about what the law currently says about using khat in the UK?

B. SOCIAL AND PROFESSIONAL ROLE

What is your role in helping someone to stop using khat?
In your role as a professional, what do you see as the barriers to people quitting khat?
What do you see as the facilitators to people quitting khat?

C. BELIEFS ABOUT CONSEQUENCES

Have any of your service users ever reported experiencing any positive effects from using khat?
Prompts:

- *positive – feeling relaxed, facilitating conversation, aiding concentration*

Have any of your service users ever reported experiencing negative effects from using khat?

Prompts:

- *negative – damage to teeth and gums, sleeping problems, mental health*

Thinking of a particular service user that you worked with, what do you think will happen if they continue to use khat? OR What do you think would have happened if you they had continued to use khat?

What do you think will happen if they decided to stop using khat?

What do you think the benefits are to stopping using khat?

D. SOCIAL INFLUENCES

What impact do the family and friends have on your service users' decisions to use khat?

Prompt: use it together, buys it for them

What impact did their family and friends have on their decision to stop using khat?

What would their family and friends think if they decided to stop using khat?

What impact do their family and friends have on them staying not using khat anymore?

E. GOALS

How important is/was stopping using khat for your service users?

How important is it that they didn't start using khat again?

F. **MEMORY, ATTENTION AND DECISION PROCESSES**

What factors were important for your service users in deciding to access your support service to stop using khat?

G. ENVIRONMENTAL CONTEXT AND RESOURCES

Did you find there are/were certain situations that your service users would use khat/find it difficult to not use khat?

Prompts: social gatherings such as going to dinner at someone else's house, a party eating out, with others

What effect has the khat ban had on your service users' decisions to use/stop using khat?

Prompt: not being able to get any khat

H. EMOTION

How would your service users feel if they had to stop using khat?

I. REINFORCEMENT

What do you think would encourage/discourage service users from stopping khat?

How do you support them to stop using khat? What type of response do you get from service users?

J. BELIEFS ABOUT CAPABILITIES

Do you think your service users could stop using khat if they wanted to?

How confident are you that they could continue not using khat?

What problems or difficulties do you/think they may encounter?

K. **SKILLS**

What do you think they would need to stop using khat?

What skills do think they need to make sure they don't start using khat again?

L. BEHAVIORAL REGULATION

If someone wanted to stop using khat, how would you advise them to do this? What steps would they take?

M. INTENTIONS

Do you think your service users intend to stop using khat permanently?

N. OPTIMISM

How hopeful are you that your service users will stay away from using khat in the future?

Close: That's all the questions I have for you, has anything occurred to you about this topic during the interview that we haven't discussed?

Thank you for taking part.

B13 Original khat user interview schedules for khat users

Three original interview schedules were devised: one for those who were currently using khat, one for those who had already quit and one for those who had previously quit and relapsed.

Topic guide for semi-structured interviews – for those who have quit khat and relapsed

Barriers and facilitators in stopping khat use

Introduction: Thank you for agreeing to take part in this interview. We are conducting this study to help us understand about people's experience of using khat and to find out more about people who might have stopped using khat and how they did this. I am not interested in finding out about where you buy khat from or how else you get it but only your experience of using it.

This information will be used to help develop a programme to help people to stop using khat in the future. Some of the questions might seem like they are quite similar or obvious to answer but we are trying to understand the topic from different people's experiences so please bear with me. Take as much time as you need and answer as frankly as possible.

I don't work in the khat field so it is important for me to understand as much as possible about your experience so please include as much detail as you can.
If at any stage of the study you feel uncomfortable, you are free to skip questions, take a break or decide not to continue with the interview.

Are you happy to get started?

A. KNOWLEDGE

I understand that khat is a leaf that is chewed often by Somali, Yemeni and Ethiopian communities.

Do you chew khat?

How often do you chew it?

Do you use khat in any other way?
Prompt: stew and drink juice

Could you tell me about why you use it?

What do you like about it?

Have you ever experienced any positive effects?
Prompts:

- *positive – feeling relaxed, facilitating conversation, aiding concentration*

Have you ever experienced any negative effects?
Prompts:

- *negative – with excessive use can cause damage to teeth and gums, can cause sleeping problems, can make exiting mental health conditions worse*

B. SOCIAL AND PROFESSIONAL ROLE

Are there certain situations that you might chew khat in?

Prompts: social gatherings such as going to dinner at someone else's house, a party, eating out

Do you chew khat with others?

Did you use khat in your home country?

Do you use it differently here in the UK then in your home country?

Prompts: use it at different times of the day, with different people, different occasions?

C. BELIEFS ABOUT CONSEQUENCES

What do you think will happen if you continue to chew khat?

D. SOCIAL INFLUENCES

What impact did your family and friends have on your decision to stop using khat previously?

What impact do your family and friends have on your decision to use khat now?

Prompt: use it together, buys it for them

E. GOALS

When you think about all of the things that you have to do every day, how important is it that you use khat?

F. **MEMORY, ATTENTION AND DECISION PROCESSES**

What made you stop using khat before?

What lead you to start using it again?

Can you tell me about any times when you have forgotten to buy khat?

Can you tell me about any times when you have wanted to chew khat but you decided not to?

G. ENVIRONMENTAL CONTEXT AND RESOURCES

Have there been any times when you have not been able to get any khat?

Prompt: the usual place you buy it from didn't have any have available, haven't been able to find a place that sells it

What effect has the khat ban had on your decision to use khat?

H. EMOTION

Can you think of a situation in which you would be worried if there wasn't any khat available?

Prompt: when you invited family or friends over

I. REINFORCEMENT

What encourages you to continue using khat?

J. **BELIEFS ABOUT CAPABILITIES**

How confident are you that you can stop using khat again?

What problems or difficulties do you think you may encounter?

What would help you overcome these problems or difficulties?

K. **SKILLS**

What skills did you use to help you stop using khat previously?

What skills do you think you need to be able to stop using khat if you wanted to stop again?

L. INTENTIONS

Do you plan to stop using khat in the future?

M. BEHAVIORAL REGULATION

If you wanted to stop using khat again, how would you do this?
What steps would you take?

N. OPTIMISM

How optimistic are you that you can successfully stop using khat in the future?

Close: That's all the questions I have for you, has anything occurred to you about this topic during the interview that we haven't discussed?

Thank you for taking part.

Topic guide for semi-structured interviews – for those who have quit khat

Barriers and facilitators in stopping khat use

Introduction: Thank you for agreeing to take part in this interview. We are conducting this study to help us understand about people's experience of using khat and to find out more about people who have stopped using khat and how they did this.

This information will be used to help develop a programme to help people to stop using khat in the future. Some of the questions might seem like they are quite similar or obvious to answer but we are trying to understand the topic from different people's experiences so please bear with me. Take as much time as you need and answer as frankly as possible.

I don't work in the khat field so it is important for me to understand as much as possible about your experience so please include as much detail as you can.
If at any stage of the study you feel uncomfortable, you are free to skip questions, take a break or decide not to continue with the interview.

Are you happy to get started?

A. KNOWLEDGE

I understand that khat is a leaf that is chewed often by Somali, Yemeni and Ethiopian communities.

Have you chewed khat in the past?

How often did you chew it?

Did you use khat in any other way?

Prompt: stew and drink juice

Could you tell me about why you used it?

What did you like about it?

Did you ever experience any positive effects?
Prompts:

- *positive – feeling relaxed, facilitating conversation, aiding concentration*

Did you ever experience any negative effects?
Prompts:

- *negative – WITH EXCESSIVE USE can cause damage to teeth and gums, can cause sleeping problems, can make exiting mental health conditions worse*

B. SOCIAL AND PROFESSIONAL ROLE

Were there certain situations that you chewed khat in?

Prompts: social gatherings such as going to dinner at someone else's house, a party, eating out

Did you chew khat with others?

Did you use khat in your home country?

Did you use it differently here in the UK than in your home country?

Prompts: use it at different times of the day, with different people, different occasions?

C. BELIEFS ABOUT CONSEQUENCES

What do you think would happen if you didn't stop using khat?

D. SOCIAL INFLUENCES

What impact did your family and friends have on your decision to use khat?

Prompt: use it together, buys it for them

E. GOALS

How important was it to you that you used khat?

F. ENVIRONMENTAL CONTEXT AND RESOURCES

Were there any times you were not able to get any khat?

Prompt: the usual place you buy it from didn't have any have available, haven't been able to find a place that sells it

What effect has the khat ban had on your decision to quit khat?

G. EMOTION

Can you think of a situation where you were worried because there wasn't any khat available?

Prompt: when you invited family or friends over

H. **MEMORY, ATTENTION AND DECISION PROCESSES**

Can you tell me about any times when you forgot to buy khat?

Can you tell me about any times when you have wanted to chew khat but you decided not to?

What made you decide to stop using khat?

I. REINFORCEMENT

What encouraged you to stop using khat?

J. **BELIEFS ABOUT CAPABILITIES**

How confident were you that you could stop using khat?

What problems or difficulties did you encounter?

What helped you overcome these problems or difficulties?

K. **SKILLS**

What skills did you use to help you stop using khat?

L. BEHAVIORAL REGULATION

What steps did you take to help you stop using khat?

M. INTENTIONS

Do you think you will start using khat again in the future?

N. OPTIMISM

How optimistic are you that you will not go back to using khat in the future?

Close: That's all the questions I have for you, has anything occurred to you about this topic during the interview that we haven't discussed?

Thank you for taking part.

Topic guide for semi-structured interviews – for those using khat

Barriers and facilitators in stopping khat use

Introduction: Thank you for agreeing to take part in this interview. We are conducting this study to help us understand about people's experience of using khat. I am not interested in finding out about where you buy khat from or how else you get it but only your experience of using it.

This information will be used to help develop a programme to help people to stop using khat in the future. Some of the questions might seem like they are quite similar or obvious to answer but we are trying to understand the topic from different people's experiences so please bear with me. Take as much time as you need and answer as frankly as possible.

I don't work in the khat field so it is important for me to understand as much as possible about your experience so please include as much detail as you can.
If at any stage of the study you feel uncomfortable, you are free to skip questions, take a break or decide not to continue with the interview.

Are you happy to get started?

A. KNOWLEDGE

I understand that khat is a leaf that is chewed often by Somali, Yemeni and Ethiopian communities.

Do you chew khat?

How often do you chew it?

Do you use khat in any other way?
Prompt: stew and drink juice

Could you tell me about why you use it?

What do you like about it?

Have you ever experienced any positive effects?
Prompts:

- *positive – feeling relaxed, facilitating conversation, aiding concentration*

Have you ever experienced any negative effects?
Prompts:

- *negative – WITH EXCESSIVE USE can cause damage to teeth and gums, can cause sleeping problems, can make exiting mental health conditions worse*

B. SOCIAL AND PROFESSIONAL ROLE

Are there certain situations that you might chew khat in?

Prompts: social gatherings such as going to dinner at someone else's house, a party eating out

Do you chew khat with others?

Did you use khat in your home country?

Do you use it differently here in the UK then in your home country?

Prompts: use it at different times of the day, with different people, different occasions?

C. BELIEFS ABOUT CONSEQUENCES

What do you think will happen if you continue to chew khat?

D. SOCIAL INFLUENCES

What impact do your family and friends have on your decision to use khat?

Prompt: use it together, buys it for them

E. GOALS

When you think about all of the things that you have to do every day, how important is it that you use khat?

F. **MEMORY, ATTENTION AND DECISION PROCESSES**

Can you tell me about any times when you have forgotten to buy khat?

Can you tell me about any times when you have wanted to chew khat but you decided not to?

G. ENVIRONMENTAL CONTEXT AND RESOURCES

Have there been any times when you have not been able to get any khat?

Prompt: the usual place you buy it from didn't have any have available, haven't been able to find a place that sells it

What effect has the khat ban had on your decision to use khat?

H. EMOTION

Can you think of a situation in which you would be worried if there wasn't any khat available?

Prompt: when you invited family or friends over

I. REINFORCEMENT

What encourages/discourages you from stopping khat?

J. **BELIEFS ABOUT CAPABILITIES**

How confident are you that you could stop using khat if you wanted to?

What problems or difficulties do you think you may encounter?

What would help you overcome these problems or difficulties?

K. **SKILLS**

What do you think you would need to do to be able to stop using khat?

L. INTENTIONS

Do you plan to stop using khat in the future?

M. BEHAVIORAL REGULATION

If you wanted to stop using khat, how would you do this?
What steps would you take?

N. OPTIMISM

How optimistic are you that you can successfully stop using khat in the future?

Close: That's all the questions I have for you, has anything occurred to you about this topic during the interview that we haven't discussed?

Thank you for taking part.

B14 Table outlining all of the TDF domains and their relevant BCTs, taken from Cane et al., 2015.

TDF domain	Relevant BCT
Knowledge	Health consequences Biofeedback Antecedents Feedback on behaviour Skills Graded tasks Behavioural rehearsal/practice Habit reversal Body changes Habit formation
Social/professional role and identity	NA
Beliefs about Capabilities	Verbal persuasion to boost self-efficacy Focus on past success
Optimism	Verbal persuasion to boost self-efficacy
Beliefs about Consequences	Emotional consequences Salience of consequences Covert sensitization Anticipated regret Social and environmental consequences Comparative imagining of future outcomes Vicarious reinforcement Threat Pros and cons Covert conditioning
Reinforcement	Threat Self-reward Differential reinforcement Incentive Thinning Negative reinforcement Shaping Counter conditioning Discrimination training Material reward Social reward Non-specific reward Response cost Anticipation of future rewards or removal of punishment Punishment Extinction Classical conditioning Intentions Commitment Behavioural contract
Goals	Goal setting (outcome) Goal setting (behaviour) Review of outcome goal(s)

	Review behaviour goals Action planning (including implementation intentions)
Memory, Attention, and Decision Processes	NA
Environmental Context and Resources	Restructuring the physical environment Discriminative (learned) cue Prompts/cues Restructuring the social environment Avoidance/changing exposure to cues for the behaviour
Social Influences	Social comparison Social support or encouragement (general) Information about others' approval Social support (emotional) Social support (practical) Vicarious reinforcement Restructuring the social environment Modelling or demonstrating the behaviour Identification of self as role model Social reward
Emotion	Reduce negative emotions Emotional consequences Self-assessment of affective consequences Social support (emotional)
Behavioural Regulation	Self-monitoring of behaviour

B15 Data saturation tables for khat users and HCP

Data saturation table for khat users

Table showing theme presence in each transcript, with data saturation achieved by the tenth participant.

Domain	Theme	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 11
Knowledge	I am aware of legislation around khat use	x			x	x	x	x	x	x	x
Knowledge	I know the mechanisms through which khat works							x			
Skills											
SPRI	Chewing khat is (not) a big part of my life								x	x	
SPRI	It is less acceptable for women to chew khat									x	
SPRI	Chewing khat makes you an addict			x							
Beliefs about Capabilities	I (do not) have the will power to quit khat	x	x				x	x	x	x	
Beliefs about Capabilities	Quitting khat was not difficult		x		x	x	x				
Beliefs about Capabilities	I am confident that I can continue not using khat		x		x		x	x	x		
Optimism	I'm hopeful that I will not chew khat in the future	x	x	x	x	x	x	x	x	x	
Optimism	Using khat makes you lose hope for the future	x									
Beliefs about Consequences	Khat affects society							x			
Beliefs about Consequences	Khat affects your physical health e.g. teeth, sleep, eating habits. Quitting improves this (including more time for sports etc)	x	x	x	x	x	x	x		x	x
Beliefs about Consequences	Khat affects your mental health (e.g. headaches, mood, including feeling social, stimulated). Quitting improves this	x	x	x	x	x	x	x	x	x	x
Beliefs about Consequences	Khat affects your attention and motivation. Quitting improves this	x	x		x	x	x	x	x	x	x

Beliefs about Consequences	Khat affects you financially. Quitting improves this	x	x	x	x	x		x	x	x	
Beliefs about Consequences	Khat affects your family / social relationships. Quitting improves this	x					x	x	x	x	x
Beliefs about Consequences	Using khat could lead to prosecution		x	x				x	x		
Beliefs about Consequences	Using khat helped me to forget my surroundings and escape my problems								x	x	
Beliefs about Consequences	Chewing khat in the UK is unhealthier than in other countries					x		x			
Beliefs about Consequences	Using khat made me drink more alcohol	x	x								
Beliefs about Consequences	Khat is stronger in Somalia than in UK	x									
Beliefs about Consequences	The quality of khat is not what it used to be	x					x				
Reinforcement											
Intentions	I have no plans to start using khat again	x	x	x	x	x	x	x	x	x	
Goals	When I used khat, using it was (not) important to me		x				x	x		x	
Goals	I wanted to quit khat so I could pursue other goals				x						
Goals	I used to look forward to being able to chew khat									x	
Goals	It's important that I don't use khat again		x	x							
Memory, attention and decision processes	Quitting khat has to be your own decision				x						
Memory, attention and decision processes	I (do not) spend a lot of time thinking about using khat	x	x	x	x	x	x	x	x		
Memory, attention and decision processes	I used khat because I was bored							x		x	

Memory, attention and decision processes	My friends and I were in denial about consequences of chewing Khat								x		
Memory, attention and decision processes	Khat is a major part of my life								x		
Environmental context and resources	I used Khat in conjunction with other substances	x	x	x				x			
Environmental context and resources	Chewing khat is part of the ritual of eating					x		x		x	
Environmental context and resources	Khat is expensive	x		x			x	x		x	
Environmental context and resources	The khat ban led me to quitting	x	x		x	x	x	x	x		
Environmental context and resources	When khat is easily available it tempts me to use it and If I don't have access to khat then I won't use it	x		x	x	x		x		x	
Social influences	My family and friends encouraged me to use khat	x	x		x		x	x	x	x	x
Social influences	My family and friends encouraged me to stop using khat	x	x	x	x	x	x	x	x	x	x
Social influences	My family and friends helped me to not return to using khat	x			x						
Social influences	I no longer see the friends I used to chew khat with	x			x		x	x	x	x	x
Social influences	Getting professional support helped me to quit khat	x							x		
Social influences	It is difficult to disclose that you are chewing Khat								x		
Social influences	Religion helped me to quit				x						
Social influences	I use khat when I am lonely									x	
Social influences	Khat is (not) a normal part of my culture	x	x	x	x	x	x	x	x	x	x
Social influences	I use khat in social situations	x	x	x	x	x	x	x		x	x
Behavioural Regulation	I had set routines for using khat	x	x		x	x	x	x	x	x	x
Behavioural Regulation	I always made sure I had khat available for me to use								x		
Behavioural Regulation	I take active steps to staying away from khat	x	x		x	x		x	x	x	
Behavioural Regulation	I changed the way I used khat so I could continue to use it rather than stop										x

Behavioural Regulation	I decided to gradually reduce my khat use before quitting		x							x	
Behavioural Regulation	I gave up khat suddenly	x					x			x	
Behavioural Regulation	Having other routines / regular activities means that I don't think about khat anymore		x						x	x	

Data saturation table for healthcare professionals

Table showing theme presence in each transcript

Domain	Theme	P10	P12	P13
Knowledge	I use existing research to inform my work with khat users	x		
Knowledge	I know what the service guidance says about how to support clients	x		
Knowledge	I know about legislation around khat use		x	x
Skills	Supporting clients to stop chewing khat can take a long time	x	x	x
Skills	I work with each client in a different way according to their individual needs and situation	x	x	x
Skills	Further psychological training would improve the support my colleagues and I offer			x
Skills	You need good interpersonal skills to work with people who use khat	x	x	x
Skills	It is important that my work remains confidential	x	x	
Skills	It's important for me to be self motivated	x	x	
Skills	The longer you work with clients, the more skilled you become		x	
Social professional role and identity	Helping people to stop using khat is part of my role	x	x	x
Social professional role and identity	I help clients to monitor their khat usage or quit status	x	x	
Social professional role and identity	I help clients to problem solve	x		x
Social professional role and identity	It is part of my role to help clients develop action plans and set goals for quitting	x	x	x
Social professional role and identity	It is part of my role to teach clients about the consequences using khat & benefits of stopping	x	x	
Social professional role and identity	It is part of my role to provide clients with emotional support	x		

Social professional role and identity	I have experience of using or someone close to me using Khat	x	x	x
Social professional role and identity	My own religious principles and understanding of culture guide my practise	x	x	x
Social professional role and identity	I have a duty as a practitioner to support people whatever their circumstances		x	
Beliefs about Capabilities	It's difficult to change people's behaviour	x	x	
Beliefs about Capabilities	I am confident in my ability to support people who chew khat	x	x	x
Optimism	I feel optimistic that my clients can quit khat	x		x
Beliefs about Consequences	The work I do has had an impact on the wider community	x		
Beliefs about Consequences	There are many negative effects of using khat and benefits to quitting khat (e.g. physical health, mental health, family life, financially, socially, psychologically, physically, work life)	x	x	x
Beliefs about Consequences	When a person stops using khat other issues come to light (e.g. other substance misuse)	x		
Beliefs about Consequences	Our service is (not) always effective in supporting people to quit	x	x	x
Beliefs about Consequences	My role can have an effect on me personally	x	x	
Reinforcement	The positive responses we get from clients and the community encourage me to continue my work	x	x	
Reinforcement	Seeing the positive effects of people quitting khat encourages me to continue my work	x	x	x
Reinforcement	Going the extra mile makes me feel good		x	
Reinforcement	Failure demotivates me	x	x	
Intentions	I will always support clients to the best of my ability	x		x
Goals	Supporting clients is really important to me	x	x	x
Goals	Addressing someone's khat use is not always the priority	x	x	x
Memory, attention and decision processes				

Social influences	My colleagues have a positive influence on my work	x	x	x
Social influences	I work closely with other professionals to ensure my clients are supported	x	x	x
Social influences	The gender of our clients affects the way in which we support them they use khat	x	x	x
Social influences	How much I can help someone depends on how much they are using	x		
Social influences	It is more difficult to support people when they have other issues e.g. mental health problems, other addictions, language barriers	x	x	x
Social influences	The local community do not see khat as a drug	x		
Social influences	It's hard to help people who don't think they have a problem	x	x	
Social influences	Once a person has stopped using khat it's easier to support them	x		
Social influences	Ex users help us to support users to quit khat		x	x
Social influences	Clients need to be motivated to change	x	x	x
Environmental context and resources	Our work is supported by the wider community	x		
Environmental context and resources	Within our organisation, I have specific tools to supports in helping people to stop chewing khat	x	x	x
Environmental context and resources	The khat ban has increased the number of clients in our service	x		x
Environmental context and resources	We have limited access to resources to help us support clients to quit	x	x	x
Environmental context and resources	There are no other services in my area to support khat users to quit	x	x	x
Environmental context and resources	Khat is easily available	x	x	x
Environmental context and resources	Client incentives help me support people to quit	x		
Environmental context and resources	I am able to refer people to other colleagues if needed		x	
Environmental context and resources	Supporting people to quit khat is resource intensive		x	

Environmental context and resources	Khat is expensive			x
Emotion	We can't let our emotions affect how we work with clients		x	x
Behavioural Regulation	You have to adapt your plans to individual clients	x		
Behavioural Regulation	Setting goals and plans helps me to support people		x	

B16 Full data tables for khat users and HCPs

Khat users

KNOWLEDGE				
Theme label	**Barrier BA / enabler E / both BO**	**Frequency (n= khat users, max n = 10)**	**Example quote**	**Expressed importance**
I am aware of legislation around khat use and its consequences on khat availability	E	10	'…I think… it was banned in July 2014…. I don't read much on the law relating to khat. But one thing I know, it's a criminal offence…If you know that the khat was banned and you chewed it, it's a criminal offence.' P7	
I know the mechanisms through which khat works to change your behaviour and physiology	E	1	'It's a stimulant… you know? So you like to share ideas and you know exchange ideas with others...' p7	

SKILLS				
Theme label	**Barrier / enabler / both**	**Frequency (n= khat users, max n = 10)**	**Example quote**	**Expressed importance**
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SOCIAL PROFESSIONAL ROLE AND IDENTITY				
Theme label	**Barrier / enabler / both**	**Frequency (n= khat users, max n = 10)**	**Example quote**	**Expressed importance**
Chewing khat is (not) a big part of my life	BA	2	For me when I started to chew it, I was still doing my chore in the house, like I was taking the kids to school. I was to bring them back and do my things but it was like a chilling thing as well, something to-- like sometimes when you're lonely or sometimes it's just something to turn to but we never-- like in the UK they say Khat is banned. It was never like that in Somalia, you can have it in any place, people have it for weddings and parties. p9	
It is less acceptable for women to chew khat	BO	1	"You know what? Me and my friend used to do it. Obviously, we're not allowed to do it because for women it's very-- People, they say as a culture, it's all right for a man to chew, but it's not all right for a woman to chew. So if your family really did. My family didn't know about it, and that's why I could say it is okay. Because obviously my family did not know. I used to drive family back obviously if they do find out they might cut me off thinking, "Oh my God, women don't smoke, women don't chew in our culture." So, yes. But for men, it was all right. It was okay. We never used to-- like I said, in the culture it was all right to chew for men. It was okay. People have it for dessert, people-- If you invite someone to your house you have to give Khat for them. It's something normal in our culture. But obviously as a woman, chewing of Khat,	

			they see it as a big thing, so obviously you have to hide it. p9	
Chewing khat makes you an addict	BA	1	"what do you think would have happened if you had continued to use khat? (Pause) I don't know, I would have been an addict probably. I would be addicted to it, you know? But luckily I never got addicted to it you know? p3	

BELIEFS ABOUT CAPABILITIES				
Theme label	**Barrier / enabler / both**	**Frequency (n= khat users, max n = 10)**	**Example quote**	**Expressed importance**
I did not have the will power to quit khat	BA	6	A big effect because I think if it wasn't banned and it was still available, there'll be a big temptation and I probably will get it all and then it will affect my whole family life. P08	I don't feel that I lost something important to me but I feel that (pause) the ban was good for me because if khat was available it would be difficult for me to decide, you know, voluntarily. P7
Quitting khat was not difficult	E	4	No I don't, I don't find it difficult at all. Maybe in the past I did, but not right now. P6	
I am confident that I can continue not using khat	E	5	How confident are you that you can continue not using khat? Interviewee: Very confident. Absolutely. P2	

OPTIMISM				
Theme label	**Barrier / enabler / both**	**Frequency (n= khat users, max n = 10)**	**Example quote**	**Expressed importance**

I'm hopeful that I will not chew khat in the future	E	9	Do you think that you'll start using it again? Interviewee: No. Interviewer: Okay. And how hopeful are you that you'll be able to stay away from it in the future? Interviewee: Very, very hopeful. Like I said, the health risk is always going to be at the back of my mind every time. It's going to destroy your health and money and children and time and plus the good thing about is I'm always active, I've got the children. I'm doing a lot of things on my time. p9	*I don't think, I'll go back to start again, no. I don't think I'm going to go back.* *Interviewer: Okay, so it's very important to you that you don't start it?* *Interviewee: Yes, no more. p4*
Using khat makes you lose hope for the future	E	1	What I feel is that people used to -- Before that, I used to go to work, study. But when I start chewing, I thought like I've got a little work on, I thought I'll start you know. I used to like, I feel like chewing today or tomorrow. I think you think about the day often, like the next day, today, or -- I think a lot about my future, I lost my future.	

			I lost my step. I lost my family, you keep losing your family. You keep losing your -- You're not interested in anything. You just feel like chewing and chewing and you aren't done yet. Just chewing with your friends every day. p1	

BELIEFS ABOUT CONSEQUENCES				
Theme label	**Barrier / enabler / both**	**Frequency (n= khat users, max n = 10)**	**Example quote**	**Expressed importance**
Khat affects society	E	1	Because it has a mental effect, social effect, for a society and on a individual level, p7	
Khat affects your physical health e.g. teeth, sleep, eating habits. Quitting improves this (including more time for sports etc)	E	10	"But honestly, I'm not only-- Honestly, I'm not going to say it's never, never, but it has been good. Like I said, I think it's a strong message. You see what Khat does do to people. I'm glad they banned it, honestly. Because it's just the money, the health. Money I used to spend like two-thirds of my pay a week, 50 pounds sometimes. It's the money, it's the health. That's why I	

			can never go back. I never thought I'd think about, you know what, where does the time go? The time I spent hours and hours, from eight in the morning to five or six o'clock, sometimes the next day, 24 hours we used to chew there, with my friends. And now when I'm thinking, I'm thinking, "Bloody hell, how did I used to do that?" Hours and hours. That's why I'm not, I can never-- I'm not going to say ever never. I'm sure people always say never ever and they go back. You always think that strong message behind it. How can I be so naive back in days but never mind anyway. p9	
Khat affects your mental health (e.g. headaches, mood, including feeling social, stimulated). Quitting improves this	E	10	"(laughs) you start off positive but then you start thinking about a couple of things after it, you know? So what kind of positive effects did you have, did you feel happy? You are bubbly, you are socialising, you are meeting	*"How important to you is it that you don't start using khat again? Interviewee: Very important. Interviewer: You can say a bit more about as to why is it really important to you? Interviewee: Alcohol and Khat is a destroyer. Mentalities and financially. p2*

			new friends, you're going out erm, but the down part of it was, it's just er, the hangover probably, yeah. OK so what kind of negative effects do you get from it then? The hangover. p6	
Khat affects your attention and motivation. Quitting improves this	E	9	The positives are that the people that used to chew it, you know what I mean, the people are, they're okay, it doesn't control their life and I know a lot of them and they go about their daily activities and they socialise and do everything but just as a weekend thing, they enjoy themselves, it's fine. But for people that abuse it, you know what I mean, it's nothing. So that's a negative as well p6	
Khat affects you financially. Quitting improves this	E	8	Well the other factors are money, one is that, I had in mind that khat is bad and (pause) money is (pause) you know it has a bad impact, health wise, money wise, social wise (pause) so knowing that all these	*It's very important for your health being and also for your financial wellbeing (inaudible). You'll be safe from those two, that's the main thing. P3*

			negative things, I know these things but I don't see them as very detrimental. You see? To my health or my social being or (pause) so I was looking for a solution, how to quit, you see? From before the ban. But I didn't have the will to do so. p7	
Khat affects your family / social relationships. Quitting improves this	E	6	Family conflict. Because (pause) if somebody's husband responsible for the family, sometimes he doesn't fulfil his responsibility, because of the khat, you see? So while he was supposed to take the children from school he's sleeping, you see? Because he chew the whole night. This is one thing that can cause, you know? a wife alone cannot do all the things. He has to help her, you know? p7	*Very important because I know now that my husband is not staying with me if I do that and now it is my children. I wouldn't dare. P8*
Using khat could lead to prosecution	E	4	I think it was more because it was illegal and I didn't want anything to come of it. p08	

Using khat helped me to forget my surroundings and escape my problems	BA	2	"Let me not remember that, let me do this", so I'm going to use khat, this way p08	
Chewing khat in the UK is unhealthier than in other countries	E	2	"And did you use khat in your home country? Interviewee: Yes. Interviewer: And when you used to use it there, how is it different to using it in the UK? Interviewee: This khat from Somalia, which one I used to eat in Somalia, is different than with the fluoride. But here they are brought from Kenya, too much chemicals. It's not healthy, it's unhealthy. The khat in Somalia which we use to eat, so normal. But here others, there're some people, they make -- display a lot of chemicals and something like that. It's unhealthy. It's not well.	

			Interviewer: When you used to chew in Somalia, was it the same things that you would chew for like eight hours, ten hours? Interviewee: No, less than that, four hours, five hours, three hours. Something like that. Depends on the person, what is it going to do tomorrow or where it is going to be. But normally, three hours, four hours, then we would have split off. And then we're going to go walk for work, business. Your business or your other things to do. You want to do it. p5	
Using khat made me drink more alcohol	BA	2	"The healthy way, the social way. I want to study now that I am a student now, and I want to look for work, I want to get a job. I want to see my family, my wife and my kids and my mother, my brother and sister. It made me-- because I used to drink as well, so Khat made me drink as well. I smoke cigarette but I stop now. So I stop drinking, I stop khat, I stop at smoking. I just do normal--	

			Every day I do different things. If I stop playing football, running, going with my friends, playing football, stop everything. p1	
Khat is stronger in Somalia than in UK	E	1	It wasn't taste like same but it was like fresh. It was like you get more high. I start like at same time like 1 o'clock, and after 1 o'clock, 3 o'clock after and after, when it's 3. When I went, I finish about eight or 7:30. And I went home, and I had the same thing, like alcohol. It's like breakfast. Then after, I decided, "You know what? Just give up." p1	
The quality of khat is not what it used to be	E	1	"Well, I say to you, like, well… you don't, you don't, the price is different , number one. OK. The price is totally different. And the quality is totally…	

			totally… well to be honest with you, it's close to crap. OK so how is the price different now since the ban? It's more expensive. OK and quality wise, it's not as good? Yeah, it's very dire. p6	

REINFORCEMENT				
Theme label	**Barrier / enabler / both**	**Frequency (n= khat users, max n = 10)**	**Example quote**	**Expressed importance**

INTENTIONS				
Theme label	**Barrier / enabler / both**	**Frequency (n= khat users, max n = 10)**	**Example quote**	**Expressed importance**
I have no plans to start using khat again	E	9	"None. It's been six years, none." P9	Very important because I know now that my husband is not staying with me if I do that and now it is my children. I wouldn't dare. P8

GOALS				
Theme label	**Barrier / enabler / both**	**Frequency (n= khat users, max n = 10)**	**Example quote**	**Expressed importance**
When I used khat, using it was (not) important to me	BO	4	“It was important.” P9 “No, it wasn't important to me.” P2	“It was important”. P9 “No, it wasn't important to me.” P2
I wanted to quit khat so I could pursue other goals	E	1	“education… I like to start-- the course, go back to education. But, I can't concentrate sometimes, because of my medications. Sometimes, I don't concentrate anything.” P4	
I used to look forward to being able to chew khat	BA	1	It was important. It was something, like I said, it was something for me to look forward to in a weekend. It'd be me and my friends chilling. We'd be like-- we would have a chat. We'd be catching up with things and it was no interruption whatsoever. So I did use to look forward to the weekend. The kids are not with me at the time, it was me and my friend, it was something for me to look forward to. p9	It was important. It was something, like I said, it was something for me to look forward to in a weekend. It'd be me and my friends chilling. We'd be like-- we would have a chat. We'd be catching up with things and it was no interruption whatsoever. So I did use to look forward to the weekend. The kids are not with me at the time, it was me and my friend, it was something for me to look forward to. p9
It's important that I don't use khat again	E	2	How important to you is it that you don't start using khat again? Interviewee: Very important. Interviewer: You can say a bit more about as to why is it really important to you? Interviewee: Alcohol and Khat is a destroyer. Mentally and financially. p2	How important to you is it that you don't start using khat again? Interviewee: Very important. Interviewer: You can say a bit more about as to why is it really important to you? Interviewee: Alcohol and Khat is a destroyer. Mentalities and financially. p2

MEMORY, ATTENTION AND DECISION PROCESSES				
Theme label	**Barrier / enabler / both**	**Frequency (n= khat users, max n = 10)**	**Example quote**	**Expressed importance**
Quitting khat has to be your own decision	E	1	That is not necessary, no it's only the willpower. You have the decision, you have to make a decision on your own. P4	
I (do not) spend a lot of time thinking about using khat	BO	8	I would say about 60-75% of the time. P6 At the moment, how much do you think about using it? Interviewee: None. p2	
I used khat because I was bored	BA	2	I think a lot of people, even with friends-- Some of my friends, they're using Khat back in the day, even they used to say they do it out of boredom. Just because you're bored, you don't have nothing to do. At the summer I used to think, "I'm bored, let me do." People do it boredom, because they're bored. They don't have nothing to do. p9	
My friends and I were in denial about consequences of chewing Khat	BA	1	I think we were all in a bit of denial, in a sense p8	
Khat is a major part of my life	BA	1	Yes because it's obviously been a big major part of my life. Of course, it's going to be the temptations and the difficulties that I'll come across again. Also, I don't want my children-- my child to be that way. It's just not nice. P08	

ENVIRONMENTAL CONTEXT AND RESOURCES				
Theme label	**Barrier / enabler / both**	**Frequency (n= khat users, max n = 10)**	**Example quote**	**Expressed importance**
I used Khat in conjunction with other substances	BO	4	Social thing for me actually, yes. Not also addict. Interviewer: It's just been you with friends and with other people. Interviewee: Yes, social for me personally. I was a more drinker than a chewer. I was drinking too much alcohol not khat. At least a little but 10 years also. p2	
Chewing khat is part of the ritual of eating	BA	3	"You know what? Me and my friend used to do it. Obviously, we're not allowed to do it because for women it's very-- People, they say as a culture, it's all right for a man to chew, but it's not all right for a woman to chew. So if your family really did. My family didn't know about it, and that's why I could say it is okay. Because obviously my family did not know. I used to drive family back obviously if they do find out they might cut me off thinking, ""Oh my God, women don't smoke, women don't chew in our culture."" So, yes. But for men, it was all right. It was okay. We never used to-- like I said, in the culture it was all right to chew for men. It was okay. People have it for dessert, people-- If you invite someone to your house you have to give Khat for them. It's something normal in our culture. But obviously as a woman, chewing of	

			Khat, they see it as a big thing, so obviously you have to hide it. p9	
Khat is expensive	E	5	"Positive? Not really. It was just escape. Something just to run away from the problem when you don't know and-- It's like a friend you tend to, really. I think it's just-- to be honest, the reason why I even stopped that, it was waste of money. Chew Khat was expensive. One pack would cost about £3.50, £4. And do you know something? If an airline just stopped or things like that, the demand would be high and the price would go up. At one point you can't find the Khat. We did use to do every weekend but this time comes when our friend is sick or someone was sick and the we'll postpone it to the following week, but it's expensive, Khat. That's part of why I stopped as well. Khat is very expensive to be honest with you. Because some of my friends used to have Khat and they used to buy cigarette and it cost a lot of money. Khat is expensive, so that's the downside to it as well. p9 "	
The khat ban led me to quitting	E	7	I don’t feel that I lost something important to me but I feel that (pause) the ban was good for me because if khat was available it would be difficult for me to decide, you know, voluntarily. P7	I don’t feel that I lost something important to me but I feel that (pause) the ban was good for me because if khat was available it would be difficult for me to decide, you know, voluntarily. P7
When khat is easily available it tempts me to use it and If I don’t have access	BO	6	"And why did you say 80% instead of 100%? What's worrying you about that? Interviewee: You know why I said 20%? Because I worry, if I see khat in the street I will	

to khat then I won't use it			go there and say, ""Let me have one or two pieces."" and I'll buy it again. I don't want to start it again and be in it. What I will do, if I see khat, I will buy it and I will chew it. That's what I'm saying. If I don't see it, I won't do it. But if I see it, I might, ""Let me chew today. Only today."" Then next day, then next day. Do you know what I mean? p1	

SOCIAL INFLUENCES				
Theme label	**Barrier / enabler / both**	**Frequency (n= khat users, max n = 10)**	**Example quote**	**Expressed importance**
My family and friends encouraged me to use khat	BA	8	I think it's obviously, it's a cultural thing, you kind of get used to it and everybody else around you is doing it. It's the norm and you don't think any different of anybody. I know all my friends used to use it as well, so it is more of a social thing. p8	It was important. It was something, like I said, it was something for me to look forward to in a weekend. It'd be me and my friends chilling. We'd be like-- we would have a chat. We'd be catching up with things and it was no interruption whatsoever. So I did use to look forward to the weekend. The kids are not with me at the time, it was me and my friend, it was something for me to look forward to. p9
My family and friends encouraged me to stop using khat	E	10	What was the main reason for your stopping using the khat? So what really encouraged you? Interviewee: People don't like us. Your embarrassed, your parents, the all people, they don't like you chewing khat. So now you've	

			stopped, they are very happy, very glad to be stopped these things. p5	
My family and friends helped me to not return to using khat	E	2	Interviewee: To pray, to read the Qur'an, and change the friends, you make a new friends. See the family, make yourself-- the children they are coming to family. You make them and yourself busy. There are a lot of things that you can do and you see, it's not even enough. Somewhere that you don't know, that you will have to accommodate 12 hours. So, now you can reach to the family. Make family your friends. Interviewer: You said, you tried to keep yourself busy, so what kind of things did you do to keep yourself busy? Interviewee: It's in my families. They are here, you know. Interviewer: To spend time with your family. Interviewee: Yes, the family, yes. And friends, few friends. p4	
I no longer see the friends I used to chew khat with	E	7	Not that I don't see them anymore. I don't know. I think we were all in a bit of denial, in a sense. P8	
Getting professional support helped me to quit khat	E	2	Edris helped me, he helped me. I used to tell him, drink when I get home. Because I used to drink a lot as well. Interviewer: How did Edris help you? Interviewee: He gave me advice and, because he used to help people and stop khat as well. p1	
It is difficult to disclose that you are chewing Khat	BA	1	but if you had asked me a few years ago, I wouldn't have spoken to you. It was all a secret and I never talked about it. p8	

Religion helped me to quit	E	1	I go to Kaaba. The Qur'an, you have to read the Qur'an. People there are very clean, they support you. They were saying, "This is a drug, this is not good for you." It's good to go back to your religion, it's going to be help you. Allah sometimes, Allah, we are human, we are making mistakes. But Allah say, "You'll never forbid my forgiveness." That's why I said, "No." p4	
I use khat when I am lonely	BA	1	For me when I started to chew it, I was still doing my chore in the house, like I was taking the kids to school. I was to bring them back and do my things but it was like a chilling thing as well, something to-- like sometimes when you're lonely or sometimes it's just something to turn to but we never-- like in the UK they say Khat is banned. It was never like that in Somalia, you can have it in any place, people have it for weddings and parties. p9	
Khat is (not) a normal part of my culture	BO	10	Erm, that's a good question to be honest. I don't know… it's something with the heritage it has and our people back home chew it but as a person… you mean, your kinship – they chew it as well so… it doesn't, I don't know how much it says about you because it's like every substance, when you use something… I don't know, I don't know. p6 No, it's not a part of Somali culture, I wouldn't say culture, some time ago, Somali people they don't chew at all, you know? So it's not part of culture you know? But it's a part of entertainment. So people go to bars, you know, to drink the alcohol. Not because of their culture	

			you know, because of their habit I would say. So Somali people they chew the khat you know? (inaudible) they chew more, more. But in the south they start chewing very late, maybe 6 years ago? So it's not a part of their culture always, you know, but part of their past time, you know, to entertain themselves so it's not part of their culture. It's not part of Somali culture. p7	
I use khat in social situations	BA	8	Oh how important, yeah. You know (pause)… I wouldn't say it's important to me but I would say that it's a kind of social gathering. And you know, people, they like to socialise, and er… to meet friends er… to see news, and mainly to talk about back home situations, you know? yeah they want to know what is happening in Somalia you know? sometimes things related to politics, you know? (inaudible) of course everybody has the, has a… what I would say, the need to socialise and this socialisation is important because a lot of people isolated, you know, they don't talk to anyone, they don't talk to (inaudible) you know so it's important in that aspect, er… you know, they say human is a social animal. Yeah? So you need to talk to someone… to share your views. You need the company. You can't enjoy alone chewing khat, you know, you see some people do, not because they don't have friends but because they feel isolated from society and er… sometimes they talk to themselves you know, and they have, they have as you say, mental health problems you know. It is important simply	It was important. It was something, like I said, it was something for me to look forward to in a weekend. It'd be me and my friends chilling. We'd be like-- we would have a chat. We'd be catching up with things and it was no interruption whatsoever. So I did use to look forward to the weekend. The kids are not with me at the time, it was me and my friend, it was something for me to look forward to. p9

			because I like to meet people, that helps a lot you know? you are in a certain environment. p7	

EMOTIONS			
Theme label	**Barrier / enabler / both**	**Frequency (n= khat users, max n = 10)**	**Example quote**

BEHAVIOURAL REGULATION				
Theme label	**Barrier / enabler / both**	**Frequency (n= khat users, max n = 10)**	**Example quote**	**Expressed importance**
I had set routines for using khat	BA	**9**	I would go on through until midnight, which is why I hallucinated. I would start on Fridays. I would do it on Friday, Saturday, and then try to cut down by Sunday because then I know I have to go to work on Monday. Interviewer: When you started on Friday was that after work? Interviewee: Yes. Interviewer: And then Saturday, how long would you say you spent on a Saturday? Interviewee: I've gone through the night probably sleep in the morning, the whole rest of the day, and start again at night. p8	
I always made sure I had khat available for me to use	BA	**1**	I bought two bags of leaves in a day. P8	

I take active steps to staying away from khat	E	**7**	Not really because I don't socialise with those people anymore so I don't surround myself with those who are associated with khat so I don't put myself in a situation where tension will be an issue. P8	
I changed the way I used khat so I could continue to use it rather than stop	BA	**1**	One day a week I'm eating garabo. P11 (THIS IS THE DRIED FORM OF KHAT LEAVES THAT ARE NOW AVAILABLE)	
I decided to gradually reduce my khat use before quitting	E	**2**	At the time what for example three times a week once a week. You can't just cut down the whole thing straight away so that makes you think I'm gonna stop completely because you can maybe reduce the numbers of hours maybe because you can't decide to completely cut it off, you should go one week off, one week on. Because you can't completely just cut it off and say, "I've decided not to do now." One Saturday or one Saturday off, like that gradually. And then when we can't, like my friend just be like doing Khat, do it this way, but together that's how we do, yes. Interviewer: You cut down gradually? So you sort of-- Interviewee: Yes. p9	
I gave up khat suddenly	E	**3**	It wasn't taste like same but it was like fresh. It was like you get more high. I start like at same time like 1 o'clock, and after 1 o'clock, 3 o'clock after and after, when it's 3. When I went, I finish about eight or 7:30. And I went home, and I had the same thing, like alcohol. It's like breakfast.	

			Then after, I decided, "You know what? Just give up." p1	
Having other routines / regular activities means that I don't think about khat anymore	E	**3**	Then I’ve got my little boy that I pick up from nursery. I'll pick him up and then I'm back home and then I'm cooking and cleaning and then I go on my shift at night and then I'm back again in the morning doing the same things, so I don't have much time to even be thinking about watching TV let alone thinking about khat. p08	

HCPs

KNOWLEDGE				
Theme label	**Barrier BA / enabler E / both BO**	**Frequency (n= HCP, max n = 3)**	**Example quote**	**Expressed importance**
I use existing research to inform my work with khat users	E	1	We draw all of this information for the research starting down in the UK- across the world. We just pulled all of that information together and then we just hammer it on for such a long time about what are the causes. It causes constipation, it causes pain. When people are constipated it's painful. There's a domino effect. We had to talk about all of that. People really started to admit something about this problem. Others suffering from stomach ulcer where they have the gastric problem. Some of them have high-blood pressure, some started in developing diabetes. We linked all of that to health, to physical health as well as to the mental health, with paranoia, hearing voices, becoming aggressive after-- a lot of patient of Khat. We did a lot of -- so, it's a big priority for us. p10	
I know what the service guidance says about how to support clients	E	1	Ideally what it says on the book, on paper, ideally it should be a year. If someone starts with our program and if they're progressing the way they're supposed to, which says on the book and on paper, it will take almost 12 months till the person comes to our services with our system. p10	
I know about legislation around khat use	E	2	They realise that there's a reason for this government to ban it. That's really important for me. P12	They realise that there's a reason for this government to ban it. That's really important for me. P12

SKILLS

Theme label	Barrier BA / enabler E / both BO	Frequency (n= HCP, max n = 3)	Example quote	Expressed importance
Supporting clients to stop chewing khat can take a long time	Bo	3	Because some of them the outcome, they may never change sometimes. Some of them they might gradually change but very slow. The encouragement and also the support we offer each other. That's really important to us because it's a very difficult job. It can be challenging sometimes it's one week. We say that, “I've been working with a client and I think maybe you can start working with him and I think that that might help.” p12	Because some of them the outcome, they may never change sometimes. Some of them they might gradually change but very slow. The encouragement and also the support we offer each other. That's really important to us because it's a very difficult job. It can be challenging sometimes it's one week. We say that, “I've been working with a client and I think maybe you can start working with him and I think that that might help.” p12
I work with each client in a different way according to their individual needs and situation	E	3	"Because we run different projects, we’re able to involve people affected with Khat in our different projects. For example, when people come to us who are affected by Khat, often they have multiple needs and multiple issues. You find that often they have problems, they’re homeless, they’re unemployed, and also they might even have mental health issues. They might need much more help and advice. P13	
Further psychological training would improve the support my colleagues and I offer	E	1	Interviewer: What else would you need do you think? Interviewee: I think also training, if there would be more training, especially counselling training for volunteers that we are able to get our volunteers trained and our staff as well to be counsellors or to be able to offer brief counselling. That will be fantastic if we can get that.	

			Interviewer: Do you mean counselling training for yourself and your two colleagues that you mentioned? Interviewee: Yes, also maybe other training. Could be specialist mental health training. Something like that. P13	
You need good interpersonal skills to work with people who use khat	E	3	Also you have to know what you're talking about and how to have that address. If you treat that with respect then they open up, and try to follow the interventions and help, what you offer them. P12	I think you have to be creative, you have to have empathy, you have to have the skills you need to help someone that-- you have to have knowledge about what you're talking about, and what you're saying to the client. Yes, because that's very important that if you want someone to engage, and get down and change, that you have to have the right skills. p12
It is important that my work remains confidential	E	2	I think this is really a good question because the people who use khat they worry about the confidentiality and the trust. They might be worried about that you're going to tell other people. When you're working with someone you know that person a lot. You know what their income, you don't know what they're doing, if they have mental issue, if they have any other drugs, if they have or the issues that—If the person open, that person may be worried about what you're going to do with the information, how you're going to react to, what you're going to tell his family or you're going to talk about him in the community. p12	This is because we have no choice we can't control, we can only tell the appropriate people like for example if someone like their next of kin and we get their permission. If you don't get their permission-- Sometimes in terms of confidentiality like if someone is maybe a danger to themselves, you can't just say it's confidentiality and we have to authorise that. It's really that important and very sensitive because a lot of people-- Somali community are very closely associated community and they're very open to each other and they know each other. If someone, anything goes out, then your credibility is really damaged. You have to be very vigilant and very careful about that. p12
It's important for me to be self motivated	E	2	You have to motivate yourself; you have to from the beginning. It is one of the negative things seeing people relapsing and not wanting to change. It can be difficult for us but you can't afford to be demotivated for long. You have to motivate yourself and start again for the client's	

			sake because if they see you depleted and demotivated you can imagine how they will feel. p10	
The longer you work with clients, the more skilled you become	E	1	Also, really you learn from them, because each time you help someone or you deal with someone, you learn something new, p12	

SOCIAL PROFESSIONAL ROLE AND IDENTITY

Theme label	Barrier BA / enabler E / both BO	Frequency (n= HCP, max n = 3)	Example quote	Expressed importance
Helping people to stop using khat is part of my role	E	3	Because I've been through all the stages like them and you get it right and you just know when you see someone what they like, how much they are using and how to engage them because you've been through and learned by trial and error. P10	It's very, very important that we look at all the area and we support client to stop or reduce their khat use because I think that's my job, p10
I help clients to monitor their khat usage or quit status	E	2	because even sometimes we've set short goals and sometimes don't attain goals, and then sometimes you can then measure the change. We use a tool that can measure the change that they're making and the journey of their recovery. P12	
I help clients to problem solve	E	2	"There's no just one thing that helps, each person is different. Each person has to be supported according to the issue that affects them. You have to look at the issues and deal with all the issues. Sometimes maybe you have a person who as I said before, they're homeless, they don't have a stable home. That actually makes them be on the streets or places where people chew khat and they are easily	

			able to chew khat. Once the housing issue is dealt, they feel more secure, it's easy to work with them and help them give up khat. Some maybe they might have issues at home, family problems with their wives or children or anyone. That actually makes them go and chew khat. You're working with them and speaking to them and gaining that trust to find out what's the root cause. Once that is dealt with, the khat can be dealt with then. It's similar with any other drugs. There's always a root cause that makes people become addicted in a substance. p13	
It is part of my role to help clients develop action plans and set goals for quitting	E	2	because if they don't have anything in structured in place, they would go back to using a lot of Khat p10	
It is part of my role to teach clients about the consequences using khat & benefits of stopping	E	2	It was the first supportive group for them where they could get access to all that information. They would get access in how Khat has impact on the health and the mental and physical harm and family and finances p10	
It is part of my role to provide clients with emotional support	E	1	We just make sure that we follow them up to make sure that if they're having any problem, we're there to help and support them. We also do emotional support work whereby we have one-to-one where they talk about different issues they might be experiencing, emotional issue, family issue, and if they are ready to do some counselling or	

			psychological therapy, we refer them onto that as well. p10	
I have experience of using or someone close to me using Khat	E	3	Because I've been through all the stages like them and you get it right and you just know when you see someone what they like, how much they are using and how to engage them because you've been through and learned by trial and error. P10	I think you need to understand. You need to be able to know to have the experience of what it is really like to be affected with khat and also to understand the cultural background of why are people chewing khat. The effect of khat as well to understand that. Also, someone who is patient and able to build trust with clients. That is the key thing. It is very important. Trust is built over time for people to be supported. p13
My own religious principles and understanding of culture guide my practise	E	3	It really takes a big, big, part of it. Because once, you understand how the mentality and the attitude in, of our community, then that's how we did a lot of health promotions because health is very important to them and their health, anything that affects their health, they take it very, very important. We took the approach of spirituality as well because we know, most of our families, high percent Muslim. We took the approach of spirituality p10	What I usually do I read the confidentiality policy for the organisation and also it's something Islamically when someone trusts you with information or anything that they trust you with, you must not tell anyone else. To get their trust is really important p12
I have a duty as a practitioner to support people whatever their circumstances	E	1	I think sometimes you feel that this is your role and your duty to help. Sometimes even though they can impact your emotions p12	

BELIEFS ABOUT CAPABILITIES				
Theme label	**Barrier BA / enabler E / both BO**	**Frequency (n= HCP, max n = 3)**	**Example quote**	**Expressed importance**
It's difficult to change people's behaviour	BA	2	Because some of them the outcome, they may never change sometimes. Some of them they might gradually change but very slow. The encouragement and also the support we offer each other. That's really important to us because it's a very difficult job. It can be challenging sometimes it's one week. We say that, “I've been working with a client and I think maybe you can start working with him and I think that that might help.” P12	Because some of them the outcome, they may never change sometimes. Some of them they might gradually change but very slow. The encouragement and also the support we offer each other. That's really important to us because it's a very difficult job. It can be challenging sometimes it's one week. We say that, “I've been working with a client and I think maybe you can start working with him and I think that that might help.” P12
I am confident in my ability to support people who chew khat	E	3	After 9 years I am 100% confident. P10	

OPTIMISM				
Theme label	**Barrier BA / enabler E / both BO**	**Frequency (n= HCP, max n = 3)**	**Example quote**	**Expressed importance**
I feel optimistic that my clients can quit khat	E	2	I am very hopeful. In few I've seen who have been successful, I'm very hopeful that they will definitely stay away from Khat. Some people, it has been their lifestyle and they don't want to change that, but some people because of the environment and the influence and they don't have anything else positive, that's different, they just adapt to it but once that was no longer available the mafrishes, the khat houses were no longer available they realize they never wanted it but because they did not know any other way, it's the only way that they've learned to make friends and communicate with others, once it's no longer available they actually embrace a want to change and do something that was more positive. Training courses or wanting to go to play or some actually wanted to get	

			married, make a family and all of that, so I am very hopeful that they will stay away. p10	

BELIEFS ABOUT CONSEQUENCES				
Theme label	**Barrier BA / enabler E / both BO**	**Frequency (n= HCP, max n = 3)**	**Example quote**	**Expressed importance**
The work I do has had an impact on the wider community	BO	1	It was a lot of anger, but from our part there's a lot of frustration because we could see how it was destroying the families and the community. Some of them really welcome us and some really did not like us to interfere with this, and I think it was a mixed approach but I think at the end when they realize, we're helping them stop the problem, the health problem, the health issue that we're talking about all the time. They realise that this is causing a problems so they can no longer deny and be angry about us talking about the Khat. It was mixed at the beginning, but I think towards the end, it was very positive. p10	
There are many negative effects of using khat and benefits to quitting khat (e.g. physical health, mental health, family life,	E	3	At the moment, we have people who are accessing our services, who as I said they've never worked before and now they are contributing to society, they're contributing to their family, they are stable, their health is good. It's	

financially, socially, psychologically, physically, work life)			huge improvement and that's just because they have been able to access our services and we've been able to sit down with them and offer that specialist support. p13	
When a person stops using khat other issues come to light (e.g. other substance misuse)	BA	1	Also, another trend came and took place is the cannabis use. Cannabis being a stimulant just like Khat. They used the Cannabis in order to get that effect of having the stimulant substance. P10	
Our service is (not) always effective in supporting people to quit	BO	3	as far as I know this is the most effective project p12 I think that sometimes it's time consuming. Sometimes it's very, it can affect you in a way that if the time you had with someone don't work, you have to be creative and to say that, "How can I get this person engaged?" It's really time consuming and so the resources as well, because sometimes we have to visit clients sometimes, we have to meet them, with the social workers, like if they have mental issues. I think sometimes there is a disadvantage, I guess that could be a disadvantage. Or sometimes when you don't meet your target, and sometimes you might think, "Oh, goodness. How can I-- that didn't work." p12	
My role can have an effect on me personally	BO	2	I did everything I could. My colleague supported me, works with him, nothing	

			worked. When he come back, he comes with a big problem worse than before. We don't stop there and say that, "Okay, because you didn't help us to help you." Then, if he's got problem we say that, "Okay help." I have a feeling sometime-- my heart sometimes, I feel sorry for him, p12	

REINFORCEMENT				
Theme label	**Barrier BA / enabler E / both BO**	**Frequency (n= HCP, max n = 3)**	**Example quote**	**Expressed importance**
The positive responses we get from clients and the community encourage me to continue my work	E	2	a lot women have welcomed our approach and it really encouraged us to carry on p10	
Seeing the positive effects of people quitting khat encourages me to continue my work	E	3	Because of our achievement, we feel that we are very confident. Because we see that a lot of people that when you support them with their practical issues, it is much easier to deal with their khat addiction. We are very confident of our method of helping these people. p13	I think the important thing is that the client does something about the problem that they have and they are moving forward and that's the main benefit for us. P10
Going the extra mile makes me feel good	E	1	Yes, but sometimes emotionally it impacts you. Even though someone-- because there's a limit that what you can do, how you can support someone, if you think about it. Even sometimes there's no relationship to us. It's not really, but we go extra miles really and I really feel good about that. p12	

Failure demotivates me	BA	2	it can demotivate you p10	

INTENTIONS				
Theme label	**Barrier BA / enabler E / both BO**	**Frequency (n= HCP, max n = 3)**	**Example quote**	**Expressed importance**
I will always support clients to the best of my ability	E	**2**	I have to always support. I can't choose, I have to always support, p10	

GOALS				
Theme label	**Barrier BA / enabler E / both BO**	**Frequency (n= HCP, max n = 3)**	**Example quote**	**Expressed importance**
Supporting clients is really important to me	E	3	It is very important for me. For me, I got in this when-- it's not only as a job but also being affected. I have two family members, and many friends who are affected because of Khat usage, which led to many issues including mental health issues. For me, I have personal interest in making sure that I help these people change and give up Khat. I'm also an ex-user, so I know the effect of Khat, and how Khat can affect someone's health. p13	
Addressing someone's khat use is not always the priority	E	3	"Because we run different projects, we're able to involve people affected with Khat in our different projects. For example, when people come to us who are affected by Khat, often they have multiple needs and multiple issues. You find that often they	

			have problems, they’re homeless, they’re unemployed, and also they might even have mental health issues. They might need much more help and advice. P13	

MEMORY ATTENTION AND DECISION PROCESSES				
Theme label	**Barrier BA / enabler E / both BO**	**Frequency (n= HCP, max n = 3)**	**Example quote**	**Expressed importance**

SOCIAL INFLUENCES				
Theme label	**Barrier BA / enabler E / both BO**	**Frequency (n= HCP, max n = 3)**	**Example quote**	**Expressed importance**
My colleagues have a positive influence on my work	E	3	Because some of them the outcome, they may never change sometimes. Some of them they might gradually change but very slow. The encouragement and also the support we offer each other. That's really important to us because it's a very difficult job. It can be challenging sometimes it's one week. We say that, “I've been working with a client and I think maybe you can start working with him and I think that that might help.” p12	Because some of them the outcome, they may never change sometimes. Some of them they might gradually change but very slow. The encouragement and also the support we offer each other. That's really important to us because it's a very difficult job. It can be challenging sometimes it's one week. We say that, “I've been working with a client and I think maybe you can start working with him and I think that that might help.” p12
I work closely with other professionals to ensure	E	3	Almost 11 years, and we tried to liaise with other projects in other parts, but we only found one that used to be in	

my clients are supported			Harrogate, and they only used to do like, outreach but they don't do extensive work like we do. There was another project in Hounslow, west London, and as far as I know that's the only two project apart from us who are helping people with khat issues. p12	
The gender of our clients affects the way in which we support them	E	3	There's a big stigma about Somali woman and using khat and as well other drugs. The women are very secretive, they only tell people who they trust. P12	
Once a person has stopped using khat it's easier to support them	E	1	they'll self-medicate themselves with Khat. I think with Khat once thrown out of their system they've realised they have problems or they have health problem. P10	
Ex users help us to support users to quit khat	E	2	"Because we run different projects, we're able to involve people affected with Khat in our different projects. For example, when people come to us who are affected by Khat, often they have multiple needs and multiple issues. You find that often they have problems, they're homeless, they're unemployed, and also they might even have mental health issues. They might need much more help and advice. P13	
Clients need to be motivated to change	E	3	Because we're offering these other services, we're able to tap in on our-- the service one. For example, if they need help with homelessness, we've got our in-house advice worker who can help them with advice of their homeless issues.	I think the willingness, the level of wanting to change if it's within the client side, they want to change, and that eagerness and motivation. It's very important factor for me because it will make my life and my job ten

			Because we believe before tackling their addiction, it's key for them to have a stable home. Once that is dealt with, then we can start working with them on their addiction issues. P13	times easier. Otherwise, it would have been the level of engagement as well. p10
How much I can help someone depends on how much they are using	BA	1	but it depends on-- let's say if you used it, it depends on how much Khat they're using, the quantity they're using and also how they wanted to have it, how much they want and how they want it. It will depend on them. P10	
It is more difficult to support people when they have other issues e.g. mental health problems, other addictions, language barriers	BA	3	I think that sometimes it's time consuming. Sometimes it's very, it can affect you in a way that if the time you had with someone don't work, you have to be creative and to say that, "How can I get this person engaged?" It's really time consuming and so the resources as well, because sometimes we have to visit clients sometimes, we have to meet them, with the social workers, like if they have mental issues. I think sometimes there is a disadvantage, I guess that could be a disadvantage. Or sometimes when you don't meet your target, and sometimes you might think, "Oh, goodness. How can I-- that didn't work." p12	
The local community do not see khat as a drug	BA	1	It took us a very long time for us to build this group of client and to come and use our centre to access our services because the community did not see Khat as a drug at all. It was actually a big, big struggle for us. P10	

It's hard to help people who don't think they have a problem	BA	2	I am very hopeful. In few I've seen who have been successful, I'm very hopeful that they will definitely stay away from Khat. Some people, it has been their lifestyle and they don't want to change that, but some people because of the environment and the influence and they don't have anything else positive, that's different, they just adapt to it but once that was no longer available the mafrishes, the khat houses were no longer available they realize they never wanted it but because they did not know any other way, it's the only way that they've learned to make friends and communicate with others, once it's no longer available they actually embrace a want to change and do something that was more positive. Training courses or wanting to go to play or some actually wanted to get married, make a family and all of that, so I am very hopeful that they will stay away. p10	The most important factor is that whether they see-- how they see the problem. They say that the problem khat is causing, and how motivated they are. At what stage they are in. Because people go different stages, they've gone pre-contemplation. They're doing actions and then moving on. Sometimes what stage they are in and how much support they need and how motivated they are is important. p12

ENVIRONMENTAL CONTEXT AND RESOURCES				
Theme label	**Barrier BA / enabler E / both BO**	**Frequency (n= HCP, max n = 3)**	**Example quote**	**Expressed importance**
The khat ban has increased the number of clients in our service	E	**2**	A very positive effect, p10	

We have limited to resources to help us support clients to quit	BA	**3**	For us, I think it's because of the demand. We don't have enough resources to be able to do away properly in terms of enough staff that can meet the demand of the people that we are supporting. P13	
There are no other services in my area to support khat users to quit	BO	**3**	Almost 11 years, and we tried to liaise with other projects in other parts, but we only found one that used to be in Harrogate, and they only used to do like, outreach but they don't do extensive work like we do. There was another project in Hounslow, west London, and as far as I know that's the only two project apart from us who are helping people with khat issues. p12	
Khat is easily available	BA	**3**	and the fresh one or one that is not fresh, dried, we can never buy it in dried leaves because, in order to smuggle it into the country, they needed to minimise the content of Khat. P10	when they lose their friends. I think that's really important for them. Because when someone has been using khat for a long time, and then they, because environmental change is very important, what we advise them the social environment and the physical environment, they both, because before they used to go to the khat cafe or houses, khat houses, where they have a lot of friends and socialize and talk to them and different issues. Even the khat houses are not there anymore, except some. In town there's one that's still open and people they really don't bother. p12

Incentives are an important part of helping people to quit	E	**1**	sometimes food is a big incentive for them because when we have a really hot meal cooked at the centre, they will just come and it would only cost them one pound. P10	
I am able to refer people to other colleagues if needed	E	**1**	When you see someone if R is available then I usually refer the female clients to R. If R isn't available, I explain to her that we have a female worker who do this for you but for this reason she is not available, she's on leave or maybe she's off. I can ensure that, I would respect your confidentiality and I understand that you have issues, I can support you without judging you or—p12	
Supporting people to quit khat is resource intensive	BA	**1**	I think that sometimes it's time consuming. Sometimes it's very, it can affect you in a way that if the time you had with someone don't work, you have to be creative and to say that, "How can I get this person engaged?" It's really time consuming and so the resources as well, because sometimes we have to visit clients sometimes, we have to meet them, with the social workers, like if they have mental issues. I think sometimes there is a disadvantage, I guess that could be a disadvantage. Or sometimes when you don't meet your target, and sometimes you might think, "Oh, goodness. How can I-- that didn't work." p12	
Khat is expensive	BO	**1**	We just see more people coming for help now than before. Khat is still available and	

			it's just gone underground, so basically, if you want khat, I can get khat in five minutes just by going out. Khat is still there. The only thing is just price has gone up. We still have people chewing, it comes every day and you can buy very easily. For us, the difference is not there. It's just people with money now can afford to buy unlike before. p13	

EMOTION				
Theme label	**Barrier BA / enabler E / both BO**	**Frequency (n= HCP, max n = 3)**	**Example quote**	**Expressed importance**
We can't let our emotions affect how we work with clients	BO	2	We try to leave all our emotions outside when we're working with clients, look at the client and support them as a person and see them as someone who needs help. We don't let any of our emotions affect how we work with the client. P13	

BEHAVIOURAL REGULATION				
Theme label	**Barrier BA / enabler E / both BO**	**Frequency (n= HCP, max n = 3)**	**Example quote**	**Expressed importance**
You have to adapt your plans to individual clients	E	**1**	you have to adapt a game plan according to their use, according to the issue they have, according to the emotional issue or the problem they might have. It always depends, it's never straightforward. P10	

Setting goals and plans helps me to support people	E	**1**	I think we have some poster which is alternative to khat. We have to explore the alternative. Sometimes they say though, "What do you want to do today?" they say, "I don't know." But when you bring the alternative, maybe twice of them or sometimes more they say that, “I'm going to the gym. I'm going to an evening class. I'm going to the library. I'm going to the park. I'm going to the--” maybe visiting a relative or a friend that doesn't chew, maybe some volunteer. p12	

SECTION C - PROFESSIONAL PRACTICE

Teaching and Training case study – general population

Teaching topic: healthy diet family cook and eat programme
Setting: children's centres in Islington
Target group: families where there are concerns about their diets

Description of work

This case study will focus on the Family Kitchen (FK) training and programme that I regularly delivered in my previous role. This comprises of both training and teaching, whereby I trained new members of staff to deliver the programme to families across the borough and work with target families to deliver the programme.

Family Kitchen was a cook and eat programme where families, where there may be concerns about weight or an unhealthy diet, were invited to attend. Each session was two hours long and families prepared a three-course meal from basic ingredients and shared the meal at the end of the session. There was also an educational component where families were taught about various aspects of a healthy diet, such as what a balanced diet looks like and hidden fats and sugars in foods. I also worked with my colleague (a dietitian) to develop a variation of the programme called Somali Family Kitchen (SFK). This programme was developed after identifying there are a high number of Somali families in the borough where there are concerns about weight and the traditional diet they are consuming, which is often very high in fat, sugar and salt.

The Family Kitchen programme was developed based on the Health Belief Model (HBM) (Rosenstock, 1974) and the social learning theory (Bandura, 1977). The HBM stipulates that an individual's willingness to engage in certain health behaviours is determined by their perception of how vulnerable they are to developing a health condition as a result of eating a poor diet and their perception of how severe it would be if they did develop a health condition. According to the model, they would also consider what potential benefits they may gain from changing their behaviour and the barriers to this. Finally, having cues to action would help them to make the behaviour change. In the Family Kitchen programme, we discussed the prevalence of conditions both nationally and locally. We discussed

various ideas for implementing behavioural change and did activities and provided resources to support families to make the changes, such as using a weekly meal planner with recipes.

Self-efficacy was also later incorporated into the HBM (Rosenstock, Strecher and Becker, 1988). The Family Kitchen programme aimed to increase self-efficacy and provide parents with cues to action i.e. increase their confidence around preparing and cooking meals at home and providing them with basic resources to do so, such as easy to follow recipes. Self-efficacy is defined as 'The belief that one has the ability and resources to succeed in achieving a goal despite environmental barriers' (Abraham et al., 2008). It is the belief that an individual has about whether they can do certain behaviours. One of the main aims of Family Kitchen was to increase self-efficacy amongst parents by providing them with the basic skills and tools to prepare meals e.g. learning about weighing and measuring and providing simple, easy to follow recipes.

Closely related to this is the social learning theory (Bandura, 1977), which states that learning is a cognitive process that takes place in a social context and by observing behaviour or observing the consequences of behaviour (known as vicarious reinforcement). Part of the teaching method used in the Family Kitchen sessions involved encouraging parents to support one another in preparing the recipes and practising their cooking skills. There is also much research about the benefits of social eating for children who may be considered 'fussy eaters' (where they have a preference for certain foods) (Dovey et al. 2008). Family Kitchen encouraged families to sit and eat meals together as often as possible and this was modelled in the session. Families set the table as part of the session and everyone sat down to eat the food they prepared, including the tutors. The parents invited to attend Family Kitchen were target families, where there were concerns about dietary habits within the family, concerns with fussy eating tendencies in the children and/or concerns about weight in any members of the family (whether that is being overweight or underweight).

My involvement in this programme had three aspects to it; working with families to deliver the programme, training children's centre and school staff to deliver the

programme as well as training other healthcare professionals to train their own staff for delivery of the programme in other boroughs.

I worked with local children's centres and schools to co-deliver the programme with a member of their staff. The Family Kitchen and Somali Family Kitchen was a six-week programme comprising of one two hour session per week. The session was divided into a practical cooking component and educational component. For the educational component, a different topic was discussed every week, such as kitchen hygiene and knife skills, eating a balanced diet, hidden fats and sugars in food, eating a healthy diet on a budget and menu planning. Each topic was accompanied by various activities, such as quizzes, card sort activities and worksheets. They were used to support the learning for families in the session, as well as providing additional resources for them to take away with them. They are encouraged to share the material with their family to support them with changing habits as a family.

For the cooking component, families cooked a three-course meal with a different culinary theme every week. They were given a choice of recipes in the previous session where they selected one starter, one main dish, one side dish and a dessert. The recipes were taken from a dedicated Family Kitchen recipe book, containing recipes adapted to make them healthier in various ways, such as changing cooking methods or reducing their sugar, salt and fat content. Families were also given copies of all the recipes each week.

The children were also encouraged to take part in the session with the food preparation. The session included time to sit down and enjoy the meal as a group (modelling social eating) and washing up and tidying away. For the purpose of this case study, I will be focusing on delivering the training to children's centre and school staff to deliver the programme to their families.

Family Kitchen training

5.1 Planning and designing the training programme

On 20th April 2015 I delivered a tailored session to train two members of staff to deliver Family Kitchen and Somali Family Kitchen programmes. I put together a

training plan that was tailored to them specifically, after having considered their previous experience. The tutors had prior experience of delivering cook and eat sessions. Neither of the tutors, however, had worked specifically with Somali families. I took this into consideration when planning the training and ensured I included additional demographic information about the Somali population in Islington. I was careful to ensure that I was not making any prior assumptions about their knowledge of the community. On 29th September 2015 I also delivered a full six hour Family Kitchen training for early years and school staff members (see appendix C1 for the training agenda). I also delivered the full training on 31st March 2016 to another team of health professionals in a neighbouring borough, who will be delivering the training in their locality.

5.2 Delivering the training programme

There were two formats for delivering the Family Kitchen training. One was to train members of staff individually or in small groups. This involved going over the outline of the programme, support for setting up the programme and an overview of the key health messages that the programme is promoting. This training format was two and a half hours long (see appendix C2 for an example of the training agenda for a small group).

The second format was a six-hour training, which covers the same materials as the training for a smaller group (see appendix C1 for an example of the training agenda for a large group). In order to enhance learning outcomes, an active learning approach (Lawson, 2006) was implemented. This included a practical activity, where a typical Family Kitchen session was delivered as part of the training with the participants taking the place of parents. The participants prepared a three-course meal and everyone ate together at the end of the session. This approach allowed participants to see it is possible to deliver an entire session in two hours and allowed me to highlight key teaching concepts, such as using the meal to encourage discussion about healthy eating.

5.3 Planning and implementing assessment procedures for the training programme

The Family Kitchen training followed two main formats for delivery (as indicated

above). Both formats of the training were evaluated using an anonymous evaluation form to get participant views on the training.

5.4 Evaluate the training programme

The training programme was evaluated using feedback questionnaires from all attendees (see appendix C3 for an example form). They were asked to complete this anonymously and all of the responses were collated at the end and sent back to attendees. They were also encouraged to provide verbal feedback at the end of the session should they wish to. Feedback from previous training sessions was overwhelmingly positive. Attendees reported finding it useful to have a practical example of a session being delivered so they can see what it should look like. It was also a useful way of 'troubleshooting' potential problems within a session, whereby attendees could see ways in which a session may be adapted should something not go according to plan.

Summary and Reflection

I always found the training very enjoyable to deliver, as the training was open to a wide range of staff across schools and children's centres and it was very interesting to meet new people and hear their experiences of delivering cook and eat sessions. I found the full day's training easier to deliver as the practical activity of running a session within the training helped to solidify the concepts further for attendees. It also meant the training was more varied for participants. The feedback from the training was always very positive. In contrast, the shorter training for a smaller group was slightly more challenging in ensuring it was as interactive as possible for participants. I ensured I had as many visual aids as possible to explain the key concepts, such as using videos showing the cutting techniques that are taught to parents instead of doing a practical demonstration like in the full training.

Each training was different and I always ensured I prepared for the training before delivering it. I looked at the attendees list and tailored the training to them. For example, if all of the staff booked on were early years staff then I would tailor it more to delivering the Family Kitchen programme with younger children. Furthermore, knowing about participants' background enabled me to draw and build on any prior experience and knowledge participants may have had (Kaufmann, 2003). I also

found it useful to reflect on the training at the end of each session to think about how well it went and how to improve it next time.

I also reflected on my previous job roles and MSc whilst delivering the training. The MSc in Health Psychology gave me a good understanding of the educational topics that were discussed (such as what is meant by 'balanced' diet) and the evidence base around it. My previous post as a Health Trainer and my current job role gave me a more 'real world' view of health promotion and the ways in which it could be tailored to suit the needs of different populations.

Delivering the Family Kitchen programme to families helped me to improve my delivery of the training, as I was able to draw on my practical experience of the sessions. The sessions gave me an understanding of how the session plans and other training materials provided could be operationalised. For example, there was a session delivery plan for each session (see appendix C4 for an example), which suggested the educational component was delivered in the first part of the session and the cooking was started in the latter part of the session. From experience I found delivering the session in this way often meant it was difficult to complete on time. I preferred to change the two sections around and start off with involving all the families in food preparation. I then delivered the educational component whilst everyone was sitting down to eat. This was a useful practical tip that I passed on to other practitioners in the training.

Another example was in the parental evaluation of the programme. Part of the programme involved asking parents to self-report the changes they have made. I think it is important to highlight in the training that the behavioural changes are self-reported and it is widely recognised that there is an intention-behaviour gap (Sheeran, 2002) so parents may not always make the changes as intended. This was important to highlight in the training as settings often evaluated the effectiveness of the programmes delivered and having an awareness of the intention-behaviour gap could help set more realistic aims and targets.

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Appendices

C1 - Training agenda for the full training

Family Kitchen – Training Plan

Trainer: Suhana Begum – Health Improvement Officer

The training session covers the following topics:

- Programme aims and description
- Hygiene & safety
- Risk assessment
- Cooking skills
- Healthy recipe ideas
- Healthy eating
- Strategies for supporting fussy eaters
- Organising and delivering the sessions
- Creating a pleasant eating environment
- Activities and resources

Aims:

- To develop tutors knowledge and skills in cooking
- To highlight the value and relevance of parents cooking with their children
- To understand how to develop and foster team skills within a cooking environment
- To support tutors in the planning and delivery of Family Kitchen including the Somali variation
- To promote the teaching of healthy eating messages

Time	Content
9.30 – 9.40	Welcome and introductions • Aims of training • Training plan
9.40 - 10.00	**The Family Kitchen programme:** • What is FK? • Aims & expectations

10.00 – 10.20	**Tailored programmes - Somali Family Kitchen:**
	• Background to development
	  ○ What a traditional Somali diet looks like
	  ▪ dietary considerations (halal)
	  ▪ specialist ingredients
	  ○ What the concerns are that Somali families may have

	○ Demographics of Islington and Camden, where families tend to reside • Mostly same as standard programme but with some differences ○ Targeting of families ○ Cooking skills ○ Key health messages: ▪ Less oil, sugar, salt ▪ Not adding salt to food during cooking or at table ▪ Alternatives to flavour food with, using stock cubes etc • Breakfast – Magic Breakfast concerns about Somali and Bengali families not giving their children breakfast in the mornings • Islington's Healthy start programme
10.20 – 10.50	Programme set up • Setting up programme and recruiting families • Role of staff • Other agencies to involve • Monitoring and evaluation
10.50 – 11.30	Healthy eating messages • Messages that are promoted in FK: (food labelling activity) • Eat well plate update – eat well guide
11.30 – 11.45	**Break**
11.45 – 12.15	**Practical activity 1: Safe food preparation and cutting techniques** • Food safety and hygiene • Risk assessment
12.15 – 13.45	**Practical activity 2:** Delivering Family Kitchen session 2, African Caribbean week
13.45 – 14.45	Lunch and review - Practical activity 2
14.45 – 15.15	FK resources
15.15 - 15.35	Questions and answer about delivery
15.35 – 16.00	Summary and evaluation

C2 - Training agenda for small group

Family Kitchen – Shortened Training Plan

Trainer: Suhana Begum – Health Improvement Officer

The training session covers the following topics:

- Programme aims and description
- Hygiene & safety
- Risk assessment
- Cooking skills
- Healthy recipe ideas
- Healthy eating
- Strategies for supporting fussy eaters
- Organising and delivering the sessions
- Creating a pleasant eating environment
- Activities and resources

Aims:

- To develop tutors knowledge and skills in cooking
- To highlight the value and relevance of parents cooking with their children
- To understand how to develop and foster team skills within a cooking environment
- To support tutors in the planning and delivery of Family Kitchen including the Somali variation
- To promote the teaching of healthy eating messages

Time	Content
9.30 – 9.40	Welcome and introductions • Aims of training • Training plan
9.40 - 10.00	**The Family Kitchen programme:** • What is FK? • Aims & expectations

10.00 – 10.20	**Tailored programmes - Somali Family Kitchen:**
	• Background to development
	  ○ What a traditional Somali diet looks like
	  ▪ dietary considerations (halal)
	  ▪ specialist ingredients
	  ○ What the concerns are that Somali families may have
	  ○ Demographics of Islington and Camden, where families tend to reside
	• Mostly same as standard programme but with some differences

	○ Targeting of families ○ Cooking skills ○ Key health messages: ▪ Less oil, sugar, salt ▪ Not adding salt to food during cooking or at table ▪ Alternatives to flavour food with, using stock cubes etc • Breakfast – Magic Breakfast concerns about Somali and Bengali families not giving their children breakfast in the mornings • Islington's Healthy start programme
10.20 – 10.40	Programme set up • Setting up programme and recruiting families • Role of staff • Other agencies to involve • Monitoring and evaluation
10.40 – 11.10	Healthy eating messages • Messages that are promoted in FK: (food labelling activity) • Eat well plate update – eat well guide
11.10 – 11.30	**Activity 1: Safe food preparation and cutting techniques** • Food safety and hygiene • Risk assessment
11.30 - 11.45	FK resources
11.45 – 11.55	Questions and answer about delivery
11.55 – 12.00	Summary and evaluation

C3 - Example evaluation form for Family Kitchen training

Family Kitchen Evaluation

Your thoughts on the training today

Please give your ratings, by circling the relevant number, on the following scale:

1 = Very Good **2 = Good** **3 = Satisfactory**

Event:	**Family Kitchen training**
Date:	31 March 2016

1. Did the training fulfil your expectations?

Yes / No

Reasons/comments

2. How effective was the trainers in developing your understanding of the of Family Kitchen programme?

GRADE **Very Good** **1** **2** **3**

Reasons/comments

3. How would you rate the time allowed during the course for questions and discussion?

GRADE **Very good** **1** **2** **3**

Reasons/comments

4. How effective were the trainers responses to questions asked during the training?

GRADE **Very good** **1** **2** **3**

Reasons/comments

5. How would you rate the quality of the materials used during the day and made available for use after the training?

GRADE Very Good 1 2 3

Reasons/comments

6. What did you find most useful?

7. Which areas from the training will you need to focus on before starting Family Kitchen

8. What further support or training do you think you will need?

Thank you, we hope you enjoyed the training!

C4 - Example session delivery plan

Week 3: Confident cooking

Learning intentions

Parents will:

- understand how to weigh and measure ingredients accurately.
- learn how to follow a recipe accurately.
- discuss how recipes can be adapted.
- establish effective ways for parents to work with their child when cooking.
- demonstrate good safety and hygiene skills when cooking the following Mediterranean recipes. Some recipes are from the *Get Cooking! Healthy Schools Recipe Book*, some are in Appendix 6 of this resource pack:
  - Starters: Hummus with vegetables and/or bread sticks (page 43), Gazpacho chilled soup (Appendix 6).
  - Main courses: Chicken risotto (page 81), Falafel (page 94), Tuna pasta bake (page 77), Pasta with meatballs in tomato sauce (page 85).
  - Side dishes: Greek salad (page 41), Flatbreads to serve with falafel (Appendix 6), Ratatouille (page 98).
  - Desserts: Pancakes with Fresh, tinned or dried fruit (page 145), Turkish poached apricots (page 150).

Materials and resources

- Laminated recipe sheets or *Get Cooking! Healthy Schools Recipe Books*.
- Equipment and ingredients for the preparation of the Mediterranean recipes above.
- Pens and pencils.
- Sufficient copies of the *Weighing and measuring quiz* and *answer sheet* so that each family can have one.

Resources for additional activities and homework

- Sufficient copies of the *Tips on adapting recipes fact sheet* so that each family can have one.
- Sufficient copies of the *Recipe activity sheet* and *answers sheet* (wholemeal savoury scone recipe) so that each family can have one.
- Scissors.

Start up

10 mins

- Give each participant a copy of the *Weighing and measuring quiz*, and ask them to complete the quiz in family groups.
- Go through the answers in the large group. Give out the answer sheet (5 mins).
- Show the group how to use weighing scales, spoons and jugs for weighing and measuring (5 mins).

Practical activity

70 mins

- Go through the recipes for this week and allocate them to families. You may wish to use the food task table below as a guide.

Group allocation of tasks

Family group	Starters	Main courses	Side dishes	Desserts	Additional / extra dishes
1		Chicken risotto	Flatbread		
2	Gazpacho			Pancakes	
3	Hummus with vegetable sticks		Ratatouille		
4		Pasta with meatballs in tomato sauce	Greek salad		
5		Falafel		Poached apricots	
6		Tuna pasta bake			

Food preparation tasks (15 mins)

- Ensure that the group are ready to cook.
- Reinforce hygiene and safety rules.
- Remind the group about the safe cutting techniques (bridge and claw).

Cooking tasks (55 mins)

- Groups collect their recipe, ingredients and equipment.
- Groups prepare and make their dish/es.
- Groups clear up.
- Circulate the room and offer support to ensure that the session keeps within the time plan.
- Help families with tasks as necessary.

Dinner table

20 mins

- Ask children to lay the table. Provide help to any children who don't know how to do this.
- Encourage children to support one another.
- Everyone sits at the table, including tutors.
- Ask each family group to be involved in serving the dish that they have prepared.

- Discuss the dishes made:
  - What do they like and dislike?
  - Which food groups does each dish fit into?
  - How easy was each dish to prepare and cook?
  - Would they try to make any of the dishes at home?
  - How could the recipes be adapted?
  - How could they use leftovers? Any ideas about portion sizes?
- Discuss future recipes.
- Everyone clears up.

Additional activity or homework

5 mins

Recipe ordering activity

- Give each family a copy of the second page of the recipe activity sheet.
- Explain that the task is to see whether they are able to put a recipe in the correct order.
- Ask each family to cut up the recipe and place the instructions in the correct order.
- Check the results by giving each family a copy of the original recipe.

Making the most of the food you buy

- Many of today's dishes can be served within two days (only one for risotto).
- Have the vegetable sticks as an after-school treat.
- Don't forget you can freeze meatballs and falafel – just defrost them thoroughly before reheating.

Teaching and Training case study – university students

Teaching topic: health behavior interventions in the community

Setting: City, University of London

Target group: MSc Health Psychology students (but also taught MSc Public Health and BSc Psychology students)

Introduction

Teaching is an important skill to develop and a there are a number of theories supporting this. Toohey (1999) further elaborated on Dunkin and Biddle's (1974) model of teaching to cite the three P model of learning, where she outlines how courses need to foster engagement with the material and reward deep learning in order for students to fully benefit. To do this, courses need to be designed with three P's in mind; presage, process and product. Presage refers to the period prior to learning, where one must look at the students and how much prior knowledge they have, their interest in the topic and so on. The context of the teaching must also be considered, including what is intended to be covered, how the topic fits in with their course and other related factors. Process refers to looking at relevant activities to ensure students have engaged with the material. Finally, product refers to looking at learning outcomes and what the students have gained. Biggs (2003) adds factors like the curriculum, teaching methods, assessment procedures, the classroom environment and the institution environment, stating that these should all be aligned in order to facilitate deep learning. I drew on these theories to formulate my own teaching plans.

Description of work

I have gained a wealth of teaching experience as part of my stage 2 training. I contacted a number of members of staff at City, University of London to ask if they have any teaching experience available as I wanted to expand my teaching repertoire and build on my delivery skills. I was asked to deliver a statistics workshop on 28th September 2015 by Dr Hayley McBain. This was for a group of 40 MSc Public Health students and involved delivering a short introductory lecture reminding them of key aspects of study design and working with the students in

groups to design their own study. I also worked with Dr Katy Tapper, to deliver a careers lecture for BSc undergraduate students. This was born from setting up an initial meeting with Dr Tapper as I was interested in gaining teaching experience and remembering my experiences as an undergraduate student at City, University of London. I expressed that I would have appreciated practical careers advice that focused on applied health psychology, not just a career in academia, as an undergraduate. I briefly covered the different areas of psychology before focusing in health psychology and my experience of doing stage 2 training in Health Psychology. I also worked with Dr Alice Simon to deliver a short section on healthy lifestyles interventions within Islington as part of her lecture in the MSc Public Health module on 18th November 2015. Dr Simon talked about public health policy on a wider level and I described the intervention that I have developed in the context of what she covered. I also delivered a very similar lecture entitled 'Intervention development in action' on 30th November 2015 for MSc Health Psychology students. The lecture that I will be focusing on for the purpose of this case study is a lecture I delivered to 16 MSc Health Psychology students entitled 'Behaviour Change Interventions in the Community'. It was a three-hour lecture and I was observed by Dr Bogosian.

5.1 Planning and designing the training programme

I was asked by Dr Bogosian to teach a lecture in the module Research in Action, based on my experience of developing behaviour change interventions as part of my role in public health. I delivered a lecture entitled 'Behaviour Change Interventions in the Community'. I asked Dr Bogosian about the students background, and I found out that the students would have a basic knowledge of health psychology models but a lot of the students were not from the UK and might not be aware of UK public policies. Also, some students did not have a psychology background. I wanted to describe an intervention I developed as part of my role that focuses on supporting families with implementing healthy lifestyle related behaviour. I started to put together a session plan and slides describing the conception and development of the intervention. However, I soon realised that the rationale behind why the intervention was developed may not necessarily be immediately apparent to someone who is not working in the field. I added some background information to my presentation, such as information about how health priorities are determined. I felt that this made the lecture well rounded and provided students with a clear

overview of how behaviour change interventions are formulated within public health departments. This is linked to Toohey's (1999) presage stage, where I considered the student and teaching environment.

Prior to delivering the lecture, I provided students with learning outcomes and recommended reading references to prepare for the session. I thought very carefully about the content of the lecture. I wanted to ensure that I was providing a 'real world' sense of behaviour change interventions, from designing through to delivery and the differences between interventions in a research setting compared to a real world setting. I also wanted to help them think about how they could draw upon health psychology theories and current research and use this to inform intervention delivery, such as the behaviour change taxonomy (Michie et al., 2013) and the behaviour change wheel (Michie, van Stralen and West, 2011). I also felt it was important for the students to be aware of wider guidance documents and how they can inform service delivery, such as the Marmot Review (2010) and guidance from National Institute for Health and Care Excellence (NICE) (2015) and the National Obesity Observatory (NOO) (2009). Finally, I included some examples of interventions (such as HENRY [Willis et al., 2012, 2014] and MEND [Chadwick et al., 2010]) that were delivered in the past or present in other similar settings, to show that you can use previous interventions to guide development and assess the feasibility of a newly developed one.

5.2 Delivering the training programme

I started the lecture with clear aims to ensure students were aware of what the lecture was going to cover. I started with a short lecture describing the intervention development, linking it to behaviour change frameworks. I also encouraged them to ask questions throughout the lecture. This was part of the 'process' stage from Toohey's (1999) model, designed to facilitate deeper learning for students.

5.3 Planning and implementing assessment procedures for the training programme

The tasks designed provided students with a 'hands on learning' approach, as they had to design an intervention based on the material they were presented with and their knowledge of health psychology theories. After a short break, I divided the

students into small groups and gave them each a different public health scenario and asked them to develop an intervention to target this and to link their intervention to a theory (see appendix C5).

I asked them to present their interventions to the rest of the group at the end. I gave the students questions to point them in the right direction with regards to the areas that they might need to think about for their intervention development. While they were doing the group work, I went around to each group and asked them questions to help them critically about their evaluation and their chosen design. I wanted to encourage them to think about interventions in a more real life setting as opposed to a 'textbook' research design. For example, the gold standard in intervention development would involve conducting a randomised control trial to test the effectiveness of the intervention. However, this is not always possible in real life due to, for example, resource and funding constraints.

Each group of students presented their intervention to the other groups. I encouraged students to ask each other questions to support peer learning, as well as asking them questions myself. At the end of the lecture, I asked students to complete a short anonymous evaluation form. I asked students a range of questions on a Likert scale of one to 10 (where one was not useful/poor and 10 was very useful/excellent). When asked how useful the lecture was, all but one student rated it nine or 10. When asked how they would rate the delivery of the content and the pace of the lecture, all students rated it eight or above. Finally, all of the students rated the lecture nine or 10 when asked about the lecturer’s knowledge (see appendix C6). Overall the students said they benefitted from the lecture and the content was useful. One student commented that it was useful to do the practical intervention design activity within the session.

As part of the wider course, students will have a more formal evaluation and assessment of the course, but for the purposes of this lecture, the evaluation forms served to demonstrate the ‘product’ from Toohey’s (1999) model and assess whether students felt that they benefitted from the lecture.

5.4 Evaluate the training programme

The evaluation I received from both the students and Dr Bogosian (who observed my lecture) was very useful (see appendix C7). It has helped me to reflect on my practice and think about how I can make improvements for next time. For example, after reading Dr Bogosian's feedback, I realised that some of the slides I included in my presentation were too text heavy. The presentation throughout would have also benefitted from having some images, especially when I was referring to previous public health campaigns. In future, I will also take some campaign materials (such as leaflets) as a visual aid for students.

Summary and Reflection

All of the teaching I did at the university helped in developing my critical thinking skills. I was very nervous about speaking in front of a large group of people the first time that I taught a lecture. However, I found that my confidence increased over time and I felt more at ease with every additional lecture that I did. Thoroughly planning and preparing for each lecture beforehand also helped to alleviate my anxiety by ensuring I was as prepared as I possibly could be. I also ensured I went to the lecture room at least 45 minutes prior to the lecture to set up my materials and check the IT system was working.

Overall, the groups of students that I taught varied considerably, even within the groups of BSc and MSc students. For some of the students, I was slightly surprised at how little prior knowledge they had of basic research design principles, especially amongst MSc students. This was particularly evident in the research methods workshop. However, this led me to consider that it is important not to make any assumptions when teaching, even if I know that students have covered a certain amount of material in a previous lecture. I think it is more effective to go into teaching with the viewpoint that everyone will need a basic refresher as a way of ensuring that everyone has understood the fundamental concepts.

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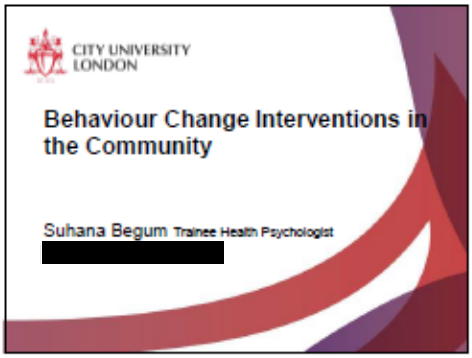
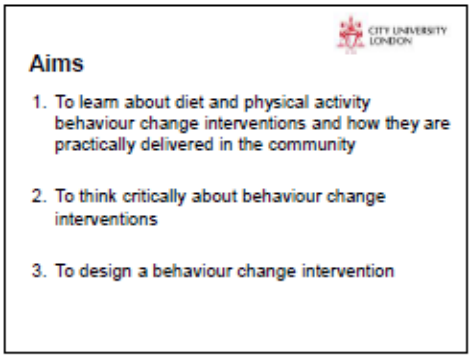
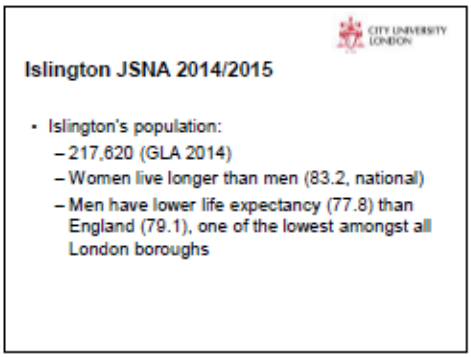
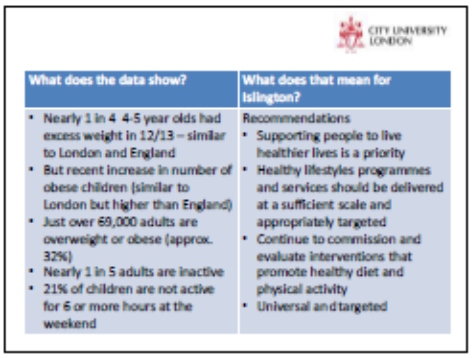
Appendices

C5 Lecture slides and activity









Children's centres

- Children's centres are a hub where many partners come together to offer families advice on a range of health related and social issues e.g. employment support issues
- Child focused *but* perfectly placed to offer health information and promote key public health messages for adults and children

Healthy weight, healthy lives

- A wide range of societal, environmental, and behavioural factors all contribute to the causation of obesity.
- Obesity in childhood is an independent risk factor for adult obesity; therefore prevention and early intervention are crucial.
- In 2011/2012 the prevalence of obesity in Islington for both reception (10%) and year 6 (22.7%) pupils is higher than the national average (and 9.5% and 19.2% respectively).
- **NICE recommends that multi-component interventions for childhood overweight and obesity should address lifestyle changes within the family setting.**

Existing interventions

Healthy Eating and Nutrition for the Really Young (HENRY)

- HENRY Framework for behaviour change – helping parents to gain the confidence, knowledge, tools, parenting skills needed to adopt a healthier and happier family lifestyle.
- Number of approaches:
  - Training for health and early years practitioners in the HENRY approach to tackling child obesity
  - Structured individual or group-based family interventions
  - Parent-led peer support schemes to promote a healthy family lifestyle in local communities
  - Enabling childcare settings to model a healthy lifestyle in their approach to food, activity and emotional well-being
  - Accessible resources to support work with families, including story books, charts and online materials

HENRY

- Work with parents and carers of 0-to-5 year olds to help them develop a healthier and more active lifestyle for the whole family.
- Solution-focused approach to help parents give children the best start in life by focusing on factors known to be associated with later obesity:
  - Eating patterns and behaviour
  - Healthy eating
  - Physical activity
  - Emotional well-being
  - Parenting skills
- Two different formats, universal and targeted support
  - **The HENRY Group Programme** 8-week programme.
  - **The HENRY 1-to-1 Programme** structured, targeted one-to-one intervention for families with children at particular risk of obesity or who are already overweight, using an outcomes-based support tool.

HENRY outcomes

Sustained positive impact from HENRY interventions include:

- Healthier and more active families evidenced by:
  - Healthier eating for the whole family – more fresh fruit and vegetables, fewer cakes, biscuits and sweets
  - Positive changes to family meals – eating home-cooked food together more often, fewer take-aways
  - More sociable mealtimes, with less eating in front of the television
  - Children who enjoy active play and learning
  - Increased parenting efficacy – with a clear link between parents' greater ability to encourage good behaviour and set limits and healthy lifestyle changes in the family in relation to screen time, mealtimes and snacks

What does Islington PH offer?

- Family Kitchen (cook and eat)
  - Six week cook and eat programme, cook a three course meal and share in session
  - Educational component: balanced diet, hidden sugars and fats, menu planning, budgeting
  - Delivered in CC's and schools

What does Islington PH offer?

- MEND 2-4
  - Mind, Exercise, Nutrition, Do-It!
  - Healthy lifestyle programme for children parents and carers, 90-minute session once a week for ten weeks
  - Parents attend each session with their children to learn about healthy eating, portion sizes and active play
  - Free for families, all running costs are paid for by local authorities.
  - Educational component for parents
  - Evidence based (published RCTs demonstrating outcomes)

MEND 2-4

- Six programmes (one in each CC cluster) commissioned annually
- Feedback from the CC's delivering the MEND programme highlighted a number of problems:
  - Too structured
  - Too time consuming (10 weeks)
  - Impractical to deliver
  - High cost (approximately £7,000 per programme)

MEND 2-4

- Streamlining budgets PH no longer able to commission these programmes
- We were asked to develop, pilot, evaluate and implement an alternative programme that promotes healthy growth and development of 2-4 year olds
- Submitted funding bid to PH in autumn 2013
- Small Steps 4 Big Change (SS4BC)

Aims of SS4BC

- **Target group and behaviour:** Support children, young people and families to make positive changes in health outcomes relating to weight management, healthy lifestyles and associated behaviours
- Create a supportive environment that supports children and families who participate in the programme to make sustainable changes including:
  - Increased physical activity and reduced sedentary behaviour
  - Improved eating behaviour, quality of diet and decreasing total energy intake
  - Improved emotional well-being and self-esteem
  - Support families with parenting issues including praise, modelling and reinforcement

SS4BC

- Six topics within the programme
  - Encouraging good eating habits
  - Child-size portions
  - Healthy eating for young children
  - Planning healthy meals for less
  - Get active
  - Be screenwise
- Each topic contains:
  - Information for staff to deliver, with clear take home messages
  - Activities
  - Handouts and parent leaflets
  - Resources for families
  - More detailed background information
  - References

Theoretical basis of SS4BC

- Health Belief Model (HBM) *(e.g. Rosenstock, 1974)*
- Readiness to take health action determined by:

a) Perceived **vulnerability**

b) Perceived **severity**

c) Perceived **benefits**

d) Perceived **barriers**

e) **Cues** to action

Behaviour Change Wheel

Michie, Atkins and West, 2011

Development of SS4BC

- Pilot:
  - Two CC's (physical activity programme and stay and play)
  - Quantitative
    - Parent questionnaires
  - Qualitative
    - Parent focus groups
    - Staff interviews

Development of SS4BC

- Further development of resource pack
- Roll out
  - Resource packs
  - Training
- Ongoing delivery:
  - Centres will have resources electronically

Discussion

- Can you think of some ways to evaluate the effectiveness of this programme?
- How could we measure if it is being used?

Evaluation and Impact

- Anticipated outcomes are:
  - Change in intentions in relation to healthy eating, physical activity and screen time
  - Improved healthy eating knowledge
  - Increased consumption of healthier drinks
  - Better relationships between parent/ carer and child
  - Increased engagement with other activities offered at CC

Evaluation and Impact

- Evaluation of the programme will include:
  - Focus group for parents/ staff to ascertain where the key messages are being used
  - Staff feedback on discussions taking place when they are delivering messages (interviews)
  - Observation of sessions
  - Record of delivery in exchange for resources

Evaluation and Impact

- Success indicators:
  - Change in attitudes from baseline to post intervention – intentions to make changes
  - Change in self reported health behaviours – increase in frequency/duration
  - ACYPP data: childhood obesity levels from National Child Measurement Programme (NCMP). Reception and year 6 children

Limitations

- Difficulty with evaluation – delivery as 'informal' conversation, how can you evaluate that?
- Intervention fidelity – will be delivered by several members of staff, different roles

Activity

In groups, please design your own intervention from one of the scenarios provided. Please base it on a health behaviour model.

Some questions to think about:

1. What behaviour is it aiming to change and who is the target group?
2. What are the intervention components? Why were these selected?
3. How will you measure changes resulting from the intervention?
4. How will you evaluate the success of the intervention?
5. How useful is the theory as a basis for intervention design and evaluation?
6. Is there anything else you would want to incorporate in the intervention that is not included in the theory (perhaps from other theories)?
7. What are the potential limitations of the intervention?

Thank you for listening! Questions?

Suhana Begum
[redacted]

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C6 Collated evaluation from students

Rating	How useful did you find the lecture?	How would you rate the delivery on the content?	How would you rate the delivery on the lecturer's knowledge?	How would you rate the delivery on the pace?
1 (not useful/ poor)				
2				
3				
4				
5				
6				
7	1			
8		2		1
9	5	3	1	3
10 (very useful/ excellent)	2	3	7	4

Suggestions/ other comments
Thank you for a terrific lecture!
Examples and pics from interventions would have been useful to see. Very good, thank you so much!
Good job, structured and clear. Thank you, I enjoyed it.
Thank you!
Very useful to design interventions in the classroom.

C7 Observer feedback from Dr Bogosian

Module: Research in Action, PSM408

Title of the session: Behaviour change interventions in the community
Date of the lecture: 10.12.2015
Time of training: 9.00-12.00 (3 hours)
Attendees: 16 MSc health psychology students

Supervisor's feedback:
Suhana delivered a very engaging and informative lecture on behaviour change interventions in the community. The session was very interactive, and Suhana was assessing students' understanding regularly. In the beginning, Suhana set clear objectives of the lecture and gave a very precise context of the interventions she later presented. The overview of the health behaviour programmes was concise and accurate. Suhana was able to talk around her slides well, she is clearly very knowledgeable, and she answered students' questions well. She was professional and friendly during the session and managed to put everyone at ease. Activities she had put in place proved to be very popular with students. Students got the chance to engage with the material and understand the interventions. The amount of information presented was appropriate. However, some slides were busy. Maybe in the future, it would be a good idea to reduce the amount of text in the slides and add more visual aspects, such as pictures, graphs or tables. Overall, I was very impressed by the high standards of this lecture and students gave Suhana an extremely positive feedback.

Consultancy case study

4.1 Assessment of requests for consultancy

4.1a Identify, prioritise and agree expectations, needs and requirements of clients

4.1b Review psychological literature and other information sources for relevant advice, research findings, research methods and interventions

4.1c Assess feasibility of proposed consultancy

Research shows that very few patients with type 2 diabetes use the blood glucose readings they take to inform decisions about their insulin dosage or health related behaviours (Tong, Vethakkan and Ng, 2015) and there is very little research exploring the reasons behind this (Kunt and Snoek, 2009). NICE clinical guidelines recommend that patients partake in a structured education programme to teach them how to correctly titrate their insulin (NICE, 2008) but patients report not feeling confident to do so (Tong, Vethakkan and Ng, 2015) and are worried that increasing their dosage may lead to them becoming reliant upon it (Lai, Chie and Lew-Ting, 2007).

The Diabetes Team at the East London NHS Foundation Trust found that some of their patients were not titrating their insulin or titrating intermittently and identified some of these other issues within their patient group, such as worrying about reliance on insulin. They commissioned the Health Services Research team to explore this further with their very ethnically diverse patient population. The team wanted data collection from a wide array of patients using purposive sampling. I was contacted by Dr Hirani and asked if I would be interested in assisting with the research project as an Honorary Research Fellow prior to starting on the DPsych Health Psychology.

I met with the team and looked over the study protocol and interview schedule prior to the team applying for ethical approval for the study. Once approval was granted, I worked with the team to collect data and conduct semi-structured interviews based on the Theoretical Domains Framework (TDF) (Cane, O'Connor and Michie, 2012). The

team wanted to sample participants as widely as possible and asked if I could assist with collecting data in both Bengali and English. The patients at the clinic come from a very diverse background and both teams wanted to ensure that the views of as many patients as possible were captured. The diabetes team suggested using interpreters to conduct the interviews in different languages but Dr McBain and Dr Mulligan were concerned about the validity of the interviews and possible difficulties around the interviews being conducted by people who do not have a thorough understanding of the project.

I was able to conduct the interviews in Bengali but I had concerns regarding being able to ensure that the questions were sufficiently different to ensure they were targeting the different domains of the TDF without overlapping, which I discussed with the team. I felt that this would be more difficult to do in Bengali as some of the words have dual meanings. Dr Mulligan and Dr McBain felt that it was important to be as clear as possible with participants and encourage them to elaborate on their answers as much as possible. By conducting the interviews in Bengali, we were able to capture the views of a wider range of participants. Much of the research often excludes participants on the grounds of language barriers and so this enhanced the findings by bringing in different cultural viewpoints.

I read other studies that had used the TDF as a basis for collecting data and analysing the results, such as Patey et al. (2012). This provided me with a more in depth understanding and practical example of the data collection and analysis methodology. I worked with the team to interview 18 participants, including two Bengali interviews. I also translated these interviews into English and transcribed them.

This work was to be undertaken on a voluntary basis prior to starting the DPsych programme. Once I started the programme, it was agreed that I would continue working on the project to analyse the findings as part of the consultancy competency. This project followed the expert model of consultancy (Schein, 1978), where the client presents the problem to the consultant and the consultant is responsible for ensuring they have the relevant skills to complete the project. I was aware of method of analysis due to my prior work on the project.

In order to guide me throughout the consultancy process, I read more widely around the topic, specifically the methodology that might be employed. Kubr (2005) highlights five key stages (as shown in figure 2 below).

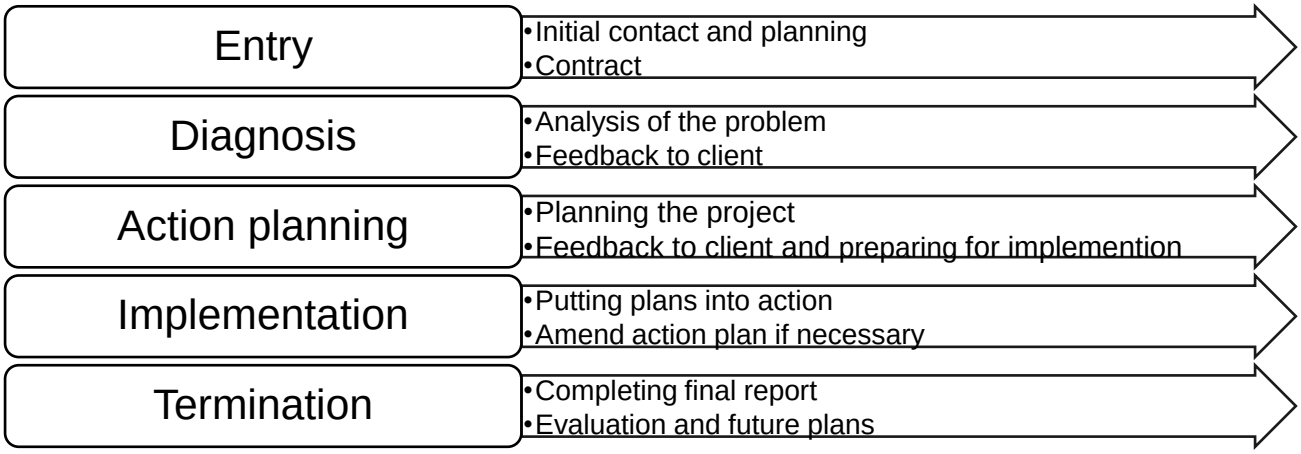

Figure 2 - Kubr's (2005) five stages of consultancy

Kubr (2005) notes that not all of these stages will appear in every consultancy project and some may even overlap. The stages were a useful way to break the project down and consider each stage in more detail.

When two parties enter into a consultancy agreement the result is often more than the immediately observable end product but also a more solid relationship is formed (Clayton and Bongar, 1994). I met with Dr McBain and Dr Mulligan to discuss the progression of the project. I discussed my current commitments and the estimated time the project would need to be completed. We negotiated and agreed the outline of the consultancy work. I produced a contract and circulated copies (see appendix C8). Contracting involves a formal open sharing of expectations between consultant and client (Cockman, Evans and Reynolds, 1999). We discussed the resources that would be needed for the data analysis, such as NVivo software. I contacted the IT department and arranged for NVivo software to be installed on my laptop and attended the training course and accessed online training resources. I also organised dates to meet with Dr McBain and Dr Mulligan once a month to discuss the progression of the work. These initial meetings relate to the 'entry' and 'diagnosis' stages of Kubr's (2005) model. For this project in particular, the diagnosis stage did not require as in depth exploration, as the team were fairly clear on what they wanted prior to the project commencing.

Reflection

I felt that continuing with the project to work on the analysis as part of the consultancy competency was a good way to see the project through to the end. We negotiated the time so it was variable, which I felt would suit me in terms of the other competencies and my work commitments. It was useful to go on the NVivo training and to learn about the other functions of the programme. The training was useful continuous professional development for me and meant that I was able to offer additional input to the project. I will be able to use the programme to analyse the findings from my thesis data collection. It was useful to read around the topic and using Kubr's (2005) five key stages for consultancy helped me to organise and manage my consultancy project better.

4.2 Plan consultancy

4.2a Determine the aims, objectives, criteria, theoretical frameworks and scope of consultancy

4.2b Produce implementation plans for the consultancy

The overall objectives of the consultancy were to analyse the data that was collected, contribute to the manuscript for publication and to disseminate the research findings more widely. Dr McBain, Dr Mulligan and I discussed this at our initial meeting and developed a plan for how we would take this project forward, as is outlined in the 'action planning' stage of Kubr's (2005) model. Planning also involves the development of a common understanding and a mutual agreement on the general direction to follow as a preparatory phase to the implementation stage (Neumann, 1997). We looked at other studies that used the TDF (Patey et al. [2012], Islam et al. [2012]) for their analysis and followed a similar format. However, after some discussion between us, we decided that it would be more appropriate to omit some of the stages of analysis to better fit our data. For example, as the final stage of the analysis, Islam et al. (2012) looked at psychological theories and models that fit with the domains that were identified for the purpose of questionnaire development. We omitted this stage as the project would not be continued past the analysis stage.

The process was iterative whereby we had regular meetings at every stage of the process to review our progress and think about the next steps. We also ensured that we kept in regular contact with the Diabetes Team and informed them of our progress, as they were keen to find out the outcome of the interviews.

Reflection

I found it very useful to have regular meetings with Dr Mulligan and Dr McBain. It was useful to discuss new ideas and clarify anything I was not sure about. It also gave me an invaluable insight into 'real world' research and the processes involved in working with external teams in the NHS. I have previously only worked on research set entirely within an academic setting.

Unit 4.3 Establish, develop and maintain working relationships with clients

4.3a Establish contact with clients

4.3b Develop and maintain consultancy contracts with clients

4.3c Develop and maintain working relationships with clients

4.3d Monitor and evaluate working relationships and practices with clients

As part of the consultancy project, I ensured that I maintained an effective working relationship with both the research team at the School of Health Sciences and the Diabetes Team at the clinic. Throughout the data collection process, I was in regular contact with the administrator at the diabetes clinic to communicate the times that we would be available to conduct the interviews. The administrator supported the research by organising appointments with participants within allocated slots. I was provided with the contact details of all of the participants and followed up with reminder phone calls. The team were keen to find out the outcome of the research and asked us to feedback our preliminary findings at a team meeting in March 2015. I went to the meeting with Dr Mulligan and Dr McBain and jointly presented the preliminary findings with Dr McBain (see appendix C9 for presentation slides). The findings were helpful to the practitioners

and enhanced their understanding of why patients may not titrate their insulin. I was able to shed light on the patient's views from my position as an external researcher.

I also kept in regular contact with Dr Mulligan and Dr McBain throughout the consultancy project. We arranged to meet once a month to update them on the progress of the project, as well ensuring I was in regular email contact. This allowed us to develop and foster a good working relationship. We agreed timescales for completing the work at the start of the project, which were revised as the project progressed to accommodate other work commitments. I kept records and minutes of all of the meetings including clear action points, which were agreed by Dr Mulligan and Dr McBain (see appendix C10 for an example).

Reflection

The regular contact and meeting with Dr Mulligan and Dr McBain was useful in helping me to evaluate the work that I was doing. It also served a quality assurance purpose whereby I was able to ensure that I was completing the work in the way they were expecting. We developed a good working relationship, which also meant that I could negotiate time scales if needed to ensure I was balancing my consultancy project with the other competencies.

4.4 Conduct consultancy

4.4a Establish systems or processes to deliver the planned consultancy

4.4b Implement the planned consultancy

4.4c Close the consultancy

To start off the consultancy work, I had an initial meeting with Dr Mulligan and Dr McBain. We discussed the project as a whole. I obtained all of the original hard copies of the transcripts in order to begin coding them on NVivo. I had not previously used NVivo software and Dr McBain mentioned that there are online tutorials available. I watched the tutorials and familiarised myself with the programme using a fictitious data set. I also contacted the Graduate School at the university to find out about any

upcoming training that I could go on for the NVivo software. Fortunately, there was a training course available very soon after beginning the analysis, which I attended.

The process for analysing data was based on the Patey et al. (2012) paper. To begin with, the interviews were all transcribed verbatim by an external agency. The transcripts were then coded by Dr Mulligan and Dr McBain. They each independently identified the domains from the TDF within the text. They then met to discuss and produced a third version of the transcripts with the finalised domains that both researchers agreed on. To start my work on the project, I uploaded all of the transcripts and codes onto NVivo (the 'implementation' stage from Kubr's [2005] model). The next step was to generate specific beliefs for each domain. I looked through all of the statements in each domain and created belief statements that represented all the quotes within the domain, grouping quotes where relevant. I read the definition for each domain carefully to ensure that I was clear on the definitions and how they differed on similar domains. For example, the 'skills' domain is defined as 'an ability or proficiency acquired through practice (Cane, O'Connor and Michie, 2012). The acquisition of skills through practice is inherent in the definition and so I felt that a separate belief statement for skills acquired through habits was not needed. I discussed this with Dr McBain and Dr Mulligan, who agreed (see appendix C10 for an example of meeting minutes).

The domains were completed in a staggered fashion and I met with Dr McBain and Dr Mulligan on a regular basis after completing one to two domains to discuss the belief statements and ensure their accuracy. 84 belief statements were generated across the 14 domains.

The NVivo software was used to generate frequency counts of how often each belief statement and domain was mentioned by participants. This was used to judge which domains were the most important to participants. The final stage of the analysis was to ascertain inter-rater reliability. Two independent researchers were asked to code the last four interviews. The agreement between these two coders for all 14 domains ranged from 28.6% to 100%. This was calculated by tallying the number of times they coded the same quotes as a specific domain. For 70% of the belief statements, both researchers mapped the specific belief onto the domain. For 21 (25%) of the belief

statements, only one researcher mapped the belief onto the intended domain. Four of the belief statements resulted in zero agreement between the researchers.

We presented the findings to the Diabetes Team at their team meeting. The presentation focused on the key findings from the research and mapped them onto the COM-B model (Michie, van Stralen and West, 2011). The COM-B model postulates that two determinants of behaviour (capability and opportunity) feed into a third (motivation) and that all three of these feed into an individual's behaviour. The domains from the TDF map directly onto the three determinants of behaviour from the COM-B model (see figure 3).

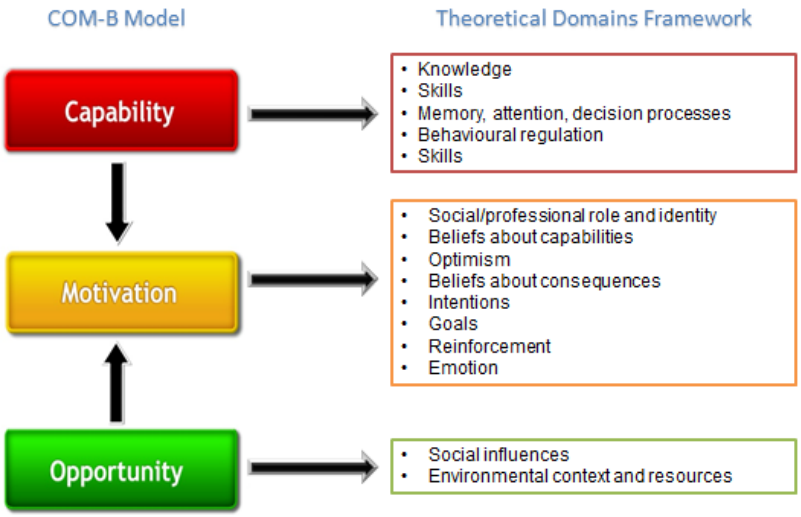

Figure 3 - TDF mapped onto the COM-B model

The findings increased understanding of why patients may not titrate their insulin dosages consistently, such as worrying about becoming dependent on the insulin, which is beliefs about consequences and motivation form the TDF and COM-B model, respectively. Due to organisational change, the team decided they no longer wanted to take the consultancy forward, as the original proposal was that it would be taken forward as a quality improvement project based on the findings. However, they were keen to raise the profile of the team's work and were happy for the study to be written up as a manuscript for publication and to be presented at relevant conferences. Dr Mulligan and I reviewed and contributed to a manuscript drafted by Dr McBain. I was able to make useful suggestions that strengthened the manuscript.

The manuscript was submitted to Diabetic Medicine and returned with a number of comments. I worked with Dr McBain to consider the comments and amend the manuscript accordingly. The reviewers were particularly interested in the impact of culture on self titration behaviours and felt that including interviews in Bengali was a unique feature of this study that has rarely been covered by previous studies. I discussed this further with Dr McBain and we felt that culture had a fairly broad impact on the participants in terms of their general attitudes towards diabetes management, as opposed to a specific aspect of their self titration behaviour. We reflected this in the paper and resubmitted it. It has now been published online (McBain et al., 2016).

I put together a poster presentation of the study, which was reviewed by Dr McBain. We submitted it to the Division of Health Psychology (DHP) Annual Conference on 16th to 18th September 2015 in London (see appendix C11). The poster was accepted and I presented it at the conference. I was able to disseminate the findings of the study to a wider health psychology network consisting of a wide array of professionals with varying levels of expertise. I was able to succinctly talk through the research, as well as offer advice around using the TDF as a methodology for qualitative research. I was able to offer my experience of conducting the interviews and doing the analysis. I was also able to respond to follow up emails from other attendees after the conference.

Once feeding back to the Diabetes team, submitting the manuscript for publication and presenting the study at the DHP Conference, the objectives of the consultancy had been met. We decided to bring the project to a close and evaluate the project overall.

Reflection

I found the NVivo training and manual very useful to have as a guide. The programme is fairly simple to use and I was quickly able to learn and utilise the various functions available in the programme. I found it useful to look over the definitions of the domains carefully at the beginning and refer to them throughout. This meant that I was very clearly able to advise and justify the decisions I made around creating the belief statements.

It was very useful to use another study as a guide for analysis and to discuss different options with Dr Mulligan and Dr McBain. This helped us to critically consider whether the individual stages of analysis were relevant to our study. I feel this has enhanced my experience as a researcher and I am more confident to consider different ways of conducting research that may be outside the norm.

I was disappointed that the team no longer wanted to take the research forward, as I felt it would have been a robust piece of research and a positive way to complete the consultancy. It was useful to review the paper with Dr McBain and Dr Mulligan. I found it a useful way to conclude the study and reflect on the strengths and weaknesses of the project.

It was great to meet different professionals and students with varying interests in health psychology at the DHP Conference. Presenting the poster and answering questions from other delegates was useful in ensuring I am able to communicate the study in a clear and coherent manner. I felt that other attendees found it useful to hear about my experiences of conducting the interviews and doing the analysis first hand, both during and after the conference.

4.5 Monitor the process of consultancy

4.5a Review the consultancy, including the clients' expectations and measurements

4.5b Implement changes identified by the monitoring process

4.5c Implement quality assurance and control mechanisms

As part of the consultancy project, I met with Dr McBain and Dr Mulligan on a monthly basis during the data analysis process to review the progress of the project. The meetings allowed us to continuously analyse the data and helped me to ensure that I was meeting the objectives of the consultancy project. I took minutes at all of the meetings and shared them, ensuring that the action points for each person were clearly marked. Regular meetings also allowed us to consider the project in terms of my involvement as a consultant.

Throughout the consultancy project, I ensured I was working to a high standard of ethical practice, considering the sensitive nature of the data. All of the raw data and electronic records were always stored in locked cupboards/ password protected files. All communication between me and the other researchers was conducted using a secure email network.

Reflection

Regularly monitoring the progress of the project was a very useful exercise in helping me to balance my workload. Completing the DPsych whilst working full time has proven to be challenging at times, so monitoring my workload regularly is a useful exercise.

4.6 Evaluate the impact of the consultancy

4.6a Design and implement an evaluation

4.6b Assess the outcomes of the evaluation

To evaluate the impact of the consultancy project, I devised a short questionnaire for Dr Mulligan and Dr McBain to complete (see appendix C13). I arranged to meet them both and sent them the questionnaire prior to the meeting. They completed the questionnaires and sent it back to me. They also provided further verbal feedback at a final meeting, as is described in the 'termination' stage of Kubr's (2005) model.

The feedback from both Dr McBain and Dr Mulligan was very positive. They described the experience of working with me as 'fantastic…a very enjoyable and easy process' and 'excellent'. They noted that I completed all of the tasks agreed in the contract and the aims and objectives of the project were met. They felt my standard of work was excellent, with Dr McBain saying that 'I was particularly impressed by the standard of work produced by Suhana. She needed very little guidance, which exemplifies her knowledge of health psychology research and practice. She was willing to undertake tasks which were new for her, taking guidance appropriately and used health psychology literature to inform her work'. They were both happy with regular email communication and with my efforts to disseminate the research. They did not have any suggestions for improving my practice and said they would consider employing me for

future projects, as well as recommend me to colleagues (see appendix C13 for full feedback).

Reflection

Overall, I felt that consultancy project went very well and I enjoyed contributing to the manuscript and poster. These were both key aspects of my continuous professional development and attending the conference gave me a good chance to network with likeminded colleagues.

I feel that I had a wide range of skills to offer this project, as well as gaining many new skills, which I will carry forward and develop further in my career as a health psychologist. In terms of making improvements, I think that I could make more efforts to disseminate the findings further. For example, I could have looked at submitting the study for presentation at other relevant conferences. This would have raised the profile of the research further, as well as provide more opportunities for networking with other professionals.

This particular consultancy project did not have any costs attached to it, as my conference attendance was funded through a bursary. However, this was not explicitly discussed in the initial meeting. In future consultancy situations I would ensure that I discuss any costs attached to completing the project in the initial meeting and outline this in the contract. The discussion would be structured to include cost considerations at all stages of the project, from recruitment costs, research equipment and analysis through to dissemination of the findings, for example. This will clearly indicate that consideration has been given to cost and who will be liable for it, even if there are no specific costs required. Moving forward from this project, I will be looking for other opportunities to work as a consultant within academia to ensure that I am keeping my research skills up to date.

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Appendices

C8 Contract

CONSULTANCY CONTRACT

This Consultant Agreement is made and effective from 3rd December 2014

BETWEEN: Suhana Begum, Trainee Health Psychologist at City University London (the 'Consultant'),

AND: Kathleen Mulligan, Senior Research Fellow & Hayley McBain, Research Fellow, at City University London (the 'Client')

The Consultant has been asked to assist with a project exploring self titration in diabetes. The parties hereto agree as follows:

1. Consultation services
The consultant has previously assisted the project in the data collection stages with the following:
1. Collecting data through conducting qualitative interviews in Bengali and English
2. Translating and transcribing the interviews from Bengali to English

Going forward, the consultancy involves delivery of the following:
1. Uploading the data onto NVivo
2. Analysing the data in accordance with the methods specified in the study protocol
3. Feedback the findings to the client who originally requested the consultancy (the diabetes team at East London NHS Trust)
4. Drafting the study for publication, with the consultant as a co-author on any manuscript published

3. Terms of agreement
This agreement will begin on 3rd December 2014 and end on 1st September 2015 or upon the completion of the agreed deliverables if sooner. Either party may cancel this agreement on 7 days notice to the other party in writing.

4. Resources
The consultant will not receive payment for their services. The client will ensure that the consultant is equipped to conduct the project effectively.

5. Time devoted by consultant and contact arrangements
It is anticipated that the consultant will spend approximately 12 hours per month in fulfilling the obligations to this contract. The particular hours may vary from week to week. The consultant will communicate regularly with the client via email and monthly face-to-face meetings to review the progress of the consultancy and deliverables.

6. Changes to the contract

Changes to the deliverables and timeline of this contract may be undertaken if necessary with agreement from both parties.

7. Disputes

If any controversy, dispute or claim arises between the parties with respect to this agreement, the parties will make good faith efforts to resolve such disputes informally.

8. Signatures

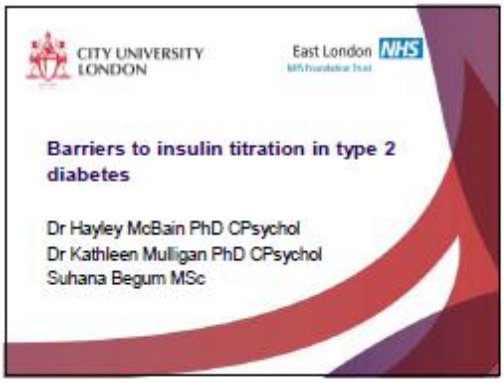
Consultant Name:
Ms Suhana Begum
Consultant Signature:

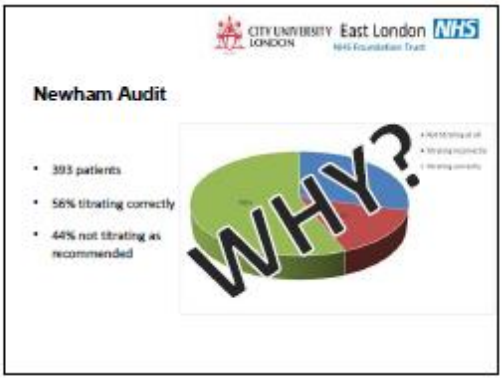
Client Name:
Dr Kathleen Mulligan
Client Signature:

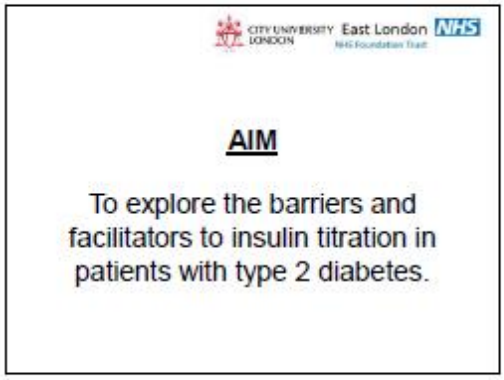
Client Name:
Dr Hayley McBain
Client Signature:

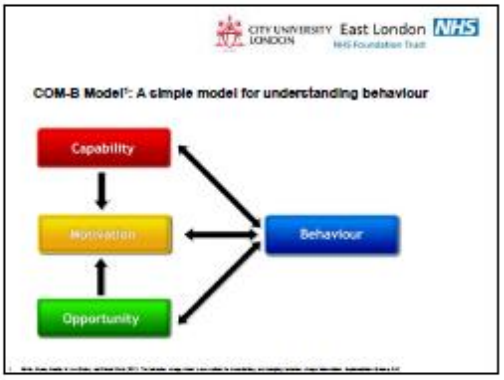
Date of signature:

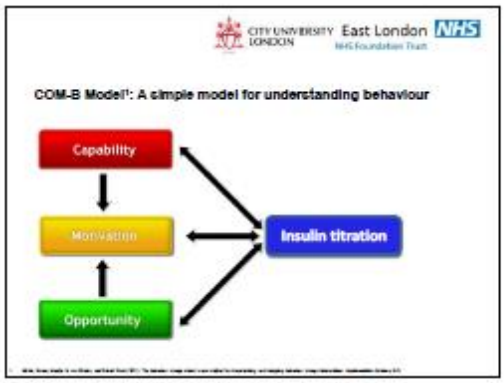
C9 Presentation slides from Diabetes team meeting

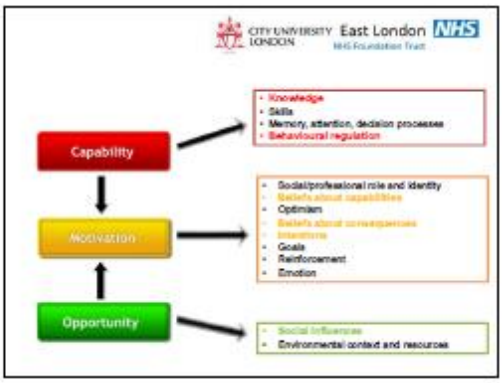












Methods

- Qualitative semi-structured interviews
- Interview schedule based on the 14 factors
- Example questions
  - Skills: What skills do you need for you to be able to [titrate] correctly?
  - Beliefs about capabilities: How confident are you that you can adjust your insulin?
  - Social influence: How do your friends or family have an impact on whether you make changes to your insulin?
- Interviews audio recorded and transcribed verbatim
- Analysed to identify which of these 14 factors help or prevent insulin titration

Results

- Participants (n=18)
  - 14 male, 4 female
  - Age M=61.6 years, SD = xx
  - Ethnicity: 4 Afro-Caribbean, 8 Asian, 2 White, 3 'Other'
  - Disease duration M=xx, SD = xx
  - Insulin duration M=xx, SD = xx
- One excluded

Results - Capability

TDF Domain	Example quotes
Knowledge	*"I know what to do, because if it goes up, it goes down, I know what to do."* *"Well, it's not up to me to change this dose because I don't know about the dose."*
Behavioural regulation	*"I think the aim at the end of the day really is to get the amount of insulin you take as low as, so you're really only taking what you actually need and then you're not using it to compensate for lack of exercise and a bad diet."* *"Yes I can. I can record it, now that I have done it for a while it has become a habit."*
Beliefs about capabilities	*"I can do it, I can change the dose, the facility is in the pen to make it higher or lower. I don't need to do it but if I did, I could. It's very easy, changing it is very easy."*

Results - Motivation

TDF Domain	Example quotes
Beliefs about consequences	*"The theory is no one is going to have too many problems going hyperglycaemic, I mean the fear is if you go hypo and you go too low and you sort of, I don't think I've ever gone so low that I've been in danger of going into a coma or going unconscious."* *"I'll do the, change my diet rather than taking the insulin. Because if you take insulin, I had a feeling ... if you take the insulin then take another, picking up a habit."* *"I used to reduce my dose, say, because I didn't want to increase my intake, because then the way, it's a catch 22. If you eat more, the weight goes up. If you increase the insulin, still your weight will go up because insulin is one where it increases your weight, yeah, so you're more, you use insulin or intake it, more food you require to maintain that standard level, so the weight goes up."*
Intentions	*"If I see it is low, I don't really change it. I just leave it as it is (laughs) I don't really change it. I inject 10 all the time, I don't go lower than that."*

Results - Opportunity

TDF Domain	Example quotes
Social influences	*"Then I came here and they taught me how to use it. I came here once and they taught me to use it, once was enough and I didn't need to be taught any more. When I went to the mosque, I asked the others there and they also taught me..."*
Environmental context and resources	*"But I try my best but sometimes I can't, with the work as well, yeah.* *So work's a big, or being, having lots to do, that's a lot of?* *Yeah, it's ten hours, it's in a co-operative, Kent, yeah, it's ten hours I spend for work every day. Yeah, I can't manage the insulin and everything, for only two days, but that two days I can't, yeah."*

Conclusions

- Despite:
  - Having strong intentions
  - Support from diabetes specialists
  - High reported confidence
- Factors that may improve insulin titrating:
  - Improving procedural knowledge
  - Structured approach self-monitoring insulin dose
  - Enabling people to understand the link between BG, insulin, exercise and diet
  - Addressing fear of dependence
  - Addressing fear of weight gain

Next steps….

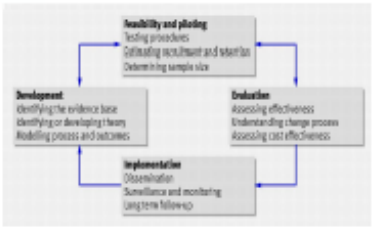
- Write up for publication
  - Diabetic Medicine OR Diabetes Research & Clinical Practice
  - Co-author??
- Presentation
  - Division of Health Psychology Conference (Sept 2015)
  - Diabetes Research Network
  - Diabetes UK 2016
- How do you want to take this forward?
  - How can we help you to implement these findings into practice?
    - Cross-sectional survey
      - What beliefs are associated with insulin titration? – on a large scale
    - Development of an intervention (systematic review)
      - Add-on to what is already delivered
      - Leaflet, face-to-face, technology?

THANKYOU

[redacted]

Developing and evaluating complex interventions:

new guidance



C10 Example meeting minutes

Supervision agenda

Date and time of meeting	2nd February 2015
Present at meeting	Suhana Begum Dr Hayley McBain
Apologies	Dr Kathleen Mulligan
Notes taken by	Suhana Begum

Item	Discussion and agreed action
Self titration in diabetes project	• SB and HM met to discuss the progress of the consultancy work. • SB has uploaded and coded all of the transcripts on NVivo. There were five transcripts that had unclear themes highlighted. SB clarified these with HM and will make the relevant changes. • SB has also constructed the beliefs for the 'knowledge' and 'skills' theme and coded the quotes as relevant. HM looked over these and thought that it might be more useful to separate the belief pertaining to adjusting the insulin in the knowledge theme into knowing how to adjust when the blood sugar is high and low. • SB and HM also discussed the skills beliefs. SB mentioned that a separate belief for skills acquired through habitual practices was not included because it was already part of the definition. • SB discussed the method used to generate the beliefs with HM, who will include this in paper that she has started to draft. SB, HM and KM will discuss the themes and beliefs and any queries further at the next meeting. • SB will generate beliefs for at least another six themes by 23rd February, which HM and KM will look at before the next meeting. <u>Actions</u> 1. SB to make the changes to the transcripts. 2. HM to make the changes to the methodology of the paper and save it to the Dropbox account. 3. SB to generate beliefs for at least six themes and save the NVivo file in the Dropbox account by 23rd February.
AOB	
Date of next meeting	**2nd March 4.45pm**

C11 BPS Division of Health Psychology annual conference poster presentation

CITY UNIVERSITY LONDON
EST 1894
East London NHS Foundation Trust
School of Health Sciences

Barriers and facilitators to insulin titration in patients with type 2 diabetes: application of the Theoretical Domains Framework (TDF)

Suhana Begum[1] Kathleen Mulligan[2, 3] Teresa O'Shea[3] and Hayley McBain[2, 3]
[1] School of Arts and Social Sciences, City University London, UK, [2] School of Health Sciences, City University London, UK, [3] East London Foundation NHS Foundation Trust, UK

BACKGROUND

- Patients with insulin dependent type 2 diabetes are required to self-monitor their blood glucose levels and use this information to titrate their dose of insulin.
- Up to two-thirds of patients in East London NHS Foundation Trust (ELFT) never alter their dose, but very little is known about why this is (Kunt and Snoek, 2009).

AIM

To explore the barriers and facilitators to insulin titration in patients with type 2 diabetes

METHODS

Design

- Qualitative semi-structured one-to-one interviews, in either English or Bengali

Participants

- Adult patients with insulin dependent type 2 diabetes attending the Community Diabetes Service in ELFT

Interview schedule

- Consisted of 27 questions, covering all 14 TDF domains

Analysis

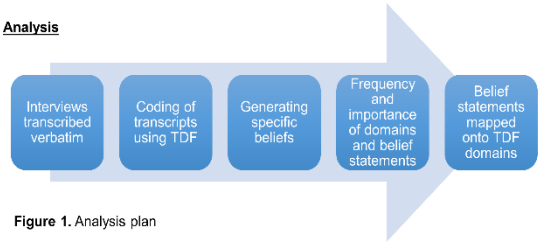


Figure 1. Analysis plan

RESULTS

Participant characteristics

- 18 participants, 72% male, average age of 61 years
- 44% were Asian, 22% Afro-Caribbean, 17% White, 17% Other
- Average disease duration was 16 years
- Average time on insulin was 9 years

Inter-rater reliability

- For the last four interviews, the interrater agreement between the two coders for all 12 domains ranged from 28.6% to 100%.
- For 70% of beliefs both researchers mapped the specific belief onto the domain, for 21 (25%) beliefs only 1 researcher mapped the belief onto the intended domain, for 4 (5%) beliefs there was zero agreement.

Domains

- 84 belief statements were generated, across the 14 domains
- Figure 2 details the number of participants who mentioned each of the domains

RESULTS (cont.)

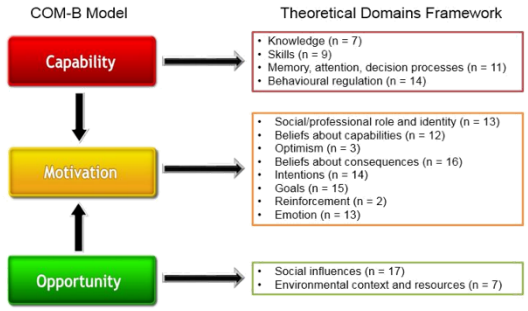


Figure 2. TDF domains mapped onto the COM-B model

The domains judged to be relevant to insulin titration were:

Behavioural regulation – Many participants mentioned strategies they used to titrate their insulin, such as adjusting their dose based on what they ate or whether they exercised, self-monitoring their blood glucose or taking a watch and wait approach prior to titrating.

"I thought that given that it is high, I should probably increase the dose. But then I thought no, it's only one day that it has increased so I don't need to change it but if it is high at the next time I test it, I will increase the dosage."

"Yes I can. I can record [the dose], now that I have done it for a while it has become a habit"

Intention

Although participants did not express a lack of perceived knowledge, about titrating participants did express an intent to titrate, but not always in the correct way. Many participants were correct and intended to increase or decrease their dose, if their blood sugar levels were high or low, respectively. A number however, intended to increase or decrease their doses when their blood levels were low or high, respectively, the reverse of what is recommended.

"If [my blood glucose] is low, yeah, and then my insulin, I put more dosage, like plus two if [my blood glucose] is low."

Beliefs about consequences

Titrating was associated with positive consequences, including preventing complications and better glucose control, but also negative consequences such as weight gain, hypoglycaemic attacks, pain and addiction.

"I wasn't increasing my dose, I wasn't decreasing it, I just left it as it is. Now I've got kidney trouble, I've got, pancreas is collapsing."

Goals

Participants recognised the importance of titrating and identified a blood glucose level they were aiming for.

"I'm looking between, the doctor said I can have 3, 3.8, but I'm looking for about 4 to 7, in a morning. For, that's, the first I'll do in the morning, between four and seven."

CONCLUSIONS

- This study identified the key barriers and facilitators that influence whether patients with type 2 diabetes titrate their insulin dose as recommended.
- In order to improve patients' titrating behaviour an intervention targeting these specific beliefs would need to be developed and evaluated.

Division of Health Psychology Annual Conference 2015
16th – 18th September 2015
London

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http://www.city.ac.uk/health/staff-directory/hayley-mcbain

www.city.ac.uk

C12 Consultancy evaluation questionnaire

Consultancy project evaluation questions

1. Please describe your experience of working with the consultant.
2. Did the consultant carry out all of the tasks that were agreed in the contract?
3. Did the consultant meet the aims and objectives of the project?
4. Were the tasks carried out to the standard that was expected?
5. Did the consultant keep you adequately updated with the progress of the project?
6. Did the consultant make the effort to disseminate the findings widely?
7. How could the consultant improve their practice?
8. Would you consider employing the consultant for future projects?

C13 Evaluation feedback

Dr Hayley McBain

1. *Please describe your experience of working with the consultant.*
   The overall experience of working with Suhana has been fantastic. She has been very organised, attentive and communicative. Her professional manner has made working with her a very enjoyable and easy process.

2. *Did the consultant carry out all of the tasks that were agreed in the contract?*
   Yes, all aspects of the consultancy contract have been completed.

3. *Did the consultant meet the aims and objectives of the project?*
   Suhana achieved all of the aims and objectives set for her throughout the consultancy, and was able to adapt when changes were made to the project. This flexibility allowed us to complete a more robust piece of research.

4. *Were the tasks carried out to the standard that was expected?*
   I was particularly impressed by the standard of work produced by Suhana. She needed very little guidance, which exemplifies her knowledge of health psychology research and practice. She was willing to undertake tasks which were new for her, taking guidance appropriately and used health psychology literature to inform her work.

5. *Did the consultant keep you adequately updated with the progress of the project?*
   Suhana kept meeting minutes and emailed them to members of the team after each meeting and scheduled follow-up meetings. This enabled us to keep up to date on her progress. In between meetings she emailed when any problems arose. This became an important part of the communication between us, and enabled us to understand if the project was running to time.

6. *Did the consultant make the effort to disseminate the findings widely?*
   Suhana has been key in the dissemination of the findings of the research. She was lead presenter on a poster at the BPS DHP Conference in 2015 and a co-author on the manuscript, which has been submitted to Diabetic Medicine. She responded promptly to draft versions of the manuscript and provided thoughtful comments and suggestions, which made for a better publication.

7. *How could the consultant improve their practice?*
   There is nothing I could suggest that could improve Suhana's practice.

8. *Would you consider employing the consultant for future projects?*
   Yes, I would definitely consider employing Suhana again for future projects and would also recommend her to colleagues.

Dr Kathleen Mulligan

1. *Please describe your experience of working with the consultant.*
   Working with Suhana has been excellent. She has worked in a very professional and efficient manner. She was able to work independently and required very little supervision throughout the project.

2. *Did the consultant carry out all of the tasks that were agreed in the contract?*
   Yes, all of the agreed tasks were completed.

3. *Did the consultant meet the aims and objectives of the project?*
   Yes, Suhana met all objectives of the project.

4. *Were the tasks carried out to the standard that was expected?*
   Yes, Suhana carried out all tasks to an excellent standard.

5. *Did the consultant keep you adequately updated with the progress of the project?*
   Suhana kept in email contact and attended regular meetings to keep us up to date with progress. I am very happy with the way Suhana communicated with us throughout the project.

6. *Did the consultant make the effort to disseminate the findings widely?*
   Suhana worked very well to disseminate the findings. She attended a meeting with the NHS Trust with whom the project was completed, presented the findings at a Division of Health Psychology conference and contributed to a paper which has been submitted for publication.

7. *How could the consultant improve their practice?*
   Suhana worked very well and I do not have any suggestions to make about improving her practice.

8. *Would you consider employing the consultant for future projects?*
   I would be very happy to employ Suhana on future projects.

Behaviour Change Intervention case study: Small Steps for Big Changes programme (SS4BC)

Context

From 2010 to 2012, Islington Public Health funded the delivery of Mind, Exercise, Nutrition – Do it! (MEND) 2-4 in all children's centres. MEND is a 10-week healthy lifestyles programme for children aged 2-4 and parents, focusing on making small healthy lifestyle changes. The programme has a robust evidence base and has been shown to improve diet and physical activity (Chadwick et al., 2010).

Many centres identified problems with delivering the programme. It required four members of staff, making it a large resource commitment. There were also concerns about intervention fidelity, where programmes were being delivered differently in each location. The programme was costly (approximately £100,000 annually). Delivering MEND 2-4 was not a cost-effective solution to the rising rates of childhood obesity in Islington, and a novel alternative was required. Two colleagues and I were commissioned to develop an alternative programme.

2.1 Conduct psychological interventions within a healthcare context to change behaviour of individuals and groups

2.1a Select or design and implement appropriate health psychology tools to conduct health psychology baseline assessments of the needs of the client/patient population addressing the targeted health behaviour outcomes for this individual/group

To assess the need and devise a suitable alternative, I conducted a needs assessment and gathered feedback from:

- staff in children's centres regarding their experiences of delivering MEND and the programme components they felt were feasible for parents to

implement and maintain the suggested change using interviews, email and questionnaires.

- management staff to find out their experiences of organising a MEND programme and the challenges with the practical aspects, such as space requirements and releasing staff.
- the Islington programme manager (responsible for liaising with MEND Central about the organisation and delivery of the programme) regarding collection of data and its input into the central database.

I used the Behaviour Change Technique Taxonomy v1 (BCTTv0.1) (Michie, et al., 2013) to identify behaviour change techniques (BCTs) in MEND that could be incorporated into the Islington programme. This was done by coding the MEND manual and the published articles (e.g. Sacher et al., 2010, Chadwick et al., 2010). Relevant BCTs were chosen for inclusion in SS4BC on the basis of selecting relevant, existing BCTs used in MEND and any additional BCTs identified from the needs assessment (see table 8).

2.1b Develop a working formulation model regarding the cognitive, emotional and behavioural processes that should be addressed within intervention methodology based on the assessment information, data and outcomes

We produced a series of interventions which could be delivered as a stand-alone six-week programme or integrated into other sessions delivered in a centre, such as a stay and play. I would initially deliver the programme and then train staff to deliver it themselves.

We selected behaviours parents found most difficult to enact, including healthy eating and a healthy diet (including portion sizes and eating healthily on a budget), physical activity (including current guidelines for children and adults) and screen time. These topics also corresponded with other work that was delivered at centres as part of their health promotion work.

The SS4BC intervention was based on the COM-B model (Figure 4) (Michie, Atkins and West, 2011). The COM-B model postulates that capability and opportunity influence an individual's motivation to perform a behaviour. All three components then have a bidirectional relationship with behaviour.

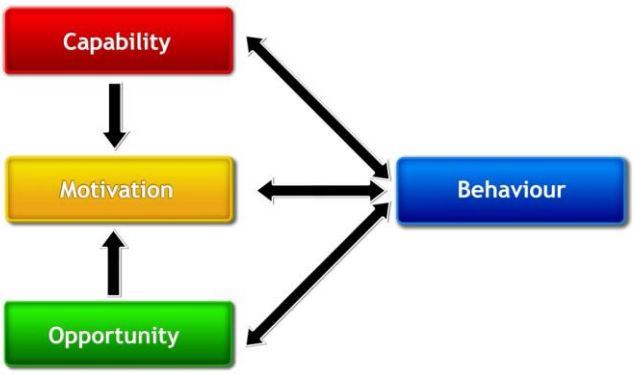

Figure 4 - COM-B model diagram

The programme aimed to increase the capability of parents to adopt the behaviour by providing procedural knowledge and skills. There were two core BCTs that were applied to all topics to encourage behaviour change. Information about health consequences was provided in written, verbal and visual form pertaining to the health consequences of having unhealthy behavioural practices in relation to each of the behaviours. For example, in the topic of screen time, parents were informed about the recommended guidelines on time limits for children under five using screens of any form (television, phones and tablets) and the potential health consequences if they used more (e.g. the health consequences of sedentary behaviour). This was achieved by providing simple ideas that did not require any additional specialist resources, such as a basic meal planner and a shopping list for healthy eating or for physical activity using balloons as an activity for parents to be physically active with their children was suggested. It also aimed to address motivation using the BCT of verbal persuasion to boost self efficacy. Self efficacy is defined as 'the belief that one has the ability and resources to succeed in achieving a goal despite environmental barriers' (Abraham, Sheeran and Johnston, 1998). Verbal persuasion was utilised, which involves telling the person they can successfully change the behaviour and they will succeed (Michie et al., 2013). Staff encouraged parents to try the new techniques learnt in the session and if it was delivered as a six week programme, feedback on their experiences at the following

session. Any success stories they may have about changes already implemented were celebrated. The parents were also encouraged to support each other and reinforce the behaviour in others e.g. through keeping in contact outside of the sessions.

In addition to this, further specific BCTs were applied to each topic area (outlined in table 8) to further enable behaviour change. Table 8 outlines the topic specific BCTs included in the intervention, how they map onto the COM-B model (Cane et al., 2014) and how they were translated into the intervention context.

Table 8 - Table showing topic specific BCTs used in SS4BC mapped onto the COM-B model and translated into the session

SS4BC session	BCT identified for inclusion	BCT mapped onto the COM-B dimension	Translation of the technique into the intervention
1. Encouraging good eating habits	Goal setting*	Motivation	Parents set small, achievable, concrete goals for their family e.g. incorporate one portion of fruit into breakfast.
	Verbal persuasion to boost self-efficacy and focus on past success	Capability	The group are encouraged to share any changes they may have made previously or any goals set with the group to motivate others
2. Child size portions	Restructuring the physical environment	Opportunity	Advise parents to use smaller plates to serve smaller portions for children during family meals. Show examples of plates used in the nursery/school. Parents are asked to guess the correct portion sizes for children in a practical demonstration.
3. Healthy eating for young children	Information about health consequences and demonstration of the behaviour	Capability	Parent leaflet provided about what a balanced diet looks like and consequences of having a diet that is unbalanced e.g. too high in fat. Parents are asked to guess the amount of sugar in everyday items and asked to

			measure out the number of teaspoons of sugar to practically demonstrate how much sugar is in the food (e.g. seven teaspoons of sugar in a bowl of Frosties cereal).
	Provide instructions* Model or demonstrate the behaviour*	Opportunity	Staff members demonstrate how to use label reading cards to parents to help them make healthier food choices. Packaging for foods that may commonly be consumed by parents and young children (e.g. breakfast cereals) are provided and parents use the label reading cards to read the labels and code it as green (considered a healthy food), red (unhealthy food) or amber (in between healthy and unhealthy, to be consumed on occasion)
4. Planning healthy meals for less	Prompts/cues and practical demonstration of behaviour	Opportunity	Parent leaflet provided with healthy snack ideas designed to be stuck on the fridge/cupboard door. Practical demonstration of quick and easy healthy snacks that parents could make.
5. Get active	Behaviour substitution	Motivation	Offer alternative ideas for activities that can be done inside and outside the house instead of playing games console/watching television etc. using resources provided e.g. using balloons to play games inside the house.
6. Be screen wise	Graded tasks	Capability	Encourage parents to reduce the amount of screen time their child has on a realistic time scale (e.g. weekly basis) until it is in line with recommended amount of two hours per day. Ask them to track their child's screen usage (e.g. television, computer, tablet, mobile phone) to highlight that is it often more than parents think once all modalities are included.

*BCTs featured in MEND sessions

After the initial assessment period, we met as a team to outline the programme. We were each responsible for leading on two of the six messages, ensuring it had a robust evidence base. I led on the physical activity and screen time messages, ensuring I included current Department of Health (DH) guidelines for physical activity (DH, 2011). There were no UK guidelines about the time children should spend watching television or using screens therefore I used US guidelines (American Academy of Paediatrics, 2016) to provide parents with a tangible time limit.

There are limitations in this approach used to design the intervention. Although established techniques for selecting BCTs were used (Cane et al., 2014) the evidence base for each of the selected BCTs was not ascertained due to time limitations. The intervention could also benefit from consideration of guidelines for developing complex interventions (Craig et al., 2008) and the APEASE criteria for selecting BCTs (Michie, Atkins and West, 2014). Consulting the guidelines would have ensured a more robust development of the intervention.

2.1c Provide detailed feedback about the outcome of the assessment and formulation as appropriate to the service and role of the health psychologist

Upon completion of the intervention design, my colleague and I jointly presented the programme to colleagues in public health who commissioned the intervention. They were not familiar with the theories and concepts in behaviour change methodology, so I ensured this was explained in clear, simple language. I emphasised the rationale behind each of the programme steps and demonstrated the potential cost-effectiveness of the programme compared to MEND, by presenting an estimated cost projection for the first year of the programme. They were satisfied it had met the project brief. I outlined the next stages with regards to piloting the programme and amending it further following feedback.

2.1d Design, plan and implement and deliver health psychology interventions based on the assessment and formulation

Moreland Children's Centre (CC) agreed to pilot the programme. This was part of the developmental process to refine the programme, before rolling it out on a wider scale. I worked with the lead member of staff at Moreland CC to train her on the content of the intervention and to devise an implementation plan to incorporate it into the Little Kickers programme (a parent and child physical activity programme). As part of the training, I delivered the first three sessions whilst she observed me. She delivered the fourth session, whilst I observed. I worked with colleagues to hold a parent focus group, where we had the opportunity to ask parents for their feedback on how useful they found the intervention. The feedback was useful in revealing that parents had a tendency to remember and subsequently implement the advice that was practically demonstrated and messages where they were provided with an accompanying resource to take home with them. After the six week programme, I met with the lead staff member to evaluate the process of delivering the intervention. Her feedback was instrumental in developing and further refining the content and delivery. For example, we developed leaflets for each intervention summarising the key BCTs and practical activities from the session and encouraged parents to try them at home and feedback to the group (if applicable). The leaflets ensured the parents had the programme information to refer to at home.

The SS4BC programme was piloted a second and third time at Moreland and Packington CCs in a physical activity session and a stay and play session, respectively. Additional focus groups were held with staff to obtain their feedback on the intervention. A final version of the resource pack was created incorporating all the feedback. The resource pack was sent to key stakeholders to ensure consistency across settings. I worked with a designer to design the resource pack, ensuring it was as colourful and visually appealing as possible. The text was kept to a minimum and where possible, pictures were used to illustrate the key points.

The final step was to train staff on how to deliver SS4BC programme to parents. I delivered two training sessions on 20th January and 9th February 2015 for staff from

early years settings on implementing the SS4BC programme in their workplace. The intervention resources were used alongside a quiz and presentation outlining the programme for the training (see appendix C14 for training materials). I worked closely with Hugh Myddleton Primary School to plan the delivery and evaluation of the programme as part of their parent coffee mornings.

2.1e Evaluate and communicate the outcomes of health psychology behaviour change interventions

Hugh Myddleton School used the pre and post-parent evaluation forms provided in the pack to evaluate the programme (appendix C16). Seven parents completed evaluation forms before the programme and four completed them at the end. For the full evaluation report, please see appendix C17. Full statistical analysis of the data was not possible due to the small sample size, therefore data is presented descriptively.

All of the parents correctly identified portion sizes should be smaller for children both before and after the programme (Figure 5). There was a positive effect of the intervention on active travel during the weekend only, with an increase in the number of children travelling actively after the intervention compared to before (Figure 6). A greater percentage of children spent less than three hours a day on weekdays and weekends looking at screens after the programme than before, indicating a reduction after attending the programme (Figure 7).

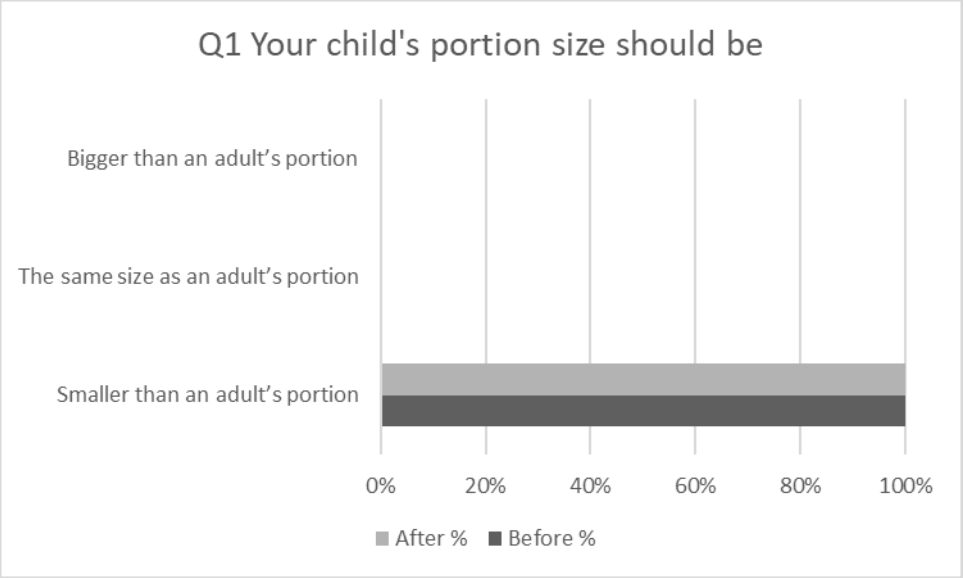

Figure 5 - Chart outlining parent's responses about portion size

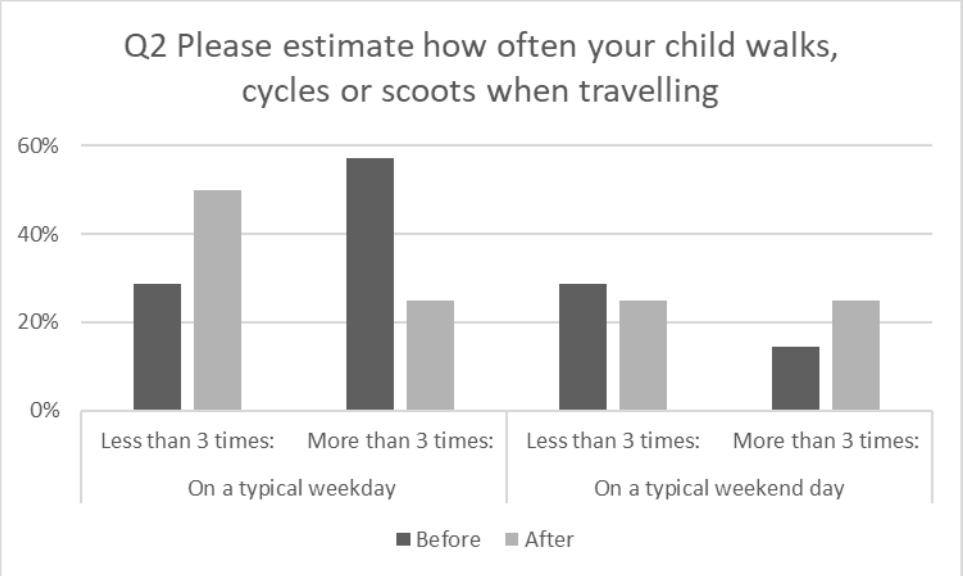

Figure 6 - Chart outlining parent's responses about active travel

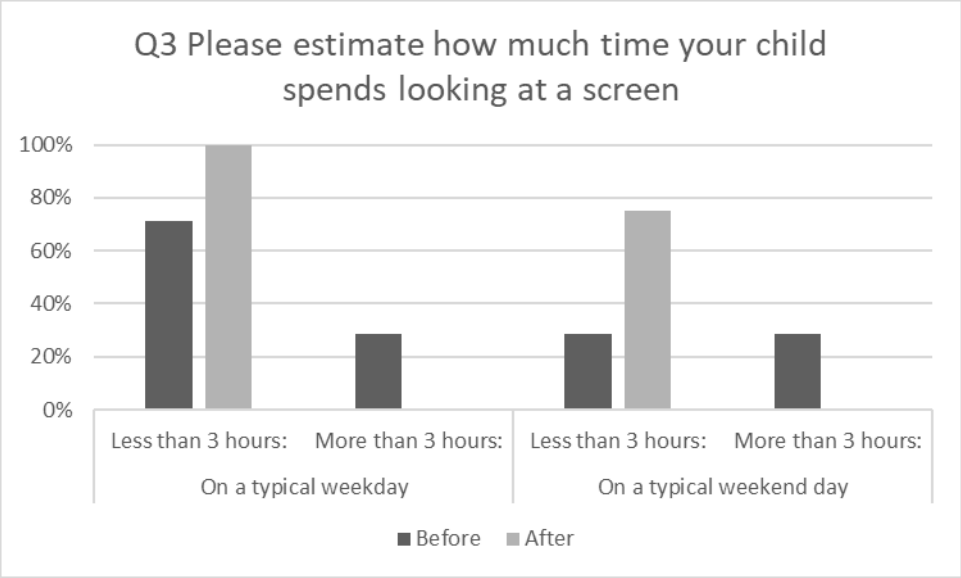

Figure 7 - Chart outlining parent's estimates of how long their child spent using screens

A greater percentage of parents said that their child was willing to try new foods after the intervention (75%) compared to before the programme (57%). Parents were also asked about the drinks their child consumed. Before the programme, 43% of parents said their child drank regular fizzy drinks less than three times a week. This decreased to 25% after the intervention. With regards to other sweetened drinks (such as squash or juice drinks), 71% of parents said their child drank it more than three times a week before the intervention. This decreased to 50% afterwards.

After the programme, 75% of parents said their children were eating three to four portions of fruit and vegetables a day, an increase from 29% before the intervention. Figure 8 shows the parent's answers for questions on other eating habits. It shows increases after the intervention in the percentage of children eating their main meal sitting at the table (from 86% to 100%); eating roughly the same food as their parents (from 62% to 75%) and eating their main meal with an adult more than 3 times per week (from 86% to 100%).

None of the parents said they buy take away for their child's main meal after the intervention compared to before the intervention, where 43% of parents were buying take away meals at least once a week.

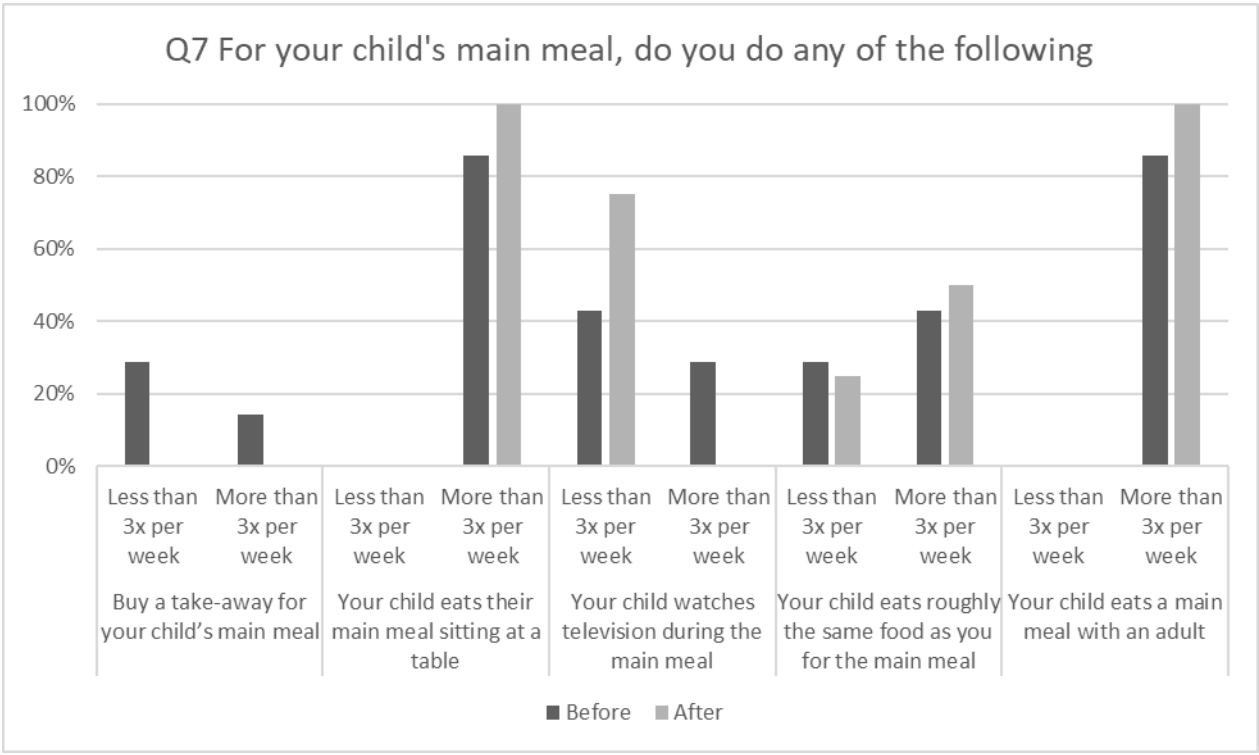

Figure 8 - Chart showing parent's answers to questions about eating habits

Parents were also asked about their opinions on whether different snack items were acceptable for children to have. When asked about sweet foods (such as chocolate, sweets, biscuits, cakes, ice cream) 29% said it was not acceptable before the intervention, increasing to 75% afterwards. When asked about savoury snacks (such as crisps, cheese biscuits) 14% thought it was not acceptable before the intervention, increasing to 50% afterwards.

The evaluation results were shared with the staff members who delivered the programme. I helped them to reflect on the findings within the wider context of behaviour change. For example, the intention behaviour gap is well documented in literature (Sheeran and Webb, 2016), which states that people do not always do the behaviours they intend to. The evaluation shows that parents may have accurate knowledge when it comes to health behaviours (e.g. smaller portion sizes for a child compared to an adult) but they may not always achieve the desired change due to other factors, such as convenience. For example, if the family meal consists of frozen food, it may be more convenient to defrost and eat it all rather than try to

defrost a smaller portion, which could mean children end up with a larger portion than they should have.

I also prompted them to consider ways in which they could improve delivery and targeting of parents for the next programme, as many of the parents that attended were already active in seeking knowledge and had made changes before attending the programme. I produced a report outlining how they delivered the programme in more depth (appendix C17). This was shared with other settings to provide an example of how SS4BC can be delivered.

Reflection

The development of SS4BC was the first time I had developed an intervention to encourage families to make health-related behaviour change. Everything was designed and collated with the intention of making the advice as practical and simple as possible for families and health care proferssionals (HCPs) to implement, as well as being theoretically informed.

Obtaining staff feedback was extremely useful in ensuring the information was accessible, highlighting the value of stakeholder engagement. Throughout the process of writing and refining the intervention, I always tried to ensure I kept the practical delivery in mind and how staff might be able to use the materials to engage traditionally hard-to-reach families. This was based on my previous experience of working with such families.

Another challenge was trying to integrate health psychology theory with the experience and knowledge of staff. The theoretical basis was a useful and an important starting point with which to formulate the behaviour change interventions. The qualitative feedback from staff about the feasibility and practical aspects of the delivery of the programme were useful to modify the intervention further. This ensured the programme could be delivered in a wide range of settings, whilst also drawing on theory. It was imperative that staff members were involved from the outset and their feedback was taken on board. This was key in maintaining good relationships, which in turn was essential in the development of the programme. The evaluation of the programme at various stages of its development required

substantial staff input and I ensured they understood the value of their contribution so they would be willing to continue to support its development.

The development of the programme had to carefully balance incorporating the feedback and suggestions from staff and ensuring it was evidence and theory based. Anecdotal evidence from staff, whilst useful on occasion, may defy theory or evidence. For example, baby food pouches are increasingly popular and parents may give them to the child to suck straight from the pouch for convenience. On occasion, staff have advocated this as a way of ensuring the child has eaten when parents may not have the time to provide a full meal. However, this should be avoided due to potential impact on oral health (First Steps Nutrition Trust, 2017). It also means the child cannot see the food they are eating and parents/carers cannot ascertain how much the child is eating (First Steps Nutrition Trust, 2017). In such cases, it was important to consider whether the experience of staff was an individual case or Islington specific. It was up to us as the design team to make a judgement on which information should be included/omitted on the basis of relevant evidence based information.

Part of developing the intervention was to ensure staff were confident to deliver and evaluate the programme. I worked closely with staff at Hugh Myddelton School to support them in delivering and evaluating the programme. I initially trained two members of staff to deliver the programme, met with them to plan the delivery and observed the majority of their sessions. This was a useful way of evaluating the programme development and ensuring the key concepts were communicated as intended. When delivering this training, I stressed that settings were encouraged to be flexible and adapt the delivery of the programme to suit their individual needs. However, there were still core aspects of each intervention that needed to be delivered in order to ensure the key BCTs were delivered as intended. There was one occasion where I noticed an essential part of the traffic light label reading activity was omitted. I raised it with staff, who ensured that it was covered and all parents had understood how to read labels.

One of the main challenges throughout the pilot and roll out stages of this programme was ensuring that staff were aware of the programme's existence and ensuring they understood how the programme should be delivered. Staff within

children's centres should be aware of the key messages within these topics and regularly incorporate them into their work. However, one of the aims of SS4BC is to ensure consistency across centres by using the same resources. Staff in early years settings (such as nurseries) may not see promoting health messages as being part of their role and so may also be reluctant to deliver the intervention. It was challenging to change their viewpoints and help them to see that their close relationship with families meant they were in a prime position to be able to promote health advice. I promoted the resource pack across all early years settings and offered to support staff with its delivery, where appropriate, in order to tackle this. I have learnt that persistence and offering as much support as possible is important in such situations, including offering to collate the feedback from parents. This often made staff more receptive and open to delivering the programme.

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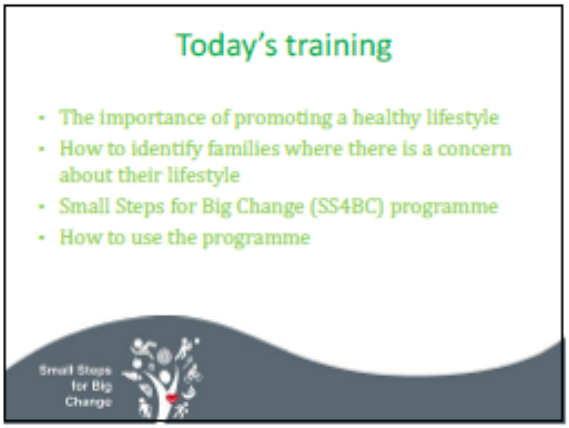
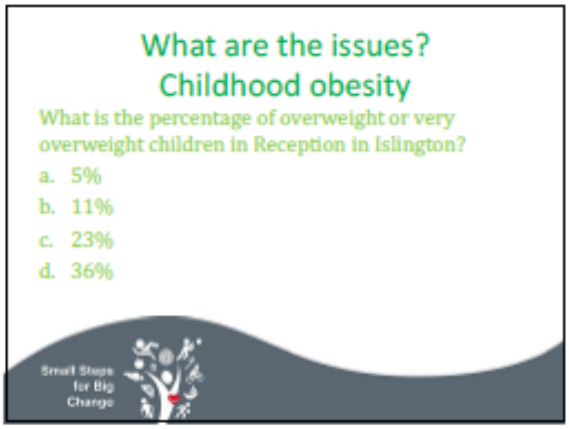
Appendices

C14 SS4BC training materials





Recommended maximum of sugar intake for 2 to 4 year olds per day

a. 3 sugar cubes (12g sugar)
b. 5 sugar cubes (20g sugar)
c. 6 sugar cubes (24g sugar)
d. 7 sugar cubes (28g sugar)

Recommended maximum of sugar intake for 2 to 4 year olds per day

a. 3 sugar cubes (12g sugar) for 2 – 3 year olds
b. 5 sugar cubes (19g sugar) for 4 – 6 year olds
c. 6 sugar cubes (24g sugar) for 7 – 10 year olds
d. 7 sugar cubes (28g sugar) for 11 years and over

Obesity / health and wellbeing

Childhood obesity is linked to a number of poor physical, social and psychological outcomes:

- Increased severity of asthma & other respiratory diseases
- low self-esteem and bullying
- lower academic achievement
- lower quality of life, such as joint pain and difficulty getting about, difficulty breathing when lying down (sleep apnoea)
- Increased risk of long term health conditions such as diabetes and heart problems

Why early years?

- Levels of obesity in toddlers is increasing
- Prevention is better than treatment especially in relation to obesity
- Young families are open to make changes to their lifestyle to benefit their young child.
- Young children will adapt healthy habits more easily
- Healthy family lifestyle is the key to prevent childhood obesity and treating obesity in toddlers
- Parents may not realise that their child is overweight

Parent's perception of weight

Healthy

Cute and chubby

Fat eyes

Parent bias

Puppy fat

Identification

Health visiting

- Under 2: growth charts
- Over 2: BMI (www.nhs.uk healthy weight calculator)
- 91st – 98th centile: overweight
- > 98th centile: very overweight

Educational and childcare professionals

- Parent
- Visual
- Weight gain
- Unhealthy lifestyles
- Parent's habits

Raising a concern

- Non-judgemental
- Genuine
- Empathy
- Keep communications open

What is available for families

- Health visitors (for identification or first line of advice)
- Community paediatric dietitian (under 4), Healthy weight nurse (Penny Roberts)
- Children and Adolescent Mental Health Services
- Parenting classes
- Community or Children's Centre activities such as Family Kitchen, Small Steps 4 Big Change or physical activity sessions (Islington Family Information Services)
- Leaflets: Start4Life, Islington under 5 leaflets

If family does not accept?

- Accept families decision
- Provide information (leaflet) such as Start4Life
- Return to topic in 3 – 6 months

Small Steps for Big Change (SS4BC)

Programme for early years to support them to work with families

What is SS4BC?

6 topics:

- Encouraging good eating habits
- Child-size portions
- Healthy eating for young children
- Planning healthy meals for less
- Get active
- Be screenwise

It does not include play and parenting as EY staff are experts!

How can it be used?

- Universal / targeted
- As part of other activities
- Stand alone
- One-to-one conversations with families

General information

- Content
- Background information
- Topics list
- Evaluation forms (pre- and post-surveys)
- Record of delivery

1: Encouraging good eating habits

- Children need to have fun with food
- Oral health is important
- Children need time to accept new foods: it can take 15 times before a child accepts a new food
- Eating meals as a family is important
- Sleep: 2 year old children need 13 hours of sleep over a 24 hour period

2. Child-size portions

- Portion sizes
- Not using food as a reward
- Praise should be given for trying foods
- Sleep: sleep is important for good behaviour, being physically active, healthy food consumption, normal hormone functioning

3. Healthy eating for young children

- Food is important for healthy growth
- Healthy eating for children: 3 meals and 2 snacks
- Healthy snacks and drinks
- Children should have 4 portions of starchy food a day

4. Planning healthy meals for less

- Tips for healthy eating on a budget: frozen fruit and vegetables are affordable and reduce waste
- Healthy Start: 24% of families eligible for healthy start are not enrolled with Healthy Start

5. Get active

- The importance of being active: improved motor skills, learning through movement, healthy habits from early age
- Children under 5 should be active for 180mins (3 hours) per day
- Children should spend less time being sedentary
- Being active inside and outside

6. Be screenwise

- Importance of reducing screen time: children under 2 should be on a screen no more than 30 mins per day. Children aged 2 – 4 should be on a screen no more than 2 hours per day
- Appropriate ways of using screen time: planning child's use of the screen, using the screen time to encourage the child to be active, watching TV together, talking about what they have watched / done

Small Steps for Big Change

Find your way around the pack

- Label reading activity
- What are the suggested activities in Get Active?
- What is the difference between good eating habits and healthy eating?
- What is in each topic?
- Topic 3, page 5
- Throw & catch game with bean bag, dance scarves, keepy uppy with a balloon
- Good eating habits is about habits and healthy eating about foods to eat?
- Suggested questions, take home message, SS4BC parent leaflets, handouts from other services, activities, further information

Small Steps for Big Change

After the break

Practice using SS4BC

- How are you likely to use the resources?
- Plan an example (10 mins)
- Delivery using SS4BC (3 mins)

Small Steps for Big Change

Break 15 mins

Small Steps for Big Change

Practice using SS4BC

- How are you likely to use the resources?
- Plan an example (10 mins)
- Delivery using SS4BC (5 mins)

Small Steps for Big Change

Evaluation

- Use CC evaluation handbook as for other activities
- Evaluation form available in general information booklet
- Record of delivery

Small Steps for Big Change

Monitoring

- Record of delivery including feedback
- Visits
- Resources for delivery

Plan how to use SS4BC in your cluster

- Brainstorm in groups how you might want to use the resources and activities
- Complete the Record of delivery for organised activities

Any questions?

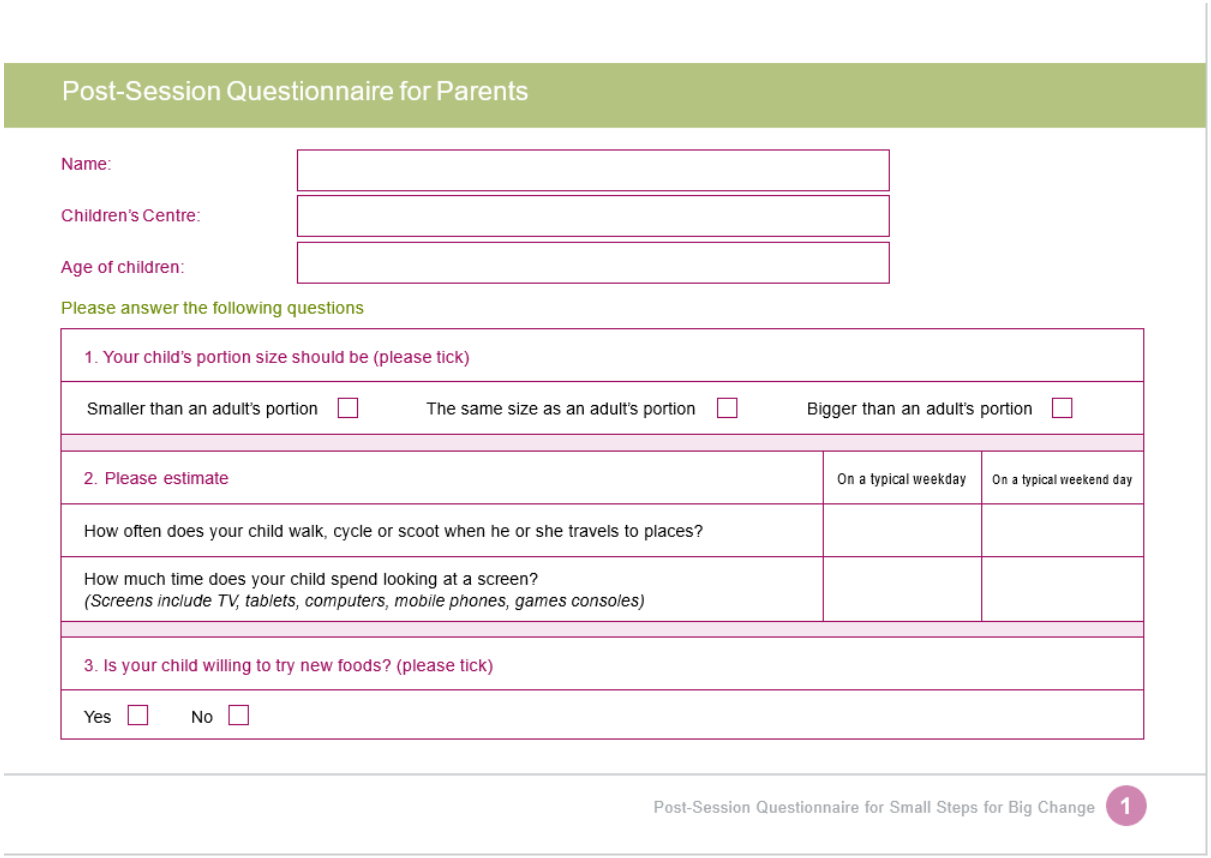
Please complete the evaluation form

Thank you ☺

[redacted]

C15 Pre and post session evaluation questionnaires for parents

The questions were the same before and after the intervention. The post questionnaire only is shown below.



Post-Session Questionnaire for Parents

Name:

Children's Centre:

Age of children:

Please answer the following questions

1. Your child's portion size should be (please tick)

Smaller than an adult's portion ☐ The same size as an adult's portion ☐ Bigger than an adult's portion ☐

2. Please estimate	On a typical weekday	On a typical weekend day
How often does your child walk, cycle or scoot when he or she travels to places?		
How much time does your child spend looking at a screen? *(Screens include TV, tablets, computers, mobile phones, games consoles)*		

3. Is your child willing to try new foods? (please tick)

Yes ☐ No ☐

Post-Session Questionnaire for Small Steps for Big Change 1

Post-Session Questionnaire for Parents

4. Which of the following drinks does your child have?	More than 3 times per week	Less than 3 times per week
Regular fizzy drinks (such as cola, 7 Up, lemonade)		
Diet or sugar-free fizzy drinks (such as Diet Coke)		
Unsweetened juice (100% juice), smoothies		
Other sweetened drinks (such as squash, juice drinks)		
Milk (skimmed, semi-skimmed or whole)		
Infant formula		
Drinks made with milk (e.g. milkshakes, hot chocolate)		
Water		
Energy drinks (e.g. Red Bull, Irn Bru, Lucozade, Relentless)		
Tea or coffee		

Post-Session Questionnaire for Parents

5. How many portions of fruit and/or vegetables does your child eat per day?
1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8+ ☐

6. For your child's main meal do you do any of the following? (this can be lunch or evening meal)	More than 3 times per week	Less than 3 times per week
Buy a take-away for your child's main meal		
Your child eats their main meal sitting at a table		
Your child watches television during the main meal		
Your child eats roughly the same food as you for the main meal		
Your child eats a main meal with an adult		

7. I try to eat healthy foods in front of my child, even if they are not my favourite (please circle)	Yes	No

Post-Session Questionnaire for Parents

8. Do you think it is ok for your child to have the following items as a snack?	Yes	No
Fruit or vegetables (fresh, frozen, tinned or dried)		
Sweet foods (such as chocolate, sweets, biscuits, cakes, ice cream)		
Savoury snacks (such as crisps, cheese biscuits)		
Regular fizzy drinks (such as cola, 7 Up)		
Diet fizzy drinks (such as Diet Coke)		
Unsweetened juice (100% juice)		
Other sweetened drinks (such as squash, fruit drinks)		
Milk (skimmed, semi-skimmed or whole)		
Drinks made with milk (such as milkshakes, hot chocolate)		
Water		

9. Do you and/or your child take Healthy Start vitamins? (please circle)	Yes	No
If yes, where do you get the Healthy Start vitamins from?		

C16 Hugh Myddleton full evaluation report from parents

Summary

Seven parents completed evaluation forms before the programme and four completed it after the end of the programme. The results showed that parents had a good understanding of portion sizes both before and after the programme. Children were travelling actively (walking, cycling or scooting) more often on a weekday than on a weekend day and about the same number of times after the programme from before. Most of the children spent less than three hours a day on weekdays looking at screens both before and after the programme. More children spent less than three hours a day on weekend days looking at screens after the programme than before. This indicates that parents had tried to reduce the number of hours their child spent on a screen at the weekend.

Most parents said that their child was willing to try new foods both before and after the programme. Parents were also asked about the drinks that their child consumed. Before the programme, three and two parents said that their child drank regular and diet fizzy drinks (respectively) less than three times a week. This decreased to only one parent saying their child had regular or diet fizzy drinks less than three times a week after the programme. Overall, parents said their children were drinking unhealthy drinks less often at the end of the programme than before it. The majority of parents said their children were drinking water more than three times a week both before and after the programme.

After the programme, more parents said their children were eating at least three portions of fruit and vegetables a day, which is higher than before the programme. Parents were also asked about their opinions on whether different snack items were OK for their children to have. All of the parents both before and after the programme said it was OK to have fruit and vegetables, milk and water as a snack. More parents said that it was not OK to have sweet foods as a snack after the programme than before.

Fewer parents said that savoury snacks and unsweetened juice were OK after the programme than before. The majority of parents both before and after the programme said regular and diet fizzy drinks are not OK to have as a snack.

Before the programme, four parents said that sweetened drinks were OK as a snack and this reduced to no parents at all after the programme. Similarly, fewer parents thought it was OK to have drinks made with milk as snacks after the programme than before.

Please see below for a complete breakdown of the results:

Question		Before (n, %)	After (n, %)
1. Your child's portion size should be	Smaller than an adult's portion	7, 100	4, 100
	The same size as an adult's portion		
	Bigger than an adult's portion		
2. Please estimate how often does your child walk, cycle or scoot when he or she travels to places?			
• **On a typical weekday**	More than 3 times:	4, 57	1, 25
	Less than 3 times:	2, 29	2, 50
• **On a typical weekend day**	More than 3 times:	1, 14	1, 25
	Less than 3 times:	2, 29	1, 25
3. Please estimate how much time does your child spend looking at a screen?			
• **On a typical weekday**	More than 3 hours:	2, 29	
	Less than 3 hours:	5, 71	4, 100
• **On a typical weekend day**	More than 3 hours:	2, 29	
	Less than 3 hours:	2, 29	3, 75
4. Is your child willing to try new foods?	Yes	4, 57	3, 75
	No	2, 29	1, 25
5. **Which of the following drinks does your child have?**			
• **Regular fizzy drinks (such as cola, 7 Up, lemonade)**	More than 3x per week		
	Less than 3x per week	3, 43	1, 25
• **Diet or sugar-free fizzy drinks (such as Diet Coke)**	More than 3x per week		
	Less than 3x per week	2, 29	1, 25
• **Unsweetened juice (100% juice), smoothies**	More than 3x per week	4, 57	2, 50
	Less than 3x per week	1, 14	1, 25

• **Other sweetened drinks (such as squash, juice drinks)**	More than 3x per week	5, 71	2, 50
	Less than 3x per week		1, 25
• **Milk (skimmed, semi-skimmed or whole)**	More than 3x per week	6, 86	4, 100
	Less than 3x per week		
• **Infant formula**	More than 3x per week		
	Less than 3x per week		
• **Drinks made with milk (e.g. milkshakes, hot chocolate)**	More than 3x per week	3, 43	1, 25
	Less than 3x per week	1, 14	1, 25
• **Water**	More than 3x per week	7, 100	4, 100
	Less than 3x per week		
• **Energy drinks (e.g. Red Bull, Irn Bru, Lucozade, Relentless)**	More than 3x per week		
	Less than 3x per week	1, 14	
• **Tea or coffee**	More than 3x per week	1, 14	
	Less than 3x per week	1, 14	
6. **How many portions of fruit and/or vegetables does your child eat per day?**			
1 – 2		2, 29	
3 – 4		2, 29	3, 75
5			1, 25
6 or more		1, 14	
7. For your child's main meal do you do any of the following?			
• Buy a take-away for your child's main meal	More than 3x per week	1, 14	
	Less than 3x per week	2, 29	
• Your child eats their main meal sitting at a table	More than 3x per week	6, 86	4, 100
	Less than 3x per week		
	More than 3x per week	2, 29	

• Your child watches television during the main meal	Less than 3x per week	3, 43	3, 75
• Your child eats roughly the same food as you for the main meal	More than 3x per week	3, 43	2, 50
	Less than 3x per week	2, 29	1, 25
• Your child eats a main meal with an adult	More than 3x per week	6, 86	4, 100
	Less than 3x per week		
8. **I try to eat healthy foods in front of my child, even if they are not my favourite**			
	Yes	4, 57	4, 100
	No	1, 14	
9. **Do you think it is ok for your child to have the following items as a snack?**			
• **Fruit or vegetables (fresh, frozen, tinned or dried)**	Yes	7, 100	4, 100
	No		
• **Sweet foods (such as chocolate, sweets, biscuits, cakes, ice cream)**	Yes	4, 57	
	No	2, 29	3, 75
• **Savoury snacks (such as crisps, cheese biscuits)**	Yes	6, 86	2, 50
	No	1, 14	2, 50
• **Regular fizzy drinks (such as cola, 7 Up)**	Yes		
	No	6, 86	3, 75
• **Diet fizzy drinks (such as Diet Coke)**	Yes		
	No	7, 100	3, 75
• **Unsweetened juice (100% juice)**	Yes	5, 71	3, 75
	No	1, 14	1, 25
	Yes	4, 57	

• **Other sweetened drinks (such as squash, fruit drinks)**	No	2, 29	3, 75
• **Milk (skimmed, semi-skimmed or whole)**	Yes	7, 100	4, 100
	No		
• **Drinks made with milk (such as milkshakes, hot chocolate)**	Yes	5, 71	1, 25
	No	2, 29	3, 75
• **Water**	Yes	7, 100	4, 100
	No		
10. **Do you and/or your child take Healthy Start vitamins?**			
Yes		2, 29	1, 25
No		5, 71	3, 75
If yes, where do you get the Healthy Start vitamins from?		• Doctors • CC	• Midwife

C17 Hugh Myddleton programme delivery report

Introduction

The Health and Wellbeing team and Public Health have developed the Small Steps for Big Change (SS4BC) programme in conjunction with partners from oral health promotion, speech and language therapy team and the Child and Adolescent Mental Health Services (CAMHS). The programme can be delivered by children's centres and early years settings as a stand-alone programme or as part of other work, such as stay and play groups. The target group for the programme is universal with a focus on families at risk of overweight or obese children.

The programme aims to provide key messages on encouraging good eating habits, child-size portions, healthy eating for young children, planning healthy meals for less, being active and being screen wise. Staff were trained to deliver the programme/incorporate the delivery of these messages into their work and demonstrate activities that can be done with families to practically support them with making healthy lifestyle change.

The SS4BC training covered:

- SS4BC topic areas and opportunities to trial the activities
- How to deliver the programme
- Statistics for Islington
- The impact of weight
- The benefits of healthy lifestyles beyond weight
- How to raise the issue of weight with families

Setting up the programme

Tracy and Fernando attended the Small Steps for Big Change (SS4BC) training with the Finsbury cluster in January 2016. Marjon met with Tracy as they expressed an interest in delivering the programme in the school's early years. Resource packs were sent to all settings in February. Suhana and Marjon met with Tracy and Fernando in March to discuss the delivery of the programme in more detail.

It was decided that the programme would be a five week programme starting on 21 April and finishing on 19 May, 9.15am to 11.15am. Each session would be up to 2 hours. Fernando and Tracy would try to get other professionals involved to deliver part of the sessions. Each session would also have a practical or active element. The sessions were planned to follow the same format as the SS4BC programme, as outlined below:

- Session 1:
    - Pre-session evaluation
    - Good habits and portion sizes
    - Invite Obuko to deliver a session on dental health promotion
- Session 2:

    - Healthy eating
    - Label reading activity - ask parents to bring in packaging from some of the snacks / foods they give to their children
    - Make a healthy snack which parents can give to their children when they pick them up from school
- Session 3:
    - Healthy eating on a budget
    - Shopping list activity – this involves providing parents with a basic shopping list and dividing the group in three to compare prices between a market and branded and own brand products from the supermarket. When returning to school, parents can compare the levels of sugar, fat and salt in the same products from different brands. Carry out a taste comparison where appropriate.
- Session 4:
    - Being physically active inside and outside
    - Invite PE co-ordinator and playleader to support this session
- Session 5:
    - Being screenwise
    - Support families to play with their children.
    - Include a visit to a local library. Ask parents, based on what they have learned, what changes they think they may make. Ask them to set SMART (specific, measurable, achievable realistic and timely) goals.
    - Completing the post-session evaluation

Please see below for more detailed descriptions of each of the sessions.

Programme delivery

Session one

The Health and Wellbeing team were unable to attend to observe this session. Parents completed the pre-evaluation surveys.

The session covered good habits and oral health. All parents were provided with an award chart and stickers to use with their children to encourage them to try new fruit and vegetables.

Session two

This session covered child sized portions, hidden sugars and food labelling. Tracy and Fernando started off by recapping the previous session. They asked parents about whether they had used the sticker charts. Two of the parents said that the charts were working really well and that their child had tried new fruits.

Three parents attended the session, which was a low turnout compared to the first session where 11 parents attended.

The sessions were delivered in a practical manner, with activities and discussions for parents.

There were two activities for parents to do as a group. The first activity was based on portion sizes. Tracy and Fernando had measured out varying portion sizes of different food items and asked parents to guess which one is the correct portion size for a child aged two to five. Parents were surprised at how small the portion sizes were.

For the second activity, parents had been asked the previous week to bring in empty packaging from foods and drinks that their children often consumed. Tracy and Fernando had also collected food packaging. They used these to demonstrate the use of the food labelling cards. Again, parents were very surprised at the amount of sugars and fats in everyday foods, especially within foods that many parents thought were healthy choices or foods that were specifically marketed at children.
The parents were engaged throughout the session and responded well to the information provided.

Session three
This session was based on planning healthy meals for less, including Healthy Start. Tracy and Fernando started off the session by asking the parents that were at the previous session to recap what was covered for the new parents, including the label reading activity. They also provided the new parents with the hand-outs from the previous session and said they would clarify anything needed in the following session. They asked parents about using the label reading cards. Parents who attended the previous session said they were useful and had started taking them out when going shopping.

Tracy and Fernando started off the topic for this session by asking parents questions about how they plan meals for their families at home. They discussed different ways of planning meals, as well as ways to save money and reduce food waste. They also discussed the Healthy Start supplements and the vitamins they contain. For the activity, they split the parents into two groups for a shopping exercise. There were not enough parents to divide them into three groups as originally planned. Parents were given a shopping list of ingredients to buy to make a healthy lunch to compare the price of value brand, own brand and named brand foods. Tracy and Fernando each accompanied a group to buy the ingredients with a budget of £5. One group went to the supermarket (to look at branded and own brand foods) and the other group went to the market.

The groups came back to school and fed back. There was a good discussion about supermarket advertising promotions that encourage you to buy more food than is needed e.g. buy one get one free offers (BOGOFs). The group that went to the supermarket also discussed how some foods greatly varied in price from value brands to named brands. In some cases, they also found that the value brands were healthier e.g. there was less added sugar in breakfast cereals.

All of the parents said they found the session useful and it had made them think about some of the foods they were buying and ways in which they could be more economical and reduce food waste. At the end of the session, Tracy and Fernando gave parents the materials from the resource pack (meal planner and shopping list). They asked them to complete the meal planner for the week ahead and bring it along to the next session for discussion.

Session four

This session was based on physical activity. Tracy and Fernando started off the session by asking the parents what changes they had made to their shopping habits and if they were using the food label reading cards. The feedback was very positive, with parents reporting a number of changes to their shopping habits, such as:

- Shopping every three days rather than weekly. This has resulted in reducing the amount of waste and families eating more fruit and vegetables (as they are not being wasted)
- Freezing food so less food is wasted. Any extra fruit and vegetables and leftover meals are frozen and used another time
- Changing from branded foods to non-branded foods. These are often cheaper and contain lower amounts of sugar, salt and fat
- Using label reading cards to make choices about food purchases
- Preparing more simple dishes themselves at home rather than buying ready made options, such as couscous. The parent mentioned she had put in more vegetables and involved her son in the food preparation, which he really enjoyed.

Parents also reported making other healthy lifestyle choices. One mum mentioned that she has stopped drinking Coca Cola since attending the Small Steps workshops. She previously drank three cans a day but has not consumed any for the last three weeks. She has therefore reduced her sugar intake by 2.2 kilos since attending the first Small Steps workshop. This is equivalent to 8,820 calories.

At school, Tracy noticed that one of the children of the parents attending was not eating the rice from his school lunch. He said he didn't like it, although it was obvious he hadn't tried any of it. Tracy said his mother had told her how good he was at trying new foods and if he tried a little of his rice, she would tell his mum. He tried some of the rice, decided he really liked it and finished it.

Unfortunately, parents had forgotten to bring their meal planner. They were asked to bring it in for the next workshop so it could be discussed as a group.

To introduce the current workshop on physical activity, Tracy and Fernando discussed the importance of physical activity for children, current recommendations on physical activity levels and the different types of physical activity. Tracy also explained how physical development is part of the Early Years Foundation Stage Framework and child development.

The activity consisted of dividing the parents into two groups of two and giving them a balloon, which they were asked to keep in the air for two minutes. Parents also played a variety of games outside (such as Duck, Duck, Goose) which everyone enjoyed. All of the parents said they found the session useful. One of the parents asked about taking swimming session for young children and there was a discussion about accessing leisure centres in Islington. Fernando shared the 'What is Available in Islington' leaflet. Parents were set a challenge to do a new activity of some sort with their child. Three parents said they were going to take their child swimming and one parent said she was going to play football with her son.

Parents were given a bean bag, balloons and dance scarf to encourage them to be physically active with their children.

Session five

This session was based on screen time. Tracy and Fernando invited Katy Potts (Primary ICT Manager) in to discuss key issues around screen time. Katy discussed the benefits of the technological industry and future developments and described it as being an exciting time for children. She also discussed the importance of children and adults taking precautionary measures to ensure children are using the internet safely. This particular section was more relevant for slightly older children. There were two parents present who had older children and could partake in the discussion. However, the remaining two parents had children under the age of five and so were unable to fully contribute to the discussions.

Katy also discussed the educational benefits of technology, such as using apps to help children learn about colours and numbers, for example. Tracy mentioned that she would look into obtaining LGFL log in details for those in two year old provision so they could access educational materials through the school website. Katy finished the session by recapping some of the key points and offering some top tips for keeping safe online, some of which were very similar to the messages within the Small Steps programme.

In the second part of the session, Tracy and Fernando delivered the key messages from the 'Be Screenwise' topic from the Small Steps resource pack. They also asked parents to feedback to the rest of the group about the challenge from the previous session. All of the parents said they had taken their child to the park and one parent had taken her child swimming. Tracy and Fernando also gave parents a leaflet with details of activities for the upcoming half term.

Overall programme feedback from staff

Both Tracy and Fernando were very positive about the Small Steps for Big Change programme and resources. They found the 'Further information' section within each topic really useful. The basic information was enough to deliver a session with, but the further information allowed them to pull out certain aspects and provide a bit more detail where they thought it would be relevant to their parent group.

With regards to the training, Tracy and Fernando felt it was very comprehensive and prepared them well to deliver each session. They didn't always have as much time together to prepare ahead of a session as they would have liked to. But they felt the materials were simple to use and could be used even with a short preparation time. At no point during the delivery of the programme did they feel unsure of what they were delivering.

They felt it worked well to deliver the workshops as a programme, as all of the sessions feed into each other so it is easy to refer back to previous sessions and link key messages from one session to the next. Having sessions on a weekly basis also means that parents have time to process the information and can feedback what changes/activities they have tried from one session to the next.

When evaluating their delivery of the programme, Tracy and Fernando said that in future, they would target parents better to attend the course. Many of the parents that attended this programme already had good dietary habits. Choosing parents where there are perhaps more concerns about their dietary habits would mean that they derive greater benefit from attending. Despite this, all of the parents that attended derived benefit from it and reported intentions to change some of their habits.

They also said that they would ensure they set ground rules at the beginning of the programme so parents are clear about session expectations, such as making sure that mobile phones are switched off. It is also important for parents to understand the importance of sharing information with other families so everyone can benefit. Tracy and Fernando are keen to run another session and are planning to do so in the autumn term.

Overall programme feedback from parents

Parents were very positive about the programme. One parent said that it helped improve her parenting skills and that she had now started doing more activities with her son, such as cooking together and playing active games. Parents also said they found the session on hidden sugars really useful. Other parents found the label reading activity and the shopping trip useful in helping them to make more informed choices about the food they are buying. They had greater understanding of healthy diets after attending the course than before. For example, fewer parents said their children were drinking unhealthy drinks at the end of the programme than before it. One parent said '[This course was useful because] it's really made me aware of my shopping and cooking habits. It's also opened my eyes to things like the amount of sugar and salt in foods and portion sizes. Thank you, this course has really changed my shopping and eating habits and most importantly, that of my child'.

Generic Professional Competence case study

During my time as a trainee health psychologist, I was employed by the Camden and Islington Public Health department in two different roles; initially in a health promotion role and now as a qualitative research officer. I will outline my work towards completing my health psychology portfolio and reflect on my development as a practitioner.

Unit 1.1 Implement and maintain systems for legal, ethical and professional standards in applied psychology

1.1a Establish, maintain and review systems for the security and control of information

As part of my previous and current role, I regularly collect data from residents and other stakeholders in the form of conducting interviews, focus groups and surveys. I ensure that all the research is conducted to the highest of ethical standards and follow established procedures and protocols (such as the Data Protection Act, 1998). For example, I always ensure I obtain informed consent from research participants and provide them with a study information sheet and a debrief sheet afterwards. I also ensure I comply with data regulations at my place of work to store participant data. For example, all participant data is stored electronically under secure, password protected files on the shared council system and never in individual folders. All hard copies of participant data are disposed of in the confidential waste bins. I also ensure that I do not transport sensitive data, for example if I am working from home.

There are also new updates to the General Data Protection Regulations (GDPR) due to come into effect in April 2018 (Information Commissioners Officer, 2018). This will mean changes to the way in which data is stored and greater transparency in what resident data is used for. I have discussed the regulations with my team and considered how this will apply to us. We have subsequently implemented a number of changes to ensure that we are compliant. For example, we have adopted the use of a new electronic filing system where participant information will be stored under a second layer of password protection. This will ensure that only the immediate

research team have access to this information. All other files and folders will refer to individual participants using a unique identifying code. With the previous system, other colleagues within public health would be able to access the files if they wished to. This new process will ensure that access is further restricted to only include those who are involved in the study.

1.1b Ensure compliance with legal, ethical and professional practices for self and others

I am fully aware of the current legislation and ethical codes that are applicable to the work of health psychologists, such as the British Psychological Society (BPS) Code of Ethics and Conduct (2009), Health and Care Professions Council (HCPC) Guidance on Conduct and Ethics for Students (2016), the HCPC Standards of Proficiency (2009) and the HCPC Standards of Conduct, Performance and Ethics (2015). I apply these principles throughout my day to day work, and have considered these issues and reflected on them throughout my stage 2 training. For example, the standards of proficiency state that psychologists must practice safely and effectively within their scope of practice, which in my case would be as a trainee. I made sure all the partners and organisations that I worked with were aware that I was a trainee and that I worked under the guidance of my line manager or supervisor, seeking advice as appropriate.

I kept logs of all my activity over the duration of the doctorate and reviewed them regularly and updated anything as necessary. For example, I changed my thesis data collection plans to include a second group of participants (healthcare professionals) at a later date. I ensured that I reapplied for ethical approval before proceeding with this. I have kept records of all of the participants that I interviewed as part of my thesis in a password protected file. There is only one document where the participants name appears alongside the alias assigned to them for the write up. After this, participants have been strictly referred to by their alias in order to protect their identity.

I also ensure that I am up to date with all of the relevant regulatory guidelines within my public health role and ensure I keep abreast of any changes (such as the GDPR). I am proactive in seeking out the relevant information and training courses

from the information governance officer for the department, such as data protection and information governance training. I am also a member of the relevant professional bodies and networks, such as the BPS and BPS Division of Health Psychology (DHP), the European Health Psychology Society (EHPS) CREATE network for early career scientists and the Health Psychology in Public Health Network. This helps me to ensure I am compliant with best practice, as well as informing me of new opportunities.

1.1c Establish, implement and evaluate procedures to ensure competence in psychological practice and research

When undertaking the work related to the competencies in the portfolio, I have clearly identified myself as a trainee health psychologist, as is highlighted in the HCPC Guidance on Conduct and Ethics for Students (2016). I have ensured that I have worked closely alongside chartered health and clinical psychologists to guide and support me in my work. I have had three supervisors from the university who have overseen the completion of the portfolio. I also have two colleagues at work who are chartered health psychologists. All have a number of years of experience and I am able to seek guidance and advice when needed.

As part of completing my portfolio I have attended all of the workshops offered at the university, including qualitative and qualitative research methods, conducting systematic reviews, behaviour change interventions, consultancy, motivational interviewing and teaching and training. This has provided me with a good foundation for the key skills needed for a practitioner health psychologist. I also regularly read publications such as The Psychologist and Health Psychology Update to keep abreast of the latest developments. I have a particular interest in other people's approaches to the stage 2 training (Jenkinson and Naquvi 2013, Lewis-Smith, Jenkinson and Chater 2014) and have reflected on my own approach as a result (Begum, 2017).

I have supplemented the workshops by seeking out additional CPD opportunities, at university, work and through keeping abreast with health psychology news and events. For example, I have attended the Research Supervision module from the Academic Practice MA course at City, University of London. The module has built

on my own personal experience of supervision and given me a good understanding of how to successfully supervise a student through a dissertation project. This will be useful for my future academic career. I will also be starting the Learning, Teaching and Assessment module in March 2018, which will further enhance my teaching practice.

I have attended training for conducting economic evaluations within a public health setting, allowing me to financially evaluate health outcomes. I have also attended BPS events such as 'Unlocking the Social Cure' which has helped me to network and keep up to date with the latest research.

Unit 1.2 Contribute to the continuing development of self as a professional applied psychologist

1.2a Establish, evaluate and implement processes to develop oneself professionally

Reflecting over my training during the last four years I have developed several new skills. This has been the first time I have presented my work at professional conferences. I attended the BPS DHP annual conference in 2015 to present a poster of my consultancy work on self-titration in type 2 diabetes. I was awarded a bursary from the BPS to attend and wrote an article for the Heath Psychology Update describing my experience of the conference and how it had informed my training. This article (Begum, 2016) and the diabetes study (McBain et al., 2016) have since been published.

I also attended the DHP conference and EHPS conferences in 2017. I presented an oral talk on my dissertation research and a poster of my systematic review at DHP, and a poster presentation of my dissertation at EHPS. I also attended the British Federation of Women Graduates (BFWG) Research Presentation Day and presented my dissertation thesis. Attending all of these conferences gave me the opportunity to practise and develop my presentation skills in communicating my research concisely.

I am also aware that my training is an ongoing continuous process and I am constantly seeking out new opportunities to develop myself further. For example, I have recently taken on a role as a sessional lecturer in health psychology and qualitative research methods at the University of Worcester. I have since taught, using my experiences from the DPsych training and taken part in the department teaching calibration days. This has been a fantastic learning experience for me and I look forward to the new opportunities that will arise.

1.2b Elicit, monitor and evaluate knowledge and feedback to inform practice

I have ensured I have implemented ways to obtain information and feedback by using evaluation forms for all of the teaching and training I have delivered. I have also asked participants to rate the content of the session, whether they had gained something new, whether it was useful and whether it was applicable to their work. I ensured I use the feedback to inform future sessions. For example, I trained colleagues on two separate occasions in how to run a successful focus group and how to conduct qualitative data analysis. I took the feedback that was applicable from the first training forward into the second session to improve it, such as integrating more real life examples from my work.

1.2c Organise, clarify and utilise access to competent consultation and advice

I have had regular supervision meetings with my line manager at work and with my supervisors at the university. This has given me the opportunity to review my current practise and identify any training needs I may have. I am able to access any relevant trainings as appropriate. For example, I discussed my desire to gain supervisory experience with my supervisor, who recommended I attend the research supervision module at the university. It has also been useful to discuss my training portfolio with the health psychologists within my workplace setting and think about how we can work together to embed more health psychology theory and principles into public health. I have also joined the Health Psychology in Public Health network (HPPHN) to keep up to date with their events and work.

I have been able to deal with challenges in a logical manner and use my professional networks to support me, such as my colleagues, manager and workplace supervisor. I have ensured that I seek support as soon as I know I am not able to resolve the issue on my own. For example, when having problems recruiting participants for my thesis I discussed this with my supervisor who advised me of different recruitment strategies she has used. I am now also able to reflect on my own practice and think about ways to improve my skills further, such as through keeping a reflective log.

1.2d Develop and enhance oneself as a professional applied psychologist

Throughout the process of compiling the portfolio, I have ensured that I have made all the partners I have worked with aware that I am a trainee health psychologist. I have worked under the guidance of my supervisor and referred to my line manager or supervisor as appropriate.

I have greatly increased in my knowledge and development of skills over the four years of my training. For example, the behaviour change interventions competency was one of the first I worked on after embarking on the DPsych. Having now completed my dissertation research towards the end of my doctorate and reflecting on my previous work, I have identified many aspects I would approach differently. If I were to repeat the development of the SS4BC intervention, I would take a more robust, evidence based approach than I did previously.

I also attended a conference last year for applied practitioner health psychologists, which was the first of its kind (SCCH Consulting, 2017). This was a really interesting event that helped me to appreciate the diverse areas in which health psychologists work and influenced my future career goals. I have also registered to attend the conference in spring 2018.

1.2e Incorporate best practice into one's own work

Much of my portfolio has been completed in my role in working for a local authority public health department. A key part of my role as a trainee health psychologist within Camden and Islington Public Health has been to support staff in their work

with families from very diverse backgrounds. The population of Islington is a very diverse one, with families of varying demographics, such as ethnicity, cultures and socio-economic backgrounds. The council operates a 'Dignity for All' policy and it is an inherent part of all the work that is done that all employees should practise in a non-discriminatory manner. I have applied this in all of my work in all areas, including when completing my portfolio. As part of the ethical approval for my thesis I considered ways in which my practise may potentially be considered as discriminatory and ensured that this was addressed in the application. Furthermore, my cultural and religious identity is externally visible and I make sure I consider the potential implications in this as part of my work. I became aware of the importance of this through my own experience in public health and through reading the HCPC Standards of Proficiency (2009), making it a key consideration in my dissertation research.

I always ensure that I evaluate my work using a 360 degree approach. For example, for my teaching and training I sought feedback from the students I taught, as well as asking my supervisor to observe my teaching session and provide me with feedback. This feedback was useful in designing future teaching sessions and continually improving my practice.

Unit 1.3 Provide psychological advice and guidance to others

1.3a Assess the opportunities, need and context for giving psychological advice

Throughout my training I have been employed in a public health role. There have been numerous opportunities where I have provided psychological advice and guidance to others. This has spanned health psychology and research methods. I have delivered various training courses, devised behaviour change interventions and produced guidance documents, as well as advising on other projects. I ensure I provide advice and guidance within the context of Camden and / or Islington's specific needs and draw upon locally available data to do so, such as the borough's Joint Strategic Needs Assessment (JSNA, data assessing the health related priorities within the area) and other locally available data sets, such as those from the Office of National Statistics (ONS). For example, when considering health campaigns for promotion, I can advise colleagues on the local health priorities at

smaller area level within Camden and Islington, as well as priorities for the borough. I would then compare this to London wide or national data sets from ONS to put the issue into context. I worked with a children's centre to raise awareness of the importance of vaccinations, using data to demonstrate that the numbers of vaccinated children under the age of five in their local area was lower than that of the borough, London and national average. I also advised on ways they could encourage parents to take up vaccinations using behaviour change techniques.

1.3b and 1.3c Provide and evaluate psychological advice

As part of my job role, I have delivered a number of training sessions in topic areas, such as qualitative methodology, smoking cessation, e – cigarettes, mental health services and healthy lifestyles. I always try to ensure my training sessions are as interactive as possible and cater to a wide range of audiences. I use theory and guidelines to guide my practice, such as considering different learning styles (Kolb, 1984). My role often varies and I could be required to provide training to local residents through to professionals at various levels of seniority. I ensure I target and adapt every session to my audience. For example, if I am working with a group of parents who may have English as a second language, I will make the training as visual and interactive as possible, utilising the full range of resources available to me to do so. I have sought participant feedback from all of these sessions and ensured the feedback is incorporated in future sessions.

As part of this portfolio I developed a behaviour change intervention called Small Steps for Big Changes (SS4BC) which aimed to support parents and young children take small steps towards making health related behaviour change. The intervention was developed using health psychology theory and principles, such as established behaviour change techniques (Abraham and Michie, 2008). I delivered the intervention, and trained other staff members to deliver it. This was evaluated and the feedback was used to make changes to the intervention before finalisation.
I have also advised on integrating theories of behaviour change into public health projects. For example, I used the COM-B model (Abraham and Michie, 2008) and the behaviour change wheel (Michie, Atkins and West, 2011) as the basis for creating an interview schedule to collect qualitative data. This was aimed at understanding people's motivation and the barriers towards making healthy lifestyle

changes with residents from an area of Camden that is known to have high levels of obesity.

Unit 1.4 Provide feedback to clients

1.4a Evaluate feedback needs of clients

As a qualitative researcher, I regularly conduct qualitative research on behalf of partner organisations or colleagues who do not have the research expertise otherwise available to them. I meet with them to ascertain their research needs and then provide feedback in numerous ways (such as through writing evaluation reports and presentations of the findings) on the basis of understanding the information they need to gather from the research itself. I use my knowledge of the borough's public health priorities and locally available data (such as the JSNA and ONS data) to make it as relevant as possible for the participants in question. For example, I look at the available data to ascertain whether residents in Camden and / or Islington may be statistically more likely to experience a specific health outcome compared to neighbouring boroughs or regional or national statistics. This is also often indicative of the type of healthcare experience they may have, which can help guide the development of the research question.

1.4b Prepare and structure feedback

Whenever I provide project related feedback to people I work with, I always ensure I think about their involvement in the project and what they want to gain from it. This involves considering data that is more widely available for the participant group, such as local, regional or national data. I also consider how it fits in with the wider strategic priorities for public health and the council overall to improve the health of residents. This helps me to prepare and structure the feedback I provide to them, ensuring it is relevant and useful for their needs.

1.4c & 1.4d Select methods of communicating feedback and present

I provide feedback to all of the stakeholders I work with in different ways, ensuring it is tailored to their individual needs. For example, when conducting research with local residents or stakeholders, I always write a short lay summary of the research

findings. I also ensure I include an ‘outcomes’ section that clearly demonstrates what the data collected has been used for. For example, I collected data from residents in a local estate by conducting focus groups. This was used to inform the design of a series of wellbeing activities which they and other residents could take part in. I feel it is particularly important to feedback to residents or other stakeholders and emphasise that their input has been invaluable and to give them a sense of ownership over the outcome.

When I am providing feedback to clients, I will often select different methods. I always produce a written report outlining the background to the project, methods, results and discussion. This helps me to be clear on the purpose of the project, evaluate the methodology used and think about what impact the research will have on future practice. I also compile a short presentation to accompany the report and will on occasion present at senior staff meetings (such as corporate management boards) to fully explain the research and allow commissioners and other staff to ask any questions. Finally, I also make attempts to disseminate the research in peer-reviewed journals and/or at relevant conferences, such as the Public Health England annual conference, where I presented my work on employment and health in 2017. Using different approaches means that the findings and outcomes of my work can be disseminated more widely and to different stakeholders.

Conclusion

Despite having a change in role mid-way through the stage 2 training, I have always worked in public health. I am passionate about improving the health of society overall, which lead me to pursuing the stage 2 training in health psychology. Completing the various aspects of the portfolio and reflecting on my activities over the past four years has helped me to grow and develop as a practitioner. I have learnt many new skills and further developed old ones. Though the submission of my portfolio may signal the end of the official training, I know that it is only just the beginning of my journey as a practitioner health psychologist. I look forward to a long and fruitful career and I sincerely hope I can make a difference to health care for our society.

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SECTION D – SYSTEMATIC REVIEW

How has intervention fidelity been assessed in smoking cessation interventions? A systematic review

Abstract

Background: Intervention fidelity concerns the degree to which interventions are delivered and engaged with as intended. Fidelity frameworks propose fidelity is a multidimensional concept relevant at intervention designer, provider and recipient levels; yet the extent to which it is assessed multidimensionally is unclear. This review examined the extent to which five dimensions from the Behaviour Change Consortium fidelity framework (design; training; delivery; receipt; enactment) have been assessed in fidelity assessments of smoking cessation interventions.

Methods: Five electronic databases were searched using terms relating to 'smoking cessation,' 'interventions,' 'fidelity' and 'randomised control trials' (RCTs). Eligible studies included: RCTs of smoking cessation behavioural interventions, published post 2006 after publication of the framework, reporting assessment of fidelity. Data extraction included: dimensions assessed, data collection and analysis strategies.

Results: 42 studies were reviewed. Fidelity of enactment had the highest reported fidelity score, with an average of 95.2%. Fidelity of training was lowest, with an average of 41.5%. The remaining three dimensions scored similarly (delivery, 47.9%, receipt, 49.1% and design, 52.1%). The average score for fidelity across all five dimensions across all studies was 51.2%. Fidelity of delivery was most commonly assessed and linked to the intervention outcomes, with 74% of studies reporting how fidelity data was analysed. A wide range of assessment strategies were adopted.

Discussion: Fidelity evaluations of smoking cessation interventions are not comprehensively exploring all key dimensions of fidelity. There is wide variability in methodological and analytical approaches that precludes comparison and synthesis across studies. Findings have highlighted recommendations for improving fidelity

evaluations and reporting practices, such as ensuring studies are using fidelity assessments to aid interpretation of the outcomes.

Introduction

Intervention fidelity is defined as the 'methodological strategies to monitor and enhance the reliability and validity of behavioural interventions' (Bellg, 2004), and the extent to which interventions are implemented as intended. The term fidelity is often used interchangeably with terms such as 'quality assurance', 'adherence' and 'treatment integrity' (Mihalic, Fagan and Argamaso, 2008). There has been considerable investment into designing and evaluating the effectiveness of health behaviour change interventions; yet comparatively less into investigating how and why these interventions work to achieve intended outcomes. Recent Medical Research Council (MRC) process evaluation guidance (Moore et al., 2015), has emphasised the importance of investigating fidelity.

Assessing fidelity can inform intervention replication and scalability and is key to promoting research transparency and increasing scientific confidence in interpretation of outcomes. Assessing fidelity can also identify provider training needs and aspects of intervention implementation that could be targeted for improvement in future adaptations (Borelli et al., 2005). Behaviour change interventions are often complex, comprising multiple components (Moore et al., 2015). Behavioural interventions may also involve tailoring to meet the needs of the individuals taking part (Bonell et al., 2012). Health care settings (where many of these interventions are delivered) are busy and unpredictable settings (Montgomery et al., 2013). The interventions are also often delivered by staff from diverse backgrounds and with variable training. Combined, these factors increase susceptibility to variable fidelity.

Fidelity itself is an equally complex concept (Steckler, Linnan and Israel, 2002). There are numerous models of fidelity from various disciplines, which vary in their conceptualisation and proposed measurement of fidelity (Nelson et al. 2012, Carrol et al., 2007). In recognition of this, the National Institute of Health (NIH) Behaviour Change Consortium (BCC) synthesised numerous fidelity frameworks into an integrated fidelity framework (Bellg et al., 2004, Borelli et al., 2005). This framework proposes fidelity is relevant at the intervention designer, provider and recipient levels, representing a fidelity pathway to outcomes. It proposes five fidelity dimensions (figure 9).

Study design	Training	Delivery	Receipt	Enactment
• The degree to which a theoretical basis has been applied to the intervention, allowing hypotheses to be tested	• The degree to which those delivering the intervention had received appropriate training and their competence in delivering the intervention	• The degree to which the intervention was delivered as intended	• The degree to which those receiving the intervention have understood it and display the behaviour change intended	• Whether this behaviour change is continued in a 'real life' setting.

Figure 9 - Five dimensions of BCC framework

This framework recommends strategies for assessing, enhancing and reporting each dimension. It is important to assess fidelity across all five, as a lack of fidelity to just one could detrimentally impact intervention outcomes.

Despite the availability of guidance, fidelity is not frequently assessed. A review of evaluations of primary and early secondary intervention programmes published between 1980 and 1994 and identified only 24% assessed fidelity (Dane and Schneider, 1998). Borelli et al. (2005) reviewed 342 health behaviour change interventions and identified that 22% reported strategies for maintaining provider skills (linked to training), 27% reported checking adherence against the protocol (delivery) and 35% reported using treatment manuals to guide the intervention (delivery). 12% of the total studies reported using all three strategies for fidelity whilst 54% reported none of these strategies. Fidelity assessments do not appear to be improving over time. A more recent review of 28 adult physical activity interventions (Lambert et al., 2017) identified that delivery was the most commonly assessed fidelity domain. Similarly, a review of fidelity assessments in 65 physiotherapist delivered physical activity/exercise interventions identified only 40% of studies reporting on two or more of the fidelity domains (O'Shea et al., 2016). Both reviews noted wide variation in methods used to assess fidelity, and that fidelity of design was the least investigated domain.

Other reviews have focused on the assessment of specific fidelity dimensions. Rixon et al. (2016) focused on fidelity of 'receipt' amongst studies citing the use of

the NIH BCC framework. A total of 33 studies were identified, with 19.6% addressing receipt and 12.1% including strategies to enhance fidelity of receipt. Similarly, Walton et al. (2017) reviewed the assessment of fidelity of 'delivery' and engagement in 66 health behaviour change interventions, identifying that 32% measured engagement, 30% measured fidelity of delivery and 36% measured both. They found similar numbers of studies used observational and self-report measures, but noted self-report measures have limitations and observational measures are recommended as the gold-standard measure. They also noted that objective measures such as intervention records were used but these do not measure participants understanding of the intervention. Objective measures (e.g. participants demonstrating the skills) were not used by any studies.

Fidelity in smoking cessation interventions

A vastly researched area of behaviour change is smoking cessation behavioural support, which is a prime example of how intervention delivery can vary due to the intervention type (e.g. online, face-to-face) and aids used (e.g. nicotine replacement therapy (NRT) and Champix). Behavioural support typically involves offering advice, practical tips and coping techniques aimed at helping people to cope with cessation and the withdrawal of nicotine, and understand how to use smoking cessation medications effectively (West and Stapleton, 2008). It has demonstrated effectiveness when delivered across numerous modalities (e.g. individual, face to face, telephone or group basis (Lancaster and Stead 2005, Stead and Lancaster 2002, Stead, Perera and Lancaster 2006).

Behavioural support for smoking cessation has been implemented widely in clinical practice. In the UK, smoking cessation support is nationally available via the NHS Stop Smoking Service, which offers free weekly support, nicotine replacement therapies and other medicated aids (Bauld et al., 2010). Smoking cessation services have been shown to be highly effective (Judge et al., 2005). However, outcomes across services are highly variable (Health and Social Care Information Centre, 2014) and reasons underpinning this are unclear. There are national guidelines outlining how these interventions should be delivered, as well as intervention manuals for individual services (Department of Health, 2012). There is even evidence to show that practitioners within the same service operating under the same treatment manual can have variable success rates (Brose, McEwen and

West, 2012); raising the possibility that the interventions are potentially delivered with variable degrees of fidelity.

Recent studies looking at fidelity in NHS stop smoking services have shown that on average, approximately half of the intervention that is specified in the manual is delivered by stop smoking practitioners (Lorencatto et al., 2013), representing low fidelity. This has also been found to be similar within telephone smoking cessation behavioural support (Lorencatto et al., 2014). These studies all assessed fidelity in relation to the 'delivery' aspect of the BCC framework and it is important to assess fidelity across all five dimensions and all stages of the intervention (from conception to implementation). This is key to understanding internal and external validity and the utility of the intervention. Dose effects can also be ascertained e.g. partaking in at least 50% of the intervention leads to quitting. Monitoring fidelity throughout the intervention may also help to decrease intervention costs by understanding the intervention components that do and do not work and improve intervention research efficiency (Bellg et al. 2004, Durlak 1998, Resnick et al., 2005). Higher intervention fidelity leads to an increase in smoking cessation rates (Windsor et al., 2017).

There has been no review to date investigating fidelity assessments of smoking cessation interventions and the methods used in cases where it has been assessed.

Research aims and objectives

This review aimed to investigate how fidelity studies of smoking cessation have assessed for fidelity in the five dimensions of the NIH BCC fidelity framework (design; training; delivery; receipt; enactment).

The research questions are:

1. To describe how fidelity has been assessed in studies that examine fidelity for smoking cessation intervention randomised control trials (RCTs)
2. To describe the methodology that has been used to assess fidelity in each of the five BCC dimensions
3. To describe the approach adopted to analyse the fidelity data and report any associations with the intervention outcomes

Methods

The review was conducted in accordance with the PRISMA systematic review guidelines (Moher et al., 2009).

Inclusion and exclusion criteria

Studies were eligible for inclusion in the review if they met the following criteria:

Population: Interventions targeting smokers of any age were eligible, including adolescent/student populations.

Intervention: Only smoking cessation behavioural interventions were included (in the form of tobacco cigarettes, shisha or water pipe smoking and second hand smoke). Interventions focusing solely on cannabis smoking were excluded. Studies with a behavioural support element with a human interaction component (i.e. face to face or telephone interactions) were included. Interventions solely featuring a distant modality of interaction (such as web/app based materials) or pharmacological interventions (e.g. Champix) were excluded.

Study design: The studies were required to report an assessment of intervention fidelity, either mentioned in the abstract or assessed in the full text if it was unclear from the abstract. The BCC fidelity framework was designed for fidelity assessments of RCT designs. Therefore, only RCTs comparing the intervention against a control (i.e. no intervention, standard practice, another intervention) were eligible. Studies that involved training staff to deliver smoking cessation interventions but reported no participant outcomes were also excluded.

Studies published in English, in peer-reviewed journals were included. Study protocols were included, as the primary interest of the review is methods. Research/conference abstracts were excluded. Only studies published post 2006 were included, following publication of the BCC framework in 2005.

Search strategy

In October 2016, five databases were searched electronically; MEDLINE, EMBASE, Ovid Nursing Full Text Plus, CINAHL and PsycINFO.

Table 9 - Search terms used to conduct electronic searches

Fidelity terms		**Smoking terms**		**Cessation terms**		**Intervention terms**		**RCT**
Fidelity	AND	Smok*	AND	Cessation	AND	Intervention*	AND	Randomised control trial
OR		OR		OR		OR		OR
Intervention adheren*		*Tobacco*		Quit*		Treatment		Randomized control trial
OR				OR		OR		OR
Integrity				Control		Counsel*		Controlled clinical trial
OR				OR		OR		OR
Intervention implement*				Stop		Program*		*Clinical trial*
OR						OR		OR
Intervention complian*						Strategy*		Meta analysis
OR						OR		
Process evaluation						Support		
OR						OR		
Intervention deliver*						Behaviour change*		
OR								
Engag*								

Italicised terms are MESH terms

The search strategy included terms related to fidelity, smoking, cessation and intervention (Table 9). Search terms were informed by previous systematic reviews of intervention fidelity (Dusenbury et al., 2003), and Cochrane reviews on smoking cessation (Lancaster and Stead, 2005, Stead and Lancaster, 2002, Stead, Perera and Lancaster, 2006). Terms for RCTs were adapted from Coppo et al. (2014). Terms within each category were combined using 'OR' (i.e. Smoking terms were combined as 'smok*' OR 'tobacco'). These individual search strings were combined with 'AND'.

The search strategy was validated by conducting an initial search and checking whether it retrieved a criterion paper identified during the scoping search (study 6).

Study selection

Following de-duplication, remaining entries were screened by the primary researcher (SB) at title and abstract level against the inclusion and exclusion criteria. The full text was screened for unclear studies and those fulfilling the inclusion criteria. For inter-rater reliability, the second researcher (FL) screened 10% of the studies at abstract level and percentage agreement was calculated.

Data extraction

A data extraction form was developed featuring five main sections; study characteristics, fidelity definitions, dimensions assessed, data collection and analysis strategies (appendix D1). Study characteristics included the research question/aim, design, participant details and the results/conclusion summary. Data was also extracted on intervention mode of delivery, intervention providers and theoretical basis (use of theory/models of fidelity and/or health psychology). The assessment of fidelity incorporated the BCC checklist from Bellg et al. (2004) and looked at each of the five dimensions (design; training; delivery; receipt; enactment) in further detail (appendix D2). For example, fidelity of enactment includes two subcomponents looking at the assessment of participants performing intervention skills and strategies used to do this.

The BCC guidance recommends using this as a checklist for scoring fidelity assessments. Each component should be rated as present, absent but should be

present or not applicable. A percentage fidelity score was calculated by taking the number of fidelity strategies reported divided by the total number of applicable strategies for each dimension (e.g. a study with three of the four applicable delivery components present/reported would score 75% for delivery fidelity). Studies received 0 if the dimension was not assessed. Fidelity scores were classified as low (less than 50%), medium (51 to 79%) and high (80 to 100%) based on an agreed consensus criteria (Borelli, 2011). An overall fidelity score was also calculated (number of components present in all five dimensions divided by the total number of applicable components across all five dimensions).

The methods used for assessing fidelity were recorded (e.g. audio/video taping, provider checklists), plus the sample in which fidelity was assessed (intervention or control), how the sample was selected, reliability and validity assessments, statistical examination of the association between fidelity and study outcomes and analysis methods i.e. for delivery, studies may have reported the percentage of components delivered compared to the manual.

The data extraction form was piloted on the criterion paper (study 6) and amended as necessary. Full data extraction for all studies was completed by the primary researcher (SB). The inter rater reliability was calculated and agreement was defined as both researchers agreeing on whether a particular aspect of the data extraction was present e.g. whether the study provided information about treatment dose.

Data synthesis

Where appropriate, quantitative data were summarised using descriptive statistics. Fidelity data analysis methods were summarised and described narratively.

Results

PRISMA diagram

The initial search yielded 616 studies and 166 duplicates were removed (n = 450) (Figure 10). The studies were filtered to include studies post 2006 (n = 400). Five studies were removed (manual search for duplicates (n = 4) and one study was not original research. All 355 papers were screened at abstract level. A second reviewer (FL) screened 10% of the 355 papers (n = 35), with 74% agreement between the two researchers. Any discrepancies were discussed until agreement was reached. 101 studies fit the eligibility criteria or were unclear and required further screening. 26 systematic review papers were removed.

The remaining 75 papers were screened at full text level and 33 studies were excluded. One study (study 8) described the findings from seven individual studies conducted within hospitals, which were treated individually. A final sample of 42 studies were included.

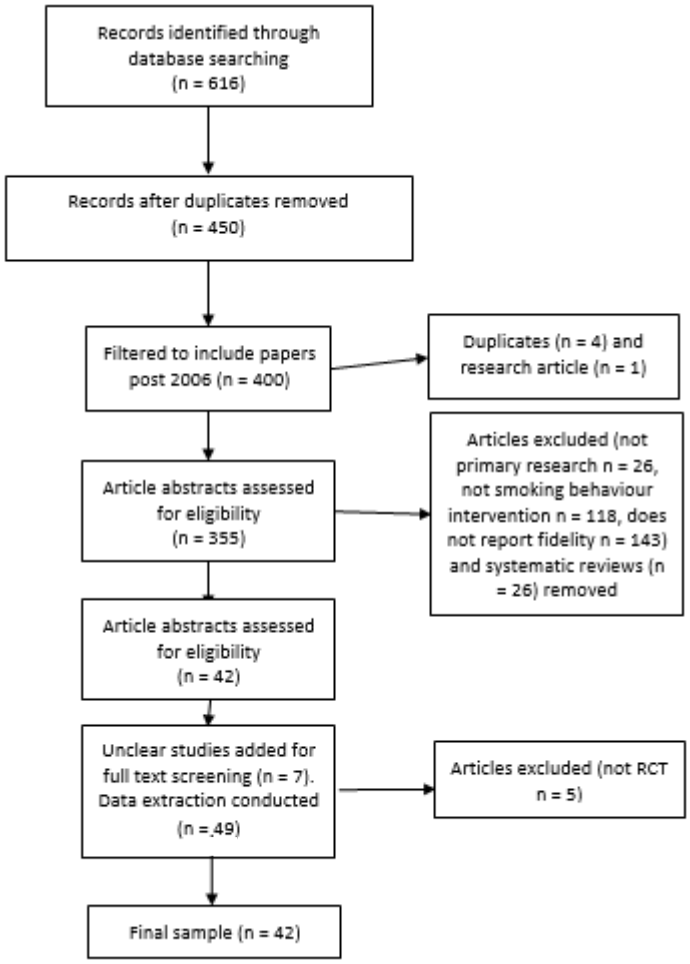

Figure 10 - PRISMA diagram showing study selection

Inter rater reliability was calculated on the data extraction for two studies (17, 23) with 82% agreement. Any discrepancies were discussed until agreement was reached.

Basic study characteristics

Table 10 outlines the summary characteristics (detailed study characteristics are in supplementary table 1). The majority of the studies were conducted in the US (n = 27, 64%). Most interventions were delivered within health settings (n = 27, 64%) and schools (n = 6, 14%). The most common intervention providers, accounting for more than half of the studies, were staff already delivering health interventions (e.g. diabetes educators) (n = 7, 17%), counsellors (n = 6, 14%), nurses (n = 5, 12%) and research staff/trained students (n = 4, 10%). The most common recipients were school pupils (n = 7, 17%) and hospital patients (n = 6, 14%). Sample sizes varied,

from 30 to 19,200 participants (average 1,554 participants). The most common mode and delivery was one-to-one/individual interventions (n = 36, 86%) and face-to-face delivery (n = 24, 57%).

Table 10 - Study characteristics

	Number of studies	Percentage of total studies (n = 42)
Country		
US	27	64
UK	5	12
Germany	4	10
Netherlands	3	7
India	1	2
Australia	1	2
Spain	1	2
Setting		
Health system	27	64
School	6	14
Community	4	10
Telephone	2	5
College	1	2
University	1	2
Leaflets	1	2
Intervention providers		
Staff delivering health interventions (e.g. diabetes educators, smoking cessation advisors)	7	17
Counsellors	6	14
Nurses	5	12
Research staff / trained students	4	10
Hospital staff (doctors, nurses, assistants etc)	3	7
Computer / web based	2	5
Teachers	2	5
Doctors	1	2
Psychologist	1	2
Health professionals	1	2
Teachers and student peer leaders	1	2
Therapist	1	2
Peer counsellors	1	2
Other school staff (drugs education officers)	1	2
Pharmacist	1	2
Health trainers	1	2
Leaflets	1	2
Unclear	3	7

Intervention recipients		
School pupils	7	17
Patients in hospital	6	14
Smokers (including those not motivated or ready to quit)	4	10
Pregnant smokers	3	7
Patients at GP surgeries	2	5
Teenagers in hospital	2	5
Nurses who smoke and primary care givers of children	1	2
Patients with Familial Hypocholesteraemia	1	2
Patients with diabetes	1	2
Smokers with attention deficit hyperactivity disorder (ADHD)	1	2
Nurses and inpatient smokers	1	2
Ethnic minority pregnant smokers	1	2
Smokers and non-smoking pairs living with a child	1	2
Ethnic minority smokers	1	2
Heavy smokers	1	2
Overweight smokers	1	2
Nurses	1	2
Cancer survivors	1	2
Adults planning to stay quit post discharge	1	2
Adults	1	2
Women recently given birth	1	2
Smokers wanting to quit	1	2
Undergraduate students	1	2
Smokers with low motivation to quit	1	2
Format		
One to one	36	86
Group	5	12
Unclear	1	2
Mode of delivery		
Face to face	24	57
Telephone	7	17
Face to face and digital	4	10
Face to face and media	3	7
Face to face and telephone	2	5
Face to face, digital and telephone	1	2
Unclear	1	2

Reporting of BCC framework dimensions

The studies were assessed for fidelity in each of the five dimensions of the framework (design, training, delivery, receipt, enactment). Table 11 shows each fidelity dimension in rank order for average fidelity score, how many components it contains and the most and least reported component. The reporting of the fidelity subcomponents within each dimension was collated in full (supplementary table 3).

The table shows enactment had the highest average fidelity score (95.2%) and training had the lowest (41.5%), indicating that enactment had the highest number of components present in studies conducting fidelity assessments.

Data was extracted on whether the studies assessed and reported the fidelity findings in each dimension (supplementary table 6). Seven studies included were protocols and so it was not possible to extract the reporting details (2-4, 6, 20, 24, 34). For design, only one study (2%, 4) assessed design but did not report the findings. For training, seven studies (16%) assessed and reported the findings (3, 7, 17, 19, 20, 29, 30). For delivery, 31 studies (74%) assessed and reported the findings. For receipt, 22 studies (52%) assessed and reported the findings. Finally, for enactment 17 studies (40%) assessed and reported the findings. The remaining studies in each dimension were unclear. This indicates that fidelity of delivery was the most commonly assessed and reported out of all five dimensions.

Table 11 - Reporting of fidelity components within each dimension, in rank order

Fidelity dimension	Average fidelity score %, (range)	Total number of components	Most reported component (n, %)	Least reported component (n, %)
Enactment	95.2% (0 – 100%)	2	Participant performance of the intervention skills will be assessed in settings in which the intervention might be applied (n = 41, 98%)	A strategy will be used to assess performance of the intervention skills in settings in which the intervention might be applied) (n = 41, 98%)
Design	52.1% (5 – 95%)	7	Information about the treatment dose in the intervention condition (n = 41, 98%)	Plans to address possible setbacks in implementation (i.e., backup systems or providers) (n = 11, 26%)
Receipt	49.1% (0 – 80%)	5	The participants' ability to perform the intervention skills being assessed during the intervention	Multicultural factors considered in the development and delivery of the intervention (e.g., provided in native

			period (n = 37, 88%)	language; protocol is consistent with the values of the target group) (n = 4, 10%)
Delivery	47.9% (0 - 77.8%)	9	The method to ensure that the content of the intervention is delivered as specified (n = 39, 93%)	Whether there was a plan for the assessment of whether or not proscribed components were delivered (e.g., components that are unnecessary or unhelpful) (n = 1, 2%)
Training	41.5% (0 – 100%)	7	Description of how providers will be trained (n = 36, 86%)	Presence of a training plan that takes into account trainees' different education and experience and learning styles (n = 1, 2%)

Table 12 shows the overall level of fidelity across all five dimensions in each study, ranked from lowest to highest scoring. The average fidelity score was 51.2% (range 14-86%), indicating that most studies reported low fidelity, as defined by Borelli (2011) (see supplementary table 2 for full results).

Table 12 - Table showing overall fidelity in studies, ranked from low to high fidelity

Study ID	Study (author/year)	OVERALL FIDELITY (% of n components present out of all possible applicable components; 43 max)
12	Duffy 2015 UAB	14.0%
5	Busch 2015	20.9%
19	Halcomb 2015	20.9%
10	Duffy 2015 MGH	23.3%
22	Johnson 2009	27.9%
18	Haas 2015	30.2%
16	Escoffery 2016	32.6%
8	Duffy 2015 KPCHR	34.9%
31	Richter 2016	34.9%

32	Schulz 2014	34.9%
13	Duffy 2015 UMMC	41.9%
15	El-Mohandes 2013	41.9%
20	Harter 2015	44.2%
41	Webb 2007	44.2%
7	Croghan 2012	46.5%
3	Broekhuizen 2010	48.8%
9	Duffy 2015 KU	48.8%
40	Varvel 2010	48.8%
42	Windsor 2014	48.8%
11	Duffy 2015 NYU	51.2%
25	McCambridge 2008	51.2%
29	Pbert, Osganian 2006	51.2%
33	Sloboda 2009	51.2%
28	Parker 2007	55.8%
30	Pbert Fletcher 2006	55.8%
39	Toll 2010	55.8%
37	Thyrian Freyer 2007	58.1%
23	Kealey 2009	60.5%
26	Mujika 2014	60.5%
27	Park 2006	60.5%
34	Spanou 2010	62.8%
14	Duffy 2015 USCD	67.4%
24	Lycett 2010	67.4%
35	Taskila 2012	67.4%
36	Taylor 2014	67.4%
38	Thyrian Freyer 2010	67.4%
1	Blaakman 2013	69.8%
6	Catley 2012	69.8%
17	Goenka 2010	69.8%
21	Horn 2008	69.8%
2	Bock 2014	83.7%
4	Buhse 2013	86.0%
	AVERAGE % (RANGE)	51.2% (14-86%)

Fidelity measurement methodology

Use of theory

Almost half the studies (n = 18, 42%) did not clearly cite the use of a theoretical framework (see table 13 for summary, full details in supplementary table 4). Motivational interviewing (MI) and Motivational Interviewing Treatment Integrity scale (MITI) were most commonly used in intervention design and to assess fidelity (MI n = 14, 20%, studies 3, 6, 19, 21, 23, 25-28, 34, 36-38, 40, MITI n = 7, 11%, studies 1, 3, 23, 25, 26, 37, 38). One study (3) used the RE AIM framework in

addition to MITI and another (15) used the fidelity protocol implementation index to assess fidelity. No studies cited the use of the BCC framework.

Table 13 - Theoretical frameworks

Theoretical framework	Number of studies (n = 42)	Percentage of total number of theories cited (n = 70)
Unclear	18	26%
MI	14	20%
MITI	7	10%
Based on interventions shown to be effective in Cochrane review	7	10%
Social cognitive theory	6	9%
Cognitive behavioural therapy	2	3%
I change model of behaviour change	2	3%
Stages of change theory	2	3%
RE AIM framework	1	1%
Fidelity protocol implementation index (PII)	1	1%
Process assessment framework	1	1%
Chronic Care Model	1	1%
Social Contextual Model for Reducing Tobacco Use	1	1%
Behaviour change taxonomy	1	1%
Control theory	1	1%
Self determination theory	1	1%
5A model recommended by the US Public Health Service clinical practice guideline and the American Academy of Paediatrics	1	1%

Data collection methods

Data collection and analysis methods were extracted (supplementary table 4 and 5, respectively). Fidelity data collection methods were not always reported, and where information was provided, methods were found to vary across and within fidelity dimensions. The most commonly used methods are shown in table 14 (full data collection methods detailed in supplementary table 4). Many studies used multiple methods. Audiotaping and provider/participant self reports were the most commonly used methods across all dimensions.

For the fidelity of design, only two studies specified using audiotaping (1, 23), in addition to a checklist in the first study and in person observation in the second. The remaining studies were unclear and it was unclear how this data was analysed. For the fidelity of training, a variety of methods were used (provider self report (studies 1, 9, 28), audiotaping (3, 34, 39), in person observation (4, 6, 9, 13, 14, 21, 23), roleplay (7,11, 17, 29, 33-35), meetings to discuss delivery (14), workshops (17), manuals (17), interviews (19, 20, 24), study provider feedback (30) and consultations (34)). Many studies used more than one method. The remaining studies were unclear. For fidelity of delivery, studies recorded fidelity data in various ways; through audiotaping (studies 1-3, 6, 7, 10, 11, 23-28, 31, 34-39), videotaping (study 4), checklists (studies 2, 8, 9, 11, 13, 15, 17, 21, 22, 26, 29, 42), interviews (studies 5, 19, 20, 24, 35, 36), in person observation (studies 6, 9, 33), supervision (studies 6-8, 27, 37-39), online programme data (studies 10, 12), protocol adherence data (14) and provider self report data (30, 33, 40). Analysis of receipt data was often in terms of verifying skills and knowledge acquisition, with the majority of studies using participant self reported questionnaires (studies 1, 2, 11, 13, 14, 21, 22, 24, 25, 27, 29, 30, 33, 34, 37, 39, 40-42) or observations (studies 1, 7). Fidelity of enactment data was often collected using self reported questionnaires (studies 2-4, 13, 14, 20-22, 24, 25, 27, 29, 30, 32-34, 37, 39, 40-42) or provider checklists (studies 9, 17). Additional detail on the precise ratings/scoring of questionnaires was not reported for receipt or enactment data.

Table 14 - Data collection methods

BCC framework dimension	Most commonly used reporting methods (n, % of total studies)
Design	Audiotaping and observation (n = 1, 2%) Audiotaping and checklist (n = 1, 2%)
Training	In person observation (n = 7, 16%) Role play (n = 5, 12%)
Delivery	Audiotaping (n = 20, 45%) Provider self report (n = 8, 17%)
Receipt	Participant self reported questionnaire (n = 19, 33%) Interviews (n = 3, 7%)
Enactment	Participants self reported questionnaire (n = 20, 45%) Interviews (n = 3, 7%)

The majority of studies assessed fidelity in the intervention group only (n = 35, 83%, studies 1-12, 15-24, 26-29, 31-35, 37-39, 40, 42). The remaining studies assessed

fidelity in the intervention and control groups (n = 7, 17%, studies 9, 13, 14, 25, 30, 36, 41). Half of the studies did not specify the proportion of their sample that fidelity was assessed in (n = 21, 50%). The remaining studies (studies 1-3, 9, 13, 16, 18, 19, 26-29, 31, 33, 35, 36, 38, 40, 41) varied from 10% (n = 3, 7%) to 100% of the sample (n = 7, 17%) (average 55%).

The majority of studies measured fidelity at multiple time points (n = 19, 45%). Nine studies measured it at the end of the intervention (21%, studies 5, 9, 15, 16, 18-21, 40), seven during the intervention (17%, studies 7, 8, 26, 28, 30, 35, 39), and one before and during the intervention (2%, study 3). It was not specified in the studies which fidelity dimensions were assessed at which time points. The majority of studies were unclear about the number of times fidelity was measured (n = 33, 79%). Four studies assessed fidelity on an on-going basis (10%, studies 2, 27, 33, 36), four once during the study (10%, studies 18-20, 23) and one assessed fidelity five times (2%, study 22).

The majority of studies were unclear about their participant sampling method for the fidelity assessment (n = 26, 62%). The remaining studies either used purposive sampling (n = 2, 5%, studies 35, 37), random sampling (n = 6, 14%, studies 1, 2, 7, 11, 23, 26) or included the whole sample (n = 8, 19%, studies 18, 19, 27, 29, 33, 36, 40, 41). Two studies (33, 38) specified they were assessing fidelity amongst intervention providers in the sessions delivered and two studies specified assessing fidelity in participant groups receiving the intervention (34, 35).

Approaches to fidelity analysis and associations with intervention outcomes

With regards to the approaches to fidelity analysis, the studies varied widely (supplementary tables 5 and 6). Methods for assessing and reporting the findings were present in each dimension as follows; design n=1 (2%), training n=7 (17%), delivery n=31 (74%), receipt n=22 (52%) and enactment n=17 (41%).

The majority of the studies did not analyse the fidelity data in any of the dimensions as they instead reported on strategies to enhance fidelity. For example, for training, in two studies (13, 30) the providers were continually trained and practised until they

were able to deliver a session with fidelity. However, the assessment methods for this was not specified. Another study (29) the nurses (providers) were required to engage in roleplay to gain certification in the intervention procedures. Finally, one study (34) provided feedback on recorded consultations. However, the nature of the feedback was unclear.

The delivery of the intervention was most commonly assessed for fidelity and the findings reported, with a staff member observing delivery of the intervention and completing a checklist of the components delivered or a self-reported checklist by intervention practitioners. The checklists were compared against intervention protocol and scores were calculated to show delivery as outlined in the intervention protocol e.g. using MITI checklists (studies 1, 3, 4, 7, 9, 11, 14, 15, 21-31, 34-39, 42). For receipt, participants were asked to complete questionnaires assessing usage and utility of intervention components in relation to their views on quitting smoking, for example (21). Questionnaires were also a commonly used method to assess enactment, e.g. using questionnaires to assess smoking reduction/quit behaviour and compare this to the fidelity of the intervention received (25). Design was rarely assessed or reported.

All the studies were unclear in reporting whether they had assessed reliability or validity. The majority of studies were unclear in whether they examined if there was an association between fidelity and study outcomes (n = 30, 71%). The remaining 12 studies (29%, studies 9, 16, 18, 22, 25, 28, 31, 32, 34, 37, 38, 42) used a variety of measures to assess this relationship. The majority of studies reported associations between participants' receptivity to intervention materials or usage of intervention components and smoking status/quit rates (studies 16, 18, 22, 28, 32, 34). Some studies explored the relationship between fidelity of delivery and a range of outcomes; one study looked at practitioners use of intervention materials in relation to quitting (34), another looked at practitioners' adherence to MI and smoking status (38), another assessed the predictive value of clients' characteristics on the practitioner's MI adherence (37) and another compared intervention conditions to study outcomes (42). The statistical analysis methodology used was not clearly stated in any of these studies, except in one study where odds ratios were calculated for reducing/quitting smoking and compared to the intervention

delivery fidelity participants received from the practitioner (25). The studies reported greater positive outcomes with greater fidelity outcomes.

Discussion

This review aimed to investigate how fidelity studies of smoking cessation have assessed for fidelity in the five dimensions of the NIH BCC fidelity framework (design; training; delivery; receipt; enactment). The review looked at the methodology and analysis approach used by studies to assess fidelity data and draw associations with the intervention outcomes.

42 studies were reviewed. The average score for reporting fidelity across all five dimensions across all the studies was 51.2% (range 14-86%) and all the studies had low or medium overall fidelity. This indicates that fidelity was poorly reported. Enactment had the highest average fidelity score and delivery was the most assessed and reported of the dimensions, with study staff completing checklists of the intervention components delivered and comparing it to the intervention protocol. This indicates that enactment had the highest number of components present but delivery was most commonly assessed and reported in studies conducting fidelity assessments. However, none of the studies specified the sample used for conducting the fidelity assessment. The five dimensions of the framework each relate to a different part of the intervention; design, training and delivery relate to the intervention providers and receipt and enactment relate to the recipients. The studies stated that fidelity was assessed in the 'intervention group only' or 'intervention and control group', so it was not possible to ascertain the exact nature of the fidelity assessment. This indicates that studies may be measuring fidelity in different aspects, but it is not routinely reported. The vast majority of studies were unclear in reporting whether there was an association between fidelity and study outcomes, indicating that when fidelity is measured it is not being interpreted with regards to the effect it has on study outcomes (i.e. helping participants to reduce/quit smoking).

Implications of findings

The fidelity of delivery analysis was reported more often and in greater detail than other dimensions. It has been argued that assessing fidelity within intervention delivery is key to furthering understanding of the relationship between the intervention, the process and the outcomes (Hardeman et al., 2011). If an intervention is deemed to be ineffective at producing the results intended, the initial

response may be to attribute that to a poorly designed intervention. However, the results may actually be due to a poor fit between the intervention design and delivery and the only way to deduce this is through assessing fidelity, known as a 'Type III error' (Barry, Domitrovich and Lara, 2005), which refers to the concept of falsely dismissing a potentially effective intervention.

However, Borelli et al. (2005) would argue it is important to assess fidelity from all aspects of the intervention process from start to finish as a way of advancing the field of research. It is key in understanding fidelity pertaining to intervention providers and the degree to which the intervention is delivered as intended and the recipients and the degree to which they have understood and been affected as intended. Fidelity assessments in smoking cessation are largely unidimensional and often focus on a single dimension of delivery. This echoes findings from other systematic reviews of fidelity assessments, such as O'Shea et al. (2016) and Lambert et al.'s (2017) review, who found delivery was the most commonly assessed domain. Fidelity of delivery is arguably a key dimension; however, it is vital to explore other dimensions on the fidelity pathway in order to be able to assess whether an intervention is effective or not and if not, which aspects of the intervention may be contributing to its ineffectiveness.

The current review resonates with findings from other fidelity reviews in that all the studies had low or medium fidelity (Dane and Schneider 1998, Borelli et al., 2005). However, the present review differs in other respects. In Borelli et al.'s (2005) review, 27% of studies reported checking study adherence against protocol. In this review a higher percentage (62%) reported using a checklist to assess whether the intervention components were delivered as intended. This increase could be attributed to the nature of the studies. Borelli et al. (2005) looked at health behaviour change interventions overall whilst this review focused on smoking cessation.

Other reviews focusing on specific aspects of the framework yielded similar results to this review. Rixon et al. (2016) found fidelity of receipt was reported infrequently, whilst Walton et al. (2017) looked at delivery and engagement with health behaviour change interventions and found it was most commonly measured. They also noted observational measures were the gold-standard methodology but that most studies used audiotaping and self report questionnaires, as was the case in this review.

Many studies also reported fidelity enhancement strategies (such as regular supervision with practitioners) rather than fidelity assessment methods across all dimensions. The framework contains both fidelity enhancement and assessment items and studies will vary in employing both. It is important to distinguish between the two strategies in order to understand whether the studies are assessing fidelity or assessing strategies that may lead to an increase in fidelity. Studies appear to be trying to enhance fidelity by considering fidelity at the study planning stages. However, this logically follows that fidelity should subsequently be assessed and reported to ascertain if the enhancement strategies increase fidelity but this review shows this is not routinely done.

Furthermore, it is important to consider the findings in the context of smoking cessation interventions. Current research shows that practitioners within the same service can have variable success rates (Brose, McEwen and West, 2012), suggesting that perhaps interventions are being implemented with variable degrees of fidelity. This is in line with findings from this review, as delivery was the most reported aspect in this review, with low fidelity overall.

Other models of fidelity have been postulated (Nelson et al., 2012, Carrol et al., 2007) but the current review highlights the utility of the BCC framework for assessing fidelity. The framework is the most comprehensive of the models and represents a fidelity pathway to outcomes.

Implications for research

The key implications emerging from this review for consideration by intervention developers and researchers are:

1. The importance of assessing and reporting details of fidelity in all stages of the intervention. This review showed most studies solely focused on delivery fidelity. Whilst this is important, the other aspects are equally important for assessing fidelity and linked outcomes.
2. The importance of clearly reporting fidelity assessment processes, such as where the fidelity sample has been drawn from. This review shows that fidelity assessment and measurement is not routinely reported and

synthesising the evidence is difficult. Others planning or conducting fidelity assessments for similar studies cannot learn from existing evidence and replicate. Inclusion of this would provide a clearer picture of fidelity in different stages of the overall process.

3. The importance of linking fidelity measures with outcomes. Only a small proportion of studies reported using checklists to score delivery, compared this against the intervention protocol to check delivery was as intended and statistically assessed fidelity measures with outcome measures. The purpose of assessing fidelity is to aid the interpretation of the outcomes and omitting this is a missed opportunity. Following similarly clear methodology from delivery across all dimensions and reporting the results demonstrates the correlation between fidelity levels and intervention outcomes.
4. The importance of distinguishing between fidelity assessment and enhancement strategies. This review shows many studies are using the latter and thus giving consideration to improve the extent to which a study is delivered with fidelity. However, a separate measure of fidelity is necessary and should logically follow to link fidelity to intervention outcomes.

Strengths and limitations

This study has a number of strengths and limitations. The use of the BCC framework has allowed for a comprehensive review of the literature using a framework that has unified previous fidelity models.

However, one limitation is the use of only published articles. Smoking cessation interventions are designed and delivered in a wide variety of settings and may well be evaluated and assessed for fidelity. They may also be assessed for cost effectiveness to ascertain feasibility in a local context. These may be published as evaluation or programme reports, which are excluded from reviews of this nature.

Furthermore, it is possible that the studies used strategies to enhance fidelity and/or assessed fidelity but did not report it. This study aimed to look at what authors report in fidelity assessments. Due to the poor reporting of this, it is possible that fidelity was assessed but it was not possible to capture in this review. The studies reviewed varied greatly in their description of the interventions. The data was

extracted with caution, with factors only being considered as present if they were made explicitly clear. The extraction was conducted on the side of caution, potentially missing some aspects.

None of the studies in the review cited the use of the BCC framework. Assessing studies on a framework upon which they are not based could arguably lead to finding that fidelity is poorly reported in this respect.

Future research

Future research could benefit from focusing on the implications for research above. Addressing these factors will ensure more accurate reporting of fidelity and subsequently a more accurate interpretation of the effectiveness of an intervention. Further research is needed to identify whether the dimensions within the framework differ in their importance and effect on intervention outcomes. For example, perhaps delivery fidelity was most commonly reported due to the ease of assessing and reporting this dimension compared to others. It would be beneficial to ascertain whether this dimension in particular is more effective in improving intervention outcomes than others. This could potentially be used to offer guidance on how to measure and report fidelity for interventions where a full scale fidelity assessment using the framework may not be feasible, such as in local authority public health settings. Furthermore, the five dimensions each have varying numbers of subcomponents within them. It is easier to score higher if there are fewer components, as the overall percentage increases quicker. Future research could look at weighting the components to allow for a more equal comparison.

Conclusions

The review highlighted that fidelity evaluations of smoking cessation interventions are not comprehensively exploring all key dimensions of fidelity. Enactment had the highest average fidelity score and delivery was the most assessed and reported of the dimensions. This indicates that enactment had the highest number of components present but delivery was most commonly assessed and reported in studies conducting fidelity assessments. There is wide variability in methodological and analytical approaches that precludes comparison and synthesis across studies. Findings have highlighted recommendations for improving fidelity evaluations and

reporting practices, such as ensuring studies are using fidelity assessments to aid interpretation of the outcomes.

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Supplementary data tables

Supplementary table 1 Study characteristics

Study ID	Study (author/year)	Country	Setting	Intervention Providers	Recipients	Total sample size (N)	Format	Mode of delivery
1	Blaakman 2013	US	Other (School)	Nurses	- Nurses who smoked at large teaching hospital in Spain - Primary care givers of smoke exposed children aged 3-10	Total: 530 Intervention group: 140 Control group: not reported	Individual (one to one)	Telephone
2	Bock 2014	US	Community	Psychologist with experience in conducting smoking cessation groups	Smokers	Total: 300 Intervention group: 150 Control group: 150	Group	Face to face
3	Broekhuizen 2010	Netherlands	Community	Computer delivered digital intervention plus Motivational Interviewing delivered in recipient homes by lifestyle coach	Participants are individuals who were diagnosed with Familial Hypercholesterolemia.	Total sample Size: 400 Intervention group: 200 Control group: 200	Individual (one to one)	Face to face Digital
4	Buhse 2013	Germany	Health System (Diabetes Clinic)	Diabetes educators	Patients with diabetes	Total sample Size: 154 Intervention group: 77 Control group: 77	Group	Face to face
5	Busch 2015	Netherlands	School	Teachers	School Pupils	Total sample Size of study: 969 Intervention group 2 schools, approx. 700 students each Control group 2 schools, approx. 700 students each	Unclear	Unclear
6	Catley 2012	US	Community	Master's level health professionals with prior training and experience using MI	Current smokers in the general population who are not currently motivated or ready to quit	Total sample Size of study: 255 Intervention group not known	Individual (one to one)	Face to face
7	Croghan 2012	US	Health System	Interventionists trained to use Smoke Free and Living It manual	Smokers with attention deficit hyperactivity disorder (ADHD)	Total 255	Individual (one to one)	Face to face

Study ID	Study (author/year)	Country	Setting	Intervention Providers	Recipients	Total sample size (N)	Format	Mode of delivery
8	Duffy 2015 KPCHR	US	Health System	Unclear	Patients in hospital	Total 900 Intervention group, 599 Control group 301	Individual (one to one)	Face to face Web
9	Duffy 2015 KU	US	Health System	Counsellors	Patients in hospital	Total 1054	Individual (one to one)	Face to face
10	Duffy 2015 MGH	US	Health System	Unclear	Patients in hospital	Total 529	Individual (one to one)	Face to face Web
11	Duffy 2015 NYU	US	Health System	Counsellors	Patients in hospital	Total 1619 Intervention group 805 Control group 814	Individual (one to one)	Face to face
12	Duffy 2015 UAB	US	Health System	Counsellor	Patients	Total 1488 Intervention group 748 Control group 740	Individual (one to one)	Face to face Web Telephone
13	Duffy 2015 UMMC	US	Health System	Hospital nurses	Nurses and inpatient smokers	Intervention group 1528	Individual (one to one)	Face to face
14	Duffy 2015 USCD	US	Health System	Quitline staff	Inpatient smokers	Total 1270	Individual (one to one)	Face to face
15	El-Mohandes 2013	US	Health System	Unclear	30 weeks pregnant women self-identified as an ethnic minority, smoker with a desire to quit.	Total sample Size: 52 Intervention group: 26 Control group: 26	Individual (one to one)	Face to face
16	Escoffery 2016	US	Other (Telephone)	Research staff	Smokers and non smokers (a combination of at least one smoker and one non-smoker in the home (including children))	Total sample Size: 498 Intervention group: 249 Control group: 249	Individual (one to one)	Telephone
17	Goenka 2010	India	Other (School)	Teachers and student peer leaders	Pupils	Total sample size 16 schools with 5564 students	Group	Other (Poster)
18	Haas 2015	US	Health System	Tobacco treatment specialists	Smokers who described their race and/or ethnicity as black, Hispanic, or white	Total sample Size of study: 8544 Intervention group 4436 Control group 4108	Individual (one to one)	Telephone

Study ID	Study (author/year)	Country	Setting	Intervention Providers	Recipients	Total sample size (N)	Format	Mode of delivery
19	Halcomb 2015	Australia	Health System	Practice nurse	Patients at GP surgeries	Total sample Size of study: 101 practices with 2390 patients Intervention group 876 Control group 678, quitline 836	Individual (one to one)	Face to face
20	Harter 2015	Germany	Health System	Doctors	Heavy smokers (smoke at least 20 cigarettes per day) and/or suffer from COPD or cardiovascular disease.	Total sample Size of study: 800 patients across 40 surgeries Intervention group 800	Individual (one to one)	Face to face
21	Horn 2008	US (West Virginia)	Health System	Trained adult professionals	Teen participants were patients 14 to 19 years old who came to the emergency department for care for any reason during a 2-year period (2002-2004). Teens were eligible for the intervention if they reported smoking on 1 or more days in the preceding 30 days	Total sample Size of study: 76 Intervention group 40 Control group 34	Individual (one to one)	Face to face
22	Johnson 2009	US	Other (High School)	Teachers	10 schools with 9th grade students	Total sample Size of study 20 schools Intervention group 10 schools, 4763 students Control group 10 schools, students not reported	Group	Face to face School media campaign and teachers also spoke to them
23	Kealey 2009	US	Health System	Counselors	School pupils	Intervention 25 experimental schools, 948 pupils Control group 330	Individual (one to one)	Telephone
24	Lycett 2010	UK	Health System	Trained practice nurses.	Overweight (BMI > 25 Kg/m2) smokers	Total sample Size of study: 90 (30 per group in three arms) Intervention group 30 Control group 30	Individual (one to one)	Face to face

Study ID	Study (author/year)	Country	Setting	Intervention Providers	Recipients	Total sample size (N)	Format	Mode of delivery
25	McCambridge 2008	UK	College	Researcher practitioners	Students aged 16–19 who used cannabis at least weekly	Total sample Size: 270 Intervention group: 135 Control group: 135	Individual (one to one)	Face to face
26	Mujika 2014	Spain	Health system	Therapist	Smoking nurses who worked at a university hospital	Total 30, Intervention group 15 Control group 15	Individual (one to one)	Face to face
27	Park 2006	US	Health System (Cancer Institute)	Peer counselors (childhood cancer survivors)	Childhood cancer survivors who were current smokers	Total sample Size: 796 Intervention group: 398 Control group: 398	Individual (one to one)	Telephone
28	Parker 2007	US	Health System	Trained counsellors	Female smoker no more than 26 weeks pregnant	Total sample Size of study: 1065 Intervention group two groups, 329 and 358. Results here for 358 Control group 378	Individual (one to one)	Face to face Telephone
29	Pbert, Osganian 2006	US	Other (School)	School nurses	All adolescents in participating high schools who reported using tobacco on at least 1 day in the past 30 days and were interested in quitting in the next 2 weeks	Total sample Size: 1148 Intervention group 571 Control group 577	Individual (one to one)	Face to face
30	Pbert Fletcher 2006	US	Health System (Paediatric Unit)	Hospital staff (48 pediatricians, 10 nurse practitioners, 1 physician assistant, and 2 pediatric residents)	Adolescents patients 13 to 17 years of age regardless of smoking status	Total sample Size of study: 2710	Individual (one to one)	Face to face
31	Richter 2016	US	Health System	Quitline staff	Adult patients planning to stay quit post-discharge	Total sample Size of study: 1054 Intervention group 527 Control group 527	Individual (one to one)	Telephone
32	Schulz 2014	Netherlands	Community	Web-based computer-tailored program	Adults with internet access	Total sample Size of study: 4833 Intervention group 1828, 1765 Control group 1797	Individual (one to one)	Web

Study ID	Study (author/year)	Country	Setting	Intervention Providers	Recipients	Total sample size (N)	Format	Mode of delivery
33	Sloboda 2009	US	Other (School)	School Drug Abuse Resistance Education (D.A.R.E.) officers.	Pupils	Total sample Size of study: 19,200 pupils Intervention: 11,118 Control: 8082	Group	Face to face
34	Spanou 2010	UK	Health System	One GP and one practice nurse per surgery	GP patients	Total sample Size of study: 1104 with 24 practices recruiting 46 patients	Individual (one to one)	Face to face
35	Taskila 2012	UK	Health System	Pharmacists who work for NHS stop smoking services	Adult daily smokers who smoke at least 10 cigarettes or 8 g of loose tobacco as “roll up” cigarettes daily and don’t intend to stop in the next month, but are prepared to reduce their consumption with any of the programmes offered.	Total sample Size of study: 160 (ESTIMATED SAMPLE SIZE, THIS IS PROTOCOL)	Individual (one to one)	Face to face
36	Taylor 2014	UK	Health System	Health Trainers	Adult smokers smoking at least 10 cigarettes per day (and had done so for at least 2 years), did not want to quit in the next month and did not wish to use NRT to reduce smoking	Total sample Size of study: 99 Intervention group 49 Control group 50	Individual (one to one)	Face to face Telephone
37	Thyrian Freyer 2007	Germany	Health System (Maternity Ward of Hospitals)	Counselors (trained experts in MI)	Women who indicated that they had smoked prior to pregnancy	Total sample Size of study: 869 Intervention group 418 Control group 451	Individual (one to one)	Face to face
38	Thyrian Freyer 2010	Germany	Health System	Graduate students trained in MI	Women who had recently given birth at maternity ward who smoked.	Total sample Size of study: 84	Individual (one to one)	Face to face
39	Toll 2010	US	Telephone Smoking Cessation	Smokers’ Quitline staff	Smoker seeking support to quit	Total sample Size of study: 2032 Intervention group 810 Control group 1222	Individual (one to one)	Telephone
40	Varvel 2010	US	Other (University setting)	Lay health advisors LHAs (students and members of community)	Undergraduate students	Total sample Size of study: 118 Intervention group 118	Individual (one to one)	Face to face

Study ID	Study (author/year)	Country	Setting	Intervention Providers	Recipients	Total sample size (N)	Format	Mode of delivery
41	Webb 2007	US	Other (Leaflets)	NA, intervention involved providing leaflets	Smokers with low to moderate motivation to quit	Total sample Size of study: N standard/no prime (n 77), the standard/ prime (n 70), the placebo tailoring/no prime (n 73), or the placebo tailoring/prime (n 69)	Individual (one to one)	Other (Leaflets)
42	Windsor 2014	US	Health System	Designated Care Coordinators (DCC) who are nurses and social workers	Pregnant women	Total sample Size of study: 518 Intervention group 259 Control group 259	Individual (one to one)	Face to face

Supplementary table 2 Reporting of BCC framework dimensions Ranked from low to high overall fidelity

Study ID	Study (author/year)	Fidelity of Design (% of n components present out of all possible applicable components; 20 max)	Fidelity of Training (% of n components present out of all possible applicable components; 7 max)	Fidelity of Delivery (% of n components present out of all possible applicable components; 9 max)	Fidelity of Receipt (% of n components present out of all possible applicable components; 5 max)	Fidelity of Enactment (% of n components present out of all possible applicable components; 2 max)	OVERALL (% of n components present out of all possible applicable components; 43 max)
12	Duffy 2015 UAB	20.0%	14.3%	11.1%	0.0%	0.0%	14.0%
5	Busch 2015	10.0%	14.3%	22.2%	40.0%	100.0%	20.9%
19	Halcomb 2015	30.0%	28.6%	11.1%	0.0%	0.0%	20.9%
10	Duffy 2015 MGH	15.0%	14.3%	33.3%	20.0%	100.0%	23.3%
22	Johnson 2009	5.0%	28.6%	44.4%	60.0%	100.0%	27.9%
18	Haas 2015	40.0%	0.0%	0.0%	60.0%	100.0%	30.2%
16	Escoffery 2016	35.0%	0.0%	33.3%	40.0%	100.0%	32.6%
8	Duffy 2015 KPCHR	25.0%	28.6%	44.4%	40.0%	100.0%	34.9%
31	Richter 2016	40.0%	0.0%	33.3%	40.0%	100.0%	34.9%
32	Schulz 2014	40.0%	0.0%	33.3%	40.0%	100.0%	34.9%
13	Duffy 2015 UMMC	30.0%	42.9%	55.6%	40.0%	100.0%	41.9%
15	El-Mohandes 2013	50.0%	14.3%	33.3%	40.0%	100.0%	41.9%
20	Harter 2015	35.0%	28.6%	55.6%	60.0%	100.0%	44.2%
41	Webb 2007	60.0%	0.0%	33.3%	40.0%	100.0%	44.2%
7	Croghan 2012	30.0%	57.1%	55.6%	60.0%	100.0%	46.5%
3	Broekhuizen 2010	45.0%	42.9%	33.3%	80.0%	100.0%	48.8%
9	Duffy 2015 KU	50.0%	28.6%	55.6%	40.0%	100.0%	48.8%
40	Varvel 2010	40.0%	42.9%	55.6%	60.0%	100.0%	48.8%
42	Windsor 2014	35.0%	57.1%	66.7%	40.0%	100.0%	48.8%
11	Duffy 2015 NYU	55.0%	57.1%	55.6%	0.0%	100.0%	51.2%
25	McCambridge 2008	60.0%	14.3%	44.4%	60.0%	100.0%	51.2%
29	Pbert, Osganian 2006	50.0%	28.6%	55.6%	60.0%	100.0%	51.2%
33	Sloboda 2009	50.0%	71.4%	55.6%	0.0%	100.0%	51.2%
28	Parker 2007	55.0%	42.9%	55.6%	60.0%	100.0%	55.8%
30	Pbert Fletcher 2006	50.0%	71.4%	33.3%	80.0%	100.0%	55.8%
39	Toll 2010	55.0%	57.1%	55.6%	40.0%	100.0%	55.8%
37	Thyrian Freyer 2007	75.0%	14.3%	44.4%	60.0%	100.0%	58.1%
23	Kealey 2009	55.0%	71.4%	55.6%	60.0%	100.0%	60.5%
26	Mujika 2014	55.0%	57.1%	55.6%	80.0%	100.0%	60.5%
27	Park 2006	55.0%	57.1%	55.6%	80.0%	100.0%	60.5%

Study ID	Study (author/year)	Fidelity of Design (% of n components present out of all possible applicable components; 20 max)	Fidelity of Training (% of n components present out of all possible applicable components; 7 max)	Fidelity of Delivery (% of n components present out of all possible applicable components; 9 max)	Fidelity of Receipt (% of n components present out of all possible applicable components; 5 max)	Fidelity of Enactment (% of n components present out of all possible applicable components; 2 max)	OVERALL (% of n components present out of all possible applicable components; 43 max)
34	Spanou 2010	70.0%	57.1%	55.6%	40.0%	100.0%	62.8%
14	Duffy 2015 USCD	80.0%	42.9%	66.7%	40.0%	100.0%	67.4%
24	Lycett 2010	75.0%	57.1%	44.4%	80.0%	100.0%	67.4%
35	Taskila 2012	65.0%	71.4%	66.7%	60.0%	100.0%	67.4%
36	Taylor 2014	65.0%	71.4%	66.7%	60.0%	100.0%	67.4%
38	Thyrian Freyer 2010	65.0%	71.4%	66.7%	60.0%	100.0%	67.4%
1	Blaakman 2013	80.0%	57.1%	55.6%	60.0%	100.0%	69.8%
6	Catley 2012	85.0%	71.4%	55.6%	20.0%	100.0%	69.8%
17	Goenka 2010	85.0%	57.1%	55.6%	40.0%	100.0%	69.8%
21	Horn 2008	90.0%	28.6%	44.4%	80.0%	100.0%	69.8%
2	Bock 2014	95.0%	71.4%	77.8%	60.0%	100.0%	83.7%
4	Buhse 2013	85.0%	100.0%	77.8%	80.0%	100.0%	86.0%
	AVERAGE % (RANGE)	52.1% (5-95%)	41.5% (0-100%)	47.9% (0-77.8%)	49.1% (0-80%)	95.2% (0-100%)	51.2% (14-86%)

Supplementary table 3 Reporting of individual BCC framework dimensions

BCC Framework dimensions	Studies assessed for which applicable (n)	Studies assessed for which applicable (%)
Treatment Design		
1. Provide information about treatment dose in the intervention condition	41	98%
a) Length of contact (minutes)	25	60%
b) Number of contacts	36	86%
c) Content of treatment	41	98%
d) Duration of contact over time	35	83%
2. Provide information about treatment dose in the comparison condition	23	55%
a) Length of contact (minutes)	9	21%
b) Number of contacts	13	31%
c) Content of treatment	18	43%
d) Duration of contact over time	15	36%
e) Method to ensure that dose is equivalent between conditions.	9	21%
f) Method to ensure that dose is equivalent for participants within conditions	7	17%
3. Specification of provider credentials that are needed.	29	69%
4. Theoretical model upon which the intervention is based is clearly articulated	24	57%
a) The active ingredients are specified and incorporated into the intervention	24	57%
b) Use of experts or protocol review group to determine whether the intervention protocol reflects the underlying theoretical model or clinical guidelines	13	31%
c) Plan to ensure that the measures reflect the hypothesized theoretical constructs/mechanisms of action	19	45%
5. Potential confounders that limit the ability to make conclusions at the end of the trial are identified.	36	86%
6. Plan to address possible setbacks in implementation (i.e., backup systems or providers)	11	26%

7. If more than one intervention is described, all described equally well	15	36%
Training Providers		
1. Description of how providers will be trained (manual of training procedures)	36	86%
2. Standardization of provider training (especially if multiple waves of training are needed for multiple groups of providers).	18	43%
3. Assessment of provider skill acquisition.	25	60%
4. Assessment and monitoring of provider skill maintenance over time	21	50%
5. Characteristics being sought in a treatment provider are articulated a priori. Characteristics that should be avoided in a treatment provider are articulated a priori.	16	38%
6. At the hiring stage, assessment of whether or not there is a good fit between the provider and the intervention (e.g., ensure that providers find the intervention acceptable, credible, and potentially efficacious	5	12%
7. There is a training plan that takes into account trainees' different education and experience and learning styles.	1	2%
Delivery of Treatment		
1. Method to ensure that the content of the intervention is delivered as specified.	39	93%
2. Method to ensure that the dose of the intervention is delivered as specified.	35	83%
3. Mechanism to assess if the provider actually adhered to the intervention plan or in the case of computer delivered interventions, method to assess participants' contact with the information.	37	88%
4. Assessment of nonspecific treatment effects.	2	5%
5. Use of treatment manual.	23	55%
6. There is a plan for the assessment of whether or not the active ingredients were delivered.	35	83%
7. There is a plan for the assessment of whether or not proscribed components were delivered. (e.g., components that are unnecessary or unhelpful)	1	2%
8. There is a plan for how will contamination between conditions be prevented	9	21%
9. There is an a priori specification of treatment fidelity (e.g., providers adhere to delivering >80% of components).	4	10%
Receipt of Treatment		

1. There is an assessment of the degree to which participants understood the intervention.	36	86%
2. There are specification of strategies that will be used to improve participant comprehension of the intervention. This is about tactics they may have used to ensure participants acquire knowledge and skills, such as practice during the intervention session, reminders etc	14	33%
3. The participants' ability to perform the intervention skills will be assessed during the intervention period.	37	88%
4. A strategy will be used to improve subject performance of intervention skills during the intervention period.	14	33%
5. Multicultural factors considered in the development and delivery of the intervention (e.g., provided in native language; protocol is consistent with the values of the target group).	4	10%
Enactment of Treatment Skills		
1. Participant performance of the intervention skills will be assessed in settings in which the intervention might be applied.	41	98%
2. A strategy will be used to assess performance of the intervention skills in settings in which the intervention might be applied.	41	98%

Supplementary table 4 Fidelity measurement methodology

Study ID	Study author/year	Theoretical framework cited (fidelity or health psychology theory)	Data collection method(s)					Fidelity assessment sample	What proportion of sample was fidelity assessed in?	When in relation to intervention?	How many times was fidelity measured?	How was fidelity sample selected?
			Design	Training	Delivery	Receipt	Enactment					
1	Blaakman 2013	Motivational Interviewing Treatment Integrity for delivery	Audiotaping, Checklist	Provider self-report (checklist)	Audiotaping	In person observation, Telephone Calls	In person observation, Telephone Calls	Intervention group only (recipients and providers)	20%	Unclear	Unclear	Randomly
2	Bock 2014	Yes Health Psychology CBT and SCT for the design and delivery of the smoking cessation intervention	Unclear	Unclear	Audiotaping, Nurses completed intervention checklists for 100% of MI sessions	Participant self-reported questionnaire Other - interviews with p	Participant self-reported questionnaire Other - Interviews with p	Intervention group only (recipients and providers)	20%	Multiple time points	Ongoing, quarterly	Randomly
3	Broekhuizen 2010	Fidelity I-Change model of behaviour change, MI and MITI to assess fidelity and RE AIM framework for intervention fidelity	Unclear	Audiotaping	Audiotaping	Participant self-reported questionnaire	Participant self-reported questionnaire	Intervention group only (recipients and providers)	100%	Before and During the intervention	Unclear	Unclear
4	Buhse 2013	No	Unclear	In-person observation	Videotaping	Unclear	Participant self-reported questionnaire	Intervention group only (recipients and providers)	Unclear	Multiple time points	Unclear	Unclear

Study ID	Study author/year	Theoretical framework cited (fidelity or health psychology theory)	Data collection method(s)					Fidelity assessment sample	What proportion of sample was fidelity assessed in?	When in relation to intervention?	How many times was fidelity measured?	How was fidelity sample selected?
			Design	Training	Delivery	Receipt	Enactment					
5	Busch 2015	No	Unclear	Unclear	Interviews	Unclear	Unclear	Intervention group only (recipients and providers)	Unclear	At the end of the study only	Unclear	Unclear
6	Catley 2012	MI	Unclear	In-person observation	Audiotaping In-person observation Supervision	Unclear	Unclear	Intervention group only (recipients and providers)	Unclear	Multiple time points	Unclear	Unclear
7	Croghan 2012	No	Unclear	Roleplay	Audiotaping Supervision	In-person observation	In-person observation	Intervention group only (recipients and providers)	Unclear	During the intervention	Unclear	Randomly
8	Duffy 2015 KPCHR	No - Based on interventions shown to be effective in Cochrane review	Unclear	Unclear	Provider self-report (checklist), Supervision	Data on p. use of online programme	Data on p. use of online programme	Intervention group only (recipients and providers)	Unclear	During the intervention	Unclear	Unclear
9	Duffy 2015 KU	No - Based on interventions shown to be effective in Cochrane review	Unclear	Provider self-report (checklist) In-person observation	In person observation, checklist	Collected Data On Calls	Provider self-report (checklist)	Intervention and Control group (recipients and providers)	Intervention 57% Control 51%	At the end of the study only	Unclear	Unclear
10	Duffy 2015 MGH	No - Based on interventions shown to be effective in Cochrane review	Unclear	Unclear	Audiotaping, Online Programme Data Collected	Online Programme Data Collected	Unclear	Intervention group only (recipients and providers)	Unclear	Unclear	Unclear	Unclear

Study ID	Study author/year	Theoretical framework cited (fidelity or health psychology theory)	Data collection method(s)					Fidelity assessment sample	What proportion of sample was fidelity assessed in?	When in relation to intervention?	How many times was fidelity measured?	How was fidelity sample selected?
			Design	Training	Delivery	Receipt	Enactment					
11	Duffy 2015 NYU	No - Based on interventions shown to be effective in Cochrane review	Unclear	Roleplay	Audiotaping Provider self-report checklist	Participant self-reported questionnaire	Unclear	Intervention group only (recipients and providers)	Unclear	Multiple time points	Unclear	Randomly
12	Duffy 2015 UAB	No - Based on interventions shown to be effective in Cochrane review	Unclear	Unclear	Website Tracked Usage Data	Website Tracked Usage Data	Unclear	Intervention group only (recipients and providers)	Unclear	Unclear	Unclear	Unclear
13	Duffy 2015 UMMC	No - Based on interventions shown to be effective in Cochrane review	Unclear	In-person observation	Provider self-report (checklist) Participant self-reported questionnaire	Participant self-reported questionnaire	Participant self-reported questionnaire	Intervention and Control group (recipients and providers)	11% (140 Nurses)	Multiple time points	Unclear	Unclear
14	Duffy 2015 USCD	No - Based on interventions shown to be effective in Cochrane review	Unclear	In-person observation Biweekly meetings to discuss delivery	Protocol adherence data collected	Participant self-reported questionnaire	Participant self-reported questionnaire	Intervention and Control group (recipients and providers)	Unclear	Multiple time points	Unclear	Unclear
15	El-Mohandes 2013	Fidelity protocol implementation index (PII)	Unclear	Unclear	PII checklist used unclear who recorded data	Salivary cotinine levels and urine analysis	Unclear	Intervention group only (recipients and providers)	Unclear	At the end of the study only	Unclear	Unclear
16	Escoffery 2016	social cognitive theory and	Unclear	Unclear	Unclear	Interviews	Interviews	Intervention group only (recipients	192 of 227 p 85%	At the end of the study only	Unclear	Unclear

Study ID	Study author/year	Theoretical framework cited (fidelity or health psychology theory)	Data collection method(s)					Fidelity assessment sample	What proportion of sample was fidelity assessed in?	When in relation to intervention?	How many times was fidelity measured?	How was fidelity sample selected?
			Design	Training	Delivery	Receipt	Enactment					
		stages of change						and providers)				
17	Goenka 2010	social cognitive theory, process assessment framework	Unclear	Workshops, manuals, role plays	Provider self-report (checklist) In person observation	Unclear	Provider self-report (checklist) In person observation	Intervention group only (recipients and providers)	Unclear	Multiple time points	Unclear	Unclear
18	Haas 2015	Chronic Care Model and the Social Contextual Model for Reducing Tobacco Use	Unclear	Unclear	Unclear	Unclear	Interviews	Intervention group only (recipients and providers)	100%	At the end of the study only	Once	All included
19	Halcomb 2015	MI	Unclear	Interviews with staff	Interviews with staff	Unclear	Unclear	Intervention group only (recipients and providers)	100%	At the end of the study only	Once	All included
20	Harter 2015	Unclear	Unclear	Interviews	Interviews	Interviews	Participant self-reported questionnaire	Intervention group only (recipients and providers)	Unclear	At the end of the study only	Once	Unclear
21	Horn 2008	MI	Unclear	In-person observation	Provider self-reported questionnaire	Participant self-reported questionnaire	Participant self-reported questionnaire	Intervention group only (recipients and providers)	Unclear	At the end of the study only	Unclear	Unclear
22	Johnson 2009	No	Unclear	Unclear	Participant self-reported questionnaire	Participant self-reported questionnaire	Participant self-reported questionnaire	Intervention group only (recipients	Unclear	Multiple time points	5	Unclear

Study ID	Study author/year	Theoretical framework cited (fidelity or health psychology theory)	Data collection method(s)					Fidelity assessment sample	What proportion of sample was fidelity assessed in?	When in relation to intervention?	How many times was fidelity measured?	How was fidelity sample selected?
			Design	Training	Delivery	Receipt	Enactment					
								and providers)				
23	Kealey 2009	Social cognitive theory with MI and CBT principles combined, Motivational Interviewing Treatment Integrity (MITI) Code	Audiotaping In person observation	In person observation	Audiotaping	Unclear	Unclear	Intervention group only (recipients and providers)	Unclear	Multiple time points	Once at end	Randomly
24	Lycett 2010	Behaviour change taxonomy, design, delivery, enactment, receipt	Unclear	Interview	Audiotaping Interview	Participant self-reported questionnaire, Co2 Measures	Participant self-reported questionnaire	Intervention group only (recipients and providers)	Unclear	Multiple time points	Unclear	Unclear
25	McCambridge 2008	Motivational interviewing, MITI for fidelity	Unclear	Unclear	Audiotaping	Participant self-reported questionnaire	Participant self-reported questionnaire	Intervention and control group (recipients and providers)	Unclear	Unclear	Unclear	Unclear
26	Mujika 2014	Motivational interviewing, MITI for fidelity	Unclear	Unclear	Audiotaping Provider self-report (checklist)	Unclear	Unclear	Intervention group only (recipients and providers)	20%	During the intervention	Unclear	Randomly
27	Park 2006	Motivational interviewing	Unclear	Unclear	Audiotaping, Supervision	Participant self-reported	Participant self-reported	Intervention group only	10%	Multiple time points	Ongoing	All included

Study ID	Study author/year	Theoretical framework cited (fidelity or health psychology theory)	Data collection method(s)					Fidelity assessment sample	What proportion of sample was fidelity assessed in?	When in relation to intervention?	How many times was fidelity measured?	How was fidelity sample selected?
			Design	Training	Delivery	Receipt	Enactment					
						questionnaire Bogus Pipeline Procedure	questionnaire	(recipients and providers)				
28	Parker 2007	Motivational interviewing - design	Unclear	Provider self-report	Audiotaping	Salivary cotinine levels	Unclear	Intervention group only (recipients and providers)	10%	During the intervention	Unclear	Unclear
29	Pbert, Osganian 2006	Social cognitive theory, design Stages of change theory, receipt	Unclear	Role play	Provider self-report (checklist) Participant self-reported questionnaire	Participant self-reported questionnaire	Participant self-reported questionnaire	Intervention group only (recipients and providers)	100%	Multiple time points	Unclear	All included
30	Pbert Fletcher 2006	5A model recommended by the US Public Health Service clinical practice guideline and the American Academy of Pediatrics. Design	Unclear	Study provider gave feedback, used checklist	Provider self-report	Participant self-reported questionnaire interviews & biochemical validation	Participant self-reported questionnaire interviews & biochemical validation	Intervention and control group (recipients and providers)	Unclear	During the intervention	Unclear	Unclear
31	Richter 2016	No	Unclear	Unclear	Audiotaping	Unclear	Unclear	Intervention group only (recipients and providers)	10%	Unclear	Unclear	Unclear

Study ID	Study author/year	Theoretical framework cited (fidelity or health psychology theory)	Data collection method(s)					Fidelity assessment sample	What proportion of sample was fidelity assessed in?	When in relation to intervention?	How many times was fidelity measured?	How was fidelity sample selected?
			Design	Training	Delivery	Receipt	Enactment					
32	Schulz 2014	I-Change model	Unclear	Unclear	Unclear	Length of time spent on website accessing online content	Participant self-reported questionnaire	Intervention group only (recipients and providers)	Unclear	Multiple time points	Unclear	Unclear
33	Sloboda 2009	No	Unclear	Role play	Participant self-reported questionnaire In-person observation	Participant self-reported questionnaire	Participant self-reported questionnaire	Intervention group only (recipients and providers)	20% of the lessons (two of 10 lessons) in seventh grade and 28% of the lessons (two of seven lessons) in ninth grade	Multiple time points	Each instructor was observed 4 times in each observation year.	All included
34	Spanou 2010	Used MI principles and other psychology theories to create their own bcc framework	Unclear	Audiotaping, role play, consultations	Audiotaping	Participant self-reported questionnaire	Participant self-reported questionnaire	Intervention group only (recipients and providers)	Intervention N 15 participants, control N 15 participants, total N of each group unclear	Unclear	Unclear	Unclear
35	Taskila 2012	No	Unclear	Role play	Audiotaping, interviews	Unclear	Unclear	Intervention group only (recipients and providers)	Approx. 26 p	During the intervention	Unclear	Purposive

Study ID	Study author/year	Theoretical framework cited (fidelity or health psychology theory)	Data collection method(s)					Fidelity assessment sample	What proportion of sample was fidelity assessed in?	When in relation to intervention?	How many times was fidelity measured?	How was fidelity sample selected?
			Design	Training	Delivery	Receipt	Enactment					
36	Taylor 2014	Motivational interviewing and self-determination theory (SDT), social cognitive theory and control theory	Unclear	Unclear	Audiotaping, interviews with health trainers	Interviews with participants	Interviews with participants	Intervention and control group (recipients and providers)	100%	Multiple time points	A sample of four participants for each of the three health trainers (12 participants in total) were selected to provide examples from early, late and in the middle of the study period	All included
37	Thyrian Freyer 2007	Transtheoretical model (stages of change), design MI, MITI, delivery	Unclear	Unclear	Audiotaping, Supervision	Participant self-reported questionnaire	Participant self-reported questionnaire	Intervention group only (recipients and providers)	Unclear	Multiple time points	Unclear	Purposive
38	Thyrian Freyer 2010	MI, MITI	Unclear	Unclear	Audiotaping, Supervision	Unclear	Unclear	Intervention group only (recipients and providers)	54% of session were taped (161 of 299) and 84 taped sessions	Multiple time points	Unclear	Unclear

Study ID	Study author/year	Theoretical framework cited (fidelity or health psychology theory)	Data collection method(s)					Fidelity assessment sample	What proportion of sample was fidelity assessed in?	When in relation to intervention?	How many times was fidelity measured?	How was fidelity sample selected?
			Design	Training	Delivery	Receipt	Enactment					
									used (52.1%)			
39	Toll 2010	No	Unclear	Audiotaping	Audiotaping, Supervision	Participant self-reported questionnaire	Participant self-reported questionnaire	Intervention group only (recipients and providers)	Unclear	During the intervention	Unclear	Unclear
40	Varvel 2010	MI, design	Unclear	Unclear	Provider self-report	Participant self-reported questionnaire	Participant self-reported questionnaire	Intervention group only (recipients and providers)	100%	At the end of the study only	Unclear	All included
41	Webb 2007	No	Unclear	Unclear	Unclear	Participant self-reported questionnaire	Participant self-reported questionnaire	Intervention and control group (recipients and providers)	100%	Multiple time points	Unclear	All included
42	Windsor 2014	No	Unclear	In person observation, supervision	Provider self-report (checklist)	Provider self-report (checklist), Biological Measures	Provider self-report (checklist), Biological Measures	Intervention group only (recipients and providers)	Unclear	Multiple time points	Unclear	Unclear

Supplementary table 5 Analysis of fidelity data

Study ID	Study (author/year)	How was fidelity data analysed / synthesised?				
		Design	**Training**	**Delivery**	**Receipt**	**Enactment**
1	Blaakman 2013	NA	NA	20% of tapes were reviewed for fidelity, assessed with MITI scores.	Questionnaire to assess whether p. understood effects of second hand smoke on family	Questionnaire to assess whether p. understood what changes they could make to reduce SHS effects and intention to quit
2	Bock 2014			Not reported		
3	Broekhuizen 2010		MITI scores for sessions	MITI scores for sessions delivered		
4	Buhse 2013	Unclear	Providers practise counselling under supervision of a research fellow and subsequent feedback.	Video taped sessions examined to assess adherence to the counselling protocol. deviations from curriculum (duration, material use, content, didactics) were documented	Questionnaire used to assess knowledge of heart attack prevention strategies	Unclear
5	Busch 2015			Interviews to assess if components were delivered (rated succeeded, failed or neutral)		
6	Catley 2012			Adherence to protocols for MI etc		
7	Croghan 2012			Looked at % of sessions that were considered adherent to the training, interventionist must have successfully met 6 of 7 of the counseling skills criteria	Participants monitored for adherence with ratings on attendance, homework completion and participation in topic being discussed.	
8	Duffy 2015 KPCHR			Checklist to assess percentage of patients receiving info they should have according to protocol	Counselor documented consultation topics discussed with patient, assisted referral acceptance and referrals, and discharge medication orders.	Utilisation of quit resources documented at 6-month follow-up and electronic medical records where available
9	Duffy 2015 KU		Unclear	Trainers observed counselors' delivery and recorded how well it was delivered	Counselor documentation and self-report at follow-up assessing if p received quit	Counseling adherence data was collected from the quitline documenting the

Study ID	Study (author/year)	How was fidelity data analysed / synthesised?				
		Design	**Training**	**Delivery**	**Receipt**	**Enactment**
					line services or other tobacco treatment	number of calls p completed
10	Duffy 2015 MGH			Medication delivered and number of calls delivered		Unclear
11	Duffy 2015 NYU		Counselors had weekly supervision with clinical supervisor	Number and duration of counselling calls recorded, success in reaching participants, NRT orders and topics covered. Calls were reviewed and assessed for adherence to the protocol and counseling approach.	2-month follow-up surveys assessed patient satisfaction with treatment	Counselor documentation and 2-month patient follow-up surveys
12	Duffy 2015 UAB			Website tracked p registrations and log-ins. Subset of p were surveyed	Website tracked messages sent to and from the counselor	The website tracked participants' web-site log-ins, number of days website accessed, and number of web pages visited
13	Duffy 2015 UMMC		Trained trainers until they demonstrated fidelity	Unclear	Unclear	Unclear
14	Duffy 2015 USCD			Reports were generated to show protocol adherence data. Timing, length, and frequency of counseling calls was recorded	Monitoring quitline counseling database, patch delivery, and self-report at follow-up regarding receipt and use of patches, quitline or other treatment	Unclear
15	El-Mohandes 2013			Number of sessions delivered to participants and protocol implementation index score		
16	Escoffery 2016				Questionnaire used to assess receptivity to intervention materials compared to smoking status	
17	Goenka 2010		Training feedback form assessing teacher's satisfaction with the program and materials.	Checklist showing which components were delivered: activities, postcard and poster tracking sheets	Questionnaires assessing enjoyment/participation of Posters, Games, Worksheets, Discussion, Wrap-up, absorption while playing the games;	

Study ID	Study (author/year)	How was fidelity data analysed / synthesised?				
		Design	**Training**	**Delivery**	**Receipt**	**Enactment**
					Proportion of the students in each class participating in the discussion.	
18	Haas 2015				Frequency of use of each intervention component assessed	
19	Halcomb 2015		Interviews looking at usefulness of training in delivery	Interviews looking at experience of delivery		
20	Harter 2015		Interviews looking at usefulness of training in delivery	Interviews to assess which intervention components they delivered, barriers and facilitators to this		
21	Horn 2008			Providers used MTI assessment form to self-rate delivery, this was compared to manual	Questionnaires assessing usage of and usefulness of intervention components in relation to views on quitting	Questionnaires assessing acceptability of intervention components and whether quitting goals set
22	Johnson 2009			Providers were observed and completed checklist highlighting delivery of key components	Questionnaire assessing which intervention activities students had accessed	Questionnaire assessing prevalence of smoking in students in last 7 days and last 30 days, compared this data with control schools
23	Kealey 2009			Clinical supervision provided by clinical psychologists. Selected audio recordings of counseling calls reviewed. Counts of MI-specific behaviors, the mean number of MI-relevant behaviors per call, SD and range calculate. Summary scores calculate to assess treatment fidelity by comparing to established benchmarks for MI quality		
24	Lycett 2010			Audio tapes of consultations assessed for fidelity to protocol and record keeping		

Study ID	Study (author/year)	How was fidelity data analysed / synthesised?				
		Design	**Training**	**Delivery**	**Receipt**	**Enactment**
				assessed and monitored against protocol every few months. Deviations are recorded, discussed and corrected.		
25	McCambridge 2008			Percentage MITI summary scores were compared with recommended standards	Used questionnaire to assess understanding of harms of smoking, calculated odds ratios for reducing / quitting smoking compared to the fidelity of intervention they received from practitioner	Used questionnaire to assess reduction / quit behaviour, calculated odds ratios for reducing / quitting smoking compared to the fidelity of intervention they received from practitioner
26	Mujika 2014			Summary scores and global assessment scores were evaluated against established benchmarks for MI quality		
27	Park 2006			Compared delivery according to MI principles but didn't report findings	Compared number of counselling calls received compared to smoking related outcome (e.g. smoking status, number of quit attempts)	Compared number of counselling calls received compared to smoking related outcome (e.g. smoking status, number of quit attempts)
28	Parker 2007			Coded audiotapes of calls for presence of MI techniques and had supervision with MI expert		Cotinine-confirmed smoking status compared to number of phone calls received
29	Pbert, Osganian 2006		Role play by nurses to attain certification on intervention procedures	Questionnaire for nurses to assess what they delivered, compared to extent intervention was implemented according to the protocol	Questionnaire for students to self-report on content of sessions and number attended, compared this to intervention protocol	Questionnaire for students to self report abstinence and assessed in relation to number of sessions attended
30	Pbert Fletcher 2006		Providers practised intervention with director until provider could complete the intervention protocol	Patient report of intervention received, as assessed with patient exit interview to assess whether specific intervention steps were used. Scored out of 10 points (the PEI index score).	Questionnaire to assess confidence in ability to stop smoking (smokers) or remain smoke-free (nonsmokers)	Biochemical validation, The modified Fagerstrom Tolerance Questionnaire, The Hooked on Nicotine Checklist (HONC)
31	Richter 2016			Research staff assessed fidelity using intervention		

Study ID	Study (author/year)	How was fidelity data analysed / synthesised?				
		Design	**Training**	**Delivery**	**Receipt**	**Enactment**
				checklist, calculated percentage of steps conducted correctly within each study arm, and reported performance back to quit line.		
32	Schulz 2014				Questionnaire ratings on satisfaction with intervention. Length of time spent on website assessed in relation to lifestyle risk factors score	Assessed exposure to intervention (total number of visits and time spent on website) in relation to behavioural outcomes for smoking
33	Sloboda 2009		Role play. At the end of training, officers were asked to complete an anonymous training assessment form which measured the extent to which they were ready to teach the curriculum.	Content items present in intervention were added together and divided by the total number of activities to be covered, producing the proportion of activities covered for each lesson		
34	Spanou 2010		Feedback given on recorded consultations	Feedback given on recorded consultations		
35	Taskila 2012			Record some consultations and analyse content against schedule of proposed content		
36	Taylor 2014			Compared content delivered to manual, mean scores	Acceptability and feasibility of intervention to participants	Acceptability and feasibility of intervention to participants
37	Thyrian Freyer 2007			Weekly group supervisions held to maintain and ensure adherence to study protocol	Follow up calls with p to assess smoking status	Follow up calls with p to assess smoking status
38	Thyrian Freyer 2010			Providers had supervision once or fortnightly, scored the sessions for adherence to MI principles using MITI		
39	Toll 2010			Weekly supervisions intended to help ensure a high level of adherence to the protocol, including written and verbal feedback		

Study ID	Study (author/year)	How was fidelity data analysed / synthesised?				
		Design	Training	Delivery	Receipt	Enactment
40	Varvel 2010			Questionnaire completed by lay health advisors to find out their experience of taking part.	Questionnaire completed by students to find out their experience of taking part	Questionnaire completed by students to find out their experience of taking part
41	Webb 2007				Measured p expectations of intervention delivery and satisfaction, assessed intervention conditions in relation to applicability to their life, confidence about future cessation, whether it changed smoking opinion and effect on intentions to quit	Measured p expectations of intervention delivery and satisfaction, measured readiness to quit with regards to the different conditions of intervention
42	Windsor 2014			Rated delivery against intervention delivery document, percentage score	Questionnaire asking about smoking habits and how useful they found SCRIPT, compared intervention conditions to study outcomes (smoke free homes, CO confirmed quit)	CO and salivary cotinine measures for participants, compared intervention conditions to study outcomes (smoke free homes, CO confirmed quit)

Supplementary table 6 Approaches to fidelity analysis and associations with intervention outcomes

Study ID	Study (author/year)	Reliability or validity assessed	Sub-group analyses (i.e. variation in fidelity according to different factors)	Association between fidelity and study outcomes examined	Fidelity findings assessed and reported? (√ = reported, x = not reported, N = not assessed)				
					Design	Training	Delivery	Receipt	Enactment
1	Blaakman 2013	Unclear	Unclear	Unclear	N	N	√	√	√
2	Bock 2014	Unclear	Unclear	Unclear	N	N	N	N	N
3	Broekhuizen 2010	Unclear	Unclear	Unclear	N	√	√	√	√
4	Buhse 2013	Unclear	Unclear	Unclear	X	X	X	X	X
5	Busch 2015	Unclear	Unclear	Unclear	N	N	√	N	N
6	Catley 2012	Unclear	Unclear	Unclear	N	N	√	N	N
7	Croghan 2012	Unclear	Unclear	Unclear	N	√	√	√	N
8	Duffy 2015 KPCHR	Unclear	Unclear	Unclear	N	N	√	X	X
9	Duffy 2015 KU	Unclear	Unclear	Yes but methods unclear	N	X	√	√	√
10	Duffy 2015 MGH	Unclear	Unclear	Unclear	N	N	√	N	X
11	Duffy 2015 NYU	Unclear	Unclear	Unclear	N	X	√	√	√
12	Duffy 2015 UAB	Unclear	Unclear	Unclear	N	N	X	√	X
13	Duffy 2015 UMMC	Unclear	Unclear	Unclear	N	X	X	X	X
14	Duffy 2015 USCD	Unclear	Unclear	Unclear	N	X	√	√	X
15	El-Mohandes 2013	Unclear	Unclear	Unclear	N	N	√	N	N
16	Escoffery 2016	Unclear	Unclear	Yes looked at receptivity to materials compared to smoking status	N	N	N	√	X
17	Goenka 2010	Unclear	Unclear	Unclear	N	√	√	√	N
18	Haas 2015	Unclear	Unclear	Yes (Examined use of each intervention component (i.e., speaking to the TTS, receiving NRT, request or use of a community referral) and whether use of a specific	N	N	N	√	N

Study ID	Study (author/year)	Reliability or validity assessed	Sub-group analyses (i.e. variation in fidelity according to different factors)	Association between fidelity and study outcomes examined	Fidelity findings assessed and reported? (√ = reported, x = not reported, N = not assessed)				
					Design	Training	Delivery	Receipt	Enactment
				component of the intervention was associated with quitting)					
19	Halcomb 2015	Unclear	Unclear	Unclear	N	√	√	N	N
20	Harter 2015	Unclear	Unclear	Unclear	N	√	√	N	N
21	Horn 2008	Unclear	Unclear	Unclear	N	X	√	√	√
22	Johnson 2009	Unclear	Unclear	Yes (correlation between attendance at activities and the receipt of intervention by students)	N	N	√	√	√
23	Kealey 2009	Unclear	Unclear	Unclear	N	N	√	N	N
24	Lycett 2010	Unclear	Unclear	Unclear	N	N	√	N	N
25	McCambridge 2008	Unclear	Unclear	Yes, looked at delivery fidelity per individual practitioner compared to number of p reducing / quitting smoking	N	N	√	√	√
26	Mujika 2014	Unclear	Unclear	Unclear	N	N	√	N	N
27	Park 2006	Unclear	Unclear	Unclear	N	N	√	√	√
28	Parker 2007	Unclear	Unclear	Yes, cotinine-confirmed smoking status compared to number of phone calls received	N	N	√	N	√
29	Pbert, Osganian 2006	Unclear	Unclear	Unclear	N	√	√	√	√
30	Pbert Fletcher 2006	Unclear	Unclear	Unclear	N	√	√	√	√
31	Richter 2016	Unclear	Unclear	Yes, conducted cost-effectiveness analysis (incremental cost-effectiveness ratio) to evaluate the added cost per additional (1) enrollee in quitline and (2) quitter for warm handoff versus fax referral. An	N	N	X	N	N

Study ID	Study (author/year)	Reliability or validity assessed	Sub-group analyses (i.e. variation in fidelity according to different factors)	Association between fidelity and study outcomes examined	Fidelity findings assessed and reported? (√ = reported, x = not reported, N = not assessed)				
					Design	Training	Delivery	Receipt	Enactment
				incremental cost-effectiveness ratio demonstrates the additional cost needed to achieve a better outcome when an intervention is more expensive and more effective.					
32	Schulz 2014	Unclear	Unclear	Yes, assessed exposure to intervention (total number of visits and time spent on website) in relation to behavioural outcomes for smoking	N	N	N	√	√
33	Sloboda 2009	Unclear	Unclear	Unclear	N	X	√	X	X
34	Spanou 2010	Unclear	Unclear	Yes, intend to examine participation in the seminars and use of software supported learning. Will map the clinicians' use of the system (how often they log in, which pages they use) in relation to the primary outcome.	N	X	X	N	N
35	Taskila 2012	Unclear	Unclear	Unclear	N	N	X	N	N
36	Taylor 2014	Unclear	Unclear	Unclear	N	N	√	√	√
37	Thyrian Freyer 2007	Unclear	Unclear	Yes, assessed predictive value of clients' characteristics on the counselers' MI-adherence with participant characteristics	N	X	√	√	√
38	Thyrian Freyer 2010	Unclear	Unclear	Yes, relationship between adherence to MI and smoking status after six months analysed	N	N	√	N	N
39	Toll 2010	Unclear	Unclear	Unclear	N	N	√	N	N

Study ID	Study (author/year)	Reliability or validity assessed	Sub-group analyses (i.e. variation in fidelity according to different factors)	Association between fidelity and study outcomes examined	Fidelity findings assessed and reported? (√ = reported, x = not reported, N = not assessed)				
					Design	Training	Delivery	Receipt	Enactment
40	Varvel 2010	Unclear	Unclear	Unclear	N	N	√	√	√
41	Webb 2007	Unclear	Unclear	Unclear	N	N	N	√	√
42	Windsor 2014	Unclear	Unclear	Compared intervention conditions to study outcomes (smoke free homes, CO confirmed quit)	N	X	√	√	√
				Total n of studies (% of total studies)	1 (2%)	7 (16.6%)	31 (73.8%)	22 (52.4%)	17 (40.5%)

Appendices

D1 Data extraction form

NAME and YEAR Data extraction sheet

Study title		**Reference unique No.**		**Page number**
Year, First Author		**Data extractor**	SB	
Journal Details				
Included in study? **Pre extraction screening check**	**Check exclusion criteria prior to proceeding:** **(1) English language?** **Checked** ☒ **(2) Published since 2006?** **Checked** ☒ **(3) A smoking cessation behaviour change intervention?** **Checked** ☒ Can include shisha/water pipe/ second hand smoke **(4) Study reports assessment of intervention fidelity?** **Checked** ☒ **(5) Presents data on intervention fidelity?** **Checked** ☒			
Research question / aim (s)	Extract aims/ research questions verbatim			
Study design	**Country**			

Participants (intervention, controls)	**Setting (Intervention Delivered):** Health system (1) ☐ Community (2) ☐ Work Place (3) ☐ Other (4) ☐ Please specify:	
	RCT: ☐ **Type (e.g. cluster RCT):** **Unclear:** ☐	
	Intervention Provider description: (extract as free text) **Intervention Recipients:** (description)	
	Total sample Size of study: N **Intervention group N** **Control group N**	
	Target outcome: extract description, including time point at which outcomes were assessed (intervention / smoking cessation related outcomes)	
	Mode of Delivery (mark all those that apply): Group (**1**) ☐ Individual (one to one) (**2**) ☐ Unclear (**3**) ☐ Not reported (**4**) ☐	

	Mode of delivery 2 (mark all those that apply): Face to face (**1**) ☐ web (**2**) ☐ telephone (**3**) ☐ Mobile (**4**) ☐ other (**5**) ☐ not sure (**6**) ☐		
	How did the authors define fidelity?		
Summary of study results/ Conclusion	**Headline finding about fidelity:** (What did they find, was fidelity good or poor? Brief summary about fidelity findings)	**Overall conclusion:** (overall finding about whether or not the intervention was effective)	

BCC checklist Categorise it by Present (P), Absent but should be present (ASP), NA or Unclear (U) Absent but should be present: this criterion is applicable to this type of study but isn't reported	**Treatment Design** 1. Provide information about treatment dose in the intervention condition a) Length of contact (minutes) b) Number of contacts c) Content of treatment d) Duration of contact over time 2. Provide information about treatment dose in the comparison condition a) Length of contact (minutes) b) Number of contacts c) Content of treatment d) Duration of contact over time e) Method to ensure that dose is equivalent between conditions. f) Method to ensure that dose is equivalent for participants within conditions 3. Specification of provider credentials that are needed. 4. Theoretical model upon which the intervention is based is clearly articulated a) The active ingredients are specified and incorporated into the intervention b) Use of experts or protocol review group to determine whether the intervention protocol reflects the underlying theoretical model or clinical guidelines c) Plan to ensure that the measures reflect the hypothesized theoretical constructs/mechanisms of action 5. Potential confounders that limit the ability to make conclusions at the end of the trial are identified. 6. Plan to address possible setbacks in implementation (i.e., backup systems or providers) 7. If more than one intervention is described, all described equally well Overall score: Look at the % of treatment design factors that are present/ absent but should be present/ NA/ unclear and score low/ med / high

	% score for present: Low ☐ Medium ☐ High ☐

	Training Providers 1. Description of how providers will be trained (manual of training procedures) 2. Standardization of provider training (especially if multiple waves of training are needed for multiple groups of providers). 3. Assessment of provider skill acquisition. 4. Assessment and monitoring of provider skill maintenance over time 5. Characteristics being sought in a treatment provider are articulated a priori. Characteristics that should be avoided in a treatment provider are articulated a priori. 6. At the hiring stage, assessment of whether or not there is a good fit between the provider and the intervention (e.g., ensure that providers find the intervention acceptable, credible, and potentially efficacious 7. There is a training plan that takes into account trainees' different education and experience and learning styles. Overall score: Look at the % of treatment design factors that are present/ absent but should be present/ NA/ unclear and score low/ med / high % score for present: Low ☐ Medium ☐ High ☐

	Delivery of Treatment 1. Method to ensure that the content of the intervention is delivered as specified. 2. Method to ensure that the dose of the intervention is delivered as specified. 3. Mechanism to assess if the provider actually adhered to the intervention plan or in the case of computer delivered interventions, method to assess participants' contact with the information. 4. Assessment of nonspecific treatment effects. 5. Use of treatment manual. 6. There is a plan for the assessment of whether or not the active ingredients were delivered. 7. There is a plan for the assessment of whether or not proscribed components were delivered. (e.g., components that are unnecessary or unhelpful) 8. There is a plan for how will contamination between conditions be prevented 9. There is an a priori specification of treatment fidelity (e.g., providers adhere to delivering >80% of components). This is about whether the authors specified ahead of their analysis what an acceptable level of fidelity would be, in their opinion or based on the literature. For example, if 50% of their manual was delivered would they consider this good or bad? What is the minimum requirement etc? Overall score: Look at the % of treatment design factors that are present/ absent but should be present/ NA/ unclear and score low/ med / high % score for present: Low ☐ Medium ☐ High ☐	

	Receipt of Treatment 1. There is an assessment of the degree to which participants understood the intervention. 2. There are specification of strategies that will be used to improve participant comprehension of the intervention. This is about tactics they may have used to ensure participants acquire knowledge and skills, such as practice during the intervention session, reminders etc.… 3. The participants' ability to perform the intervention skills will be assessed during the intervention period. 4. A strategy will be used to improve subject performance of intervention skills during the intervention period. 5. Multicultural factors considered in the development and delivery of the intervention (e.g., provided in native language; protocol is consistent with the values of the target group). Overall score: Look at the % of treatment design factors that are present/ absent but should be present/ NA/ unclear and score low/ med / high % score for present: Low ☐ Medium ☐ High ☐	

	Enactment of Treatment Skills 1. Participant performance of the intervention skills will be assessed in settings in which the intervention might be applied. 2. A strategy will be used to assess performance of the intervention skills in settings in which the intervention might be applied. Overall score: Look at the % of treatment design factors that are present/ absent but should be present/ NA/ unclear and score low/ med / high % score for present: Low ☐ Medium ☐ High ☐	

Methods used to assess fidelity (as reported by authors)	**Do the authors cite a theory/model?** Yes **(1)** ☐ No **(2)** ☐ Fidelity ☐ Health Psychology ☐ What parts of the fidelity dimensions is the theory/model linked to? (e.g. design) Extract theory/model name	

Methods used to assess fidelity (this refers to detail around what tools were used to assess each dimension)	**Design:**	**Data collection method? (tick all that apply):** Audiotaping (**1**) ☐ Videotaping (**2**) ☐ Provider self-report (checklist) (**3**) ☐ Participant self-reported questionnaire (**4**) ☐ Documentary **(5)** ☐	

		In person observation **(6)** ☐ Other (**7**) ☐ Not reported (**8**) ☐ Not sure/unclear (**9**) ☐	
	Training providers:	**Data collection method? (tick all that apply):** Audiotaping (**1**) ☐ Videotaping (**2**) ☐ Provider self-report (checklist) (**3**) ☐ Participant self-reported questionnaire (**4**) ☐ Documentary **(5)** ☐ In person observation **(6)** ☐ Other (**7**) ☐ Not reported (**8**) ☐ Not sure/unclear (**9**) ☐	
	Delivery:	**Data collection method? (tick all that apply):** Audiotaping (**1**) ☐ Videotaping (**2**) ☐ Provider self-report (checklist) (**3**) ☐ Participant self-reported questionnaire (**4**) ☐ Documentary **(5)** ☐ In person observation **(6)** ☐ Other (**7**) ☐ Not reported (**8**) ☐ Not sure/unclear (**9**) ☐	
	Enactment:	**Data collection method? (tick all that apply):**	

		Audiotaping (**1**) ☐ Videotaping (**2**) ☐ Provider self-report (checklist) (**3**) ☐ Participant self-reported questionnaire (**4**) ☐ Documentary **(5)** ☐ In person observation **(6)** ☐ Other (**7**) ☐ Not reported (**8**) ☐ Not sure/unclear (**9**) ☐	
	Receipt:	**Data collection method? (tick all that apply):** Audiotaping (**1**) ☐ Videotaping (**2**) ☐ Provider self-report (checklist) (**3**) ☐ Participant self-reported questionnaire (**4**) ☐ Documentary **(5)** ☐ In person observation **(6)** ☐ Other (**7**) ☐ Not reported (**8**) ☐ Not sure/unclear (**9**) ☐	

Analysis and interpretation?	**Fidelity assessed in:** Intervention group only (**1**) ☐ Control group only (**2**) ☐ Intervention and control group (**3**) ☐ Not clear/ not reported (**4**) ☐	
	What proportion of sample was fidelity assessed in? **Intervention** (from the study): _____%	

	Control (from the study): _____% Not sure/unclear or not reported (**1**) ☐	
	When in relation to the intervention? At the end of the study only **(1)** ☐ Before **(2)** ☐ During the intervention **(3)** ☐ Multiple time points **(4)** ☐ Not clear/ not reported 5) ☐	
	How many times was fidelity measured? (e.g. the authors might say we observed five sessions in each school, = 5x, or only one session etc, or fidelity each month over 6 month period etc) _____ Not clear/ not reported **(1)** ☐	
	How were the fidelity assessment sample selected? All included **(1)** ☐ Randomly **(2)** ☐ Purposive **(3)** ☐ Other **(4)** ☐ Not clear/not reported **(5)** ☐ Please specify:	
	Was reliability or validity assessed? Reliability assessment Yes **(1)** ☐ Not clear/ not reported **(2)** ☐ If yes, please specify:	
	Do the authors report fidelity findings? Tick box only if it was assessed and reported Treatment design Assessed ☐ Reported ☐	

	Training providers Assessed ☐ Reported ☐ Delivery Assessed ☐ Reported ☐ Receipt Assessed ☐ Reported ☐ Enactment Assessed ☐ Reported ☐	
	Was fidelity examined according to different factors or groups? Yes **(1)** ☐ Not clear/ not reported **(2)** ☐ If yes, please specify:	
	Did authors statistically examine the association between observed levels of intervention fidelity and study outcomes? (add details of how was it assessed, for what types of fidelity) Yes **(1)** ☐ Not clear/ not reported **(2)** ☐	
	How was fidelity data analysed / synthesised? How did they analyse and interpret the data they collected? Copy and paste e.g. delivery, percentage of BCTs actually delivered compared to what was stated in manual Treatment design Training providers Delivery Receipt	

	Enactment	
Comments		

D2 Full BCC framework checklist

BCC Framework dimensions

Treatment Design

1. Provide information about treatment dose in the intervention condition
a) Length of contact (minutes)
b) Number of contacts
c) Content of treatment
d) Duration of contact over time
2. Provide information about treatment dose in the comparison condition
a) Length of contact (minutes)
b) Number of contacts
c) Content of treatment
d) Duration of contact over time
e) Method to ensure that dose is equivalent between conditions.
f) Method to ensure that dose is equivalent for participants within conditions
3. Specification of provider credentials that are needed.
4. Theoretical model upon which the intervention is based is clearly articulated
a) The active ingredients are specified and incorporated into the intervention
b) Use of experts or protocol review group to determine whether the intervention protocol reflects the underlying theoretical model or clinical guidelines
c) Plan to ensure that the measures reflect the hypothesized theoretical constructs/mechanisms of action
5. Potential confounders that limit the ability to make conclusions at the end of the trial are identified.
6. Plan to address possible setbacks in implementation (i.e., backup systems or providers)
7. If more than one intervention is described, all described equally well

Training Providers

1. Description of how providers will be trained (manual of training procedures)
2. Standardization of provider training (especially if multiple waves of training are needed for multiple groups of providers).
3. Assessment of provider skill acquisition.
4. Assessment and monitoring of provider skill maintenance over time
5. Characteristics being sought in a treatment provider are articulated a priori. Characteristics that should be avoided in a treatment provider are articulated a priori.
6. At the hiring stage, assessment of whether or not there is a good fit between the provider and the intervention (e.g., ensure that providers find the intervention acceptable, credible, and potentially efficacious
7. There is a training plan that takes into account trainees' different education and experience and learning styles.

Delivery of Treatment

1. Method to ensure that the content of the intervention is delivered as specified.
2. Method to ensure that the dose of the intervention is delivered as specified.
3. Mechanism to assess if the provider actually adhered to the intervention plan or in the case of computer delivered interventions, method to assess participants' contact with the information.
4. Assessment of nonspecific treatment effects.
5. Use of treatment manual.
6. There is a plan for the assessment of whether or not the active ingredients were delivered.
7. There is a plan for the assessment of whether or not proscribed components were delivered. (e.g., components that are unnecessary or unhelpful)
8. There is a plan for how will contamination between conditions be prevented
9. There is an a priori specification of treatment fidelity (e.g., providers adhere to delivering >80% of components).

Receipt of Treatment

1. There is an assessment of the degree to which participants understood the intervention.
2. There are specification of strategies that will be used to improve participant comprehension of the intervention. This is about tactics they may have used to ensure participants acquire knowledge and skills, such as practice during the intervention session, reminders etc
3. The participants' ability to perform the intervention skills will be assessed during the intervention period.
4. A strategy will be used to improve subject performance of intervention skills during the intervention period.
5. Multicultural factors considered in the development and delivery of the intervention (e.g., provided in native language; protocol is consistent with the values of the target group).

Enactment of Treatment Skills

1. Participant performance of the intervention skills will be assessed in settings in which the intervention might be applied.
2. A strategy will be used to assess performance of the intervention skills in settings in which the intervention might be applied.