

**Tackling alcohol misuse within the dental
healthcare setting: how does dentistry deal
with such a public health issue and how can we
improve on this response?**

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Philosophy.


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Declaration

This work has not been submitted in substance for any other degree or award at this or any other university or place of learning, nor is being submitted concurrently in candidature for any degree or other award.

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“I think it would be useful because if you go to your doctors and they say certain parts of your lifestyle could cause problems in the future then that would sort of be that’s relevant so if your dentist said your teeth may be fine now but if you carry on drinking this amount this could potentially happen then it’s sort of prevention rather than a cure and obviously preventive advice is good so I would sort of say it would be good advice.”

NHS patient at a general dental practice, male, aged 25-35 years

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Summary

Introduction

Dental professionals have opportunities to advise patients on harms associated with alcohol misuse. However, it is not known how this might be undertaken or whether advice in dental settings is effective.

Methods

This thesis complies with the first three stages of the Medical Research Council's framework for the design of interventions to improve health. The first theoretical stage comprises a systematic literature search. The second Phase I/modelling stage comprises qualitative research, using thematic analysis, to determine barriers to brief alcohol interventions (BAIs) in dental settings. The third stage consists of a Phase II exploratory randomised controlled trial. 106 out of 2300 patients were recruited over eight weeks from a South Wales dental practice and screened for alcohol misuse. 47 patients scored positive for misuse; 26 were randomised to an intervention group, 21 to control conditions.

Findings

The literature identified a paucity of research on BAI effectiveness in primary dental care settings. It identified motivational interviewing (MI) as an effective intervention in secondary dental care and the Modified-Single Alcohol Screening Question (M-SASQ) as a reliable screening tool. Qualitative research identified evidence of dissonance between the views of dental professionals and patients. Dental professionals felt alcohol misuse prevention was not relevant to their role, whereas patients felt it should be part of dental care. In the exploratory trial, there was some evidence that there is potential for patients to be screened and treated for alcohol misuse in a primary dental care setting. However, recruitment and retention rates were poor. As a result, there was not enough definite evidence to conclude whether it was truly feasible to screen and treat patients for alcohol misuse in a general dental practice setting.

Conclusions

Further work is needed before a Phase III definitive trial can be designed. In particular, methods in improving recruitment and retention rates need to be explored.

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Abbreviations

AUDIT	Alcohol Use Disorders Identification Test
BAIs	Brief Alcohol Interventions
BDA	British Dental Association
CBT	Cognitive Behavioural Therapy
CONSORT	Consolidated Standards of Reporting Trials
DH	Department of Health
FAST	Fast Alcohol Screening Test
FGDP(UK)	Faculty of General Dental Practice UK
GDC	General Dental Council
GDPs	General Dental Practitioners
GDS/CDS	General Dental Service/Community Dental Service
GLS	General Lifestyle Survey
HSE	Health Survey of England
IS	Interview Schedule
ISRCTN	International Standard Randomised Controlled Trial Number
MAST	Michigan Alcohol Screening Test
MI	Motivational Interviewing
MRC	Medical Research Council
M-SASQ	Modified-Single Alcohol Screening Question
NHS	National Health Service
NICE	National Institute for health and Care Excellence
NNT	Numbers Needed to Treat
ONS	Opinions and Lifestyle Survey
PHE	Public Health England
PHW	Public Health Wales
RCGP	Royal College of General Practitioners
SIPS	Screening and Intervention Programme for Sensible drinking
TIDieR	Template for Intervention Description and Replication
UDAs	Units of Dental Activity
UK	United Kingdom
WHO	World Health Organisation
WHS	Welsh Health Survey

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1 Background Literature

1.1 Introduction

This chapter contains six sections. The first section examines the evidence that alcohol misuse is a problem in the United Kingdom (UK). The second section specifies how people who engage in alcohol misuse can be identified and treated. The third section highlights the potential role of dental healthcare professionals in tackling alcohol misuse amongst their patients. The fourth section explores the key concepts to consider with regards to behaviour change in dental settings and has particular focus on the Social Ecological Model and the Medical Research Council's (MRC) framework for the development and evaluation of randomised controlled trials for complex interventions to improve health. The final section of this chapter discusses the main conclusions drawn from the literature that have helped to inform this thesis.

1.2 Alcohol misuse in the United Kingdom

1.2.1 *The United Kingdom and its alcohol culture*

Since the 1950s, alcohol consumption in the UK has more than doubled, with the rate of increase particularly noticeable during the early 1990s and reaching a peak in 2004 (Institute of Alcohol Studies 2013a). Whilst there has been a decline in consumption since 2004, possibly owing to periods of slow economic activity, overall the average levels of alcohol consumption amongst British adults has remained high (Institute of Alcohol Studies 2013a). For example, the Institute of Alcohol Studies reported the average per capita consumption of alcohol per year in 1950 was 3.9 litres per head, peaking at approximately 11.5 litres per head in 2004 and decreasing only slightly to 10 to 11 litres per head in 2013 (Institute of Alcohol Studies 2013a).

In 2013, it was estimated that approximately 60 to 65% of British adults (aged 16 years and above) drank alcohol (Health and Social Care Information Centre 2014). The reasons for this high percentage are likely attributed to alcohol being relatively affordable and widely available in the UK (Institute of Alcohol Studies 2013a). British adults are currently able, in the context of licensing legislation, to buy and consume alcohol in public houses, bars, restaurants, hotels, nightclubs, as well as being able to purchase it from off licences, supermarkets and convenience stores (Institute of

Alcohol Studies 2013a). In parts of Great Britain, where shops are open for 24 hours, people can also obtain alcohol at any time of the day or night. For many people, the regular consumption of alcohol has become central to their social and even home life (Lee 2013; Bingham 2015). In addition, drinking large quantities of alcohol and in the pursuit of intoxication has become culturally acceptable in the UK (Alcohol Concern and Balance North East 2012). However, the regular and excessive consumption of alcohol is a form of misuse, which can have numerous health and social implications.

1.2.2 **Definitions of alcohol misuse and drinking guidelines**

Alcohol misuse is the term used to describe the regular and excessive consumption of alcohol. The World Health Organisation (WHO) formally defines the term as “*drinking alcohol to a high level each day or each week, drinking repeatedly to intoxication and drinking that causes physical and/or mental harm*” (World Health Organisation 2001).

Current UK guidelines and recommendations from the Department of Health (DH) for the safe consumption of alcohol are no more than three to four units per day for males and no more than two to three units per day for females (Department of Health 2012a). The Royal College of Physicians recommend that men should not consume more than 21 units per week and women no more than 14 units per week (Henderson 2015). However, in 2016, the UK chief medical officer stated that this recommendation should be changed to no more than 14 units per week for both men and women (Department of Health 2016). The term unit is used in these guidelines to express the quantity of pure alcohol within a drink. A single unit is eight grams or 10ml of ethanol (e.g. half a pint of normal strength beer, half a 175ml glass of average strength wine, or a single 25ml measure of spirits) (NHS Choices 2013). The DH also recommends that two days each week should be alcohol-free (Department of Health 2012a).

Alcohol misuse encompasses the terms:

- *hazardous drinking* - defined as drinking that puts people at an increased risk of health problems, which for men is regularly drinking five units per day and for women three units per day (Public Health Wales Observatory 2014).

- *harmful drinking* - defined as a pattern of drinking that causes damage to the physical or mental health of a person and is diagnosed if this harm is evident in the user (Public Health Wales Observatory 2014).
- *binge drinking* - defined as drinking to get drunk, consuming on one occasion over eight units or more for men and six units or more for women during a short period in time, which can cause immediate risk to the individual and the people around them (Public Health Wales Observatory 2014).

The term alcohol misuse should not be confused with the term alcohol dependency, where an individual has a compulsive urge to consume alcohol, suffering from symptoms of withdrawal if they do not consume an alcoholic drink (National Institute for Health and Care Excellence 2010a). However, since alcohol misuse can lead to dependence, it is important to identify individuals who consume alcohol in hazardous or harmful ways.

1.2.3 **Prevalence of alcohol misuse in the United Kingdom**

The 2012 Opinions and Lifestyle Survey (ONS) (Figure 1.1) highlight that alcohol misuse is a common problem across England, Wales and Scotland, with 51% of adults in England, 63% in Scotland and 55% in Wales drinking above recommended daily guidelines (Public Health Wales Observatory 2014). The 2014 Welsh Health Survey (WHS) suggests that, in Wales, this proportion is closer to 40% among adults (Statistics for Wales 2015).



Figure 1.1: Prevalence of alcohol consumption across England, Wales and Scotland (Source: 2012 ONS survey taken from Public Health Wales Observatory (2014)).

Definitions: Heavy (binge) drinking is defined as consuming eight units and six units for men and women respectively over a short period of time to gain intoxication during one drinking session in the past week, whilst very heavy drinking is defined here as males consuming over 12 units and females over nine units on their heaviest drinking day in the past week.

There is also evidence that heavy drinking is prevalent amongst both adult men and women. The 2011 Health Survey of England (HSE), demonstrated that, of those surveyed, 56% of men and 52% of women who drank alcohol in the previous week had exceeded the recommended daily limits on at least one day (Health Survey of England 2011). It was also found that 31% of men and 25% of women were drinking more than twice the recommended limit on at least one day in the week (Health Survey of England 2011). The General Lifestyle Survey (GLS), which includes a broader sample across England, Wales and Scotland, generated findings consistent with HSEs findings. In 2010, the GLS reported that 36% of men and 28% of women exceeded recommended daily limits (General Lifestyle Survey 2010).

Both the HSE and GLS show that heavy drinking is also prevalent across age groups in the UK. The age group most likely to drink heavily are 16-24 year olds, with 67% of men and 68% of women in this group drinking more than the recommended levels on one occasion in the previous week (Health Survey of England 2011). Men aged 45-64 years were most likely to exceed the weekly limits of 21 units per week, whilst women aged 45-54 years were most likely to exceed the weekly limits of 14 units (General Lifestyle Survey 2010), reasons which are likely attributed to an increase in home drinking amongst this age range (BBC News - Health 2012). It is therefore evident that alcohol misuse is not unique to one age group.

Published survey data also highlight that drinking above the recommended guidelines is prevalent across socioeconomic groups. In Wales, the Public Health Wales Observatory, using WHS data, reported that alcohol misuse was most prevalent in deprived areas and lower socio-economic groups (Public Health Wales Observatory 2014). However, there is evidence that alcohol misuse also occurs in higher socio-economic groups (Health Survey of England 2011; Institute of Alcohol Studies 2013b). Excessive alcohol consumption is therefore not limited to particular sections of society but is common across different socioeconomic groups.

1.2.4 ***The effects of alcohol misuse at an individual level (on general health) and at a societal level***

At an individual level, alcohol misuse can have severe consequences for a person's general health. Drinking in excess and severe intoxication affects all body systems and is linked to over 60 diseases; prolonged exposure to alcohol can cause liver

cirrhosis, kidney disease, pancreatitis, hypertension, various cancers, stroke, infertility, osteoporosis and cardiovascular damage (Anderson et al. 2012). Alcohol-related liver disease, particularly in the UK, has continued to increase since the 1980s, especially amongst young adults aged 30 and under, with a 92% increase in cases reported in 2013 (Balance 2013). Excessive alcohol consumption also affects the central nervous system, resulting in delayed responses, impaired coordination and attention, as well as contributing to the development of psychological conditions such as depression, anxiety, memory loss, dementia, psychosis and alcohol dependence (Roked et al. 2012). Furthermore, alcohol misuse can result in premature death, with reports in 2012 that one in eight UK deaths before the age of 64 were directly attributable to alcohol (Alcohol Policy UK 2012). It is therefore a serious public health issue.

At a societal level, in 2012, alcohol misuse was estimated to have cost the UK economy around £21 billion a year (Institute of Alcohol Studies 2013c). Treating patients with alcohol-related diseases and conditions places a huge burden on the National Health Service (NHS). For example, in Wales, patients suffering from alcohol-related ill-health are estimated to cost the NHS between £70-85 million per year (Kinghorn 2010). In England in 2009/10, this cost is estimated to be £3.5 billion per year (Institute of Alcohol Studies 2013c). In 2011, it was suggested that alcohol-related ill health was as costly to the NHS as smoking, and more costly than a lack of routine exercise:

“Of the behaviour risk factors, £5.8 billion was spent on poor diet-related ill-health, £3.3 billion on alcohol-related ill-health, £3.3 billion on smoking-related ill-health and £0.9 billion on physical inactivity-related ill-health.”

(Institute of Alcohol Studies 2013c)

The misuse of alcohol not only poses a threat to the health of the drinker but also to the health and wellbeing of people living in the wider community. Alcohol misuse is a large contributor to crime, violence and anti-social behaviour. In England and Wales, published statistics suggest that alcohol is implicated in 1.2 million incidents of violent crime per year, 40% of domestic violence cases and 6% of road traffic accidents (House of Commons 2009). In addition, the Institute of Alcohol Studies reported in 2014 that up to 17 million working days in England are lost each year due to alcohol-related absences, especially of people feeling too hung over to work

(Institute of Alcohol Studies 2014). Many people may also find themselves unemployed or suffering from financial problems due to their excessive alcohol consumption.

In 2012, the UK Prime Minister, David Cameron, labelled alcohol misuse as “*one of the scandals of our society*” (Full Fact 2012). However, this issue has been on the agendas of several governments prior to this. In response, the Labour Government created the Alcohol Harm Reduction Strategy in 2004 to tackle the harms of alcohol misuse in British society (Cabinet Office 2004). Furthermore, through the 2003 Licensing Act (implemented in 2005) the Government relaxed the serving hours of alcohol in bars, nightclubs and public houses in an attempt to reduce heavy episodic drinking and introduce differentiated closing times to reduce other alcohol-related harms, such as violence (The National Archives 2003). Since 2010, parliamentary debates on the affordability of alcohol and the introduction of a minimum unit price for alcohol have taken place. In addition, in 2012, DH launched its change4life campaign aimed at adult alcohol consumers called “*Don’t let drink sneak up on you*” (Department of Health 2012b). Several third sector organisations, such as Alcohol Concern, DrinkAware and Alcohol Research UK have also become more established and are now increasingly involved in raising awareness of the harms of alcohol misuse through campaigns such as Dry January and Alcohol Awareness Week. The goal of all of these campaigns and strategies is to change the drinking culture in the UK.

However, finding further evidence-based ways to decrease alcohol misuse would decrease the considerable economic, social and health burdens associated with alcohol consumption. Healthcare settings potentially provide excellent opportunities to identify and intervene amongst individuals exhibiting signs of alcohol misuse. Therefore, one way to tackle alcohol misuse would be to identify effective interventions that all healthcare professionals could deliver, capitalising on patients’ contact with health services for other reasons.

1.3 The identification of alcohol misuse and the delivery of brief advice to patients in healthcare settings

1.3.1 *Brief alcohol interventions*

Brief alcohol interventions (BAIs) are defined as “*those practices that aim to identify a real or potential alcohol problem and motivate an individual to do something about it*” (Thom et al. 2014). BAIs can target drinkers consuming alcohol at a hazardous or harmful level before they develop alcohol-dependence or abuse disorders. They are opportunistic as they identify and are used to deliver advice to patients who have not sought help for an alcohol-related problem. They encompass both alcohol misuse screening tools and treatment. The screening and treatment is brief in that the identification of misuse and the advice given to an individual takes place over a short amount of time (Thom et al. 2014). For the screening, this usually lasts no more than a few minutes and for the discussion of the individual’s drinking habits no more than five to 10 minutes (Thom et al. 2014).

1.3.2 *Screening for alcohol misuse*

Screening for alcohol misuse aims to identify individuals who drink to excess as a means to determine whether advice designed to reduce consumption should be delivered (World Health Organisation 2001).

Screening can include haematological tests, such as taking blood samples, alcohol-breath analysis or questionnaire screening tools. Typically alcohol misuse screening tools contain questions such as:

- How often do you have a drink containing alcohol? (Saunders et al. 1993)
- How many units of alcohol do you think you drink on a typical day when you are drinking? (Saunders et al. 1993)
- How often do you have eight units (men)/six units (women) on one occasion? (Hodgson et al. 2002)
- How often during the last year have you failed to do what was normally expected from you because of drinking? (Saunders et al. 1993; Hodgson et al. 2002)

The questionnaires are accompanied by scoring systems that enable professionals to identify risky levels of alcohol consumption. Patients who score above threshold scores are identified as people who may benefit from brief advice or other intervention. Common screening tools include the Michigan Alcohol Screening Test

(MAST), the Alcohol Use Disorders Identification Test (AUDIT), the CAGE screening tool, the Fast Alcohol Screening Test (FAST) and the Modified-Single Alcohol Screening Question (M-SASQ) (see Appendix 1 to 3).

1.3.3 **Description of the alcohol misuse screening tools**

Alcohol Use Disorders Identification Test (AUDIT) (Appendix 1)

The WHO developed AUDIT in 1993 (Saunders et al. 1993). It constitutes 10 questions about the quantity and frequency of alcohol use by adults. This test has been shown to have a sensitivity ¹ of 93 and specificity ² of 94 (MacKenzie et al. 1996). The main strength of the AUDIT is that there is a solid body of evidence supporting its high sensitivity and specificity. It is therefore used as the gold standard with which other screening tools are commonly compared; it assesses not only alcohol dependence but also hazardous and harmful drinking. The AUDIT has been validated for use across genders and ethnic groups, as well as for use in primary medical care settings (Babor et al. 2001). It can also be used in medical emergency departments, other hospital settings, criminal justice settings and military settings (Babor et al. 2001). Limitations include its length, which can make it difficult to use in some clinical and other busy settings. As a result, shorter forms of AUDIT have been developed (e.g. AUDIT-C).

Michigan Alcohol Screening Test (MAST)

This screening tool was developed in 1971 and includes 25 questions. It yields qualitative information on a person's drinking habits. Shorter variations include the brief MAST (10 questions). In comparison to the AUDIT, the reliability of brief MAST ranges from 35 to 73 for sensitivity and 77 to 97 for specificity (Chan et al. 1993; MacKenzie et al. 1996). Further limitations of the MAST include its focus on questions about alcohol problems over an individual's lifetime rather than on current problems. This means the test is mainly useful in detecting lifetime alcohol-related problems and alcoholism, rather than hazardous or harmful drinkers who are presently misusing alcohol. The length also makes it hard to use in busy settings.

¹ Sensitivity of a screening tool measures the proportion of positives correctly identified (quantifies the avoidance of false negatives).

² Specificity of a screening tool measures the proportion of negatives correctly identified (quantifies the avoidance of false positives).

The CAGE screening tool

This screening tool consists of four questions, according to the acronym CAGE, which ask the individual whether they feel they need to Cut-down on their drinking, if anyone has been Annoyed with them over their drinking, if they had ever felt Guilty about their drinking and an Eye-opener question, such as if they ever consumed a drink first thing in the morning to combat a hangover. The aim of the test is to identify those people who may be in denial about their drinking behaviours or who are dishonest about the number of units they consume. The strength of this screening tool includes its ease of use in busy clinical settings. A limitation is that it does not help to identify hazardous or harmful drinking levels but instead identifies alcohol dependence. Its sensitivity and specificity can be quite low, ranging from 73 to 79 and 65 to 86 respectively, when compared to the AUDIT (Chan et al. 1993; MacKenzie et al. 1996).

Fast Alcohol Screening Test (FAST) (Appendix 2)

This screening tool consists of four questions and was developed from the AUDIT. The strength of this tool is that it is particularly useful in detecting misuse amongst patients being treated in trauma departments and emergency settings after falls and accidents (Hodgson et al. 2002). It has also been validated for use in other secondary care hospital departments and primary medical care settings (Hodgson et al. 2002). Evidence from the Screening and Intervention Programme for Sensible drinking (SIPS) trials suggests that the FAST has high sensitivity and specificity and performs well in comparison to the AUDIT across a range of settings (Coulton 2009; Coulton et al. 2010; Coulton et al. 2012a; Screening and Intervention Programme for Sensible drinking (SIPS) Unknown). There is evidence that this tool detects 90% of alcohol problems detected using AUDIT e.g. it has a sensitivity of 91 and specificity of 95 in primary medical care settings when compared to AUDIT (Hodgson et al. 2002). A further strength of FAST is that the first question of the FAST alone identifies 50% of hazardous/harmful drinkers and so suggests that the remaining three questions are not needed (Hodgson et al. 2002; Screening and Intervention Programme for Sensible drinking (SIPS) 2008).

Modified-Single Alcohol Screening Question (M-SASQ) (Appendix 3)

This screening tool consists of one question only, which is the first question of the FAST. It was developed from the original SASQ (Canagasaby and Vinson 2005) in the SIPS Alcohol Screening and Brief Intervention Programme. The strength of this

test is its brevity (it takes less than 30 seconds). Clearly, shorter alcohol screening questionnaires are more likely to be implemented in busy healthcare settings than longer questionnaires. In addition, as mentioned, this question alone is extremely efficient in identifying hazardous/harmful drinkers; more than 50% can be identified using this tool (Screening and Intervention Programme for Sensible drinking (SIPS) 2008). Overall the M-SASQ has been reported as having a sensitivity of 92, which is higher than the original SASQ (Coulton 2009).

However, the M-SASQ has been criticised as having a greater chance of identifying false positives compared to AUDIT and FAST, as it is a screening test for a health risk only (specificity of 71) (Screening and Intervention Programme for Sensible drinking (SIPS) Unknown). Furthermore, the M-SASQ has been shown to be less specific and sensitive than AUDIT and FAST in primary medical care settings (Coulton 2009).

Conversely, although the M-SASQ relates only to the identification of episodes of heavy drinking, it has been suggested that the most reliable way of establishing whether a person has an alcohol problem is by determining how a person consumes alcohol during these episodes, which is the main aim of the M-SASQ (Jackson 2008). The M-SASQ is also more efficient than FAST in identifying AUDIT positive patients (Odds Ratio 1.5) and has been shown to be particularly effective in identifying misuse amongst patients in busy healthcare settings, such as emergency departments (sensitivity of M-SASQ 81 compared to sensitivity of FAST 80.4). These factors may particularly be beneficial when considering the use of the M-SASQ in busy dental settings.

1.3.4 ***The effectiveness of alcohol misuse screening tools***

There is evidence that alcohol misuse screening tools such as AUDIT, FAST and the M-SASQ are reliable in detecting misuse in a variety of settings. For example, it has been shown that screening can take place effectively in criminal justice settings, colleges and university settings, as well as in healthcare settings such as in primary medical care, accident and emergency departments and secondary dental care settings (Coulton et al. 2012b) (Helmkamp et al. 2003; Smith et al. 2003; Crawford et al. 2004; Coulton et al. 2006; Coulton et al. 2012b; Kaner et al. 2013). There is also evidence from a systematic review by Fiellin et al. that recommends the use of formal screening instruments such as AUDIT and CAGE, that have been tested for

validity and reliability in healthcare settings over other clinical measures of alcohol intake such as non-evidence-based quantity-frequency questions (e.g. On any single occasion during the past three months have you had more than five drinks containing alcohol?) and laboratory serum markers (e.g. carbohydrate-deficient transferrin, gamma-glutamyltransferase mean corpuscular volume, aspartate aminotransferase and alanine aminotransferase) (Fiellin et al. 2000). The evidence therefore supports the notion that alcohol misuse screening questionnaires are valid and effective methods for identifying misuse amongst patients in healthcare settings.

1.3.5 ***Alcohol misuse treatment***

There are a range of behavioural alcohol misuse treatments that can be delivered to hazardous/harmful drinkers within healthcare settings. These include brief treatment interventions such as Cognitive Behavioural Therapy (CBT), Motivational Interviewing (MI), self-completed action plans, self-help leaflets and videos, drinking diaries, brief lifestyle counselling/advice and telephone counselling (Kaner et al. 2007; Zabel et al. 2010) .

1.3.6 ***The effectiveness of alcohol misuse treatment***

There are mixed results with regard to the effectiveness of brief behavioural interventions. Whilst there are randomised controlled trials which suggest brief treatment interventions can significantly decrease alcohol consumption in heavy drinkers attending a range of healthcare settings, notably primary medical care, there are also trials that do not report a significant effect (Wallace et al. 1988; Richmond et al. 1995). However, evidence from systematic reviews supports the overall effectiveness of brief interventions in healthcare settings (Kaner et al. 2007; Kaner et al. 2009).

Meta-analyses by Bertholet et al. (2005) and Kaner et al. (2007) also indicate that alcohol treatment interventions can reduce the quantity of alcohol intake by a mean pooled difference of 38 grams of ethanol per week, which equates to roughly four to five units of alcohol. In addition, the number of patients that need to be treated (the Number Needed to Treat, NNT) in order to benefit one person is between eight and 10 patients (Vinson et al. 2000; Beich et al. 2003; Ballesteros et al. 2004; Public Health Wales 2014); in other words for every eight to 10 people who receive an alcohol treatment intervention there will be one person who alters their behaviour

and gains health benefit. This conclusion is clinically important since low NNT means greater treatment effectiveness. Routine delivery of alcohol treatment interventions to those screening positive for misuse by all healthcare professionals during their clinical practice therefore has huge potential to impact on the prevalence of alcohol-related diseases in these patient groups.

1.3.7 *Barriers and facilitators to implementing screening and brief treatment for alcohol misuse in healthcare settings*

A systematic review by Johnson et al. in 2010 aimed to identify the main barriers and facilitators to the effective implementation of screening and brief intervention for alcohol misuse as expressed by healthcare practitioners and patients in various settings. Johnson et al. (2010) identified 47 qualitative papers: 35 exploring views in primary medical care and 12 in secondary medical care, emergency care and probation centres. Factors affecting implementation included a lack of resources, lack of training/knowledge and confidence in giving advice, as well as a lack of financial and managerial support. Furthermore, practitioners felt they had to be in the right environment to screen patients and deliver alcohol advice. For example, they felt certain settings were more appropriate such as well-being clinics. It was interesting that the review revealed patients overall expressed more positive attitudes than practitioners and felt willing to accept the advice. However, patients did identify that some people could feel embarrassed when questioned about their alcohol use. They also felt a good relationship would be needed with their healthcare professional, as they felt talking about alcohol habits could be seen as a sensitive topic.

In comparison, a study by Shepherd et al. (2010) that investigated the views of general dental practitioners on providing alcohol-related advice identified similar barriers in primary dental care. These barriers were also fears of disrupting the dentist-patient relationship, lack of remuneration for giving advice, embarrassment and perceived lack of relevance to the clinical situation and a lack of training and confidence in approaching alcohol-related problems. However, the views of patients in primary dental care were not explored in this study.

It can be seen that further research is needed to explore the views of various healthcare professionals, especially those in the dental team (e.g. dentists dental

nurses and hygienists/therapists), and patients across different sectors (primary and secondary care) to understand more fully the behaviour and attitudes towards the provision of alcohol misuse screening and brief treatment.

1.3.8 ***Motivational Interviewing (MI) as an effective method for reducing alcohol misuse***

Miller and Rollnick define MI as “*a client-centered, directive method for enhancing intrinsic motivation to change by exploring and resolving ambivalence*” (Miller and Rollnick 2002). There is evidence that MI is an effective method for decreasing a range of harmful health behaviours including smoking, drug abuse, HIV-risk taking, poor diet and lack of exercise (Burke et al. 2003). There is also evidence that MI is an effective method for decreasing hazardous/harmful alcohol consumption, with evidence suggesting that merely giving lifestyle advice on a person’s drinking habits, with no motivational or client-centred approach, is ineffective; typical success rates are only between 5-10% (Britt et al. 2004). Conversely, a pragmatic cluster randomised controlled trial conducted by the SIPS team, which investigated the effectiveness of screening and brief alcohol interventions in primary medical care, concluded that brief structured motivational advice (lasting five minutes) or extended lifestyle counselling (lasting 20 minutes) provided little additional benefit in reducing hazardous or harmful drinking when compared with the provision of a patient information leaflet (Kaner et al. 2013). Nonetheless, there are systematic reviews and meta-analyses (Rubak et al. 2005; Vasilaki et al. 2006) that confirm the overall effectiveness of MI compared to receiving no treatment in decreasing excessive alcohol consumption, especially in non-dependent drinkers (i.e. hazardous/harmful drinkers) in a range of settings, including those in healthcare.

There are five key principles that underlie MI (Britt et al. 2004). First, the MI must emphasise the individual’s present interests and problems. Second, it must involve selectively responding to the client’s words in a way that resolves ambivalence and motivates the person to change. Third, it must be a method of communication rather than a set of techniques. Fourth, it needs to focus on intrinsic motivation for change. Fifth, within this approach, change should occur because of its relevance to the person’s own values.

In order to ensure that all these principles and techniques are satisfied during MI delivery, the person delivering the intervention can follow the acronym FRAMES in

order to ensure that all components are covered (Zabel et al. 2010). The main elements of the FRAMES approach include:

Feedback: provision of feedback to the individual about their drinking levels and how drinking has contributed to their problem, such as an alcohol-related illness or injury.

Responsibility: emphasis that the responsibility for reducing consumption is the individual's alone.

Advice: provision of simple advice.

Menu: helping the individual identify, from a menu of options, the specific actions that will change their behaviour.

Empathy: maintaining an empathetic, non-judgemental and collaborative approach throughout.

Self-efficacy: helping the individual to believe that they are capable of making a sustainable change to their behaviour and instil confidence in them to do so.

It has been suggested that the timing of the delivery of a brief treatment intervention, such as MI, is crucial to its success. Brief treatment works best during “*teachable moments*” (Smith et al. 1998). These are events or circumstances, which can facilitate positive behaviour change. When an individual is faced with the consequences of their actions, for example, they are more receptive to the suggestion of behaviour change. A patient attending their general medical practitioner with an alcohol-related disease will be more receptive to changing their alcohol habits than someone without such an illness. A further example is patients attending trauma clinics five to seven days after injury sustained whilst intoxicated for suture removal (Smith et al 2003). Healthcare professionals are therefore well positioned to capitalise on teachable moments opportunistically during the clinician-patient interaction in order to educate patients about moderation.

1.3.9 ***Monetary costs of alcohol misuse screening and treatment interventions***

Alcohol misuse screening has been shown to be of low cost. For example, Tolley and Rowland (1991) estimated the cost of screening was £0.10 per minute for a nurse and £0.11 per minute for a doctor in a UK hospital, with the overall cost for a positive screening being £1.17 for a doctor and £1.29 for a nurse.

Ludbrook et al. (2002) estimated the cost of delivering a 15-minute brief alcohol treatment intervention by a general medical practitioner within a primary care setting in the UK to be £20.80. This was estimated by Fleming et al. (2000) to be £86.74 when follow-ups and nurses time were also included.

Alcohol misuse screening and treatment are reasonably inexpensive in primary and secondary medical care settings suggesting they are valuable methods to be used to tackle alcohol misuse amongst patients.

1.3.10 ***Gaps in the evidence-base***

There is a vast amount of evidence of the effectiveness of screening and brief treatment interventions in healthcare settings, notably in primary medical care, but also elsewhere. As a result, the primary prevention of alcohol-related diseases and conditions seems to be more justified in general medical care. Responding to the evidence, the Coalition Government in 2012/13 renewed the National Alcohol Harm Reduction Strategy and concluded that primary medical practitioners are key to alcohol misuse prevention (HM Government 2012). The Royal College of General Practitioners (RCGP) and the National Institute for health and Care Excellence (NICE) have produced courses and guidelines respectively detailing how primary medical practitioners should screen patients for hazardous and harmful drinking. For example, in 2011, NICE developed new alcohol quality standards and alcohol treatment commissioning guidance advising medical staff to undergo alcohol awareness training and to incorporate opportunistic screening and brief interventions for hazardous and harmful drinking within their clinical practice (National Institute for health and Care Excellence 2011). Furthermore, in 2010, the RCGP ran its first few courses that trained approximately 150 primary care medical practitioners in Wales in the delivery of screening and brief treatment interventions (Kingham 2010).

Unfortunately, the potential for alcohol misuse prevention in dental settings has received little attention. Research is particularly limited in this area, though there is evidence that screening and MI can be delivered effectively to reduce alcohol consumption amongst hazardous/harmful drinkers in secondary dental care (Smith et al. 2003).

1.4 The potential role of dental professionals in tackling alcohol misuse

1.4.1 *Alcohol misuse and its impact on oral health*

Alcohol misuse can impact on oral health in numerous ways. Excessive alcohol consumption is not only a risk factor for sustaining oro-facial injury (either through falls, road traffic accidents or interpersonal violence) but it is also implicated in the aetiology of potentially fatal oral disease, including cancer of the mouth, larynx, pharynx and oesophagus (Rehm et al. 2003). Cancer Research UK states that every one and a half units of alcohol consumed per day increases the risk of oral and pharyngeal cancer by 35% in men and 9% in women (Cancer Research UK 2005). In addition, heavy drinking (around six or more units per day) increases the risk of oral and pharyngeal cancer more than fivefold (Cancer Research UK 2005).

Alcohol can also have detrimental effects on the dentition. Many people who drink hazardously may suffer from non-carious tooth surface loss such as dental erosion, while alcoholic beverages which are high in sugar also contribute to the development of dental caries (Chestnutt in press). From a dental perspective, tackling alcohol misuse is therefore an important issue.

Systematic reviews that have investigated the relationship between alcohol consumption and the risk of periodontitis suggest that heavy alcohol consumption should be considered a risk factor for periodontal disease (Amaral et al. 2009). Moreover, comparisons between light and heavy drinkers identified in general dental practice have found that heavy drinkers are more likely to suffer from dental pathology, such as periodontal disease, due not only to the direct effects of alcohol on periodontal tissues but also to the clustering of harmful behaviours, such as smoking, alcohol misuse and oral hygiene neglect (Kranzler et al. 1990).

Clearly, dental professionals need to know if patients they are treating misuse alcohol (Kwasnicki et al. 2007). Wound healing, blood clotting and the processing of drugs such as local anaesthetic agents and sedatives may be compromised in these patients. In addition, alcohol can interact with many medicines prescribed by dental professionals, for example, it can interfere with the effectiveness of antibiotics and can cause adverse reactions with certain drugs - such as metronidazole. There are also indications that alcohol can cause adverse effects, including bleeding in the stomach and hepatotoxicity, in patients when consumed with analgesics such as ibuprofen and paracetamol.

Therefore, dental professionals are often confronted with the sequelae of alcohol misuse (Roked et al. 2012). Dental professionals in primary care may be the first to notice abnormalities of the oral mucosa characteristic of alcohol-related dysplasia and malignancy (Roked et al. 2012). Dental professionals in both primary and secondary care may also treat patients with alcohol-related facial and dental trauma. Hazardous, harmful and high episodic drinking is therefore relevant to all dental professionals, not just in secondary care but especially in primary care. It is therefore extremely important that dental professionals find and evaluate ways to tackle alcohol misuse amongst their patients.

1.4.2 ***Recommendations for dental professionals to tackle alcohol misuse***

The WHO states that “*although advances in clinical operative techniques have made dental treatment more effective and acceptable, treatment approaches alone will never eradicate oral diseases*” (Petersen 2003). The majority of diseases affecting the oral cavity are preventable. This is particularly true with regards to alcohol-related oral diseases and conditions such as oro-facial trauma, oral cancer and tooth erosion, all of which might be prevented if dental professionals capitalised on their opportunities to identify patients and provide them with effective alcohol misuse advice.

The General Dental Council’s (GDC) “Preparing for Practice: dental team learning outcomes for registration guidance on the education of dentists” recommends that all dental healthcare professionals should be committed to “*promoting the health and well-being of the public*” (General Dental Council 2015). The dental profession in the UK therefore has a definite responsibility, reflected early in the dental

curriculum, to promote good oral health (Roked et al. 2012). Recommendations have therefore been made from within the dental profession for dental healthcare professionals, especially those working in primary dental care, to be involved with alcohol misuse prevention (British Dental Association (BDA) 2009; The Faculty of General Dental Practice (UK) 2009; National Institute for health and Care Excellence 2010b; McAuley et al. 2011). However, trials of behavioural alcohol treatments in these settings are entirely lacking. Evidence of effectiveness is needed if such interventions are to be recommended.

In 2010, the Royal College of Surgeons of England published a position statement calling for dental surgeons and emergency medicine specialists in secondary care settings to help curb the epidemic of alcohol misuse (Royal College of Surgeons of England 2010). Following this, in 2012, the Royal College of Surgeons of England published a position statement calling for all primary and secondary care dental professionals to be involved in tackling alcohol misuse (Shepherd 2012). This position has received support internationally (Australian Health Minister's Advisory Council 2008; Shepherd 2012). More recently, the Drug and Alcohol Research Centre in 2014 called for a drive to encourage the delivery of screening and brief treatment interventions by healthcare professionals beyond the context of primary medical care (Thom et al. 2014).

1.4.3 ***Relevance of tackling alcohol misuse to the new dental contracts***

The UK Government is currently reforming the primary care dental contractual system in order to increase access to general dental care services and to help further improve oral health (Department of Health 2015a). For example, the new dental contract aims to make quality treatment outcomes and patient welfare the main focus of dental healthcare professionals, rather than what treatments are delivered. Following this, there is now more emphasis on health promotion, with dentists required to carry out health risk assessments and to offer targeted advice when appropriate. Tackling risky behaviours, including alcohol misuse, helps professionals improve quality of service, improve patients' treatment outcomes and promote health.

At present the dental contract is heavily focused on the clinical work being undertaken by dental professionals. NHS dentists in primary care are set numbers of units of dental activity (UDAs) to achieve by local health boards or primary care

trusts. If dentists do not achieve their contracted number of UDAs they are financially penalised. The aim of overhauling the contract is to shift dental care to a more preventive approach, which pays dentists for ensuring their patients have good oral health, rather than for the number of procedures they complete. There is, particularly increased focus on the prevention of disease. The Department of Health's "*Dental Contract Reform: Engagement*" report states that "*Primary care dentistry needs to be able to deliver prevention based care as well as providing appropriate treatment, and retreatment of current disease, where necessary*" (Department of Health 2015b).

Dental contract reform is focused on two key areas: 1) quality of care, which reflects the new preventive focus of the new contract (introducing a preventive pathway whereby patients are assessed as having low, moderate or high risk of future disease using oral health risk assessment software) and measures the quality of care delivered to patients (through a Dental Quality and Outcomes Framework DQOF); 2) remuneration, which reflects the development of a new system to pay dental professionals (Department of Health 2015a).

Pilots of the new contract began in 2011 across 70 general dental practices in England (Department of Health 2015a). In 2013 these involved a further 20 practices (British Dental Association (BDA) 2013). In 2015/16, prototypes of the contract will be tested prior to rollout of the new contractual system. Encouraging dental healthcare professionals, especially those in primary care, to be involved in alcohol misuse prevention is therefore extremely relevant and timely to the reform of the new dental contract.

1.4.4 *Evidence of the current lack of alcohol misuse prevention by primary care dental professionals*

The Faculty of General Dental Practice UK (FGDP(UK)) advises in *Clinical Examination and Record Keeping: Good Practice Guidelines* that dental professionals should ask all new primary care patients "*How many units of alcohol do you consume each week?*" (The Faculty of General Dental Practice (UK) 2009). However, a Dundee-based study found that although this question is included in medical history forms used in dentistry, 42% of the primary care general dentists sampled did not ask this question (Shepherd et al. 2010). Even when this question

was asked and the units of alcohol consumed by patients per week exceeded the recommended limits, advice on reducing consumption was rarely given.

Furthermore, the Adult Dental Health Survey suggests that patients mainly receive preventive advice on oral hygiene, diet and smoking; 78% of dentate adults said that they had been given advice by a dentist or a member of the dental team on cleaning their teeth and/or gums, 9% of patients said they were given smoking cessation advice and 27% said they had been given dietary advice (Steele and O'Sullivan 2011). In this survey, however, patients were not asked whether they were given advice on their alcohol consumption.

The Developing Better Oral Health Toolkit was developed by DH and provides guidance to dental professionals on how to deliver evidence-based preventive advice to patients (Public Health England 2014). The document consists of a series of tables that highlight messages and actions that should be given in order to prevent oral diseases such as dental caries, periodontal disease and oral cancer. Messages include principles of oral hygiene instruction, diet advice and smoking cessation advice. The advice given to dental professionals with regards to alcohol misuse is, in comparison, brief and mainly informs professionals how to access support bodies/systems where heavy drinkers can be referred. The toolkit therefore fails to offer much valuable information for dental professionals regarding ways in which to tackle alcohol misuse amongst their patients. Information for dental professionals on various strategies on how to identify excessive drinking and what to do or say should they find that their patient is doing so, is lacking. This reflects the lack of the evidence necessary to justify investment in this area of prevention.

1.4.5 *Alcohol misuse prevention in a primary care dental context*

Compared to other healthcare professions, dentistry has successfully nurtured a proactive approach to oral health. The 2015 GP Patient Survey suggests that patients only visit their medical practitioners when they have a health problem (GP Patient Survey 2015). However, in the UK at least, national surveys show that a large proportion of the population have contact with a general dental team and attend a primary dental care service for routine checks irrespective of any oral health problem. For example, the Adult Dental Health Survey published in 2009 states that 61% of dentate adults in the UK attended a primary care dentist for a regular check every six months (Steele and O'Sullivan 2011). More recent reports

from the Health and Social Care Information Centre suggest that this figure may have fallen to 50% (Health and Social Care Information Centre 2015). However, it is clear that the primary care dental team sees a large proportion of the UK population on a regular, planned basis and that this is recommended by the government.

There are reports that differing levels of alcohol use appear to be related to differing levels of service use, with routine primary care dental visits least likely in the heaviest drinkers (Cryer et al. 1999). However, analysis of the 2002 Health Survey of England suggests that there is no selection bias between those who are at risk drinkers and those who are not (University of Manchester 2004). Evidence indicates that 54% of patients regularly attending a general dental service drink more than the Royal College of Physician’s recommended weekly limits of 21 units for men and 14 units for women (Figure 1.2).

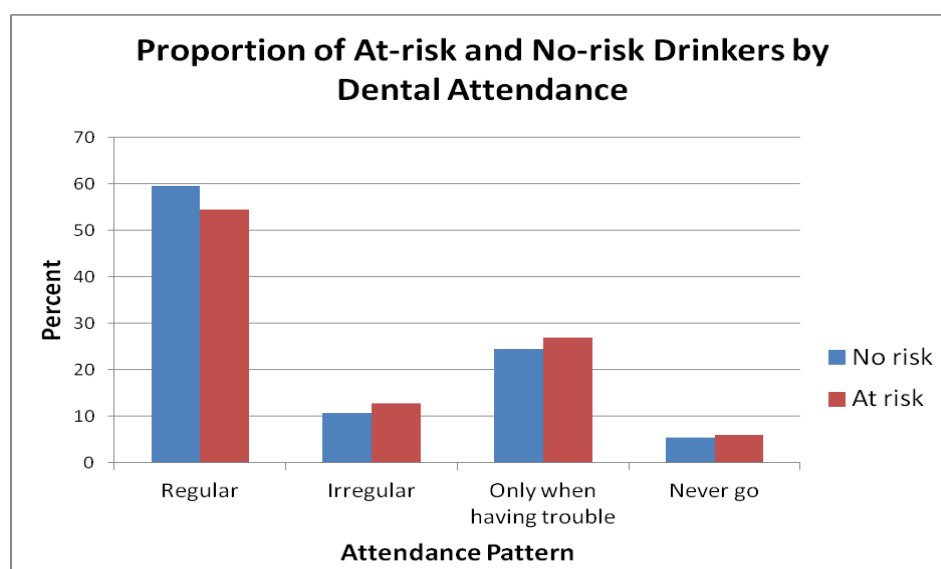


Figure 1.2: Analysis of the 2002 Health Survey of England showing the relationship between dental attendance and alcohol consumption (University of Manchester 2004)

Definitions: At-risk is defined as consuming more than DH recommended weekly limits (>21 units for men, >14 units for women). No risk is defined as consuming below DH weekly limits.

Unfortunately, this Health Survey data has limited relevance since they were published in 2002. Nevertheless, a different argument for dental professionals in primary care to screen and treat patients comes from Rose’s “Paradox of Prevention” (Rose 1981).

In 1981 the epidemiologist Geoffrey Rose described his Paradox of Prevention arguing that professionals should use “a *mass strategy*” in health promotion, targeting not just those at high risk of developing disease (Rose 1981). He suggested that by only targeting people with high disease risk, people who had a moderate risk would be ignored. The goal of health promotion interventions, he argues, should be to reduce risk in the whole population. Since the number of people at high risk would be small in relation to alcohol misuse, the number of those experiencing alcohol-related harm will be greater in moderate drinkers who account for a greater proportion of the population. Therefore, interventions delivered to both moderate and high-risk drinkers are likely to be more effective at reducing the overall burden of alcohol-related harm (Rose 1981). Dental professionals are therefore, given an effective intervention, in a prime position to intervene in the lives of those patients drinking in a hazardous or harmful manner. Seeing patients for regular check-ups and routine treatment will allow dental healthcare professionals, especially those in primary care, greater opportunities to screen and treat patients who misuse alcohol.

1.4.6 ***Implications for specialist secondary care services***

Alcohol-related ill-health imposes huge burdens on healthcare services, including on specialist secondary dental and medical services. For example, in secondary dental care, oral and maxillofacial surgeons and restorative specialists treat patients suffering from alcohol-related trauma, tooth erosion and oral cancer. As mentioned, BAIs have already been trialled for use in reducing hazardous alcohol consumption amongst patients in secondary dental care and have been found to be effective (Smith et al. 2003). Therefore, the next logical step, and a way to reduce the demands on these services, is to intervene more upstream in primary dental care before harm has occurred. Doing this may help to reduce the demands on specialist dental and medical services to a far greater extent.

1.4.7 ***Holistic approaches to dental healthcare***

Holistic medicine is a form of healing that considers the whole person in the quest for optimal health and wellness (American Holistic Health Association 2015; WebMD Unknown). Each patient is seen as a unique individual, rather than an example of a particular disease. This is not a new concept. Hippocrates stated in 377-460BC that, “*it is more important to know what sort of a person has a disease, than to know what sort of disease the person has*” (Dunning 2006). From a holistic perspective, during

the management and prevention of disease it is important to know not only what is happening at a systems or even molecular level, but also what other factors may be affecting a person's wellbeing. For example, in holistic medicine diseases result from a combination of physical, emotional, spiritual, social and environmental imbalances.

The General Dental Council (GDC) advise that dental professionals *"must take a holistic and preventive approach to patient care which is appropriate to the individual patient"* (General Dental Council 2013). Defined in its "Standards for the Dental Team", the GDC state that *"a holistic approach means you must take account of patients' overall health, their psychological and social needs, their long term oral health needs and their desired outcomes"* (General Dental Council 2013). The GDC suggests that dental professionals need to view the oral cavity as integral to the whole body system. Dental professionals are also encouraged to look at how a patient's lifestyle can impact on their general health, as well as their oral health. Screening and treating dental patients who may be misusing alcohol is therefore part of a holistic approach towards dental care.

1.4.8 ***Uniformity with the medical profession***

Within the field of dentistry, the prevention of oral disease and the promotion of health have much broader implications, linking the profession closely to medicine more widely (Dyer and Robinson 2006). Dental and medical professionals deal with diseases that develop from the same risk factors. Harmful oral health behaviours also affect general health. For example, the consumption of a diet high in sucrose (which can result in dental caries), oral hygiene neglect (that can result in dental caries, halitosis, poor aesthetics and periodontal disease) and the use of tobacco (that can result in oral conditions such as periodontal disease and oral cancer) also compromises general health resulting in the development, for example, of cardiovascular disease, diabetes mellitus, cancers and chronic obstructive pulmonary disease (COPD) (Petersen 2003). Furthermore, Crohn's disease, malnutrition, HIV/AIDs and anaemia while they predominantly affect general health can have serious oral manifestations. Oral health is therefore integral to general health and vice versa.

There is evidence to suggest that patients would support the concept of dental healthcare professionals screening and treating them for behaviours or conditions

that may impact on their general and oral health including hypertension, heart disease, and diabetes as well as alcohol misuse (Greenberg et al. 2012). Unfortunately, evidence also suggests that there are many inconsistencies between health messages delivered by dental and medical professionals, for example, with regard to changing dietary habits (Shah et al. 2011). Reflecting this, a more common approach between these sectors is required, where dental and medical professionals work together for the betterment of oral and general health. Adopting such an approach would enable healthcare providers to deliver consistent care and advice across the health service. Importantly therefore, this literature review, points to the need for far greater integration of dentistry and medicine.

1.4.9 *Recommendations for an increase in provision of general health advice by dental professionals*

The WHO has stated that dental professionals have wide health promotion responsibilities and should be willing to adopt “*a new strategy in the 21st century*” which looks to prevent diseases that not only undermine oral health but also those that can affect general health (Petersen 2003). In 2002, Wanless stated all NHS healthcare professionals, including dental professionals, must work together and focus on “*improving public health*” and “*develop a more coherent strategy to reduce preventable illness caused by unhealthy behaviours*” such as heavy drinking (Wanless 2002). Professor Steve Field, then Chairman of the NHS Future Forum, suggested that all healthcare professionals “*must make every patient contact count*” and should advise patients how to lead a healthy lifestyle to increase their awareness about the behaviours that can harm their health (Field 2012). Field suggested that prevention is the key to the future of the NHS and that the diagnosis and treatment of diseases should not be the sole purpose of consultations.

1.5 Important concepts in relation to behaviour change in dental settings

1.5.1 *Key features of interventions*

NICE highlighted the principal features required for behavioural interventions to be successful (National Institute for health and Care Excellence 2007): that interventions should motivate people to increase their knowledge of the health consequences of their behavior; that they should get people to realise they have the ability to change; that they should promote positive feelings towards the outcome of

behaviour change; and that they should help people to make plans to change. Alcohol treatment interventions, such as MIs, particularly satisfy all of these points.

The guidance also states that researchers must be aware of the theoretical links between the intervention and behaviour change (Eccles et al. 2005). There is evidence in the form of a systematic review that concludes behavioural interventions with psychological underpinning are significantly associated with better adherence to behaviour change (Renz et al. 2007; Asimakopoulou and Daly 2009). Traditional educational interventions, such as leaflets, verbal advice, have been shown to be of little value in achieving long-term change. A systematic review by Kay et al. (in press) that examined 44 studies found that whilst giving patients leaflets/written advice/verbal advice improved knowledge and self-reported oral-health behaviours, there was strong evidence from five randomised controlled trials that interventions based on behavioural and psychological models were more effective in improving oral health and the incidence of diseases such as periodontal disease (effect sizes ranged from moderate to large) (Kay et al. 2015).

There are several psychological models of behaviour change that have been developed. Examples include The Stages of Change model or Transtheoretical Model of Change, The Health Belief Model, The Self-Determination theory, The Social Cognitive or Learning Theory, Beliefs of Self Efficacy, and The Theory of Reasoned Action (Bandura 1977; Fishbein 1979; Prochaska and DiClemente 1982; Janz and Becker 1984; Bandura 1986; Ryan and Deci 2000). Alcohol treatment interventions such as MI are consistent with a number of models of health behaviour, such as the Transtheoretical Model of Change, the Locus of Control, Theory of Reasoned Action, Social Cognitive Theory, Decisional Balance, Health Belief Model, Health Action Process Model, Self-determination Theory and Self-regulatory Model (Miller and Rollnick 2002; Britt et al. 2004). However, whilst these models are useful and can help explain how a person may alter their behaviour, limitations include that they often tend to focus on how the individual can alter his/her behaviour only. When thinking of ways in which dental healthcare professionals could intervene to reduce alcohol misuse amongst their patients, it is important to remember that a wide range of factors, including the social, economic and environmental conditions under which an individual lives determines a person's health behaviours.

1.5.2 ***Social ecological models***

The models of social ecology can help to increase understanding of the dynamic interrelations between people and their environment (McLeroy et al. 1988). In 1977, Engel suggested some of the first notions that external and internal, genetic, environmental, somatic and psychosocial factors are all important in determining human behavior (Engel 1981). Bronfenbrenner (1977) further developed these notions by creating an Ecological Framework for Human Development that applies the theory of social ecology to human development (McLeroy et al. 1988). He suggested an interwoven relationship exists between individuals and their environment and in order to understand human behaviour, the entire ecological system in which growth and development occurs needs to be taken into account. He suggested that a person's ecological environment should be conceived as a set of nested structures. Moving from the innermost level to the outermost, these structures are defined in Figure 1.3 highlighting the considerations that should be taken into account when, in the context of this thesis, exploring how to tackle alcohol misuse within dental settings, particularly a primary dental care setting.

1.5.3 ***Social ecology and behavioural interventions***

The theories of social ecology suggest that single strategy approaches to behavioural interventions that target only the individual are unlikely to yield extensive changes in harmful health behaviours. Interventions should therefore be designed to go beyond the individual level. Strategies with multiple and complementary actions that aim to change social and environmental influences and which occur in tandem are more likely to produce favourable changes. For example, delivering alcohol interventions in a healthcare setting would improve not only individual behaviour but has the potential to impact on the person's social influences (e.g. a patient may receive lifestyle advice which may impact on family practices and also be passed on to friends, neighbours and other members of the community). In addition, it would involve input from the healthcare professionals with whom the individual has contact, involvement from organisations (such as local health boards or primary care trusts), as well as involvement from the wider health service institutions professionals are affiliated to (e.g. policies from the GDC, Royal Colleges). This broad approach might possibly produce changes to the health of not only an individual but also the wider population.

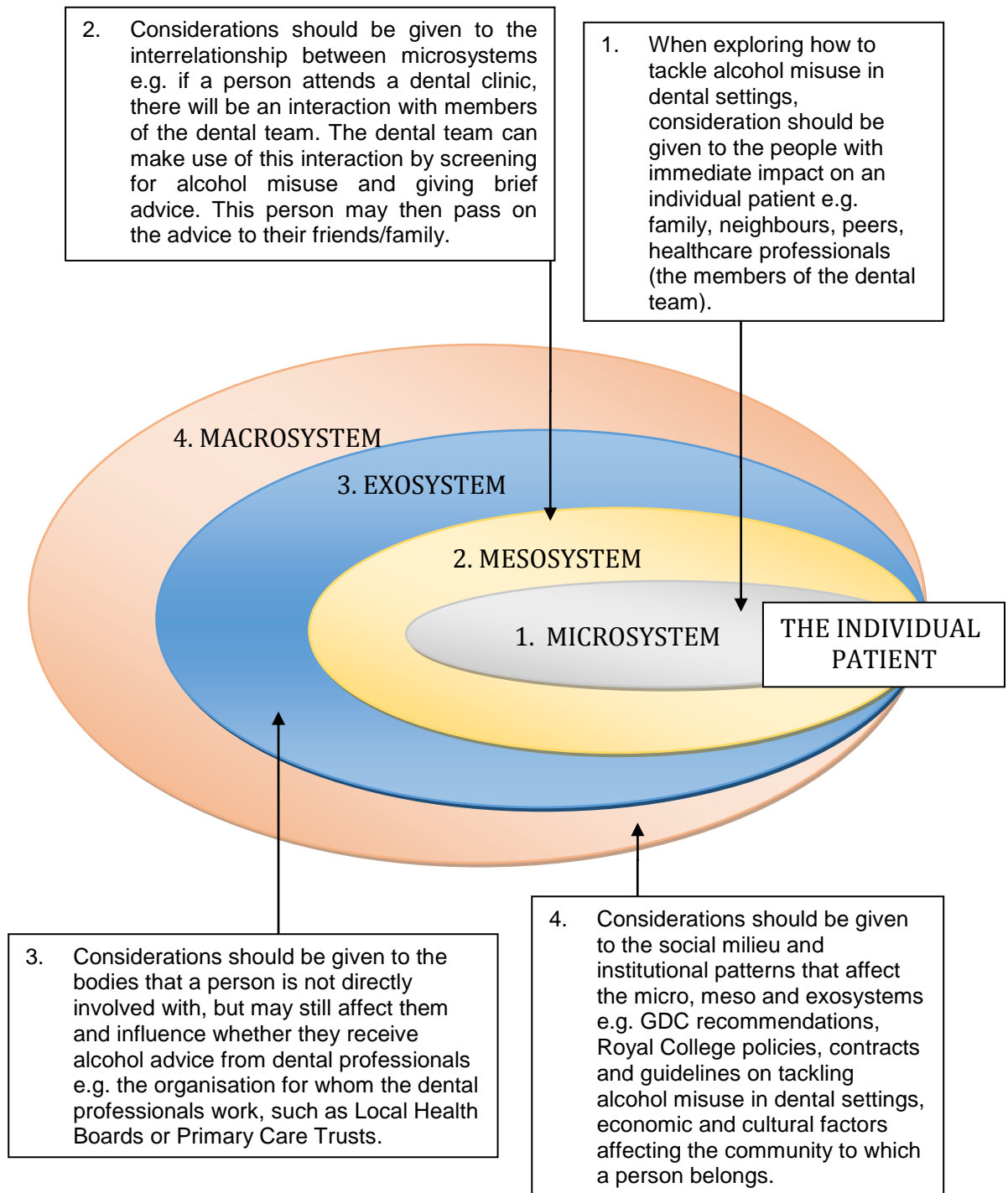


Figure 1.3: Diagrammatic interpretation of Bronfenbrenner's Ecological Framework in relation to tackling alcohol misuse in the dental setting (Bronfenbrenner 1977)

1.5.4 ***The Medical Research Council's framework for the design and evaluation of complex interventions to improve health***

This Medical Research Council (MRC) framework (Campbell et al. 2000; Craig et al. 2008) reflects the theories of social ecology suggesting that it is not just the individual patient and their outcomes that should be the focus of a trial. The framework recommends that when looking at ways to tackle risky health behaviours such as alcohol misuse within a healthcare setting a more complex and multi-level approach is required. For example, if members of the dental team are to intervene amongst patients who misuse alcohol, it is important to identify all the necessary components that will make an intervention procedure effective. In other words, it is not just patient adherence that is required for an intervention to be successful; but it is also adherence of healthcare professionals and the effects on their organisation that are vital in establishing how and why an intervention may be successful. This framework therefore provides useful guidance when trying to establish how BAs can be introduced in primary dental care settings.

The framework calls for a systematic and phased testing approach to developing and introducing interventions within a particular setting. Each stage in the process is critically dependent on knowledge obtained from the preceding stage.

The framework consists of five stages/steps (Campbell et al. 2000; Craig et al. 2008). These are:

The preclinical or theoretical stage involves identifying the evidence that an intervention may have a desired effect. Review of the theoretical basis of an intervention will help specify possible active ingredients.

Phase I or modelling stage helps the researcher to define the components of the intervention. Qualitative testing of ideas can help determine the components and to verify ideas. Qualitative work can also be used to suggest ways in which an intervention could work and can help find barriers to change in trials that may want to alter patient and/or professional behaviour.

Phase II or exploratory/feasibility trial involves using the information gathered in the first two stages to develop the intervention and study design. This will involve testing the feasibility of delivering the intervention and acceptability to professionals

and patients. A thorough process evaluation can then be carried out to help determine the consistency with which the intervention is delivered, to determine the sample size and the randomisation schedule, as well as the main outcomes for the larger trial during the Phase III definitive trial stage.

Phase III or definitive randomised controlled trial will consist of the main definitive trial of the intervention that has been designed taking into account the findings from the process evaluation of the exploratory/feasibility trial.

Phase IV or long term implementation stage helps the researcher examine the implementation of the intervention in practice and how this may be carried out.

Figure 1.4 summarises diagrammatically the stages of the framework.

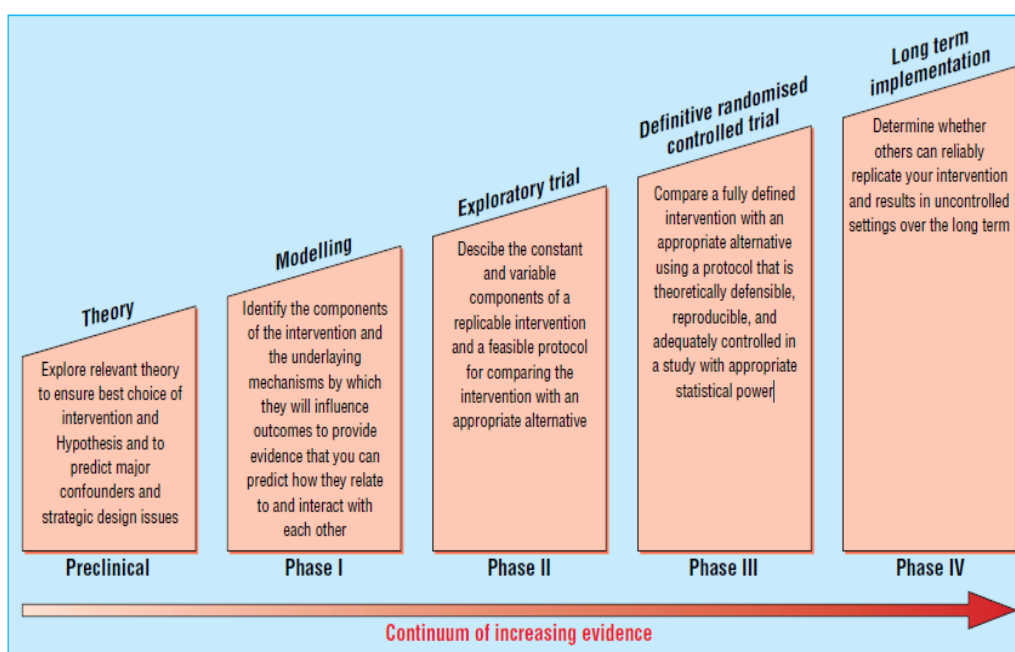


Figure 1.4: Summary of the MRC framework (Campbell et al. 2000)

1.5.5 **Interventions are events in a system**

When developing interventions, Hawe et al. (2009) further suggest that an ecological perspective should be adopted. They urge behavioural change researchers to decide beforehand how they envisage an intervention to reach an individual's surroundings and how this intervention will interact with the context within which it is delivered. In other words, they state that studies that look to test a

behavioural intervention should be planned to take into account how a setting or context can be exploited in order to achieve maximum gain. They encourage researchers to think of the settings as a system of events and how components interact in order for an intervention to be delivered successfully. They ask behavioural researchers to plan their interventions by *“looking more at the chemistry and less at the atoms”* (Hawe et al. 2009). Planning interventions in this way, they argue, will help to make them more effective.

Looking at how BAIs work within a healthcare setting, a map can be created to show which members of staff are involved and at what stages, for example, who delivers the intervention, who recruits participants and how the intervention affects the patient and the organisation as a whole. Figure 1.5 is an example of how BAIs hypothetically work within the system of a primary care general medical practice. Whilst this map is dependent on subjective interpretations of how the intervention works within the system of a general medical practice and relies on the report by the researchers (Fleming et al. 2000; Ludbrook et al. 2002), the map does help show clearly the complexity of the intervention and how it impacts on the general medical practice and its staff.

Trialling the use of a single behavioural intervention therefore involves input and participation from several teams of people and might impact at multiple levels. For example, input is needed from the research team coordinating the trial, as well as the qualified professionals used to train practice staff in intervention delivery. Input is also needed from staff in the practice at all stages of intervention delivery, and from the individual who receives the intervention advice. Therefore, it is important to consider the potential complexities of introducing BAIs within primary dental care settings.

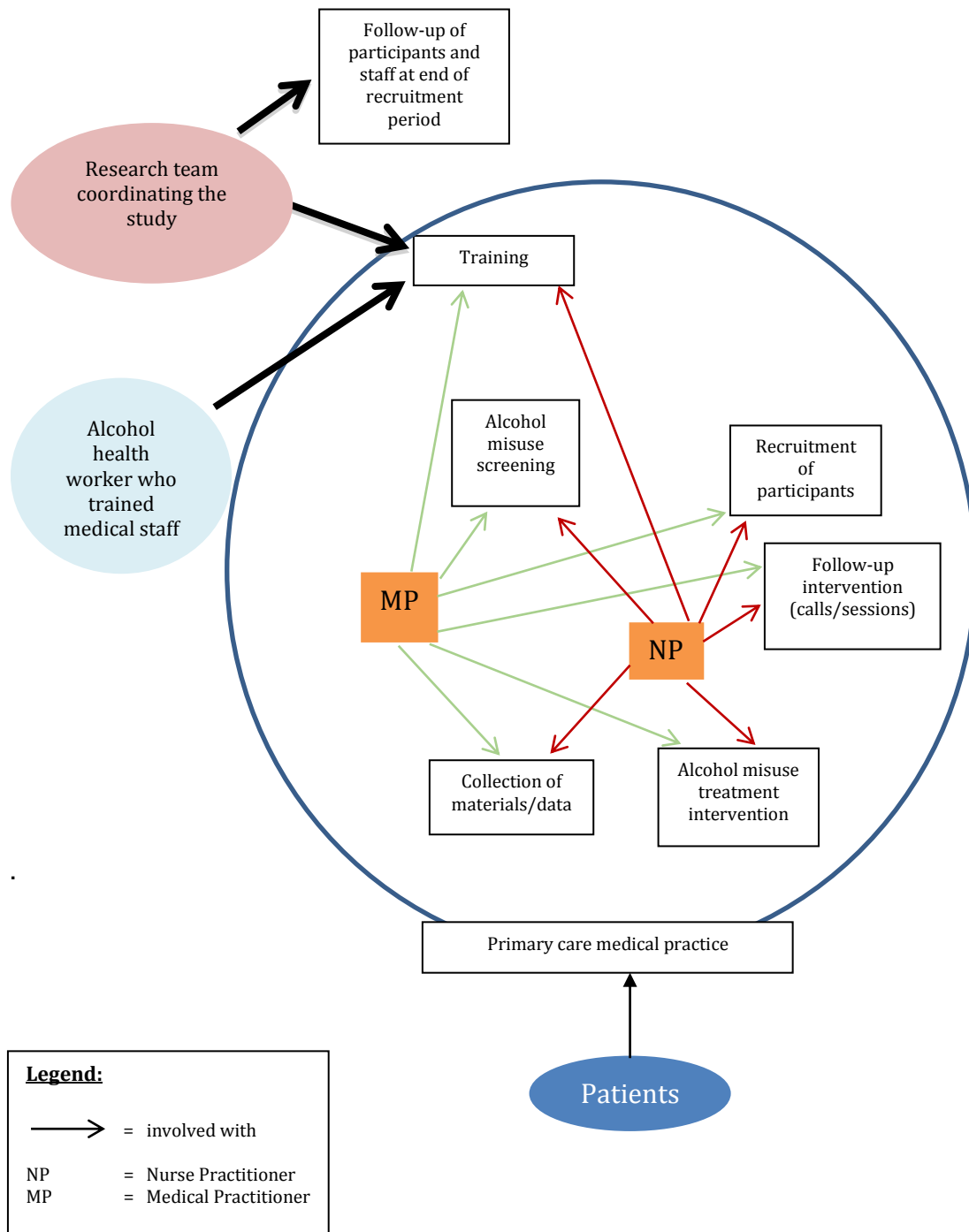


Figure 1.5: Mapping of the system in which BAIs could be embedded in primary care medical practice (Fleming et al. 2000; Ludbrook et al. 2002)

1.6 Conclusions drawn from the literature

1.6.1 Key points

- 1) Although surveys provide different perspectives, it is evident that alcohol misuse is prevalent in the UK.
- 2) Healthcare settings are ideal locations in which the UK population can be educated to moderate their alcohol consumption.
- 3) Alcohol misuse screening and treatment interventions have already been developed and tested for use in a range of healthcare settings. There is evidence that screening tools and these treatment interventions are effective in reducing alcohol misuse amongst patients in primary medical care and in secondary dental care settings.
- 4) The UK dental regulator, the GDC, recommends that all dental professionals should be involved in protecting and promoting both the general and oral health of their patients. Therefore, alcohol misuse is materially relevant to all dental professionals in primary and secondary care settings.
- 5) Primary dental care professionals are in a prime position to screen their patients for alcohol misuse and offer them advice. However, there is a lack of evidence that alcohol misuse screening tools and treatment interventions can be delivered successfully and are effective within the primary dental care setting.
- 6) When considering how to introduce alcohol misuse screening tools and treatment interventions within a primary dental care setting, a complex approach is required. This is because there are multiple factors that will influence a person's behaviour and health. Therefore, the effect of BAIs on an individual patient should not be the sole focus; consideration to the multiple levels of impact BAIs might have is needed during the design and evaluation of a clinical trial in dentistry.

1.6.2 Discussion

Looking at the literature, it is reasonable to conclude that dental healthcare professionals could be involved in tackling alcohol misuse amongst their patients. However, whilst there is evidence that alcohol misuse can be effectively reduced amongst patients in primary medical care and secondary dental care settings, there is a paucity of research in primary dental care settings. This, alongside the fact primary dental care teams will see a large proportion of the population in a proactive manner, (e.g. regularly for check-ups), suggests these dental healthcare professionals have unique opportunities to identify alcohol misuse and deliver advice to their patients, perhaps at much greater scale than their counterparts in secondary

dental care. Therefore, the involvement of primary dental care professionals in alcohol misuse prevention potentially offers a new, strategic approach to tackling alcohol misuse within the UK population. Exploring this innovative approach is a central aspect of this thesis; this involves theoretical, experimental and qualitative methods.

When deciding what tools and treatment interventions could be used to screen and treat patients for alcohol misuse within primary dental care settings, it is clear from the literature that short screening tools such as the FAST and M-SASQ are just as valid and reliable as longer, more complex screening tools: both have high sensitivity and specificity when compared to the gold standard AUDIT. In particular, the literature shows M-SASQ to be efficient in detecting a high percentage of harmful/hazardous drinkers, and has been shown to be valuable in busy healthcare settings in detecting alcohol misuse. However, the M-SASQ has been criticised for relating to only the identification of episodes of heavy drinking and for having a greater chance of identifying false positives compared to AUDIT and FAST (Screening and Intervention Programme for Sensible drinking (SIPS) Unknown). In contrast, it has been suggested that the most reliable way of establishing whether a person has an alcohol problem is by determining how a person consumes alcohol during heavy episodes, which is the main aim of M-SASQ (Jackson 2008). In addition, it is recommended that the identification and treatment of alcohol misuse should be brief, in order, first, that the process disrupts clinical routines as little as possible, and second, to allow more time to be spent delivering a treatment intervention (Hodgson et al. 2002; Thom et al. 2014). Out of all the screening tools available, despite its limitations, the M-SASQ therefore may have the most potential as a screening tool for use in primary dental care.

Educating patients verbally about alcohol misuse seems to be the most appropriate approach to delivering alcohol moderation messages to patients in the dental setting. For example, it might be difficult for dental professionals to introduce breathalysers or pharmacological treatments within their clinical practice to tackle alcohol misuse amongst their patients. Although there are mixed results on the effectiveness of various alcohol misuse treatment interventions, the literature suggests that the verbal intervention, MI, is particularly effective. Scrutiny of the FRAMES elements of MI, demonstrates that MI also satisfies key NICE criteria. Furthermore, the literature states that behavioural interventions should have a sound theoretical basis in order to be effective which MI again satisfies. For example, MI is consistent with models of

health behaviour, such as the Transtheoretical Model of Change, the Locus of Control, Theory of Reasoned Action, Social Cognitive Theory, Decisional Balance, Health Belief Model, Health Action Process Model, Self-determination Theory and Self-regulatory Model (Miller and Rollnick 2002; Britt et al. 2004). In support of these arguments, there is evidence that general lifestyle advice with no motivational approach or theoretical basis has low success rates (Britt et al. 2004).

MRC guidance on complex interventions is relevant to deciding how to introduce alcohol misuse screening and treatment interventions in primary dental care. This guidance consists of a series of stages to help researchers to develop interventions and design trials to test intervention effectiveness. This guidance sets out a thorough knowledge-generation process. It helps the researcher to acknowledge there are several stages of work that must be completed whereby the information gained from one stage logically informs the next. This guidance has been used successfully - examples are given in the guidance document and there are many trials that have been developed in this context, including interventions designed to tackle a range of harmful health behaviours. These trials include the **P**reventing disease through opportunistic, **R**apid **E**ngag**E**ment by **P**rimary care **T**eams using behaviour change counselling trial (PRE-EMPT) and the trial of a motivational interviewing-based intervention for **W**eight **L**oss **M**aintenance in **A**dults (WILMA trial) (Spanou et al. 2010; Simpson et al. 2015). In particular, the MRC guidance embraces the concepts of social ecology that acknowledge there are multiple determinants of health and that a person's behaviour does not occur in isolation. In addition, it recognizes that behavioural interventions delivered in healthcare settings do not just involve producing behavior change in an individual patient. There should be more complexity in developing and testing interventions. For example, it's not just the change in a patient that is needed for BAIs to be successful in primary dental care, but also a change in professionals' behavior, which includes intervention fidelity. Therefore, this guidance appears to be a valuable source to refer to for the purpose of introducing BAIs within primary dental care.

2 Overall aims and layout of this thesis

2.1 Aims of the thesis

The overall aim of the research described in this thesis is:

- To determine whether there is a role for primary care dental professionals in tackling alcohol misuse amongst their patients.

2.2 Objectives of the thesis

The objectives of the thesis are:

- 1) To search the literature systematically in order to find evidence on how dental professionals currently tackle harmful health behaviours, including alcohol misuse, in dental settings.
- 2) To use qualitative methods to identify barriers and facilitators to screening and treatment interventions for alcohol misuse in dental settings, especially primary dental care.
- 3) To collate evidence from the literature search and qualitative research to determine how dental professionals in primary care might improve their responses to patients who are misusing alcohol.
- 4) To test a new approach to alcohol misuse screening and treatment in primary dental care using a Phase II exploratory/feasibility trial.

2.3 Layout of the thesis

This thesis follows the format of the MRC's framework for the design and evaluation of complex interventions to improve health. The chapters include a systematic search of the literature, qualitative work and an exploratory trial in order to satisfy the first three of the five stages of the MRC guidance. As mentioned in Chapter 1, the five stages include the preclinical or theoretical stage, the Phase I or modelling stage, the Phase II or exploratory/feasibility trial stage, the Phase III or definitive randomised controlled trial stage and a Phase IV or long term implementation stage.

2.3.1 *The systematic literature search (preclinical or theoretical stage)*

A systematic search of the literature was completed in order to comply with the preclinical or theoretical stage of the MRC guidance (presented in Chapter 3). The rationale behind this search was to appraise the current evidence base and to identify trials of behavioural interventions which have already been carried out in

dentistry to tackle harmful health behaviours, including alcohol misuse. The contents of the interventions, the dental settings within which they were delivered and the members of the dental team that delivered them were assessed. Therefore, the systematic literature search was conducted to identify elements of peer-reviewed studies that could be used to inform how primary care dental professionals might tackle alcohol misuse amongst their patients.

2.3.2 *The qualitative study (Phase I or modelling stage)*

After the literature search, a qualitative study was completed to satisfy the Phase I or modelling stage of the MRC guidance (presented in Chapter 4). This study followed a thematic approach to determine the barriers and facilitators to the use of alcohol misuse screening tools and treatment interventions according to the views of dental professionals, public health practitioners and patients.

2.3.3 *The Phase II exploratory trial*

Based on the findings of the systematic literature search and qualitative work, a Phase II exploratory trial (feasibility study) was designed (presented in Chapter 6). This study was conducted to determine whether it is possible to introduce an alcohol misuse screening tool and treatment intervention in primary dental care. A process evaluation of the exploratory trial was also completed.

2.3.4 *Overall conclusions drawn*

The final chapter presents the overall conclusions drawn from this research.

3 Systematic Literature Search

3.1 Introduction

This chapter consists of the systematic literature search. There are four sections. The first two sections set out the aims and objectives of the systematic literature search. The third section describes the systematic search protocol. The fourth section is a discussion of the findings. The fifth section summarises these findings. Tables summarising the studies selected during the systematic search process are included.

3.2 Aims of the systematic literature search

In order to satisfy the first stage of the MRC guidance, a systematic search of the literature was completed to gain an overview of the behavioural interventions that had already been trialled for use by the dental team to tackle harmful health behaviours, such as alcohol misuse, in various dental settings.

The aims of the systematic literature search were twofold:

1. To identify from the evidence base trials where behavioural interventions had been found to alter harmful health behaviours amongst dental patients. The objective was to identify potential options which could be generalised across the dental team. For example, interventions which dental nurses, dentists or dental hygienists could deliver. Evidence of potential generalisation across dental sectors was also sought, together with evidence of generalisation to other behaviours such as smoking, oral hygiene and diet.
2. To highlight the theoretical positions in relation to models of behaviour change that had been successfully applied to interventions in dentistry.

3.3 Objectives of the systematic literature search

The objectives were:

1. To explore the literature in order to assess whether there are elements of successful trials that could be included in the design of a randomised controlled trial to evaluate alcohol misuse screening tools and treatment interventions in primary dental care.
2. To identify opportunities for the implementation of behavioural interventions targeting alcohol misuse amongst primary dental care patients.

3.4 The search protocol

Reference was made to Booth et al. (2012) in order to direct the template for the protocol for the systematic literature search.

3.4.1 *Criteria for the inclusion and exclusion of studies*

The types of studies included

The studies included were controlled trials, randomised controlled trials and cluster randomised controlled trials. This was because the systematic literature search was designed to determine what behavioural interventions had been trialled successfully in dental settings so that elements could be considered in the design of a randomised controlled trial of BAIs in primary dental care. Case-control studies, cohort studies, surveys and qualitative studies were excluded.

The types of intervention included

Trials that aimed to test the efficacy or effectiveness of interventions to alter dental patients' behaviour were included. The behavioural interventions included were those that aimed to encourage not only safe alcohol consumption, but also to improve patients' adherence to oral hygiene instruction, consuming a diet low in sugar and smoking cessation. This is because it was anticipated that there would be few trials of BAIs in dentistry. A broad overview of the various types of behavioural interventions that had been trialled in dental settings was needed so that concepts could be applied to the design of an exploratory/feasibility trial of BAIs.

Interventions delivered by dentists, dental nurses or hygienists were included. Studies where the dental professional delivered the intervention in part or wholly were also included. Trials based in communities, general dental practices or hospitals were included. In addition, trials were also included if they evaluated an intervention which was based on a psychological model and had theoretical foundations. Interventions that targeted patients or professionals only and multi-level interventions designed to change both patient and professional behaviour were included.

Trials with no control group were excluded. Studies that involved pharmacological treatments only were excluded, for example, trials of treatments designed to improve patients' plaque scores through the provision of antimicrobial agents.

The types of populations included

The population included in the search were adult male and female dental patients aged 18 years and over from any ethnic background. The idea was to identify studies where interventions had been trialled for use to target harmful health behaviours amongst adult dental patients, such as smoking, oral hygiene neglect and the consumption of a diet high in sugar, in order to see if these studies could help inform the design and implementation of an intervention to tackle alcohol misuse amongst adult patients. Participants with periodontal disease, dental caries, smoking-related and alcohol-related diseases and problems, as diagnosed by a healthcare professional, were included.

Trials that included children and participants below the age of 18 were therefore excluded. Trials that included special populations only, such as pregnant women, people with mental impairments, were also not considered.

The types of outcome measures included

Studies that aimed to explore the efficacy or effectiveness of an intervention were included. In this context, the meaning of effectiveness was taken as a reduction in harmful behaviour or an alteration in behaviour that was beneficial to health e.g. smoking cessation or an increase in maintaining oral hygiene that resulted in improvements to periodontal indices. The reduction or change in behaviour needed assessment at least three months after receiving the intervention. Studies with follow-up periods of at least three months were therefore included only. Levels of significance were not taken as the sole evidence for effectiveness; even though a study may not have had significant results, it was included if there was more of a change in the behaviour of patients in the intervention than the control group. This was because it was anticipated that there would be limited trials of behavioural interventions in dentistry. Including studies with significant results only would exclude studies, which, while they may not have had a significant effect, still may have been clinically important.

The setting/context of the studies included

English language journal articles and texts were searched only. Studies published from 1980 were included as looking at the literature, research into health promotion in dentistry has increased particularly over the last twenty to thirty years (Kay et al. 2015). In addition, previous systematic reviews in dentistry also use 1980 as the starting year for the selection of papers (Worthington et al. 2011). All studies had to

be conducted in dental clinics, which included either general dental practices, hospital dental services or community dental services. Studies conducted in the USA, Australia, Asia, the UK and the rest of Europe were included.

3.4.2 ***Search strategy for identification of studies***

The electronic databases searched were:

- Medline (via OVID 1946 to present)
- EMBASE (1947 to present)
- PsychINFO (1806 to present)
- HMIC Health Management Information Consortium (1979 to present)
- PsycArticles Full Text (1985 to present)
- AMED Allied and Complementary Medicine (1985 to present)
- Cardiff University Full text journals (1985 to present)

Keywords

Keywords were developed using the mesh heading search tool in Pub Med. For suitability, the thesis supervisors verified the keywords.

The keywords used were:

1. dentistry.mp.
2. dentistry/
3. dental assistants/
4. dentists/
5. dentist.mp.
6. dental nurse.mp.
7. dental hygienists/
8. dental hygienist.mp.
9. dental care/
10. dental service.mp.
11. general practice, dental/
12. dental service, hospital/
13. community dentistry/
14. community dentistry.mp.
15. dental clinics/
16. intervention.mp.

17. (brief and intervention).mp.
18. oral hygiene.mp.
19. diet.mp.
20. smoking.mp.
21. tobacco.mp.
22. alcohol.mp.
23. dental plaque indices/
24. periodontal indices/
25. alcohol drinking/
26. alcohol consumption.mp.
27. diet modification/
28. smoking cessation/
29. smoking cessation.mp.
30. psychological theory/
31. theoretical models/
32. ((behavior or behaviour).mp. or behavior/) and change.mp.
33. ((randomized or randomised) and controlled and (clinical trials or trial)).mp.
[mp=title, abstract, original title, name of substance word, subject heading word, protocol supplementary concept, rare disease supplementary concept, unique identifier]
34. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8
35. 9 or 10 or 11 or 12 or 13 or 14 or 15
36. 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30 or 31 or 32
37. 33 and 36
38. 34 and 35 and 37
39. 33 or 36
40. 34 and 35 and 39
41. (dent* and preventive and behaviour).mp. [mp=title, abstract, original title, name of substance word, subject heading word, protocol supplementary concept, rare disease supplementary concept, unique identifier]
42. (dent* and controlled trial and intervention).mp. [mp=title, abstract, original title, name of substance word, subject heading word, protocol supplementary concept, rare disease supplementary concept, unique identifier]
43. 40 or 41 or 42

Further databases searched were:

- Web of Science via Web of Knowledge database (1900 to present)
- The Cochrane Central Register of Controlled Trials CENTRAL (1974 to present)

These databases were searched with different keywords since they did not facilitate the use of the same search tools as Medline, EMBASE etc. The keywords used were:

1. dentistry AND randomised controlled trial
2. dentistry AND intervention

Other search methods

Other search methods included the use of search engines, including Google Scholar, and reference and citation checking. The grey literature was not searched.

3.4.3 **Study selection**

Studies were selected first through title sift, then through abstract sift, next through full text sift and lastly through citation sift. Those studies that did not satisfy the inclusion criteria were excluded.

3.4.4 **Results of the literature search**

- The Medline search revealed 1812 studies. 28 were selected on title sifting for relevance.
- The EMBASE search revealed 2447 studies. 24 were selected on title sifting for relevance.
- The PsychINFO search revealed 25 studies. One was selected on title sifting for relevance.
- The HMIC search revealed 40 studies. One was selected on title sifting for relevance.
- The PsycArticles search revealed 62 studies. Two were selected on title sifting for relevance.
- The Allied and Complementary Medicine search revealed two studies. None were selected on title sifting for relevance.
- The Cardiff University journals search revealed 480 studies. Two were selected on title sifting for relevance.

- The Web of Knowledge search revealed 469 studies. Three were selected on title sifting for relevance.
- The CENTRAL search revealed 877 studies. Two were selected on title sifting for relevance.

The abstracts of the studies selected on title sift were read and after duplicates and those studies that did not meet the inclusion criteria were excluded, 19 studies remained. Internet searching, reference sifting and citation sifting revealed one further relevant study.

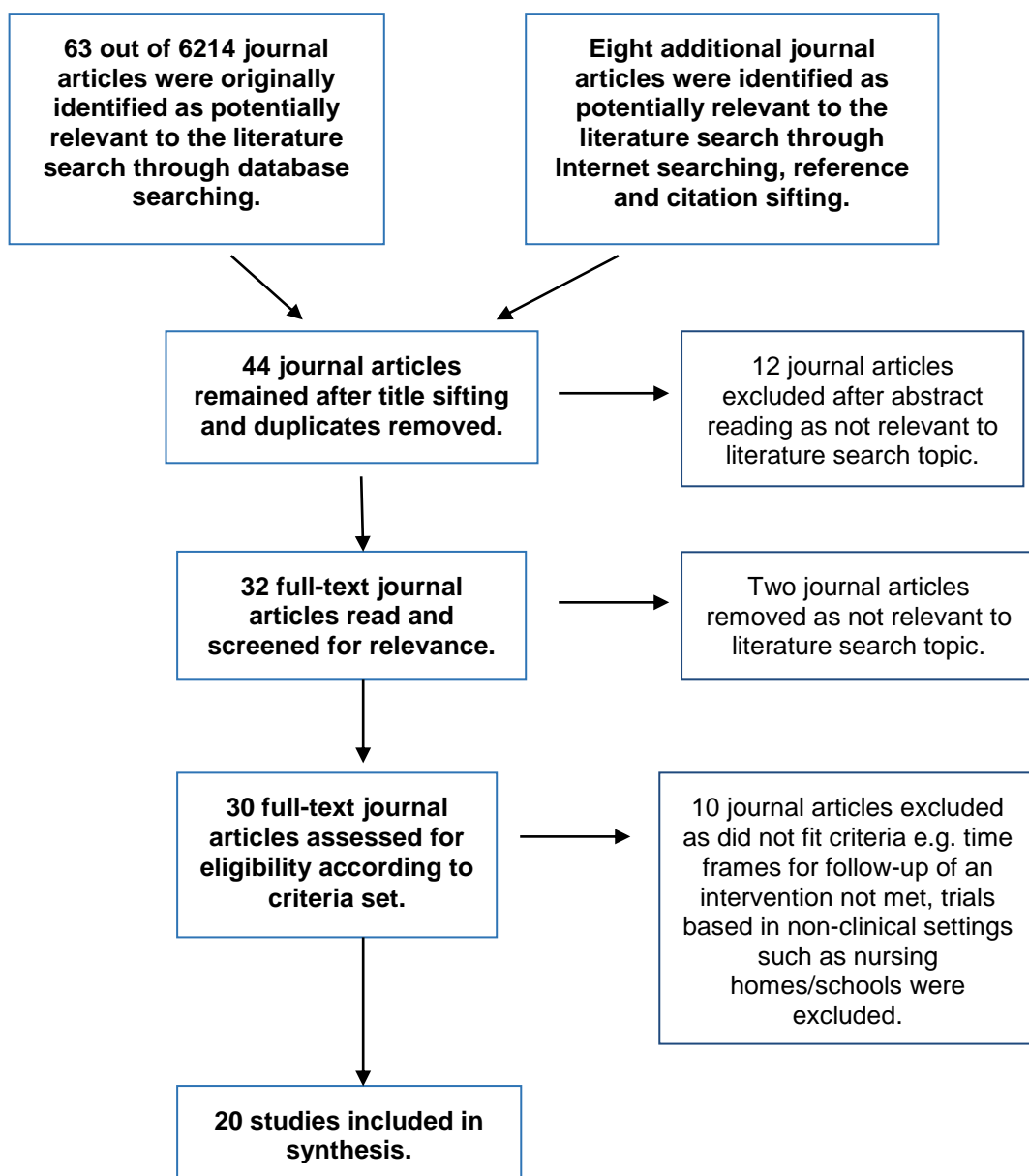


Figure 3.1: Flow-diagram of papers journal articles selected for systematic literature search

3.4.5 **Assessment of studies**

Selected studies were quality assessed by the thesis author only; trial methodology was assessed to determine if the method of randomisation was clear, allocation concealment and blinding had been taken into account and whether studies took account of participant attrition. Sample sizes were also noted and whether power calculations had been carried out. The studies were then assessed according to outcomes, population targeting and dental context (primary or secondary care). They were also assessed according to who was delivering the intervention and at what level the behavioural intervention was aimed (patient or professional level or both).

Relevance and design features of studies were assessed in the context of the design of a trial of an intervention designed to tackle alcohol misuse within a primary dental care setting. Furthermore, the results of the studies were assessed in order to determine whether there was evidence of intervention effectiveness (as defined in section 3.4.1 in *The types of outcome measures included*).

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The results of the analysis of the journal articles selected are summarised in Table 3.1.

Table 3.1: Summary of the analysis of the trials selected from the systematic literature search

Authors & Country	Study	Overview	Main findings	Criticisms	Relevance to thesis
(Weinstein et al. 1984), USA	Pragmatic randomised controlled trial to determine the effectiveness of a behavioural oral hygiene intervention in improving plaque control amongst patients with oral hygiene neglect.	Seven adult patients with moderate amounts of plaque attending a primary care private practice were recruited. Four of these patients were randomised to receive the intervention. Intervention consisted of four sessions with a dental hygienist whereby patients were given individualised feedback and asked to set goals/plans on how to improve their oral hygiene. Three patients were randomised to the control group to receive standard care and advice.	Patients were followed-up at six, 12 and 18 months. Outcome measures were plaque scores. Patients in the intervention group exhibited better plaque scores than those in the control group at six months. Patients in the intervention group showed a relapse in behaviour at 12 and 18 months.	<ul style="list-style-type: none"> • No details were given on the gender split of participants. • There was not enough data to calculate an effect size. • No costs were given for the intervention. • Patient-level outcomes were assessed only. • Hard to get ideas for the design of a study e.g. no details on how the randomisation schedule was created and no details on blinding. • The extra sessions/time spent with patients may have acted as a confounder rather than the intervention itself being effective. However, no details were given on the length of the intervention/sessions with patients. • Very small sample size. • Study was conducted in the USA in a private clinic so hard to know whether findings can be generalised to UK NHS dental clinics. 	<ul style="list-style-type: none"> • The study showed that dental hygienists can be useful in delivering interventions. • A relapse in behaviour means interventions should be delivered in settings where healthcare professionals can reinforce information at regular intervals. • Authors referred to theories to motivate patients e.g. social reinforcement, Premack principle. • Spending more than one session with patients can help motivate/reinforce information to patients. However, the very low sample size means this cannot be conclusive.

Authors & Country	Study	Overview	Main findings	Criticisms	Relevance to thesis
(Cohen et al. 1989), USA	Randomised controlled trial to explore the effectiveness of a smoking cessation intervention amongst dental patients.	44 private general dental practitioners were recruited to take part in the study. All dentists received a one hour lecture on how to counsel patients to quit smoking using a four step protocol. Each dentist was then randomly assigned to either one of three intervention groups or to a control group. All four groups were asked to deliver the intervention they were taught at the training session. The control group (13 dentists) was told to deliver this intervention only. However, those in the first intervention group (nine dentists) were given nicotine gum to give to their patients on re-attendance at the practice, the second intervention group (10 dentists) was given stickers to put on their patients' charts to remind them to tell them to quit when they re-attended for an appointment and the third intervention group (12 dentists) were given gums and stickers to use for their patients. In total 1027 adult, male and female, patients received some form of advice from the dentists.	Follow-up was at six and 12 months. The percentage of patients who had quit smoking in the control and each of the three intervention groups was recorded. In addition, the amount of time patients said their dentists had spent delivering smoking cessation advice was also recorded. The percentage of patients who had quit after 6 months in the control group was 7.1%, 18.2% in those patients who received advice and then nicotine gum from their dentists, 7.4% in those patients whose dentists were told to deliver advice and were given sticker reminders and 9.4% for those patients who were given advice, gum and whose dentists were also told to use sticker reminders. After 12 months this was 7.7%, 16.3%, 8.6% and 16.9% respectively. Those patients who received gum reported that dentists spent the longest giving them cessation counselling.	<ul style="list-style-type: none"> • Patient-level outcomes were reported only – professionals were not asked for feedback. • No details were given on gender split of participants. • No details were given on the intervention length. • No costs were given for the interventions. • No P values or confidence intervals were given for quit rates between groups so the significance of results or clinical relevance could not be determined. • No effect size could be calculated from the data. • No theoretical basis to the interventions was mentioned. • The nicotine gum may be the reason patients quit rather the intervention itself. • Study was set in the USA so hard to generalise these findings to the UK. 	<ul style="list-style-type: none"> • Reminders for professionals such as gum and stickers may help them to deliver advice. • The interventions used were relatively straightforward. • Easy to train dental professionals on how to tackle this behaviour.

Authors & Country	Study	Overview	Main findings	Criticisms	Relevance to thesis
(Macgregor 1996), UK	Randomised controlled trial to investigate the success of smoking cessation advice on reducing cigarette smoking amongst dental patients.	136 adult, male and female, periodontal patients attending the secondary care periodontology department in Newcastle dental hospital were recruited and randomised into intervention and control groups. All participants had to smoke five or more cigarettes a day. 98 patients in the intervention group received smoking cessation advice from a dentist (author of the study) and more specifically advice on the effects of smoking on periodontal health. Normal treatment was also carried out by the patient's usual clinician. 38 patients in the control group received no advice but normal treatment was carried out.	Follow up was between three and six months. The main outcomes assessed were number of cigarettes smoked and quit rates. A significantly higher number of smokers in the intervention group reduced their cigarette use compared to control patients. The intervention group also showed higher quit rates compared to the control group.	<ul style="list-style-type: none"> • Patient-level outcomes were reported only. • No costs were given for the intervention. • No true randomisation took place as participants were allocated alternately into control and intervention groups. • Some of the methods were unclear e.g. blinding methods. • No effect size could be calculated. • Using a single practitioner to deliver intervention may not always be feasible in all dental settings. 	<ul style="list-style-type: none"> • The study showed that dentists could be useful in delivering behavioural interventions. • Study was conducted in the UK so findings are more generalisable.

Authors & Country	Study	Overview	Main findings	Criticisms	Relevance to thesis
(Little et al. 1997), USA	Randomised controlled trial to determine the effectiveness of a group intervention that aimed to tackle oral hygiene neglect in patients with moderate periodontal disease.	107 adult patients, male and female, were recruited from private clinics. 54 patients (27 male, 27 female) were randomised into the intervention group and were taught by dental hygienists in their regular clinics in groups of seven to ten people oral hygiene skills and how to self-monitor their progress. Patients attended five weekly 90 minute sessions in the evenings. Patients paid a deposit of \$20 but received it back on completion of study. 53 patients (35 male, 18 female) received their usual care and oral hygiene advice from dental hygienists. They did not attend the evening classes.	Follow-up took place at four months. Oral hygiene skills, self-reported flossing and plaque scores, gingival indices, bleeding scores and probing pocket depths were assessed. Patients in the intervention group had significant improvements in their oral hygiene skills and flossing compared to the controls. Those in the intervention group also generally showed improvements in plaque scores, gingival indices, bleeding scores throughout the mouth and improvements in probing pocket depths.	<ul style="list-style-type: none"> • No costs were given for the intervention. • Patient-level outcomes only were reported. • Study was not conducted in the UK so hard to tell if findings can be generalised to the UK. • Some of the methods were unclear e.g. randomisation methods, blinding. • Several sessions were needed in the intervention group. Extra time may be the reason intervention successful. • Patients had to attend sessions in the evenings – not sure how feasible this would be in the UK. • Patients may feel uncomfortable being taught in a group. • No power calculation for sample size. 	<ul style="list-style-type: none"> • The study showed that dental hygienists could be useful in delivering behavioural interventions. • Group interventions can be successful. • Methods included details on loss to follow-up. • No effect size could be calculated. • Getting patients to pay to take part with a refundable deposit can help limit drop-outs. • The authors designed an intervention based on behavioural self-management techniques to increase self-efficacy.

Authors & Country	Study	Overview	Main findings	Criticisms	Relevance to thesis
(Severson et al. 1998), USA	Randomised controlled trial to examine the effectiveness of interventions advising patients who use tobacco to quit.	6350 adult, male and female patients were recruited from various private practices. 1350 used cigarettes, 239 used smokeless tobacco and 4761 used tobacco in either form. 1305 patients were randomised and assigned to a minimal intervention group (given advice on quitting, kits on health problems of using tobacco and kits with Nicotine Replacement Therapy) and 1768 patients were randomised to an extended intervention group (given the same as the minimal intervention but had an added goal of setting a quit date, were given a motivational video to quit and a follow up phone call). All 1688 patients who used smokeless tobacco were assigned to an extended intervention only (no smokeless tobacco users received a minimal intervention). 1589 patients in the control group were given normal smoking cessation advice. A dental hygienist delivered all interventions.	Follow up was at three and 12 months. The percentage of patients who had quit was assessed. The extended intervention was effective only in smokeless tobacco users with significantly more patients quitting in this group at both three and 12 months.	<ul style="list-style-type: none"> • No costs were given for the intervention. • No details were given on the gender split of participants. • No details were given on the intervention length. • Results were very hard to interpret e.g. no P values were given. • Some of the methods were unclear e.g. blinding methods. • No effect size could be calculated from the data. • No theoretical basis to the interventions was mentioned. • Study was set in the USA so hard to generalise these findings to the UK. • Smokeless tobacco users were not given the minimal intervention so hard to make direct comparisons between cigarette users and smokeless tobacco users. 	<ul style="list-style-type: none"> • The study showed that dental hygienists could be useful in delivering behavioural interventions. • Very large sample size. • Giving patients videos and follow-up calls can be helpful.

Authors & Country	Study	Overview	Main findings	Criticisms	Relevance to thesis
(Smith et al. 2003), UK	Pragmatic randomised controlled trial to evaluate the effectiveness of brief motivational interviewing (MI) in reducing alcohol consumption and misuse in patients who have experienced an alcohol related maxillofacial injury.	219 adult male patients were screened and out of these 151 were selected on the basis that they drank eight or more units of alcohol prior to their injury. Patients were recruited from secondary care oral and maxillofacial trauma outpatient clinics five to seven days after they had experienced an alcohol-related injury and were randomised into control and intervention groups. 75 patients in the intervention group received usual treatment plus a one-session MI (5 to 20 minutes long) with a nurse. 76 patients in the control group received usual care only.	Patients were followed-up at three and 12 months. Patients kept a drinking diary. Primary outcomes were total alcohol consumption, alcohol consumption in a typical week and days abstinent in the preceding three months. Other outcomes included AUDIT scores, the Alcohol Problems Questionnaire and measurements of satisfaction and readiness to change. Main findings were that at three months the reduction in hazardous drinking was not significant, whereas at 12 months significantly more patients in the intervention group had reduced their hazardous drinking to designated safe levels. There was also a significant decrease in 84-day total alcohol consumption across the year in the intervention group.	<ul style="list-style-type: none"> • Patient-level outcomes only were reported. • No costs were given for the intervention. • Males were sampled only. 	<ul style="list-style-type: none"> • The study showed that clinic nurses could be useful in delivering behavioural interventions. • Methods included details of randomisation, blinding and loss to follow-up. • Intervention was opportunistic and took place in only one session. • Effective interventions can be delivered concurrent with treatment. • Power calculations were completed and adequate sample size. • Following short training sessions (three hours) nurses can be competent in delivering MIs. • Study was designed to make use of teachable moment (educating patients suffering from alcohol-related injury at a time when they were likely to engage with MI objectives). • Gave useful ideas for fidelity checks. • The study was conducted in the UK so findings can be generalised. • Authors used motivational interventions based on models including the self-determination theory.

Authors & Country	Study	Overview	Main findings	Criticisms	Relevance to thesis
(Gordon et al. 2005), USA	Randomised controlled trial to investigate whether various training methods help increase the dissemination of a smoking cessation intervention based on the 5As (ask, advise, assess, assist, arrange follow-up).	287 dental hygienists (99% female) were recruited from various dental clinics and randomised into one of three groups. 109 hygienists received personalised training instruction on how to give smoking cessation advice following the 5As during a three-hour group workshop. 76 hygienists received training self-study materials (manual and video) on how to give smoking cessation advice following the 5As. 102 hygienists received delayed training (acted as the control group) whereby they were sent only a booklet on the risks of smoking on developing oral cancer and were told they would receive training at a later date.	Follow up was at three and 12 months. The main outcome was professional compliance that was assessed according to whether professionals delivered the points in the 5As (therefore whether they delivered ask, advise, assess, assist, arrange follow-up). At both three and 12 months those hygienists in either of the training groups increased their "assist" behaviours more than those in the delayed training control group. The self-study materials were shown to be more cost-effective than personalised training instruction.	<ul style="list-style-type: none"> • Professional-level outcomes only were reported. • No details were given on the intervention length. • The study was not conducted in the UK so hard to tell if findings can be generalised to the UK. • Some of the methods were unclear e.g. randomisation methods, blinding. • Effect size was very small (0.1 using Cohen's d) 	<ul style="list-style-type: none"> • The study showed that dental hygienists could be useful in delivering behavioural interventions. • Training of staff was possible through various means such as videos, manuals and one-to-one training. • The authors referred to social learning theory. • Costs were given for the intervention. • Short/single-session training for professionals can work well.

Authors & Country	Study	Overview	Main findings	Criticisms	Relevance to thesis
<p>(Jonsson et al. 2006), Sweden</p>	<p>Pragmatic randomised controlled trial to test the effectiveness of an oral hygiene intervention to encourage patients to increase their oral self-care.</p>	<p>35 adult patients, male and female, with periodontal disease, attending the periodontology department in a Swedish County Hospital, who exhibited non-compliance after the first two years of receiving initial therapy, were recruited. 19 individuals (nine male, 10 female) were randomised to receive normal treatment as well as an individually-tailored intervention from a dental hygienist that involved in total four visits with the hygienist (involved the following points: initiation, assessment, negotiation, commitment and evaluation). 16 individuals (eight male, eight female) were randomised to receive normal treatment and advice from a hygienist (patients received normal treatment and advice over three appointments but no individually-tailored advice).</p>	<p>Follow-up was at three months after the first visit with the hygienist. The effect of the intervention on oral hygiene habits, gingival indices, plaque scores, bleeding scores and periodontal pockets was assessed at baseline and three months. The intervention group showed a significantly higher increase in oral self-care habits, especially interdental cleaning. The percentage reduction in plaque scores was significantly greater in the intervention group than in the controls. The intervention group also showed a significantly greater reduction in pocket depths at three months. There were no changes, however, in gingival indices or bleeding scores between control and intervention groups.</p>	<ul style="list-style-type: none"> • Patient-level outcomes only were reported. • No costs were given for the interventions. • Sample size was small. • The intervention required many appointments. • However, no details were given on the intervention length. • The study was set in the Sweden so hard to generalise these findings to the UK. 	<ul style="list-style-type: none"> • This study showed that dental hygienists could be useful in delivering interventions. • Delivering an intervention alongside normal treatment is achievable. • Individually-tailored advice can be useful for patients. • Methods for randomisation and blinding were clear. • The intervention was based on the Client Self-Care Commitment Model (CSCCM) and was designed to increase self-efficacy. • Effect size was 0.8 for changes in plaque scores which is large (using Cohen's d).

Authors & Country	Study	Overview	Main findings	Criticisms	Relevance to thesis
<p>(Binnie et al. 2007), UK</p>	<p>Pragmatic randomised controlled trial to determine if it was feasible for dental hygienists to deliver tobacco cessation advice to periodontal patients.</p>	<p>118 adult patients, male and female, attending a secondary care specialist clinic were randomised into control and intervention group. Data for 59 patients (14 male, 59 female) in the intervention group and 57 patients (20 male, 37 female) in the control group were included in the analysis. Patients in the intervention group received smoking cessation advice based on the 5As (ask,advise,assess, assist,arrange follow-up) and were offered nicotine replacement therapy (NRT). The control group received usual care.</p>	<p>Patients were followed-up at three, six and 12 months. For all follow-up time points, a significantly higher proportion of patients had quit compared to the control group. The intervention group also showed more of a reduction in the number of cigarettes smoked per day at three months and a significantly higher number of quit attempts at three and six months, Those who were still smokers at three and six months showed a significantly greater number of quit attempts of at least one week in the preceding three months at the twelve month mark.</p>	<ul style="list-style-type: none"> • No costs were given for the intervention. • No details were given on the intervention length. • Patient-level outcomes only were assessed. • Intervention is not based on any theoretical model. • Nicotine replacement therapy may have acted as a confounder since successful quitters at six months used this to help them quit. • Patients were aware of the intervention and so may have been more likely to quit. • Allocation concealment unclear. • No effect sizes could be calculated although authors stated this was a feasibility study. 	<ul style="list-style-type: none"> • The study showed that dental hygienists can be useful in delivering behavioural interventions. • Methods included details of randomisation and attrition rates. • The intervention was simple. • Interventions can be delivered alongside treatment. • Adequate sample size. • The study was conducted in the UK so findings can be generalised to other UK contexts.

Authors & Country	Study	Overview	Main findings	Criticisms	Relevance to thesis
(Gordon et al. 2007), USA	Pragmatic cluster randomised controlled trial to test the efficacy of two tobacco cessation interventions compared to usual care delivered to dental patients.	2177 adult patients who smoked cigarettes and/or used smokeless tobacco were recruited from 68 private dental practices. 22 practices were randomised into the control group and 25 and 21 practices were randomised to deliver one of two interventions (5As and 3As condition respectively). Those professionals (including both dentists and dental hygienists) in control practices delivered usual care to their patients only. Those in the 5As intervention group were given a three hour in-office training session on how to deliver smoking cessation advice based on the ask, advise, assess, assist and arrange principals and were given written information on smoking quit lines for patients. Those in the 3As intervention group were given a three hour in-office training session on how to deliver smoking cessation advice based on the ask, advise, assess principals in-office as well as verbal instructions on how to refer patients to smoking quit lines for telephone counselling.	Follow-up was at three months. Outcomes assessed were perceived readiness to quit, quit rates, use of adjunctive quitting aids (such as nicotine replacement therapy, written aids), and referral to quit lines. The results showed that patients in the intervention groups showed significantly higher quit rates than those in the control group. More patients in the 5As intervention group quit smoking cigarettes than those in the 3As. More patients in the 3As group reported being asked about whether they would like to be referred to the smoking quit line. Readiness to quit seemed to predict a person's likelihood to self-report abstinence of tobacco use regardless of group. There was no difference between groups in the use of adjunctive quitting aids.	<ul style="list-style-type: none"> • Patient-level outcomes only were reported. • No costs were given for the interventions. • No details were given on gender split of participants. • No details were given on the intervention length. • Participant characteristics were unclear. • Methods for randomisation/blinding were unclear. • No power calculations were available. • Effect sizes could not be calculated from the data. • No theoretical basis was stated for the interventions. • Authors did not distinguish whether interventions had been delivered more effectively by dentists or dental hygienists. • The study was set in the USA so hard to generalise these findings to the UK. 	<ul style="list-style-type: none"> • This study showed that dental practices can be useful settings in which to deliver interventions. • Interventions seemed quite simple. • Training staff in-practice can be useful. • The authors stated that patients were offered incentives to take part - which can be useful to prevent attrition. • Verbal training on referring patients to quit lines seems more useful than written information.

Authors & Country	Study	Overview	Main findings	Criticisms	Relevance to thesis
(Goodall et al. 2008), UK	Pragmatic randomised controlled trial to explore the effectiveness of two brief interventions in reducing hazardous drinking amongst patients attending hospital trauma departments.	249 adult patients (177 male and 18 female) were screened using the AUDIT in maxillofacial and trauma departments across three hospitals in Scotland. All patients screened had suffered from an alcohol-related facial injury two weeks prior to the study and were attending outpatient clinics for follow-up. 194 were identified as hazardous drinkers and so were randomised into either the intervention or control group. 96 patients in the intervention group received a nurse-led brief motivational interview lasting between five and 65 minutes. 98 patients in the control group received a leaflet about alcohol use from a nurse.	Patients were followed-up at three and 12 months. Drinking behaviour patterns were assessed by asking patients about the number of drinking days they had during the past 30 days, the number of heavy drinking days in the past 30 days and the number of standard drinks they consumed on a drinking day. There was no significant difference between groups at three months. However, at 12 months there was a significant difference with those in the intervention group showing more of a reduction in drinking days and heavy drinking days.	<ul style="list-style-type: none"> • There was not enough data to calculate an effect size. • No costs were given for the intervention. • Patient-level outcomes only were assessed. • No details on how the randomisation schedule was created or exact details of randomisation methods. 	<ul style="list-style-type: none"> • The study confirmed that nurses could be useful in delivering interventions. • Study showed that brief interventions can be delivered in the dental setting successfully to tackle alcohol misuse. • There seemed to be better outcomes when patients received a one-to-one intervention rather than a leaflet. • Good sample size. • Strengths of the trial included that the outcome assessor was blind and details on loss-to-follow up were given. • Gave useful ideas for fidelity checks of intervention. • Authors used motivational interventions based on models including the self-determination theory. • Study was designed to make use of teachable moment (educating patients suffering from alcohol-related injury). • Study conducted in UK so findings can be generalised.

Authors & Country	Study	Overview	Main findings	Criticisms	Relevance to thesis
(Houston et al. 2008), USA	Randomised controlled trial to investigate the effectiveness of an internet-delivered intervention on dental professionals' adherence to delivering tobacco cessation advice.	143 private dental practices were selected and randomised into control and intervention groups. 70 practices were allocated to receive the internet delivered intervention. This intervention consisted on modules such as how to educate patients about tobacco cessation using the 5As and modules on practice tools to use. Professionals could spend a few minutes or a few hours on each module, depending on how they felt. 73 practices acted as controls and did not use this internet delivered intervention.	Follow up was eight months after recruitment. Outcomes were dental professionals' performance and whether patients said they had received the first two components of the 5As (Ask, Advise). Intervention practices improved more on the "ask" and "advise" components than the control group. A significant group-by-time interaction effect also indicated that intervention practices improved more over the study period than control practices for "advise" but not for "ask".	<ul style="list-style-type: none"> • Professional-level outcomes only were reported only – no patient outcomes such as the quit rates for patients were given. • The study didn't assess who in the dental team gave cessation advice. • No details were given on intervention length. • No costs were given for the intervention but it is likely that the internet-delivered intervention was expensive. • Some of the methods were unclear e.g. blinding methods. • No effect size could be calculated from the data. • No theoretical basis to the interventions was mentioned. • The study was set in the USA so hard to generalise these findings to the UK. • The intervention took a long time to create (12 months). • Only the first two components of the 5As were assessed. 	<ul style="list-style-type: none"> • The study showed that the Internet is potentially an effective and practical way of delivering intervention education/training to dental professionals.

Authors & Country	Study	Overview	Main findings	Criticisms	Relevance to thesis
(Jonsson et al. 2009), Sweden	Pragmatic randomised controlled trial to determine the effectiveness of an intervention that aimed to tackle oral hygiene neglect in patients with chronic periodontitis.	113 adult patients with chronic periodontitis were recruited from the secondary care periodontology department in a Swedish County Hospital. 57 subjects (25 male, 32 female) were randomly allocated to receive normal care and an individually tailored oral health education programme delivered by a dental hygienist. This programme had seven components and required at least five to six sessions for delivery (involved analysis of a patients' knowledge, motivation, oral hygiene behaviours, practice of manual dexterity, setting of goals, teaching on self-monitoring and how to prevent relapse). 56 subjects (28 male, 28 female) were randomly allocated to receive standard treatment and care.	Follow up was at three and 12 months. The effect of the programme on gingivitis (gingival indices), oral hygiene (plaque indices and self-reports) was assessed. There were significant changes in gingival indices at both three and 12 months in favour of those in the intervention group. There were also significant changes at three and 12 months for plaque indices in favour of those in the intervention group. All those in the intervention group reported higher frequencies of interdental cleaning.	<ul style="list-style-type: none"> • Patient-level outcomes only were reported. • No costs were given for the interventions. • Sample size did not meet power calculation requirements. • Intervention was very lengthy and required many appointments - not sure if this is practical. • However, no details were given on the length of the intervention/sessions. • Study was set in the Sweden so hard to generalise these findings to the UK. 	<ul style="list-style-type: none"> • This study showed that dental hygienists could be useful in delivering interventions. • It was easy to train dental professionals on how to tackle this behaviour. • Delivering an intervention alongside treatment can be feasible. • Individually-tailored advice can be useful for patients. • Power calculation was done and methods of randomisation/blinding were clear. • Intervention was based on the Social Cognitive Theory.

Authors & Country	Study	Overview	Main findings	Criticisms	Relevance to thesis
(Nohlert et al. 2009), Sweden	Randomised controlled trial to compare the effectiveness of a high intensity intervention compared with a low intensity intervention in achieving smoking cessation.	294 adult smokers, male and female, attending dental or general health clinics were randomly assigned to one of the two interventions and referred to a local dental clinic for smoking cessation support with a dental hygienist. 146 patients (30 male, 116 female) in the intervention group received a high intensity intervention that consisted of eight 40-minute sessions over four months. 148 patients (34 male, 114 female) in the control group received a low intensity intervention that consisted of one 30-minute session and provision of a leaflet describing an eight-week programme on how to maintain risk free behaviour.	Patients were followed-up at 12 months. Outcomes measured were self-reported point prevalence and continuous abstinence. At follow-up point prevalence was not significantly different between groups. However, patients in the high intensity group were significantly more likely to report continuous abstinence.	<ul style="list-style-type: none"> • No costs were given for the intervention. • Patient-level outcomes only were reported. • The study was not conducted in the UK so generalisability was unclear. • Some of the methods were unclear e.g. randomisation methods, blinding. • Several lengthy sessions were needed for the high intensity intervention. Extra time may be the reason the intervention was successful rather than the nature of the intervention. • Patients were referred to a separate dental clinic for smoking cessation support – not sure how feasible this would be in the UK. • Interventions were not based on any theoretical model. 	<ul style="list-style-type: none"> • The study showed that dental hygienists could be useful in delivering behavioural interventions. • Methods gave details on loss to follow-up. • Power calculations were completed and sample size was adequate.

Authors & Country	Study	Overview	Main findings	Criticisms	Relevance to thesis
(Gordon et al. 2010), USA	Pragmatic cluster randomised controlled trial to determine the effectiveness of a tobacco cessation intervention amongst patients attending community dental health clinics.	2637 adult patients, (1129 male, 1508 female), who smoked tobacco, were enrolled into the study across 14 community dental clinics. Clinics were randomised and 1203 patients were recruited and allocated into the control group which received usual care from their dentist or dental hygienist. 1434 patients were allocated into the intervention group. The intervention was based on the 5As: ask, advise, assess, assist and arrange follow-up.	Follow up took place at seven and a half months. Outcomes assessed were abstinence rates. Results were available for 885 patients in the control group and 990 patients in the intervention group. Patients in the intervention group had significantly higher abstinence rates than those in the control group at follow-up.	<ul style="list-style-type: none"> • Patient level outcomes only were assessed. • Unclear on randomisation/blinding. • Authors did not stratify results and determine whether dentists or hygienists delivered the intervention more successfully. • No costs were given for the interventions. • No details were given on the intervention length. • No power calculations were available. • Effect sizes could not be calculated from the data. • No theoretical basis for the intervention was stated. • There were no fidelity checks for professionals delivering the intervention. • The study was set in the USA so hard to generalise these findings to the UK. 	<ul style="list-style-type: none"> • This study showed dental professionals can successfully deliver behavioural interventions. • Following a simple protocol for the intervention such as the 5As seems to be helpful for professionals.

Authors & Country	Study	Overview	Main findings	Criticisms	Relevance to thesis
(Hanioka et al. 2007), Japan	Pragmatic feasibility study using randomised controlled trial methodology to determine the effectiveness of an intensive smoking cessation intervention delivered in dental settings.	56 adult patients, male and female, who smoked were recruited from 19 dental clinics. 23 patients (14 male, nine female) were allocated to the control group to receive usual care. 33 patients (26 male, seven female) were allocated to the intervention group to receive five counselling sessions as well as a nicotine replacement regime delivered by either a dentist or hygienist.	Follow up took place at three, six and twelve months. Outcomes assessed were reported abstinence and salivary cotinine levels. The authors also assessed who spent more time delivering the intervention out of the dentists and hygienists for each participant. Results showed that quit rates were significantly higher at three and six months for those in the intervention group, but were non-significant at 12 months. Dentists spent more time with patients than the hygienists in delivering the intervention (73 minutes compared to 42 minutes).	<ul style="list-style-type: none"> • Both patient-level and professional level outcomes were reported. However, it was not clear whether dentists or hygienists delivered the intervention more effectively. • Methods were unclear on randomisation/blinding of outcome assessor. • No costs were given for the interventions. • No power calculations were available but it was a feasibility study. • Effect sizes could not be calculated from the data. • No theoretical basis was stated for the intervention. • The intervention involved several visits; time may be acting as a confounder. • There were no fidelity checks for professionals delivering the intervention. • The study was set in Japan so hard to generalise these findings to the UK. 	<ul style="list-style-type: none"> • This study showed that dentists spent more time delivering the intervention than hygienists. • Effect of the intervention was not noticeable at six months suggesting that repeat interventions should be delivered in a setting where reinforcement of advice is possible. • The authors reported blinding participants and intent-to-treat analysis.

Authors & Country	Study	Overview	Main findings	Criticisms	Relevance to thesis
(Halvari et al. 2012), Norway	Pragmatic randomised controlled trial to test the effectiveness of an intervention designed to increase autonomy and competence in oral health care amongst dental patients.	158 adult patients were recruited from private dental clinics. Data was available for 141 patients. 71 patients were randomised into the control group (received 45 minute examination as well as standard treatment and advice from a dental hygienist), and 70 into the intervention group (received 45 minute examination as well as standard treatment plus a 45 minute intervention that involved supporting patients to make autonomous decisions in their oral self-care and also motivating patients to increase their oral self-care).	Follow-up was five and a half months. Outcomes assessed were autonomy orientation, autonomy support from professionals, perceived competence in self-care, autonomous motivation for self-care, standards of cleaning teeth, plaque scores and gingivitis levels. The intervention significantly increased patients feelings that they had support from their dental professional in helping them to make autonomous decisions towards their oral self-care, significantly increased patients' motivation and perceived competence in oral self-care, improved significantly their dental behaviours in cleaning and reduced plaque scores and gingivitis levels.	<ul style="list-style-type: none"> • Patient-level outcomes only were reported. • No costs were given for the interventions. • Participant characteristics were unclear. • Methods for blinding were unclear. • Intervention was resource intensive. • The study was set in Norway so hard to generalise findings to the UK. 	<ul style="list-style-type: none"> • This study showed that dental hygienists were useful in delivering interventions. • Methods for randomisation were clear. • Authors gave power calculations. • Effect sizes ranged from moderate to large (Cohen's d). • Interventions that aim to motivate patients, increase autonomy in decision-making and increase competence in self-care behaviours can be useful. • Intervention was based on the Self-Determination Theory.

Authors & Country	Study	Overview	Main findings	Criticisms	Relevance to thesis
(Stenman et al. 2012), Sweden	Randomised controlled trial to determine if a single-session motivational interview (MI) helped to improve patients' adherence with self-performed oral hygiene behaviours among periodontal patients.	44 adult patients, male and female, with moderate periodontitis attending a secondary care specialist clinic were randomised into control and intervention groups. 22 patients (five male, 17 female) in the intervention group received a one-to-one 20-90 minute motivational interview with a psychologist (on average 44 minutes long) and then received normal care and instruction from a dental hygienist. 22 patients (eight male, 14 female) in the control group received normal care and oral hygiene instruction from a dental hygienist only (first session included patients being given a leaflet and advice on how to improve oral hygiene; subsequent visits for clinical treatment included reinforcement of advice).	Patients were followed-up at two weeks, four weeks, 16 weeks and 26 weeks and plaque scores and bleeding indices were assessed. The MI did not result in a significantly different change in bleeding indices and plaque scores between control and intervention groups. There was however slightly more improvement initially for those who received the MI, but the change then levelled off to no difference as time progressed. Overall, female patients seemed to benefit more than males with improved bleeding and plaque scores.	<ul style="list-style-type: none"> • Effect sizes could not be calculated. • No costs were given for the intervention. • Patient-level outcomes only were assessed. • The sessions with the dental hygienist seemed especially detailed and so they may be acting as a motivator. It would probably have been better to compare MI to receiving no advice. • Patients' awareness of taking part in the study may have affected results. • Separate person (psychologist) delivering MI. Patients may not have formed a bond with the psychologist and so may have listened more to the hygienist who they became more familiar with. • The study was not conducted in UK so hard to generalise findings. 	<ul style="list-style-type: none"> • The study showed that dental hygienists could be useful in delivering behavioural interventions. • The trial gave useful ideas for fidelity checks of the intervention. • Methods included details of randomisation, loss to follow-up and blinding. • Authors used motivational interventions based on models such as the self-determination theory.

Authors & Country	Study	Overview	Main findings	Criticisms	Relevance to thesis
(Amemori et al. 2013), Finland	Pragmatic cluster randomised controlled trial to test the effectiveness of two interventions designed to enhance tobacco use prevention and counselling among oral health professionals.	34 community dental clinics were recruited and randomised into 13 clusters; five clusters with 25 professionals (18 dentists and seven hygienists) were then randomised to act as the control group; four clusters with 21 professionals (16 dentists and five hygienists) and four clusters with 27 professionals (20 dentists and seven hygienists) were randomised to an educational or educational plus fee-for-service intervention group respectively. The educational intervention involved one day of lectures, interactive sessions and role-play in order to train professionals how to deliver tobacco use prevention and counselling. The educational intervention plus fee-for-service condition involved professionals receiving monetary incentives in addition to the educational intervention.	Follow-up was at six months and the outcomes assessed were reported tobacco use prevention, reported tobacco counselling, time effect or group-by-time interaction and provider-by-time interaction. Results showed that at six months there was a significant group-by-time interaction with those in the intervention groups showing a significant increase in tobacco counselling. Dental hygienists showed significantly higher activity in tobacco prevention and tobacco counselling. Cessation counselling also showed a significantly greater provider-by-group interaction indicating that interventions to enhance cessation counselling were more effective amongst dental hygienists. Adding fee-for-service to the educational intervention failed to significantly improve tobacco prevention and counselling performance.	<ul style="list-style-type: none"> • Professional-level outcomes only were reported – no patient outcomes were assessed such as quit rates. • No costs were given for the interventions. • No details were given on gender split of participants. • No details were given on the intervention length. • Unclear if interventions were based on any theoretical models. • The study was set in the Finland so hard to generalise these findings to the UK. 	<ul style="list-style-type: none"> • This study showed that dental hygienists were more likely to deliver interventions than dentists. • Training professionals can help increase the delivery of interventions/ counselling more than monetary incentives. • Methods for randomisation and blinding were clear. • The authors presented power calculations. • Cluster randomised trials could limit contamination. • Effect sizes ranged from -0.2, 0.2 to 0.5 so there was a negative, weak and small to medium effect.

Authors & Country	Study	Overview	Main findings	Criticisms	Relevance to thesis
(Brand et al. 2013), USA	Randomised controlled trial to determine if a single-session motivational interview (MI) was effective in improving oral hygiene behaviours, clinical parameters, knowledge about periodontal health and motivation.	56 adult patients, male and female, attending a university secondary care specialist clinic were randomised into control and intervention groups. Data for 29 patients (15 male, 14 female) in the intervention group and 27 patients (12 male, 15 female) in the control group were included in the analysis. Patients in the intervention group received a 15-20 minute MI by a trained counsellor as well as traditional oral hygiene education with a hygienist. The control group received the traditional oral hygiene education only from the hygienist.	Patients were followed-up at six and 12 weeks and probing pocket depths, plaque scores and bleeding indices were assessed as well as motivation and knowledge. The MI did not result in a significantly different change in any of the clinical measures, motivation for oral hygiene behaviours and knowledge. There was however slightly more of an improvement in bleeding scores for those who received the MI.	<ul style="list-style-type: none"> • Effect sizes were not large. • No costs were given for the intervention. • Patient-level outcomes only were assessed. • Patients were already motivated, as attending a clinic for periodontal treatment and so MI may not have had an effect for this reason. • The sessions with the dental hygienist may, in themselves, have acted as a motivator. It might have been better to compare MI to receiving no advice. • Patients' awareness of taking part in the study may have affected results. • A separate health professional delivered MI. Patients may not have formed a bond with this person and so may have listened more to their hygienist. • The study was not conducted in the UK so hard to generalise findings. 	<ul style="list-style-type: none"> • The study showed that dental hygienists could be useful in delivering behavioural interventions. • Methods included details of randomisation, loss to follow-up and blinding. • Authors used motivational interventions based on models including the self-determination theory.

3.4.6 *Discussion*

3.4.6.1 **Main findings**

The systematic literature search showed that within the field of dentistry research is limited in the evaluation of health promotion interventions. The majority of the studies identified were trials of interventions designed to tackle oral hygiene neglect and tobacco use; very few studies focused on alcohol misuse and even fewer focused on interventions designed to improve diet amongst adult patients. This latter finding is, perhaps, the most surprising given the incontrovertible evidence of the influence of dietary factors on dental health. The need to test the effectiveness of alcohol interventions within dental settings is therefore urgent.

The inclusion criteria for this literature search set the outcome measure as a reduction/change in behaviour identified at least three months after receiving a behavioural intervention. Eccles recommends that interventions should be assessed as to whether they produced behaviour change at least at six months (Eccles et al. 2005). However, since the minimum time for routine recall dental appointments is three months under recommendations from the National Institute for health and Care Excellence (NICE), it was felt that at least a three month follow-up time period was acceptable (National Institute for health and Care Excellence (NICE) 2004). When this inclusion criterion was set the studies that satisfied this requirement were a lot fewer than if lower follow up timeframes were accepted. Many excluded studies had a follow up less than one week or less than eight weeks. This demonstrates that very few studies aimed to assess the long-term effectiveness of interventions. Clearly, before any behavioural intervention can be implemented, clinicians should know how long an intended effect on their patients' behaviour might last. Nurse-led alcohol interventions delivered in secondary dental care settings appeared to produce significant behaviour change at 12 months. This indicates that motivational interviewing can produce a clinically significant change in hazardous/harmful behaviour in this particular context.

Methods quality of the majority of studies identified was questionable. For example, very few studies gave details about randomisation, power calculations and blinding of participants, professionals and the outcome assessor and loss-to-follow up. The studies selected also presented outcomes at one level only, at the patient level or professional level. Therefore, multi-dimensional assessments need to be developed

in order to create a broader approach to evaluating the effects of behavioural interventions.

The reporting of the results of many trials was also very often incomplete; for example, effect sizes for only a few of the studies could be calculated, as results were not reported fully. The interventions were often unrealistic as several of them were lengthy and took place over a number of appointments, likely increasing intervention costs substantially (Little et al. 1997; Jonsson et al. 2009). In addition, some interventions involved dental professionals delivering part of the intervention alongside a separate counsellor (e.g. the study by Brand et al. (2013) involved the use of a trained counsellor to deliver a motivational interview to patients while a hygienist delivered the rest of the oral education and treatment intervention). Furthermore, if an intervention takes place over several appointments then the increase in therapy time may act as a confounder and may be the real cause of behaviour change rather than the intervention itself. It may also not be possible and prohibitively expensive in dental settings to employ a separate counsellor to deliver advice to patients. It is therefore likely to be better to plan an intervention that can be delivered solely by members of the dental team opportunistically concurrent with standard care so that the difference in time spent with patients is also not significantly different between control and intervention groups.

One feature of the behavioural interventions investigated in the studies selected is that many were based on the principles of psychological models of health behaviours. It has been suggested that it is particularly important for the behavioural interventions used by dental healthcare professionals to be based on these underlying models as, without theoretical basis, the professional will have no understanding of the processes involved in behavioural change. In other words, without a theoretical basis, the professional will be unable to understand why an intervention worked in producing a change in behaviour. The models of behaviour change that appear from the included studies to have been used successfully in interventions within dental settings were as follows:

- Social reinforcement
- The self-care commitment model and self-management techniques to increase self-efficacy
- Social Cognitive Theory/Social Learning Theory
- Self-Determination Theory

In particular, the more successful interventions with larger effect sizes were based on the self-determination theory and increasing self-efficacy amongst patients (e.g. Jonsson et al 2006 and Halvari et al 2012). This therefore suggests that interventions designed to motivate patients and increase self-efficacy may be more successful in producing behaviour change.

The majority of the studies selected utilised what is known as a “teachable moment”. A teachable moment is used to describe times in patients’ or clients’ lives when they are especially likely to engage with, and respond to behaviour change messages; for example, a sober weekday when they are having stitches removed after sustaining a facial injury whilst intoxicated the previous weekend. The studies by Smith et al. (2003) and Goodall et al. (2008) capitalised on such moments in maxillofacial clinics. Also, many studies (Little et al. 1997; Jonsson et al. 2006; Binnie et al. 2007; Jonsson et al. 2009) capitalised on the opportunity patients provided when attending their hygienist. This therefore suggests that finding a point during the treatment of a patient which could act as a teachable moment may help professionals implement behavioural interventions more routinely.

Most of the studies selected utilised dental hygienists to deliver interventions. This literature search also revealed that nurses delivered brief alcohol interventions in secondary care dental settings. This therefore suggests that dentists do not necessarily have to be the individuals who deliver interventions. This supports recommendations that suggest dental care professionals complimentary to the dentist should be utilised more within the dental setting (Centre for Workforce Intelligence 2014). Various members of the dental team other than the dentist are therefore likely to have the opportunity to deliver effective alcohol misuse interventions.

Many of the studies selected were conducted outside the UK. This therefore makes it hard to generalise the findings to Britain since the health care systems differ for each country. For example, in the USA, dental services are situated almost exclusively in the private sector. Some studies (Smith et al. 2003) also only recruited male participants again making it difficult to generalise findings. Interventions targeted at both males and females and that are trialled for use in the UK therefore need to be developed.

This literature search showed that interventions can be delivered one-to-one to patients (Jonsson et al. 2009), or to small groups of patients (Little et al. 1997). Interventions have also been customised to each patient in order to produce behaviour change (Jonsson et al. 2006; Jonsson et al. 2009). Interventions have been delivered concurrent with routine treatment (Smith et al. 2003; Jonsson et al. 2006; Binnie et al. 2007). Therefore several options exist on how an intervention can be designed and delivered. In particular, considering the UK NHS context, it may be more feasible to deliver one-to-one, individualised interventions alongside dental treatment. This is likely to be less expensive and resource intensive than delivering group interventions on separate appointments with patients.

Importantly, there was a paucity of research into whether BAIs are effective in primary dental care settings. Trials are therefore urgently needed. Motivational interviewing especially seemed to be useful in tackling alcohol misuse amongst patients in secondary care dental settings and so this type of intervention seems also most likely to be successful in primary dental care. Motivational interviewing following the FRAMES approach involves both motivating and increasing self-efficacy and so further seems a logical intervention to investigate for use in primary dental care.

The study by Weinstein et al. suggests that patients may relapse in behaviour after six months (Weinstein et al.). This suggests that interventions should be implemented in a setting where patients can be followed up easily and advice reinforced regularly. But in hospital and community dental settings patients may be seen only once. General dental practice settings offer more opportunities to follow up patients in order to reinforce interventions.

Training of professionals can help increase compliance in the delivery of behavioural interventions. Many of the trials were preceded by short training sessions (e.g. three hours in duration; Gordon et al. (2007)). Some even involved supporting professionals with videos and manuals to learn how to deliver advice to patients (Gordon et al. 2005). This seems rational when considering training for dental professionals on brief alcohol interventions. Asking patients to give a refundable deposit to take part in the study also seemed useful in preventing attrition, although this may not be feasible in a UK NHS context. Ensuring that there are fidelity checks to ensure professionals deliver interventions fully seems to be an important feature of the design of many of the trials selected. In addition, many of the interventions were straightforward and followed an acronym, for example, the 5As for smoking cessation

advice. Such interventions seemed to produce compliance amongst the professionals as this made them easy to follow. Interventions should therefore be designed to be easy for professionals to implement as well as understand. An acronym can even become the intervention brand.

3.4.6.2 Critique of the method

A systematic literature search was completed as it was felt a defined search strategy would help to add focus to the exploration of the literature. As mentioned, only the thesis author analysed and collated the findings for this chapter. This may therefore have introduced source selection bias. In addition, this literature search systematically explored mainly general purpose databases and involved reference/citation sifting. The grey literature was not searched, which may also have introduced bias.

It was anticipated that there would be limited numbers of trials of behavioural interventions within dentistry, especially alcohol misuse treatment interventions, and so quantitative synthesis (e.g. meta-analysis) of study findings was not conducted. Therefore, a systematic search of the literature was mainly carried out so that lessons from trials of behavioural interventions designed to improve oral hygiene or smoking cessation, for example, could be drawn.

In addition, it was not the effect size of an intervention that was the main point of interest (although this was identified for some studies). Whilst the intervention had to have the desired effect of producing a change in harmful behaviour, this did not have to be significant. Lessons from trials that showed positive behaviour change, despite a lack of significance, were important too. The objectives of the systematic literature search were to identify a breadth of trails relevant to the topic and setting and to help identify from these studies concepts that could be taken forward when designing a trial of alcohol misuse screening and treatment in primary dental care. As mentioned in the criteria section, if the main goal was to look at the significance and effectiveness of behavioural interventions in the dental setting only there was a risk that key concepts may have been missed, for example, even though an intervention may not have produced a significant effect the intervention still may have produced changes that were clinically important.

Therefore, the systematic literature search was sufficient to satisfy the first stage of the MRC guidance, since it helped identify successful behavioural interventions that

have been used in various dental settings and helped identify several concepts that need to be considered in the design of a trial of alcohol misuse treatment interventions in primary dental care.

3.5 Summary table of main findings

Table 3.2: Summary of the findings from the literature search
<ul style="list-style-type: none"> • Interventions can be delivered one-to-one, with individualised information to patients alongside treatment. This is probably most realistic within the UK NHS context. • One-session interventions with patients are likely most feasible in UK NHS contexts. • It may be more feasible to utilise members of the dental team rather than recruiting counsellors to deliver part of the intervention. • Professionals complimentary to the dentist, especially dental hygienists, could deliver interventions. • Interventions should be short so that time does not become a confounder. • Getting patients to give a refundable deposit to take part in the study may be useful in preventing drop-outs. • Short training sessions can increase professional compliance to deliver behavioural interventions. • Fidelity checks are important. • Follow up of at least three to six months is appropriate to try and determine long-term effectiveness. • Making use of a teachable moment seems important when introducing interventions/designing trials. • There is a need to make sure trial methods and reports include details of randomisation, blinding, loss-to-follow up. • Ideally, effect sizes need to be calculated and reported. • Interventions based on the self-determination theory and increasing self-efficacy amongst patients appear the most useful. Interventions that follow an acronym are useful as this makes them easy for professionals to understand/implement. The FRAMES approach to motivational interviewing satisfies all these points, has been shown to be useful in secondary care dental settings and so may therefore be useful to tackle alcohol misuse in other dental settings. • Patients can relapse in their behavior, especially if there is no follow-up. Primary dental care settings are therefore valuable environments within which to deliver brief alcohol interventions. • There are no published trials of BAIs in primary care dental settings (community or general dental practice settings).

4 Qualitative Study

4.1 Introduction

This chapter consists of six sections. The first section highlights the aims and objectives of the qualitative study. The second consists of the research question for this study. The third section contains details of the methods for the pilot stage of data collection, while the fourth section consists of a discussion of the refinement of the interview schedule and the initial themes that emerged. The fifth section consists of the methods for the definitive stage of data collection. The sixth section consists of the overall results for both phases of the qualitative study and a discussion of the findings. The sixth section also includes a summary of the main qualitative findings.

4.2 Aims and objectives of the qualitative study

The main aim of the qualitative work was to explore the views of dental healthcare professionals, patients and public health practitioners towards the screening for, and treatment of alcohol misuse in the dental setting.

The objectives were therefore:

- To determine the barriers towards alcohol misuse screening and treatment in dental settings from the perspective of dental healthcare professionals (undergraduate and postgraduate), patients and public health practitioners.
- To identify opportunities to introduce alcohol misuse screening and treatment within a primary dental care setting.

4.3 The research questions

The primary research question was:

“What are the barriers to tackling alcohol misuse within dental settings?”

The secondary question was:

“How could an alcohol misuse screening tool and treatment intervention be introduced within a primary dental care setting?”

4.4 Methodology for the pilot stage of data collection

The qualitative study consisted of two stages of data collection: a pilot stage and a definitive stage.

The pilot stage of data collection involved one-to-one semi-structured interviews with undergraduate dental students and teaching staff from Cardiff University's School of Dentistry.

4.4.1 Interview plan

An interview plan was produced as a guide for the one-to-one semi-structured interviews with participants. The interview plan was refined as each interview was collected and transcribed, in order to reflect the themes that emerged during the initial analysis of the pilot study data set.

4.4.2 Ethical Approval

Ethical approval for this first stage of data collection was gained from the Cardiff School of Dentistry Research Ethics Committee (DREC) (Appendix 4a).

4.4.3 Sampling of participants

Undergraduate students and teaching staff from Cardiff University's School of Dentistry were recruited for the first stage of data collection. Participants were sampled using a purposive and convenience technique (Marshall 1996).

The final sample of participants for this stage of the qualitative work consisted of two final year dental students, three final year dental nursing students, three final year hygiene students and three staff members employed to teach students; males and females of any age and ethnicity. Participants were final year students since they would be close to qualifying and more adept at communicating with dental patients. University staff members were recruited since they are employed within Cardiff University to teach dental students about oral disease prevention. These staff members were senior lecturers and clinical fellows from any department employed to teach dental, nursing and hygiene students. There were no other inclusion/exclusion criteria.

A description of the participants for this section of data collection is given in Table 4.1a.

4.4.4 **Recruitment**

Potential participants from Cardiff University's School of Dentistry were approached face-to-face either at the end of lectures or clinics. They were informed about the purpose of the project and were given an information sheet. They were told that participation was completely voluntary and that should they decide to take part in the study they could withdraw at any time. They were also informed that all data collected was confidential. Those who decided to take part were asked to give written consent. Interviews were arranged for a time convenient to the participant and did not interfere with commitments to the School of Dentistry. (Appendix 4b-4c).

4.4.5 **Data collection**

One-to-one semi-structured interviews were conducted in a private room in the School of Dentistry for all participants. The interview plan was used as an initial starting point. However, since it was not a rigid construct, questions were asked depending on participants' answers. Interviews lasted approximately 30 minutes.

4.4.6 **Recording and transcription**

Each data item or interview was recorded on audiotapes via a dictaphone. All audiotapes were transcribed by the thesis author verbatim and manually onto a password locked Cardiff School of Dentistry computer. Each transcript was checked against the tapes for accuracy.

4.4.7 **Allocation of interview codes**

All interview participants were allocated a code so that their transcripts were unidentifiable and their personal details remained confidential. Table 4.2 summarises the coding system allocated to the interviewees.

Table 4.2: Coding system allocated to the interview participants in the first stage of data collection

Letters allocated	Reasoning
TS	Allocated to teaching members of staff
DS	Allocated to dental students
DHTS	Allocated to dental hygiene/therapy students
DNS	Allocated to dental nursing students

4.4.8 **Reflexivity**

An account of reflexivity was written prior to the analysis process. This was because, during the analysis of the data set, a researcher must play an active role in identifying the themes that emerge (Finlay 2002). Therefore, it was important to recognize the assumptions and biases introduced by the researcher during the analysis process (Finlay 2002) (Appendix 5).

4.4.9 **Analysis method**

The method chosen to analyse the data was thematic analysis. Thematic analysis involves the identification, analysis and reporting of patterns or themes across data sets (Braun and Clarke 2006). Such themes help to describe a particular phenomenon that is important to the research question. It minimally organises and describes the data set in detail. It consists of six phases. These are shown in Table 4.3 and is taken from Braun and Clarke (2006):

Table 4.3: Phases of thematic analysis

Phase	Description of the process
1. Familiarizing yourself with the data	Transcribing data, reading and re-reading the data, noting down initial ideas.
2. Generating initial codes	Coding interesting features of the data in a systematic fashion across the entire data set, collating data relevant to each code.
3. Searching for new themes	Collating codes into potential themes, gathering all data relevant to each potential theme.
4. Reviewing themes	Checking if the themes work in relation to the coded extracts and the entire data set, generating a thematic “map” of the analysis.
5. Defining and naming themes	Ongoing analysis to refine the specifics of each theme, and the overall story the analysis tells, generating clear definitions and names for each theme.
6. Producing the report	The final opportunity for analysis.

	Selection of vivid, compelling extract examples, final analysis of selected extracts, relating back of the analysis to the research question and literature, producing a scholarly report of the analysis.
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Data items for this first, pilot stage of data collection were analysed manually using the first three phases of thematic analysis (Table 4.3). The final stages were completed once the whole data corpus for both stages of data collection had been obtained (Figure 4.2).

4.4.10 ***Coding strategy and development of themes***

Each transcript (or data item) was read at least twice by the thesis author. The data set (consisting of all the transcripts for this first stage of data collection) was then coded manually. Important words, phrases and sentences were highlighted or underlined. Initial codes were written on the transcripts. These codes included descriptive codes and process codes. Once the codes had been generated for this data set the organization and development into initial themes began.

4.4.11 ***Verification of analysis***

A researcher in Cardiff University's School of Dentistry (consultant in Dental Public Health with expertise in qualitative analysis), independent of the thesis, coded a selection of transcripts in order to add reliability to the analysis process. Codes and themes were also discussed with the researcher in depth and rechecked against the data set in order to ensure that the coding process had been inclusive and comprehensive and that the initial themes had not been generated from a few vivid examples (Braun and Clarke 2006).

Table 4.1a: Overview of professional participant characteristics, justification of the sample and reflections arising from the interview

Interview Number	Interview Code	Description of participant	Justification of sample and procedures	Brief reflection
1	DNS1	Female, age group 30-40. Final year dental nursing student.	First stage of data collection with initial sample of students/future professionals and teaching staff. Idea was to explore views and barriers towards alcohol screening and treatment interventions in the dental setting through semi-structured interview and to develop the interview plan.	Initial themes emerging: Worries/Concerns, Role of certain dental professionals, Assumptions about patient reactions, Opportunities, Training. Interview Schedule One (IS1) generally understood well. Easy to access dental nursing student, very willing to participate. An interview with another dental nursing student was deemed necessary to determine whether opinions and experiences were similar.
2	DNS2	Female, age group 30-35. Final year dental nursing student.	First stage of data collection with initial sample of students/future professionals and teaching staff. Idea was to explore views and barriers towards alcohol screening and treatment interventions in the dental setting through semi-structured interview and to develop the interview plan.	Initial themes emerging: Concerns/Worries, Priorities, Assumptions about patient reactions, Opportunities, Role of certain dental professionals, Training. IS1 understood well. Easy to access dental nursing student, willing to participate. An interview with another dental nursing student was deemed necessary to determine whether opinions and experiences were similar.
3	DNS3	Female, age group 30-35. Final year dental nursing student.	First stage of data collection with initial sample of students/future professionals and teaching staff. Idea was to explore views and barriers towards alcohol screening and treatment interventions in the dental setting through semi-structured interview and to develop the interview plan.	Initial themes emerging: Concerns/Worries, Assumptions about patient reactions, Opportunities, Roles within profession, Training. IS1 understood well. Easy to access dental nursing student, willing to participate. No further interviews with dental nursing students required as similar themes emerged. Views of qualified nurses required.

Table 4.1a: Overview of professional participant characteristics, justification of the sample and reflections arising from the interview continued

Interview Number	Interview Code	Description of participant	Justification of sample and procedures	Brief reflection
4	TS1	Female, age group 30-40. Teaching member of staff. Qualified dentist 10 years.	First stage of data collection with initial sample of students/future professionals and teaching staff. Idea was to explore views and barriers towards alcohol screening and treatment interventions in the dental setting through semi-structured interview and to develop the interview plan.	Initial themes emerging: Worries/Concerns, Priorities, Role of dental professionals, Assumptions about patient reactions, Patient expectations, Guidelines and evidence, Training, Reaction of staff/professional. IS1 generally understood although one or two questions weren't in topic of "relevance". Easy to access teaching staff. An interview with another member of teaching staff was deemed necessary to determine whether opinions and experiences were similar.
5	TS2	Female, age group 30-40. Teaching member of staff. Qualified dentist 11 years.	First stage of data collection with initial sample of students/future professionals and teaching staff. Idea was to explore views and barriers towards alcohol screening and treatment interventions in the dental setting through semi-structured interview and to develop the interview plan.	Initial themes emerging: Concerns/Worries, Assumptions about patient reactions/expectations, Opportunities, Role of dental professionals, Need for reason to talk to patients about alcohol, Priorities. IS1 understood but again questions in "relevance" topic were not understood. Decision to redraft interview schedule made. Easy to access teaching staff. An interview with another member of teaching staff was deemed necessary to determine whether opinions and experiences were similar with new interview plan.
6	TS3	Female, age group 30-40. Teaching member of staff. Qualified dentist 9 years.	First stage of data collection with initial sample of students/future professionals and teaching staff. Idea was to explore views and barriers towards alcohol screening and treatment interventions in the dental setting through semi-structured interview and to develop the interview plan.	Initial themes emerging: Concerns, Opportunities, Guidelines and care pathways, Training, Assumptions about patient reactions/expectations. Interview Schedule Two (IS2) understood but reordering of topics required. Decision to redraft interview schedule made. Easy to access teaching staff. Interviews with other qualified dentists would be beneficial for further work, not just dentists who are teaching staff.

Table 4.1a: Overview of professional participant characteristics, justification of the sample and reflections arising from the interview continued

Interview Number	Interview Code	Description of participant	Justification of sample and procedures	Brief reflection
7	DS1	Male, age group 20-25. Final year dental student.	First stage of data collection with initial sample of students/future professionals and teaching staff. Idea was to explore views and barriers towards alcohol screening and treatment interventions in the dental setting through semi-structured interview and to develop the interview plan.	Initial themes emerging: Concerns, Priorities, Role of professionals, Lack of resources, Patient reactions, Hypocritical feelings, Lack of time, Opportunities, Training, Guidelines and evidence. Interview Schedule Three (IS3) seemed to flow a lot better and was understood. Easy to access dental student. An interview with another dental student was deemed necessary to determine whether opinions and experiences were similar.
8	DS2	Male, age group 20-25. Final year dental student.	First stage of data collection with initial sample of students/future professionals and teaching staff. Idea was to explore views and barriers towards alcohol screening and treatment interventions in the dental setting through semi-structured interview and to develop the interview plan.	Initial themes emerging: Priorities, Treatment is focus of consultations, Concerns and assumptions about patient reaction, Lack of time, Roles within the profession. IS3 understood. Easy to access dental student, but not as forthcoming to take part. Similar themes for teaching staff and students who are and will be dentists. Needed to explore views for other professionals complimentary to dentistry (student hygienists).

Table 4.1a: Overview of professional participant characteristics, justification of the sample and reflections arising from the interview continued

Interview Number	Interview Code	Description of participant	Justification of sample and procedures	Brief reflection
9	DHTS1	Female, age group 20-30. Final year dental hygiene/therapy student.	First stage of data collection with initial sample of students/future professionals and teaching staff. Idea was to explore views and barriers towards alcohol screening and treatment interventions in the dental setting through semi-structured interview and to develop the interview plan.	Initial themes emerging: Concerns/Worries, Priorities, Assumptions about patient reactions, Opportunities, Training. IS3 generally understood well. Easy to access dental hygiene/therapy student, forthcoming to participate. An interview with another dental hygiene/therapy student was deemed necessary to determine whether opinions and experiences were similar.
10	DHTS2	Female, age group 20-30. Final year dental hygiene/therapy student.	First stage of data collection with initial sample of students/future professionals and teaching staff. Idea was to explore views and barriers towards alcohol screening and treatment interventions in the dental setting through semi-structured interview and to develop the interview plan.	Initial themes emerging: Concerns/Worries, Priorities, Assumptions about patient reactions/expectations, Opportunities, Roles within profession, Media. IS3 understood well. Easy to access dental hygiene/therapy student. An interview with another dental hygiene/therapy student was deemed necessary to determine whether opinions and experiences were similar.
11	DHTS3	Female, age group 20-30. Final year dental hygiene/therapy student.	First stage of data collection with initial sample of students/future professionals and teaching staff. Idea was to explore views and barriers towards alcohol screening and treatment interventions in the dental setting through semi-structured interview and to develop the interview plan.	Initial themes emerging: Concerns/Worries, Priorities, Assumptions about patient reactions/expectations, Opportunities, Role within profession, Training, Sensitive topic, Dentist-patient relationship. IS3 understood well, but a few questions restructured before using in second stage of interviews with qualified professionals. Easy to access dental hygiene/therapy student, but not forthcoming to participate. No further interviews with dental hygiene/therapy students required as similar themes emerged. Views of qualified hygienists required.

4.5 Discussion of the pilot stage

4.5.1 *The development of the interview schedule*

The pilot study helped to develop and refine the interview schedule for use during the semi-structured interviews with qualified dental professionals, patients and public health practitioners. The interview schedule had several initial topic areas that were developed from the information gained during exploration of the background literature and taking into account the findings from the systematic literature search. Introductory statements and questions were created on the advice of experienced researchers. Main questions, additional questions and prompting or clarifying questions were then created for each topic (Silverman 2013). The interview schedule was refined as each interview was assessed and transcribed, in order to reflect the themes that emerged during this initial analysis of the pilot study data set.

Interview Schedule One (IS1 in Table 4.4) was very lengthy and it was evident from the first five interviews that there were certain questions that caused confusion and were not understood well by participants. For example, the introductory questions were not general enough and it was difficult to start the conversation with a few of the participants. In addition, certain questions on topics were not well understood and therefore interrupted the flow of the interviews. Therefore, a second interview schedule (IS2 in Table 4.5) was created that took account of these points.

A third interview schedule (IS3 in Table 4.6) was created as it became evident from using IS2 that the ordering of the topics needed to be changed. The introductory questions were also altered as it felt more logical to start interviews with general questions on alcohol misuse.

Analysis of the initial data set for this pilot stage helped to create Interview Schedule Four (IS4 in Table 4.7) that was used in the second definitive stage of data collection. IS4 took into account the initial themes that were emerging from the pilot data that needed to be explored further in the next stage of qualitative work.

This stage of data collection also contributed to the creation of interview schedules for the patients and public health practitioners interviewed in the second stage of data collection, as it helped to indicate the topic areas that should be discussed with these participants (Tables 4.8 and 4.9).

Table 4.4: Interview Schedule One (IS1)

Introductory questions (use as initial starting point to begin conversations):

- Do you know of ways in which dental healthcare professionals tackle risky oral health behaviours in dental settings? (*Prompts: Where in dentistry are they used e.g. primary care etc? By whom?*)
- What do you know about oral hygiene interventions, smoking interventions and diet interventions used in dental settings? Have you heard of alcohol interventions? (*Prompts: What clinical settings are they used in (primary/secondary/community)? By whom?*)
- What is your opinion of these interventions? Are they useful?

Topic 1: Experience (I am going to change topic slightly)

- When do you record information on people's oral hygiene habits, smoking habits, dietary habits?
- How do you feel recording this information? Do you feel you should?
- Does anyone or anything influence your recording of any of this information?
- Tell me what you do with this information.
- Would you do anything different?
- When do you record information on people's drinking habits?
- How do you feel asking about this information? Do you feel you should?
- Tell me what you do with this information.
- Would you do anything different?
- Have you ever delivered any behavioural interventions?
- If yes, why? what do you do? where? do you always deliver one?
- What was good or bad about the experience?
- If no, do you think you could - why/why not?
- Do you think you should deliver these interventions?

Topic 2: Relevance

- Do you feel poor oral hygiene is relevant to dentistry? Diets high in sugar?
- Do you feel smoking is relevant to dentistry?
- Do you feel alcohol misuse is relevant to dentistry (*Prompt - if so why and where and to whom?*)

Specifically to alcohol misuse:

- What is the relationship between alcohol misuse and dental practice?
- Do you think dental professionals should be concerned with the health

<p>issue of alcohol misuse?</p> <ul style="list-style-type: none"> • Do you think delivering alcohol interventions would be valuable to your practice? To patients? • Do you think patients think alcohol misuse is relevant to dentistry? How do you think they feel about smoking, poor oral hygiene, high sugar diets?
<p><u>Topic 3: Normalisation</u></p> <ul style="list-style-type: none"> • Do you think it is normal practice to deliver behavioural interventions in the dental setting? If so, which ones (i.e. smoking, alcohol etc)? • Is it different if someone works in hospital/community/practice? • Do you know of any other dental professionals who deliver these interventions? • How do you think other dental professionals view these interventions?
<p><u>Topic 4: Willingness</u></p> <ul style="list-style-type: none"> • What would enable you to deliver these interventions? • Or what enables or would make you want to deliver them?
<p><u>Topic 5: Barriers</u></p> <ul style="list-style-type: none"> • What prevents you delivering these interventions? Or what could prevent you delivering them?

<p>Table 4.5: Interview Schedule Two (IS2)</p>
<p><u>Introductory questions (use as initial starting point to begin conversations):</u></p> <ul style="list-style-type: none"> • Do you know of any ways in which dental professionals tackle risky oral health behaviours in dental settings? • What do you know about oral hygiene interventions, smoking interventions and diet interventions used in dental settings? • What is your opinion of these interventions? • What do you know about behavioural alcohol interventions in dental settings? • What do you know about screening for alcohol misuse in dental settings? <i>(Prompts: How is it done? In which clinical settings (primary/secondary) and by whom?)</i> • What do you know about alcohol misuse treatment in dental settings? <i>(Prompts: How treated? In which clinical settings is misuse tackled</i>

(primary/secondary)? By whom?)

- What is your opinion on alcohol screening and treatment methods? Are they useful in dental settings?
- How do they compare to ways in which other harmful behaviours are tackled in dental settings e.g. smoking, oral hygiene neglect, diets high in sugar?

Topic 1: Knowledge and Experiences (I am going to change topic slightly)

- When do you record information on people's oral hygiene habits, smoking habits, dietary habits?
- How do you feel recording this information? Do you feel you should?

Alcohol misuse screening

- When do you record information on people's drinking habits?
- How is this information asked? For example, do you ask about units consumed? Is there a specific form of questions you used (e.g. screening questionnaires)?
- Do you help patients assess their drinking habits (is information given to patients for them to do that)? What words do you use to elicit this?
- Do you think patients are honest when they respond? Do you explain why you are asking them about their alcohol consumption?
- Does anyone or anything influence you asking this information?
- Tell me what you do with this information. Would you do anything different?
- How do you feel asking for this information? Do you feel you should?
- Do you ask people about oral hygiene, smoking more? Do you feel different when you ask for this information?

Alcohol misuse treatment

- Have you ever delivered any alcohol treatment interventions?
- If yes, why? what do you do? where? do you always deliver one? What was good or bad about the experience?
- If no, do you think you could - why/why not? Do you know what you could deliver? Do you think you should deliver these interventions?

Topic 2: Relevance

- Do you feel poor oral hygiene is relevant to dentistry? Diets high in sugar?
- Do you feel smoking is relevant to dentistry?
- Do you feel alcohol misuse is relevant to dentistry? (Prompt - if so why and

<p><i>where and to whom?)</i></p> <ul style="list-style-type: none"> • Do you think patients think alcohol misuse is relevant to dentistry? How do you think they feel about smoking, poor oral hygiene, high sugar diets?
<p><u>Topic 3: Normalisation</u></p> <ul style="list-style-type: none"> • Do you think it's normal practice to deliver behavioural interventions in the dental setting? If so, which ones (i.e. smoking, alcohol etc)? • Is it different if someone works in hospital/community/practice? • Do you know of any other dental professionals who deliver these interventions? • How do you think other dental professionals view these interventions?
<p><u>Topic 4: Willingness</u></p> <ul style="list-style-type: none"> • What would enable you to deliver these interventions? • Or what enables or would make you want to deliver them?
<p><u>Topic 5: Barriers</u></p> <ul style="list-style-type: none"> • What prevents you delivering these interventions? • Or what can prevent you delivering them?

<p>Table 4.6: Interview Schedule Three (IS3)</p>
<p><u>Introductory questions:</u></p> <ul style="list-style-type: none"> • What do you understand by the term “alcohol misuse”? Can you give me an example? (If respondent does not know explain that it describes consumption that puts individuals at increased risk for adverse health and social consequences. It is defined as excess daily consumption or total consumption or both. Different to alcoholism where person has cravings, withdrawal, dependence.) • Do you know any recommendations for safe drinking? (e.g at time of interviews recommendations included no more than 21 units per week for men and no more than 14 for women per week). • Do you know what a unit of alcohol is? (10ml by volume e.g. half pint ordinary strength beer or 25ml of spirits 40% alc by volume or standard 50ml measure of sherry or port 20% alc by volume. A small glass of ordinary strength wine 12% is one and a half units).
<p><u>Topic 1: Relevance</u></p> <ul style="list-style-type: none"> • Do you think alcohol misuse is relevant to dentistry?

- Do you think dental professionals should be concerned with the health issue of alcohol misuse?
- Do you feel it's as relevant as other behaviours e.g. smoking etc?
- Do you think patients think alcohol misuse is relevant to dentistry?
- How do you think patients view smoking, poor oral hygiene, high sugar diets?

Topic 2: Experiences and knowledge

- What do you understand is meant by the term "screening for alcohol misuse"?
- Is there anything that you do to screen for alcohol misuse?
- Do you know why we might screen and ask patients about their alcohol consumption?

if yes,

- When do you ask this information?
- How is this information elicited? (For example in units?)
- Do you help patients estimate their drinking habits (or is information given to patients for them to do that)? What words do you use to elicit this?
- Do you think patients are honest when they respond?
- Do you explain why you are asking for this information?
- Does anyone or anything influence your actions to request this information? e.g. policies? other members of staff?
- Tell me what you do with this information. Would you do anything different?
- How do you feel about asking for this information?
- Do you screen people for oral hygiene neglect, diet or smoking?
- Do you feel different when you take down this information compared to asking about alcohol use?
- Have you ever used specific screening tools for alcohol misuse (e.g. screening questionnaires such as the FAST. Have you heard of these before?

if no,

- Why don't you?
- Do you think should?
- Do you know of any guidance that suggests you should?
- Do you screen for other behaviours e.g. smoking? If so why? why not?
- Do you know what tools could be used to screen for alcohol misuse?

- What do you understand by the term “alcohol treatment interventions”? Do you know what interventions could be used? (Prompts: How could patients with alcohol problems be treated? What clinical settings is misuse tackled in (primary/secondary care)? By whom?)
- Have you ever delivered any alcohol treatment interventions? If yes, why? What do you do? When? Where? Do you always deliver one? What was good or bad about the experience? If no, do you know what intervention might be used? Do you think you could - why/why not?
- Do you think you should deliver these interventions?
- Do you ever deliver behavioural interventions for any other risky behaviours e.g. smoking etc? What do you use?

Just before we move on I’m going to provide you with some information. Alcohol screening can include use of questionnaires e.g. AUDIT (alcohol use disorders identification test) and FAST (fast alcohol screening test) and CAGE. Treatment can include brief structured motivational advice, brief counselling and leaflets. I’m now going to ask questions and I want you to keep this information in mind.

Topic 3: Normalisation

- Do you think it is normal practice to screen for alcohol misuse in dental settings using these methods?
- Do you think it’s normal to deliver the alcohol misuse treatments described in dental settings?
- Is it different if someone works in hospital/community/practice?
- Do you know of any other dental professionals who deliver these interventions?
- How do you think other dental professionals view these interventions?
- How do you think patients view alcohol screening and treatment in dental settings? Would they expect it?
- How do you think they would react?

Nearly coming to an end...

Topic 4: Facilitators and Willingness

- What would enable you to screen for alcohol misuse and deliver treatment interventions?
- What enables or makes you want to screen and deliver the behavioural interventions?

<ul style="list-style-type: none"> • Do you think the screening methods and treatment interventions described would be useful in dental settings? • Do you think delivering alcohol screening and treatment interventions would be valuable to your practice? • Would you be willing to screen and deliver treatment interventions? If yes, why? If no, why not? • When could you screen and deliver them? What methods would you be willing to use?
<p><u>Topic 5: Barriers</u></p> <ul style="list-style-type: none"> • What prevents you screening and delivering alcohol treatment interventions? or • What can prevent you delivering them?

<p>Table 4.7: Interview Schedule Four (IS4)</p>
<p>Begin by explaining you are not interested in respondents' habits or personal use but only their views on alcohol screening and treatment in dental settings.</p> <p><u>Introductory questions:</u></p> <ul style="list-style-type: none"> • What do you understand by the term "alcohol misuse"? Can you give me an example? • Do you know of any recommendations on safe drinking? • Do you know what a unit of alcohol is? <p>(If respondent does not have answers explain what they are)</p>
<p><u>Topic 1: Relevance</u></p> <ul style="list-style-type: none"> • Do you think alcohol misuse is relevant to dentistry? • Do you feel it's as relevant as other health behaviours e.g. smoking? • Do you think patients think alcohol misuse is relevant to dentistry? • How do you think they feel about smoking, poor oral hygiene, high sugar diets? • Do you feel alcohol misuse is relevant to general or oral health or both?
<p><u>Topic 2: Prevention</u></p> <ul style="list-style-type: none"> • What preventive advice do you give to adult patients? • How long would you say, on average, you spend giving this advice? What

do you think is the most important advice to give among smoking, oral hygiene, diet and alcohol?

- What preventive advice do you think patients expect to receive?

Topic 3: Experiences and knowledge

- What do you understand is meant by the term “screening for alcohol misuse”? (Where is this done e.g. primary/secondary care? What does it involve?)
- Is there anything that you do to screen for alcohol misuse?
- Do you know why we might screen and ask patients about their alcohol consumption?
- Have you ever used specific screening tools for alcohol misuse (e.g. screening questionnaires such as the FAST)? Have you heard of these?
- What do you understand by the term “alcohol treatment interventions”? Do you know what interventions could be used?
- Have you ever delivered any alcohol treatment interventions?
- Do you ever deliver treatment interventions for any other risky behaviours e.g. smoking, diet? What treatments do you provide?

Just before we move on I’m going to give you some information. Alcohol screening can include use of questionnaires e.g. AUDIT (alcohol use disorders identification test), FAST (fast alcohol screening test) and CAGE.

Treatment can include brief structured motivational advice, brief counselling and leaflets.

I’m now going to ask questions and want you to keep this information in mind.

Topic 4: Normalisation

- Do you think it is normal practice for patients to be screened and treated for alcohol misuse in dental settings?
- How do you think patients view alcohol screening and treatment in dental settings? Would they expect it?
- How do you think they would react?

Topic 5: Facilitators and Willingness

- What would enable you to screen for alcohol misuse and deliver treatment interventions?
- Would you be willing to screen and deliver treatment interventions? If yes, why. If no, why not?
- When could you screen and deliver them? What treatments would you be

willing to use?

- What dental setting do you think is best?
- Who in the dental team is best placed to deliver alcohol misuse screening and treatment in your opinion?

Table 4.8: Interview schedule for patients

Begin by explaining you are not interested in participant's habits or personal use but only their views on alcohol screening and treatment in dental settings.

Introductory questions:

- Where do you go to receive dental care? (general practice/hospital/ community centre)
- What do you understand by the term "alcohol misuse"? Can you give me an example?
- Do you know any recommendations on safe drinking?
- Do you know what a unit of alcohol is?

Topic 1: Relevance

- Do you think it's relevant to dentistry for dental healthcare professionals to ask patients about alcohol consumption?
- Do you think patients should be asked about it by their dental practitioner?
- Do you think other behaviours such as oral hygiene neglect, smoking are more relevant than alcohol misuse?

Topic 2: Prevention

- What behaviours have you been asked about in dental clinics (e.g. oral hygiene habits, smoking, diet, alcohol) and what advice have you been given by dental practitioners?
- What advice do you expect to get in dental settings? How long does the dental professional spend giving it?

Topic 3: Knowledge and Experiences

- Have you ever been asked by your dental professional (dentist, dental nurse or hygienist) about your alcohol consumption?
- Do you know why a dental professional may ask patients about their alcohol consumption? Has your dental professional ever explained to you why if they have asked you about this?

<ul style="list-style-type: none"> • How do you feel when asked by a dental professional to give this information? Do you feel differently if dental professionals ask about smoking, oral hygiene?
<p>Topic 4: Normalisation</p> <ul style="list-style-type: none"> • Has anyone apart from your dentist ever asked about your alcohol consumption as part of a routine consultation? (e.g. GP) • Do you think it is normal practice for your dental professional to ask you about alcohol misuse? • Do you think it is normal practice for dental professionals to offer advice or treatment for alcohol misuse (for example, gave you leaflets or offered you advice?) • Do you think it's more normal/common for dental patients to receive advice on smoking, oral hygiene?
<p>Topic 5: Willingness</p> <ul style="list-style-type: none"> • Do you think dental professionals should screen patients for alcohol misuse? Give treatment? • How would you feel if your dental professional included this in their service? Who in dental team should screen and deliver this advice?
<p>Topic 6: Barriers</p> <ul style="list-style-type: none"> • If you were screened for and treated for alcohol misuse in dental settings? Would you be happy/unhappy to accept this? • Would you take on board the advice given? What would prevent you from acting on this advice?

Table 4.9: Interview schedule for public health practitioners

Begin by explaining you are not interested in participant's habits or personal use but only their views on alcohol screening and treatment in dental settings.

Introductory questions

- What do you think about dental professionals being involved in alcohol misuse prevention?

Topic 1: Knowledge

- What interventions are currently used for alcohol misuse prevention in dental settings?

Topic 2: Relevance

- Do you think dental professionals should be concerned with the health issue of alcohol misuse?
- Do you think alcohol misuse is relevant to dentistry?
- Do you feel it is as relevant as other health behaviours e.g. smoking?
- Do you think patients think alcohol misuse is relevant to dentistry?
- How do you think dental patients feel about being asked about smoking, poor oral hygiene, high sugar diets in a dental context? Do you think they view these behaviours as more relevant than alcohol misuse?
- How do you think patients view alcohol screening and treatment in dental settings?
- Would they expect it?
- How do you think they would react?

Topic 3: Normalisation

- What interventions do you think dental professionals currently use?
- Do you think currently it is normal practice to screen for alcohol misuse in dental settings?
- Do you think it is normal practice to deliver alcohol misuse treatment in dental settings?
- Is it different if for dental professionals working in hospital/community/practice?

Topic 4: Willingness

- Do you think dental professionals should screen for alcohol misuse and deliver treatment interventions?
- Who should deliver these in the dental team? Which dental services should they be used in?
- What would make dental professionals more willing to deliver these behavioural interventions?

Topic 5: Barriers

- What are the barriers to dental healthcare professionals delivering these interventions?

4.5.2 ***Initial themes that emerged from the pilot study***

Initial analysis of the pilot stage revealed five themes. These are briefly described below:

4.5.2.1 Definitions and labels for the initial themes

Theme 1: Concerns and assumptions. This theme included the concerns and assumptions that participants felt prohibited them from tackling alcohol misuse during their dental practice. It highlights their fears over the assumption that they will encounter negative reactions from patients and their fears of getting too involved in their patients' personal lives. In addition, it includes participants' discomfort talking to patients about their alcohol use and participants' fears about how they will be seen by patients (e.g. as a hypocrite). Furthermore, it outlines a lack of resources and a lack of professional education as barriers to conducting alcohol misuse screening and treatment interventions in the dental setting.

Theme 2: Priorities. This theme emerged because participants felt there were treatment priorities in dental settings. It focuses on how other health behaviours are seen as more important than alcohol misuse (e.g. smoking, oral hygiene neglect) and how professionals seem to prioritise this advice. It also focuses on how alcohol misuse would only become a priority if there is a physical oral symptom or a dental need resulting from alcohol misuse. In addition, it reflects that participants did not feel that tackling alcohol misuse was part of their role as dental healthcare professionals.

Theme 3: Need for evidence-based guidelines and explicit contractual obligations. This theme focuses on participants' need for evidence-based guidelines on how to tackle alcohol misuse that are relevant to dentistry. It also focuses on the lack of remuneration in current dental contracts for giving preventive advice.

Theme 4: Roles within the dental profession. This theme outlines participants' views that dental nurses may be best placed to deliver alcohol misuse screening and treatment. It describes how nurses are seen as more likely than dentists or hygienists to relate to patients on a social level. Nurses also seemed most willing to carry out screening and treatment. This theme focuses on the finding that participants see dentists as authority figures who need to give permission before other dental professionals, such as nurses, can address alcohol misuse in dental settings.

Theme 5: Opportunities. This theme outlines how dental professionals see patients regularly, especially in general practice, and are therefore in a prime position to tackle alcohol misuse. It focuses on medical history forms which already exist and so could be expanded to incorporate screening questionnaires such as the FAST. In addition, this theme demonstrates that respondents feel that alcohol advice could be given efficiently by combining it with advice on other behaviours (such as dietary advice). It also focuses on participants feeling there are more opportunities for general medical practitioners to tackle alcohol misuse amongst their patients.

Overall, the pilot work suggested that several barriers to alcohol misuse screening and treatment exist:

- Dental professionals were concerned that they would be getting too involved with their patients' personal lives should they screen and treat them for alcohol misuse.
- Dental professionals often assumed there would be an extremely negative reaction from patients should they introduce the topic of alcohol misuse.
- Lack of resources is seen as a barrier.
- Lack of training at both an undergraduate and postgraduate level is seen as a difficulty.
- Lack of time is central to professionals prioritising the care they give to patients.
- Other health behaviours are seen as more important such as smoking, oral hygiene neglect and consuming a diet high in sugar.
- Unless there is a physical effect of alcohol misuse on oral health, participants did not feel there would be a valid reason to screen and treat patients for their alcohol misuse.
- There is a lack of accessible guidelines targeted at the dental team and there is a need for contractual amendments to reflect the need for the dental team to address alcohol misuse.

In addition, this work suggests several facilitators that may encourage the implementation of alcohol misuse screening and treatment interventions in dental settings:

- Professionals complementary to the dentist could be utilised to deliver these, especially dental nurses.

- The standard medical history forms used routinely in dentistry could be expanded to incorporate screening tools such as the FAST.
- If alcohol interventions are incorporated with other advice, e.g. with dietary advice, dental professionals will be encouraged to utilise them.

The pilot stage was useful as several emerging themes were identified which could be explored further in the next stage of qualitative work. In particular, the theme of Priorities emerged. Participants expressed a hierarchy of importance with regards to tackling harmful oral health behaviours such as smoking, oral hygiene neglect, consuming a diet high in sugar and alcohol misuse. Therefore, it was important, next, to explore even further how dental professionals allocate their time in accordance with this hierarchy of importance. This may particularly help in determining in more detail what professionals would be willing to deliver with regards to alcohol treatment interventions, when they would be willing to deliver it during a patient consultation, and how much time and importance, if any, they might allocate to such an intervention. In addition, the participants stated that a physical dental or oral symptom would be a powerful prompt for them to raise the subject of alcohol misuse with their patients. They also saw tackling alcohol misuse as more relevant to medical healthcare professionals. This suggested that perhaps dental professionals only see themselves as practitioners with responsibility for dental and oral health, rather than wider general health. However, further investigation was indicated into whether professionals feel they should respond to general health needs.

The suggestion that nurses could be used more routinely to help tackle alcohol misuse amongst patients attending the dental clinic was also an interesting suggestion. This is similar to research by Hutchings et al. (2006) that also indicated healthcare professionals felt nurses were best placed to deliver alcohol advice to patients. In addition, the analysis indicated that it would be useful to expand the sample to include postgraduate professionals not just in secondary care (hospital settings) but also in primary care (general practice and community settings). Analysis also suggested it would be valuable to talk to patients in order to see if professionals' assumptions were correct about how they would feel about alcohol misuse screening and treatment, as well as to public health practitioners involved in alcohol misuse prevention to find out their opinions on screening and treatment in dental settings.

4.6 Methodology for the definitive stage of data collection

The definitive stage of data collection involved one-to-one semi-structured and unstructured interviews with postgraduate dental healthcare professionals, patients and public health practitioners.

4.6.1 Interview Plan

Interview Schedule Four (IS4) and the interview schedules for patients and public health practitioners developed during the pilot stage of data collection was used as a starting point (Table 4.7, 4.8 and 4.9).

4.6.2 Ethical Approval

Ethical approval for the second stage of data collection was gained from the Nottingham 1 Research Ethics Proportionate Review Sub-Committee on the 23 January 2012 (Appendix 6, Appendix 7a to 7c).

4.6.3 Sampling frame

A sampling frame (Figure 4.1) was created since this stage of data collection was more complex and included dental professionals, patients and public health practitioners.

Since the design of the study was qualitative, the size of the sample and the types of participants who were recruited were not necessarily meant to be representative of the population as a whole. Instead, the sample size chosen was determined by the optimum number necessary to enable valid inferences to be made about the participants' views on alcohol misuse prevention in dental settings, while the selection criteria for participants took into account the research question, previous studies and practicalities and logistics involved in their recruitment (Tuckett 2004).

Advice was sought from senior lecturers in Cardiff University's Institute of Primary Care and Public Health with expertise in qualitative research about sampling methods and sizes. From this advice, with reference to work by Tuckett (2004), the sampling frame was created which reflected the thought processes and other considerations involved in this stage of data collection.

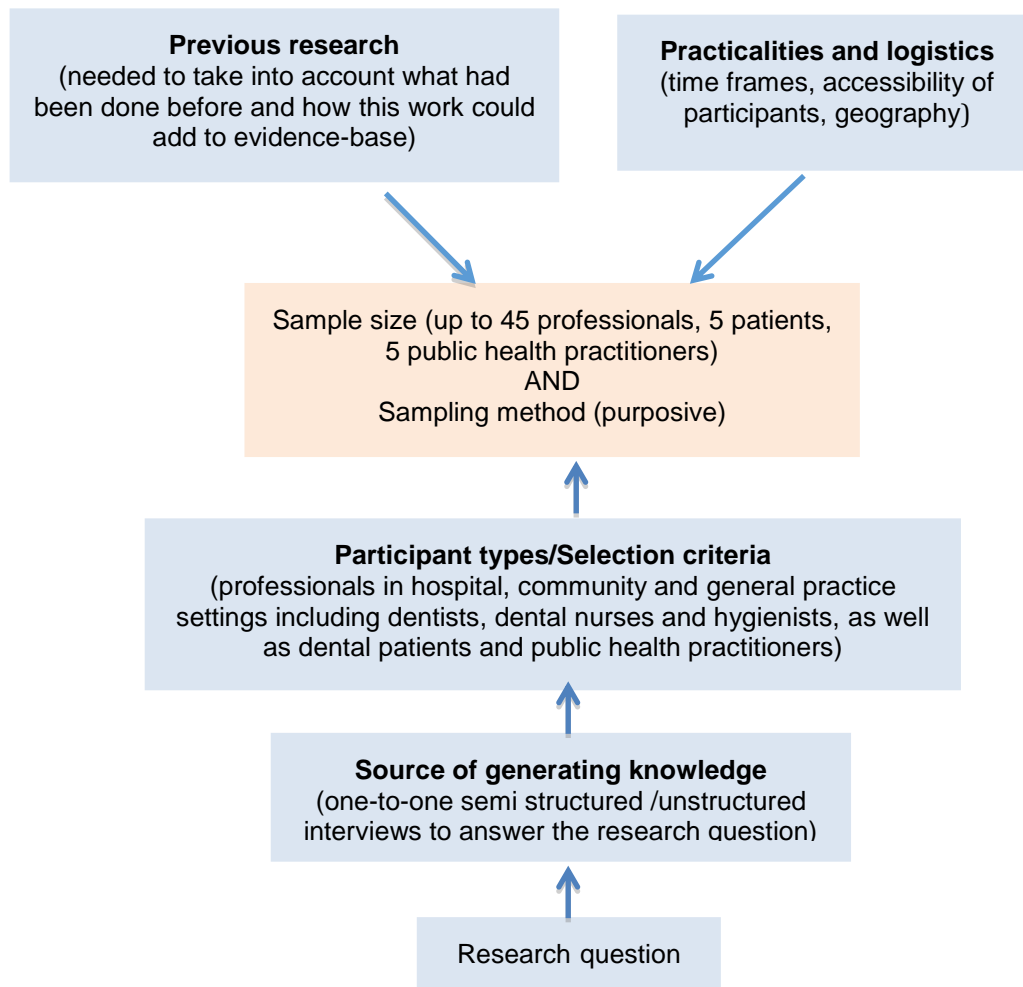


Figure 4.1: Sampling frame for the second stage of data collection

4.6.4 **Sample selection**

Participants included qualified dental healthcare professionals (dentists, dental nurses and dental hygienists), patients and public health practitioners.

In order to help plan the types of participants to be recruited, group allocations were created. For example, members of the dental team were stratified into groups according to their functional role in the dental team and according to the dental sector within which they worked. Therefore, dentists who worked in the general dental service (National Health Service (NHS) and private) were allocated into one group, with dental nurses and hygienists who worked in general dental services also in two respective groups. Dentists, dental nurses and hygienists who worked in community dental services were allocated into three groups respectively. Dentists, dental nurses and hygienists who worked in the hospital dental service were allocated into three groups. All professionals worked within the Cardiff and Vale area and worked mainly

with adult patients (aged 16 and above). They could be of any age, gender and ethnicity.

In addition, there was one group for patients recruited from general, community or hospital dental services. All patients were aged 18 years and over and could be of any gender and ethnicity. Representatives from Public Health Wales, with experience in training healthcare workers in the delivery of brief alcohol interventions, were also recruited forming one group for public health practitioners. The term public health practitioner represents key members of the public health workforce who influence the health and well-being of individuals, groups and communities and work across the full-breadth of public health from health improvement and health protection, to health information, community development and nutrition, in a wide range of settings, including the NHS and voluntary sectors (UK Public Health Register 2015). They could also be of any age, gender and ethnicity.

There were therefore eleven groups in total. Initially, it was estimated that a minimum of five per group would allow data saturation, giving a total of 55 participants. However, according to guidance on qualitative methods (Silverman 2013), fewer participants could be interviewed if saturation occurred earlier. In total, 21 dental professionals were interviewed, five patients and two public health practitioners.

A description of the participants is given in Table 4.1b.

4.6.5 Identification of potential participants

Principal dentists and senior dental officers who practiced in general dental practices and community dental services were identified from performer lists accessed directly online from the Cardiff and Vale University Health Board website and approached directly in writing. Nursing and hygiene staff in general practices and community settings were identified through the dentists (nursing and hygiene staff were therefore recruited from the same practice or community centre as the dentists).

Dentists, dental nurses and hygienists were recruited from within Cardiff University Dental Hospital. They were identified from hospital directories or from lists that were obtained online from the Cardiff and Vale University Health Board website and written to or approached directly.

The dental professionals who had agreed to be interviewed recruited patients. They were asked to give information letters to their patients. Patients then contacted the research team to take part in the study. Patients were not contacted directly by the researchers.

Public health practitioners were identified opportunistically through recommendations from senior personnel in Cardiff School of Dentistry.

4.6.5.1 Recruitment

After identification, all principal general dentists in the Cardiff and Vale University Health Board were sent written invitations to take part in the study. Senior dental officers from the community dental centres in the directories were also sent invitation letters. These principal dentists and senior dental officers were asked whether one dentist (which could have been themselves), one nurse and one hygienist within their place of work would be willing to participate in the study. Dental professional (dentists, nurses and hygienists) in the hospital directories were sent invitation letters directly. If within one week there was no response they were sent a second letter. If again after one week there was no response they were contacted via telephone or emailed.

In the case of patients, the dental healthcare professionals recruited into the study were asked to contact and distribute letters to their patients. The first five patients who contacted the researchers for further information were selected to participate.

The public health practitioners recommended by personnel in Cardiff School of dentistry were written to and emailed directly.

4.6.5.2 Data collection

One-to-one semi-structured interviews were conducted with participants on a stratified basis. One-to-one unstructured interviews were conducted with certain participants whereby themes that emerged from previous interviews were explored to determine their validity. For the public health practitioners and the dental healthcare professionals, interviews were conducted at their place of work in a private room. For patients, interviews were conducted at a public venue, for example in a coffee shop, or at the School of Dentistry. The topics discussed with the patients had been deemed acceptable by the ethics committee on safety and other criteria. Interview

schedules were used as a starting point. However, since the interview schedule was not a rigid construct, questions depended on participants' answers. Interviews lasted approximately 30 minutes.

4.6.5.3 Recording and transcription

Each data item or interview was recorded using a dictaphone. All audio recordings were transcribed verbatim and manually onto a password locked Cardiff School of Dentistry computer. Each transcript was checked against the tapes for accuracy by the thesis author.

4.6.5.4 Allocation of interview codes

All respondents were allocated a code so that they were unidentifiable and their personal details would remain confidential. For the dental professionals, these codes reflected the sector from which they were recruited and their role in the dental team. They were also given a number to show whether they were the first, second, etc., member of staff recruited within the participant group. Patients and public health practitioners were also given codes. Table 4.10 summarises the coding system.

Table 4.10: Coding system allocated to interview participants during second stage of data collection

Letters allocated	Reasoning
H	Allocated to professionals based in hospital settings
C	Allocated to professionals based in community settings
G	Allocated to professionals based in general practice settings
D	Allocated to qualified dentists
DH	Allocated to qualified dental hygienists
DN	Allocated to qualified dental nurses
PT	Allocated to patients
PHP	Allocated to public health practitioners

For example, the first dental nurse recruited from the hospital was allocated the code HDN1, while the first patient recruited was given the code PT1 and the first public health practitioner PHP1 and so forth.

4.6.5.5 Reflexivity

A further account of reflexivity was written prior to the analysis process (Appendix 8).

4.6.5.6 Analysis

The first three stages of the thematic analysis process were carried out. The data set was coded taking into account the initial codes and themes generated from the first data set, with the aim of refuting and building upon them.

4.6.5.7 Criteria for data saturation

After each interview, analysis was conducted and helped to inform whether subsequent interviews were required. Data saturation was defined as the point at which it was becoming counterproductive to interview more people, as new themes were not adding any new information to answer the research question.

4.6.5.8 Final analysis of the whole data corpus

The whole data corpus (data items/transcripts for all participants in both the pilot and definitive stages of data collection) was examined and themes were further organized into thematic networks for professionals (Figure 4.3), patients (Figure 4.4) and public health practitioners (Figure 4.5) in an attempt to answer the research question as fully as possible.

4.6.5.9 Verification of analysis

Codes and themes were discussed again with the researcher in Cardiff School of Dentistry who was independent to the thesis. Codes and themes were discussed in depth and rechecked against the dataset in order to ensure that the coding process had been inclusive and comprehensive and that the initial themes had not been generated from a few vivid examples (Braun and Clarke 2006).

During the coding of the data set, in order to increase the validity of the analysis process, methods of constant comparison and exploration of deviant cases were adopted. The data were also repeatedly inspected and where possible appropriate tabulations were used to add depth and strength to the analysis (Silverman 2013).

The final thematic networks for the professional, patient and public health practitioner participants were also discussed with the independent researcher in Cardiff School of Dentistry.

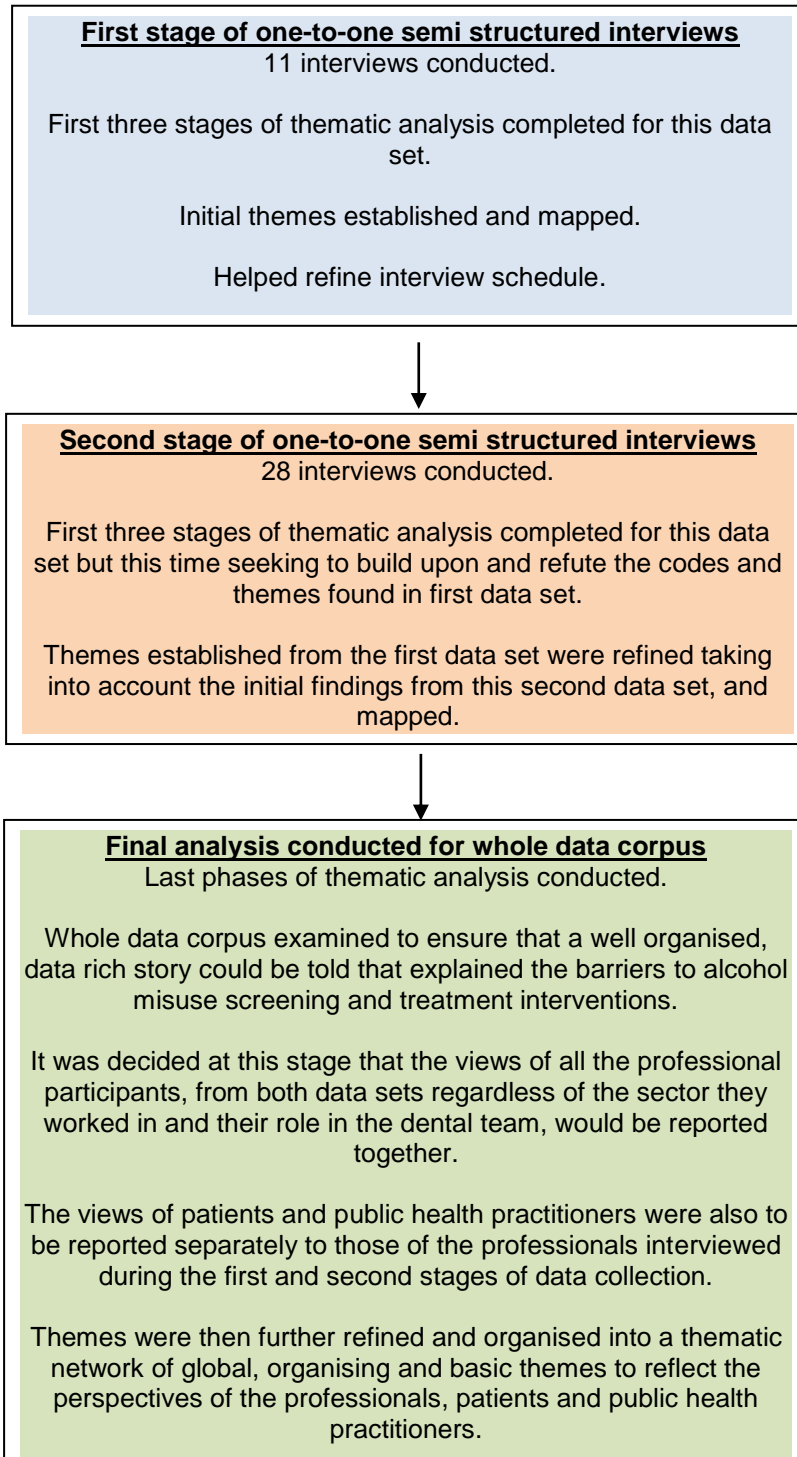


Figure 4.2: Summary diagram of methods for stages of data collection and analysis

Table 4.1b: Overview of professional participant characteristics, justification of the sample and reflections arising from the interview

Interview Number	Interview Code	Description of participant	Justification of sample and procedures	Brief reflection
12	HDN1	Female, age group 35-45. Hospital Dental Nurse. Qualified 12 years.	Second stage of data collection with sample of qualified professionals. Idea was to explore views and barriers towards alcohol screening and treatment interventions in the dental setting of qualified staff with various clinical backgrounds through semi-structured interview.	Themes emerging: Training, Dental team structure, Roles of professionals, Lack of time, Seeing patients regularly. Interview schedule Four (IS4) understood. Easy to access hospital dental nursing staff. An interview with another dental nurse based in the hospital setting was deemed necessary to determine whether opinions and experiences were similar.
13	HD1	Male, age group 45-55. Hospital Dentist, Consultant. Qualified 20 years.	Second stage of data collection with sample of qualified professionals. Idea was to explore views and barriers towards alcohol screening and treatment interventions in the dental setting of qualified staff with various clinical backgrounds through semi-structured interview.	Themes emerging: Priorities, Media, Patient expectations, Patient reactions, Lack of time, Seeing patients most often, Consultations and their structure, Dental team structure, Need reason to talk to patients. IS4 understood. Easy to access hospital dentist. This participant was a senior consultant. Interviews with various grades of hospital staff were deemed necessary to determine whether opinions and experiences were similar or differed depending on clinical grade.
14	HDN2	Female, age group 25-30. Hospital Dental Nurse. Qualified 5 years.	Second stage of data collection with sample of qualified professionals. Idea was to explore views and barriers towards alcohol screening and treatment interventions in the dental setting of qualified staff with various clinical backgrounds through semi-structured interview.	Themes emerging: Patient reactions, Certain professionals will see patients the most, Time, Dental team structure. IS4 understood. Easy to access hospital dental nursing staff. An interview with another dental nurse based in a different hospital department was deemed necessary to determine whether opinions and experiences were similar.

Table 4.1b: Overview of professional participant characteristics, justification of the sample and reflections arising from the interview continued

Interview number	Interview Code	Description of participant	Justification of sample and procedures	Brief reflection
15	HDH1	Female, age group 35-45. Hospital Dental Hygienist. Qualified 15 years.	Second stage of data collection with sample of qualified professionals. Idea was to explore views and barriers towards alcohol screening and treatment interventions in the dental setting of qualified staff with various clinical backgrounds through semi-structured interview.	Themes emerging: Consultations and their structure, Mind set of staff, Lack of resources Priorities, Need of patient/Legitimacy, Training, Roles within profession, Lack of time. IS4 understood. Easy to access hospital dental hygiene staff. An interview with another hospital dental hygienist was deemed necessary to determine whether opinions and experiences were similar.
16	HDH2	Female, age group 45-55. Hospital Dental Hygienist. Qualified 20 years.	Second stage of data collection with sample of qualified professionals. Idea was to explore views and barriers towards alcohol screening and treatment interventions in the dental setting of qualified staff with various clinical backgrounds through semi-structured interview.	Themes emerging: Priorities, Patient expectations, Patient reactions, Patient need, Training, Certain professionals see patients the most often, Consultations and their structure, Mind set of professionals. IS4 understood. Easy to access hospital dental hygiene staff. Views of hygiene staff working in other settings required.
17	HD2	Male, age group 30-35. Hospital Dentist, Registrar. Qualified 8 years.	Second stage of data collection with sample of qualified professionals. Idea was to explore views and barriers towards alcohol screening and treatment interventions in the dental setting of qualified staff with various clinical backgrounds through semi-structured interview.	Themes emerging: Patient reactions, Consultations and their structure, Lack of time, Training, Priorities. IS4 understood. Easy to access hospital dentist. An interview with another hospital dentist at a more junior grade was deemed necessary to determine whether opinions and experiences were similar.

Table 4.1b: Overview of professional participant characteristics, justification of the sample and reflections arising from the interview continued

Interview number	Interview Code	Description of participant	Justification of sample and procedures	Brief reflection
18	HDN3	Female, age group 40-50. Hospital Dental Nurse. Qualified 10 years.	Second stage of data collection with sample of qualified professionals. Idea was to explore views and barriers towards alcohol screening and treatment interventions in the dental setting of qualified staff with various clinical backgrounds through semi-structured interview.	Themes emerging: Patient reactions, Priorities, Role of medical practitioners, Training. IS4 understood. Easy to access hospital dental nursing staff. An interview with nursing staff with experience in the delivery of brief alcohol interventions required.
19	HDN4	Female, age group 45-50. Hospital Dental Nurse. Qualified 20 years.	Second stage of data collection with sample of qualified professionals. Idea was to explore views and barriers towards alcohol screening and treatment interventions in the dental setting of qualified staff with various clinical backgrounds through semi-structured interview.	Themes emerging: Patient reactions, Stigma, Patient expectations, Training, Lack of time, Teachable moment. IS4 understood. Easy to access hospital dental nursing staff with experience in the delivery of brief alcohol interventions. An interview with another nurse based in the hospital setting with experience in brief alcohol interventions was deemed necessary to determine whether opinions were similar.
20	HDN5	Female, age group 55+ years. Hospital Dental Nurse. Qualified 30 years.	Second stage of data collection with sample of qualified professionals. Idea was to explore views and barriers towards alcohol screening and treatment interventions in the dental setting of qualified staff with various clinical backgrounds through unstructured interview.	Themes emerging: Patient reactions, Patient expectations, Teachable moment, Time, Training, Dentist-patient relationship. Unstructured interview conducted with the Head Nurse of the Oral and Maxillofacial Suture Clinic, as wanted to explore further some of the views expressed by HDN4 about the brief alcohol interventions used in the suture clinics of trauma departments. Easy to access hospital dental nursing staff. No more interviews with hospital nursing staff required as similar themes emerged between nurses in various departments and between nurses with or without experience in brief alcohol interventions. Interviews with dental nurses in other clinical settings required.

Table 4.1b: Overview of professional participant characteristics, justification of the sample and reflections arising from the interview continued

Interview number	Interview Code	Description of participant	Justification of sample and procedures	Brief reflection
21	GD1	Male, age group 60-65 years. General Dentist, Principal. Qualified 40 years.	Second stage of data collection with sample of qualified professionals. Idea was to explore views and barriers towards alcohol screening and treatment interventions in the dental setting of qualified staff with various clinical backgrounds through semi-structured interview.	Themes emerging: Priorities, Legitimate reason to talk to patients, Lack of time, Lack of resources, Guidelines and contracts, Dentist-patient relationship, Mind set of professionals, Patient reactions, Patient expectations. IS4 understood. Not easy accessing general dental practitioner. Participant was the principal at an NHS general dental practice. An interview with another more junior general dentist was deemed necessary to determine whether opinions and experiences were similar.
22	GDH1	Female, age group 55-65 years. General Dental Hygienist. Qualified 30 years.	Second stage of data collection with sample of qualified professionals. Idea was to explore views and barriers towards alcohol screening and treatment interventions in the dental setting of qualified staff with various clinical backgrounds through semi-structured interview.	Themes emerging: Guidelines and contracts, Patient reactions, Patient expectations, Training, Lack of time, Dentist-patient relationship, Mind set of professionals, Priorities, Dental team structure, Lack of resources. IS4 understood. Not easy accessing general dental hygienist. An interview with another dental hygienist based in general dental practice was deemed necessary to determine whether opinions and experiences were similar.

Table 4.1b: Overview of professional participant characteristics, justification of the sample and reflections arising from the interview continued

Interview number	Interview Code	Description of participant	Justification of sample and procedures	Brief reflection
23	CDN1	Female, age group 25-35 years. Community Dental Nurse. Qualified 8 years.	Second stage of data collection with sample of qualified professionals. Idea was to explore views and barriers towards alcohol screening and treatment interventions in the dental setting of qualified staff with various clinical backgrounds through semi-structured interview.	Theme emerging: Certain professionals see the most patients, Training, Patient reactions. IS4 understood. Not easy accessing community dental nurse. Views and opinions of community dental nurse similar to hospital dental nurses. Need to interview dental nurse in general dental practice to see if these views also the same.
24	CD1	Male, age group 35-45 years. Community Dentist. Qualified 15 years.	Second stage of data collection with sample of qualified professionals. Idea was to explore views and barriers towards alcohol screening and treatment interventions in the dental setting of qualified staff with various clinical backgrounds through semi-structured interview.	Themes emerging: Mind set of professionals, Legitimate reason to talk to patients, Priorities, Role of professionals, Dental Team structure, Lack of time, Certain professionals see patients more often, Guidelines and contracts. IS4 understood. Not easy accessing community dentist. Participant was senior community dental officer and so views of junior community dentist were necessary to determine if opinions and experiences similar.
25	CHD1	Female, age group 20-30 years. Community Dentist and Senior House Officer in hospital. Qualified 2 years.	Second stage of data collection with sample of qualified professionals. Idea was to explore views and barriers towards alcohol screening and treatment interventions in the dental setting of qualified staff with various clinical backgrounds through semi-structured interview.	Themes emerging: Training, Role of professionals, Structure of consultations, Guidelines and consultations, Priorities, Patient reactions, Media, Professionals who saw the most patients. IS4 understood. Not easy accessing community/hospital dentist. Participant junior member of staff in both hospital and community setting. An interview with another community dentist was deemed necessary to determine if opinions and experiences similar. An interview with a dentist based in a hospital department that involved aspects of both medicine and dentistry was also required (therefore oral and maxillofacial surgery) to ensure all avenues explored.

Table 4.1b: Overview of professional participant characteristics, justification of the sample and reflections arising from the interview continued

Interview number	Interview Code	Description of participant	Justification of sample and procedures	Brief reflection
26	GD2	Male, age group 25-30 years. General Dentist, Associate. Qualified 6 years.	Second stage of data collection with sample of qualified professionals. Idea was to explore views and barriers towards alcohol screening and treatment interventions in the dental setting of qualified staff with various clinical backgrounds through semi-structured interview.	Themes emerging: Seeing the most patients, Lack of time, Structure of consultations, Priorities for need, Legitimate reason to talk to patients, Patient expectations, Patient reactions, Contracts, Training, Dental team structure. IS4 understood. Not easy accessing general dental practitioner. Participant was an associate in NHS practice so junior to principal. Views of practitioner in mixed NHS and/or private practice required.
27	GDN1	Female, age group 18+ years. General Practice Dental Nurse. Qualified 2 years.	Second stage of data collection with sample of qualified professionals. Idea was to explore views and barriers towards alcohol screening and treatment interventions in the dental setting of qualified staff with various clinical backgrounds through semi-structured interview.	Themes emerging: Lack of importance of alcohol advice, Seeing the most patients, Lack of time, Training, Patient reactions. IS4 understood. Not easy accessing general practice dental nurse. Views similar to nurses in hospital and community.
28	GCDH1	Female, age group 20-30 years. General Practice and Community Dental Hygienist. Qualified 2 years.	Second stage of data collection with sample of qualified professionals. Idea was to explore views and barriers towards alcohol screening and treatment interventions in the dental setting of qualified staff with various clinical backgrounds through semi-structured interview.	Themes emerging: Structure of dental team, Most appropriate setting, Training, Patient reactions, Mind set of professionals, Structure of consultations. IS4 understood. Participant worked both in general dental practice and in community settings. Not easy accessing general practice dental hygienist. Views similar to other hygienists in hospital and general dental practice.

Table 4.1b: Overview of professional participant characteristics, justification of the sample and reflections arising from the interview continued

Interview number	Interview Code	Description of participant	Justification of sample and procedures	Brief reflection
29	HD3	Female, age group 25-30 years. Hospital Dentist, Speciality Doctor. Qualified 7 years.	Second stage of data collection with sample of qualified professionals. Idea was to explore views and barriers towards alcohol screening and treatment interventions in the dental setting of qualified staff with various clinical backgrounds through semi-structured interview.	Themes emerging: Mind set of professionals, Structure of consultations, Patient reactions, Training. IS4 understood. Easy access to hospital dentist. Participant staff grade/specialty doctor based in a department where must know aspects of medicine as well as dentistry (oral and maxillofacial surgery). No further interviews with hospital dentists required.
30	CD2	Female, age group 20-30 years. Community dentist. Qualified 3 years.	Second stage of data collection with sample of qualified professionals. Idea was to explore views and barriers towards alcohol screening and treatment interventions in the dental setting of qualified staff with various clinical backgrounds through semi-structured interview.	Themes emerging: Patient reactions, Mind set of professionals, Training, Priorities, Legitimate reasons needed to talk to patients, Lack of importance of alcohol advice. IS4 understood. Not easy accessing community dentist. A further interview was deemed necessary with another community dentist to determine if opinions and experiences similar.
31	GD3	Male, age group 20-30 years. General Dentist, Associate. Qualified 3 years.	Second stage of data collection with sample of qualified professionals. Idea was to explore views and barriers towards alcohol screening and treatment interventions in the dental setting of qualified staff with various clinical backgrounds through unstructured interview.	Themes emerging: Patient reactions, Priorities, Legitimate reasons to talk to patients, Mind set of professionals. Unstructured interview conducted as wanted to know more about specific views brought up by GD1 and GD2 about brief alcohol interventions being used in a general dental practice setting. Also wanted to know specific views about working in private sector as this general dentist worked for both the NHS and in private practice. Not easy accessing general dentist. Views similar to other general dentists and colleagues based in community and hospital settings.

Table 4.1b: Overview of professional participant characteristics, justification of the sample and reflections arising from the interview continued

Interview number	Interview code	Description of participant	Justification of sample and procedures	Brief reflection
32	CD3	Female, age group 25-30 years. Community dental officer. Qualified 6 years.	Second stage of data collection with sample of qualified professionals. Idea was to explore views and barriers towards alcohol screening and treatment interventions in the dental setting of qualified staff with various clinical backgrounds through semi-structured interview.	Themes emerging: Mind set of professionals, Structure of consultations, Structure of dental team, Legitimate reason to talk to patients, Seeing patients regularly, Patient reactions, Training, Lack of importance of alcohol advice, Most appropriate setting. IS4 understood. Not easy accessing community dentist. No further interviews required with dental professionals.

Table 4.1b: Overview of patient participant characteristics, justification of the sample and reflections arising from the interview

Interview number	Interview code	Description of participant	Justification of sample and procedures	Brief reflection
33	PT1	Male, age group 25-30 years. NHS patient at a general dental practice. Attended practice 15 years.	Second stage of data collection with sample of patients. Idea was to explore views and barriers towards alcohol screening and treatment interventions in the dental setting of patients attending various clinical settings through semi-structured interview.	Themes emerging: Negatives, Positives, Valuing information, Patient reactions. Interview plan for patients understood. Reasonably easy accessing patients. Further interview with patient who attends a primary care dental setting deemed necessary to determine whether opinions and experiences similar.
34	PT2	Male, age group 55-65 years. NHS patient at a general dental practice. Attended practice 30 years.	Second stage of data collection with sample of patients. Idea was to explore views and barriers towards alcohol screening and treatment interventions in the dental setting of patients attending various clinical settings through semi-structured interview.	Themes emerging: Patient reactions, GPs see patients regularly, Relationships with other professionals, Professionals working together, Hygienists valuable, Links with alcohol, Alcohol not main focus for dental professionals. Interview plan for patients understood. Reasonably easy accessing patients. Further interview with patient who attends a primary care dental setting and patients who attend secondary care settings deemed necessary to determine whether opinions and experiences similar.
35	PT3	Female, age group 20-25 years. Attends hospital for emergency care. Recently joined a general dental practice. Attended practice 3 months.	Second stage of data collection with sample of patients. Idea was to explore views and barriers towards alcohol screening and treatment interventions in the dental setting of patients attending various clinical settings through semi-structured interview.	Themes emerging: Value information, Alcohol not main focus for dental professionals, Patient reactions. Interview plan for patients understood. Reasonably easy accessing patients. Further interview with patient who attends a secondary care settings deemed necessary to determine whether opinions and experiences similar.

Table 4.1b: Overview of patient participant characteristics, justification of the sample and reflections arising from the interview continued

Interview number	Interview code	Description of participants	Justification of sample and procedures	Brief reflection
36	PT4	Male, age group 20-25 years. Attends hospital/community settings for emergency care. No regular general dental practitioner.	Second stage of data collection with sample of patients. Idea was to explore views and barriers towards alcohol screening and treatment interventions in the dental setting of patients attending various clinical settings through semi-structured interview.	Themes emerging: Positives, Patient reaction, and Valuing information. Interview plan for patients understood. Reasonably easy accessing patients. Further interview with patient who attends a primary care dental setting required.
37	PT5	Male, age group 25-35 years. NHS patient at a general dental practice. Attended practice for 5 years.	Second stage of data collection with sample of patients. Idea was to explore views and barriers towards alcohol screening and treatment interventions in the dental setting of patients attending various clinical settings through semi-structured interview.	Themes emerging: Patient reactions, GDPs see patients regularly, hygienist in good position, Value information, Easier for other professionals. Interview plan for patients understood. Reasonably easy accessing patients. No further interviews required with patients required.

Table 4.1b: Overview of public health practitioner participant characteristics, justification of the sample and reflections arising from the interview

Interview number	Interview code	Description of participants	Justification of sample and procedures	Brief reflection
38	PHP1	Male, age group 30-45 years. Public Health Wales, public health practitioner.	Second stage of data collection with sample of public health practitioners. Idea was to explore views and barriers towards alcohol screening and treatment interventions in the dental setting of patients attending various clinical settings through semi-structured interview.	Themes emerging: What works/doesn't work, Teachable moments, Individualised training/information, Peers, General practices are businesses, Discounting/future, Conversations not an intervention, Structure of brief alcohol interventions. Interview schedule for public health practitioner easily understood. Easy accessing public health practitioners. An interview with another public health practitioner deemed necessary to determine whether opinions and experiences similar.
39	PHP2	Female, age group 40-50 years. Public Health Wales, public health practitioner.	Second stage of data collection with sample of public health practitioners. Idea was to explore views and barriers towards alcohol screening and treatment interventions in the dental setting of patients attending various clinical settings through unstructured interview.	Themes emerging: What works/doesn't work, Teachable moments, Individualised training/information, Discounting/future, Conversations not an intervention. Unstructured interview as wanted to know more details about brief alcohol interventions, participant experiences in delivering them, what works/doesn't work and whether can introduce into general dental practice (what needed). Easy accessing public health practitioners. Opinions and experiences similar between both public health practitioners.

4.7 Overall results taking into account both stages of data collection

4.7.1 *Results for Professionals*

The themes that emerged for the professional participants were designated as global, organising and basic. One global theme emerged which was central to the views expressed from the professional participants. This global theme described the role the participants felt they had as members of the dental profession. This global theme was broken down into two organising themes: the dentist-patient relationship and the infrastructure within dental organisations. The organising theme of the dentist-patient relationship was then further structured into five basic themes and the organising theme of infrastructure was arranged into six basic themes.

4.7.2 *The global theme*

4.7.2.1 **Role**

Dental professionals felt that patients saw their role as people who cared for and carried out treatment only on their teeth:

HDN1, *"I think that a lot of people just see the dentist as the bog standard sort of like filling and drilling and check-ups, erm you know, to get them out of pain and maybe just to do aesthetic work."*

They felt that since patients saw the dentist's role as one of treating their teeth, patients would want to receive advice only on the behaviours that could affect the teeth such as maintaining oral hygiene and smoking:

DS1, *"I think smoking cessation and oral hygiene instruction definitely from a dentist, I think people associate the dentist with going to, have treatment for your teeth, so may be difficult for that [alcohol advice]."*

Dental professionals did not feel alcohol misuse had direct relevance to their role. This was because they felt other behaviours, such as smoking and consuming high amounts of sugar, had a more direct impact in causing oral disease:

CD1, *"Well the sugar has a direct impact in terms of caries, smoking oral cancer and that side of things but the [alcohol] misuse side of things I can't see the direct link for us."*

4.7.3 **Organising theme 1**

4.7.3.1 **The dentist-patient relationship**

Dental professionals felt they had to have a good relationship with a patient in order to talk to them about harmful health behaviours. They particularly felt they would need a good relationship to talk about alcohol misuse and felt unsure how patients might react to questions about their alcohol habits:

DHTS3, *“It is a sensitive issue and I imagine if you start questioning peoples’ alcohol consumption, then you know, you’d have to have a rapport with a person to do that anyway because even broaching people’s diet and smoking is sensitive, I’m not sure how they’d feel about it [talking about alcohol].”*

Dental professionals felt that talking to patients about their alcohol use was highly emotive because it is someone’s choice to drink heavily. Consequently, they felt they would have to be careful when talking about patients’ drinking habits so as not to offend patients or make them feel judged as this may disrupt the dentist-patient relationship:

HDN5, *“Alcohol, cigarettes, weight are all very emotive subjects you know whereas, and the things that you have control over, whereas if you get a disease or an illness or you are diabetic, that is not your fault, well it is, diabetes can be but you know what I mean, primary diabetes you know, and so you are quite happy for me to give you advice on how to manage that, how to look after it because there is no way that I can judge you, whereas if you are overweight well nobody forced you to eat food, nobody forced you to drink, nobody, do you know what I mean, so there is always that defensive mechanism there and so I think that you have to tread that little bit more carefully.”*

Professionals felt that, as part of the dentist-patient relationship, the patient would need to understand why alcohol misuse is relevant to their oral health. They felt it would perhaps go beyond their role as a dental healthcare professional to deal with issues other than those behaviours that can affect a patient’s oral health:

CD1, *“I suppose equally it has got to be, you have got to, the patient has got to understand the relevance of asking those questions in terms of the oral health that we are providing, if we are going holistically and we are looking at their overall health then is that taking away from what the dentist should be doing?”*

4.7.4 **Basic themes that emerged in relation to organising theme 1**

4.7.4.1 **Patient reactions**

Professionals did not feel it was a normal part of the dentist-patient relationship to talk to patients about their alcohol use. Therefore, professionals felt that patients would be quite shocked if they started talking to them about their alcohol habits. They felt patients related going to the dentist with getting help with their oral hygiene and not being assessed on their overall health:

DHTS1, *“Um I don’t know to be honest, I think maybe they’d be a bit shocked about it, I think the majority of patients feel that they are coming to us to help them with their oral hygiene and not really to assess their well-being and assess any other issues that they may have that affects their health so you know, I think they will be a bit shocked perhaps but I think they’ll overcome that though.”*

Dental professionals with experience in delivering brief alcohol interventions felt there was a stigma associated with drinking alcohol heavily and so patients and their relatives might react aggressively to being asked about alcohol use:

HDN4, *“Doing an alcohol intervention, they would just look at you, [and say] excuse me, it is like one woman that I was talking to, and she said that ‘my mother is not an alcoholic’ and she swore and I said ‘oh well no I know we are just having a chat’ and she got, the daughter got defensive as well you see, whereas I think that if it was out there more and not have this stigma put on it people would listen more.”*

4.7.4.2 **Professional reactions**

Some dental professionals (mainly dentists) said that they could relate to patients who drank heavily and felt empathy towards them especially if they drank alcohol themselves:

TS1, *“Um not really no, maybe because I haven’t smoked, maybe with alcohol I can empathise more with people who drink, but normally people drink within limits, but people who drink to the extremes that’s often not shocking, I guess you get that emotion, whereas smoking I find it hard to empathise because I can’t see why they’d want to smoke, whereas with alcohol if you drink yourself it’s not such a jump to imagine”*

4.7.4.3 Patient Expectations

Dental professionals felt that patients thought it was part of their role to talk to them about their teeth and therefore they felt patients expected advice specifically related to the dentition during their appointments:

DHTS2, *“With oral hygiene they know they’ve come to the dentist they know that I’m going to be talking about their teeth.”*

They felt patients expected preventive advice on improving their oral hygiene, reducing their sugar intake and quitting smoking rather than receiving advice on alcohol consumption. Professionals felt patients would see these types of advice more fitting to the role of, and relationship they had with, a dental professional:

TS1, *“I’d say most people come to the dentist expecting to be nagged about oral hygiene and to cut back on sugar whereas they probably don’t come particularly, smoking they are recognising more that with the dentist because of periodontal disease and oral cancer, but alcohol less so than any of those.”*

4.7.4.4 Priorities

Dental professionals felt that they prioritised the advice they gave to their patients according to the person’s clinical need:

HDH1, *“I think that if they had a periodontal problem and no caries then I would be, and they smoked, then I would be factoring heavily on the smoking and the plaque equally I suppose. If it was a caries issue then if they smoked and it was caries that was their main oral problem I would be prioritising diet advice and understanding the frequency of sugars.”*

Dental professionals also, in general, prioritised advice on oral hygiene, smoking and diet over advice on alcohol:

HD1, *“[I’d put] oral hygiene one, smoking cessation two and dietary advice three and alcohol advice four.”*

Even if a patient smoked and drank heavily, professionals would prioritise smoking:

TS1, *“In terms of importance I’d put smoking, if I was giving advice to someone who drank and smoked I’d say about the smoking initially.”*

4.7.4.5 Need for legitimate reasons to talk about alcohol

Dental professionals felt that it was easier for them to give preventive health advice to patients when there was a physical sign in the mouth or on the teeth that they needed to change their behaviour. This helped to give the professionals a legitimate reason to talk to the patients about harmful health behaviours such as not maintaining good oral hygiene.

HD1, *“Certainly from the point of view of oral hygiene it is easier than others because you have got something that you can see in the mouth as the kind of the side effect if their oral hygiene is poor, fair good whatever you call it and you can see that whereas often you won’t be able to well nearly always you won’t be able to see an actual physical outcome of the alcohol or smoking erm or diet.”*

Therefore, professionals felt the only time they would bring up the subject of alcohol misuse was if there was a physical effect in the mouth as a result of heavy drinking. They felt it only became part of their role to talk about alcohol misuse if there was a legitimate reason or physical sign in the mouth to talk to a patient about their alcohol use:

HD1, *“I mean if we talk about alcohol a second the only times that I particularly speak to people about alcohol is with erosive tooth wear, I don’t routinely speak to them about it.”*

Professionals also felt that preventive advice in general was more effective if there was a legitimate need to talk to patients:

CD2, *“Erm I think that it depends if there is a problem there, if there is a visible problem um if you are giving say diet advice because they’ve got a mouth full of grot then I think sometimes they listen a bit more if they can see a problem and that they want to change.”*

4.7.5 Organising theme 2

4.7.5.1 The infrastructure within dental organisations

As part of their role as a dental professional, participants felt, regardless of the dental setting they worked in, that time played a major part in dictating what advice and treatments they delivered to their patients:

TS2, *"Sometimes I feel we don't have enough time with our patients at all you know, I don't think sometimes we can give our best advice and treatment to patients just because we are under such time constraints and working constraints sent down by governments and various other things."*

Dental professionals in general practice, especially, felt that due to time constraints they wouldn't be able to add alcohol advice to the current preventive advice they give to patients:

GDH1, *"It is time taken to talk to patients and that is the constraints of our contract it is very difficult for me as a hygienist to do everything in 20 minutes, to do oral hygiene, smoking cessation, alcohol and whatever you have got to be a magician to do everything that you are supposed to do in the time constraints that you have."*

4.7.6 **Basic themes that emerged in relation to organising theme 2**

4.7.6.1 **Structure of the dental team**

Dental professionals felt that certain members of the dental team had more of a role in prevention than others:

HDH1, *"I mean like all preventative messages I don't think at all the dentist should be the person just, I think that it is useful for patients to see dental nurses initially, it is easier and potentially cheaper and more, and you can incorporate that more easily into things while they are waiting to be seen, hygienist/therapist definitely they are very good I think overall at, they are used to giving preventive advice and they know that it is their role and they are more focused on that I think than dentists overall, particularly hygienists because that is a very preventative role."*

In particular, dentists in primary care were seen as having more of a limited role in prevention as they are often under time pressures to achieve targets:

DS2, *"The hygienist or nurse, this is going to sound rude but their time is worth less money, a dentist is better off doing dentistry while a nurse could be doing the smoking cessation and the time consuming things that don't give you UDAs [Units of Dental Activity]."*

Professionals felt that patients believed there was a hierarchy in the dental team, with dental nurses seen more able to relate on a social level with patients than dentists or

hygienists. Professionals felt patients may feel more comfortable speaking to someone less senior about their alcohol habits:

DNS3, *“Um sometimes you can find not in all cases but you find patients will open up to you more. It depends because you may find you have been sitting more with the patient than the dentist or hygienist and then it’s a case that you have managed to break down the first initial barrier or something and sometimes they do feel more comfortable telling you things because they think the dentist or hygienist are above their level sometimes, they see them as a senior figure and because they may be ashamed with regards to their alcohol consumption or a bit embarrassed they may be more comfortable talking to someone like a nurse.”*

Some professionals even suggested using the receptionist to deliver advice to patients:

TS2, *“You could train up the receptionist probably to do it because you don’t need a qualification for it so anyone of the dental team could do it.”*

Looking at the interview transcripts as a whole, it was mentioned 20 times that the dentist could deliver alcohol misuse screening and treatment interventions, 17 times for the hygienist, 13 times for dental nurses and once for the receptionist.

4.7.6.2 The most appropriate setting to deliver alcohol advice

Participants felt that delivering alcohol advice would fit within the role of community dental professionals since they see a wide range of patients:

CDN1, *“But erm I suppose it is about the time isn’t it because community would be the best because we see a broad, we see everyone, well we are in the prisons, we are in schools, I think that they have got a bus that goes to the substance misuse unit, I think that they have got the hospital, we are all over special care we do everywhere there isn’t anywhere we don’t go.”*

It was also suggested that the hospital would be a good place to deliver an alcohol intervention since it was less busy and a more relaxed environment for patients than general dental practice. It was felt that hospital professionals might therefore be more able to explain alcohol advice to patients:

HDN2, *“The hospital because it is more relaxed and it is more calmer, like in a practice it is like, where as we treat people like a patient, in practice it is more like a*

number than we are, it is getting them the next person in, so at least in the hospital it is more relaxed it is more calm you know, you can, we can we can explain it better to the patients.”

On the other hand participants felt that primary care professionals, especially general dental professionals, were in the more appropriate position to screen patients and give alcohol advice as most patients see a general dental practitioner first and are then referred to a hospital for care:

HD1, *“Well because of the fact you don’t see all the patients in the hospital, it has got to be out in practice or community because nearly all the patients ought to be referred in, some of them obviously will come through a medical route but the majority will come in from erm the general dental practitioner and therefore that ought to be your first port of call.”*

It was also suggested that the community service would actually be an inappropriate setting as community dental officers mainly treat children and special care adult patients. Furthermore the hospital service was highlighted as a setting where patients were only seen if they had been referred for treatment, whereas general dental professionals were in the most appropriate position as they would see and have most access to larger numbers of people in the population:

CD1, *“It is probably the general GDS general dental services, CDS [community dental service] is mainly for children, special care in terms of the adults, and so it is a small proportion of the population that you are actually going to get to, GDS obviously covers the vast majority of people and that is probably where if you are going to bring it in, that is where it should be introduced, again hospital tends to be secondary care referrals and things and so the number of people that you are going to pick up there is probably as a proportion far far less than the GDS.”*

In total, it was mentioned seven times that general dental practice settings were appropriate to deliver alcohol misuse screening and treatment interventions, seven times for hospital settings, seven times for community settings and five times all three dental settings. Four participants did not state their views on this subject.

4.7.6.3 Lack of importance of alcohol advice during patient consultations

Dental professionals felt that alcohol misuse was a general health problem and so alcohol advice did not form part of the regular preventive health information given to patients during dental appointments. The main behaviours targeted by dental professionals were expressed as oral hygiene neglect, consuming a diet high in sugar and smoking:

CD1, *“Erm unless I have missed something over the last few years reading about dentistry and the connections with misuse then I see it more as a general health problem as opposed to the specifics that we deal with on a day to day basis oral hygiene prevention, diet and smoking cessation being the main three that we target.”*

Professionals felt that alcohol misuse fell more within the role of a general medical practitioner:

DS2, *“It’s possibly something the general medical practitioner should be doing rather than yourself.”*

Professionals therefore felt that if a patient was drinking heavily then they would direct the patient to their family doctor or health websites rather than comment on the problem themselves:

TS2, *“If I was concerned about them I might contact their medical practitioner if they have sort of disclosed to me they’re drinking too much and they wanted help then I’d probably direct them again to their medical practitioner um or sometimes even to the help sites that you can get um but ultimately I don’t comment on it if someone drinks a lot.”*

4.7.6.4 Training

Dental professionals felt that there was a lack of teaching at an undergraduate level on how to speak to patients about their alcohol intake and so it made it difficult for them to know how to deal with alcohol misuse during clinical consultations with patients. The only teaching received was how alcohol can interact with agents such as local anaesthetic agents used during the delivery of treatments:

DHTS3, *“I don’t feel confident in approaching it and knowing obviously how to deal with it, I feel embarrassed what I should know, I should know this but we’ve not ever been it’s not something we’ve been taught about at all I mean I’m trying to think the only things we’ve had related to alcohol at all we were talking about you know severe*

consequences of chronic alcohol use problems and LA related to immediate treatment not actually like helping the patient with their alcohol issue that's something which [inaudible]. I don't think this course has prepared us very well."

Not only did professionals feel that there was a lack of training at an undergraduate level, but this was also the same at a postgraduate level. Professionals felt they would value courses and health promotion packages on how to deal with and give advice to those patients who are drinking above recommended limits so that they could include alcohol advice in their clinical practice:

TS3, *"Well I don't remember getting any training on alcohol apart from knowing it's a risk factor but there's no kind of how do you go about treating someone for alcohol misuse problems, generally um I would guess you need some training on how to go about it and how to refer as part of the undergraduate training and obviously because it hasn't been done before you would need postgraduate courses or more specific postgraduate information or maybe information from the BDA for dentists or something on that line as part of the health promotion package because there are health promotion packages, but it [alcohol] doesn't really come into it."*

4.7.6.5 Guidelines and contracts

Professionals felt that there needed to be better guidelines or care pathways on what to ask patients and what to advise them if they are drinking alcohol excessively if alcohol misuse prevention was to become part of their role:

TS3, *"I think there needs to be a definite care pathway for dentists to follow that they have and that they are given information on so literally so that you have it as a one page document or whatever so that if you have risk factors or whatever and if you are worried then you need to ask these questions and if you ask these questions and you get a positive then you need to give the person a direct line because I think people are really wary on how to go about it so you'd need a very clear cut pathway for dentists if they are going to do it properly I guess."*

Professionals felt that in particular general dental practitioners would only be willing to give alcohol advice if they were given some form of payment or remuneration to deliver the advice. Professionals who worked in general practice expressed unhappiness with the current dental contract:

GD1, *"I think that you have got to look at the circumstances in which we work, you know erm there is, I mean if the doctors were doing it they would be funded for it"*

because I know that they get funded for doing the stuff that we do for nothing as part of their oral health, you know they get extra money for doing that, and you know one doesn't like talking about money with patients, for us this is a reality that we have got to live with and to take time out to do those sorts of interventions I think would be very difficult A to implement it and B to think how would patients react to that, why is the dentist talking about my alcohol, is it something I don't know, I can see a lot of problems with introducing something like that, it is hard enough getting them, you know my wife will tell you she goes around practices and it is why should we be doing that nobody has paid us for doing it, you come up against that sort of attitude and in some ways you can understand it, you know we have got an awful contract we are working with and it would just be piling a lot more responsibility onto the dentist."

Dental professionals felt that the primary care dental contracts needed to include Units of Dental Activity (UDAs) (remuneration) for preventive alcohol advice if it was to become a routine part of their role:

CHD1, *"Say that there was some sort of, I think that if you were going to do it it is going to take up time and obviously that is going to effect, say they were in general practice, say if you were given a UDA for doing it or something and I know that has been the case with smoking that people want that for smoking cessation to do it, but yes I mean if it is going to take you time and effort I think that you need to be paid in some way for it."*

4.7.6.6 Structure of patient consultations

Professionals felt that the most important part of their consultations or appointments with patients, especially when they have qualified, was to treat the manifestations in patients' mouths:

HDH1, *"I am not often booking a patient in just purely for preventive advice, I am not doing what the students are encouraged to do just because I think that there is a perception when you qualify you should get on and treat and actually you know mechanically do something possibly."*

However, even as a student there was a huge emphasis placed on delivering treatment to patients:

DS2, *Alcohol there are very few manifestations so there is a limit to the treatment you are gonna do, in fact there is almost no treatment that us as individuals are going to*

do, so giving a leaflet is one thing and saying you should stop this or you may get cancer is one thing, but then I'm not going to be doing any treatment myself, there's nothing hands on I'm going to be doing, I mean they may have negligence of their oral hygiene as a result but as far as I'm concerned there's not treatment I'll actually be doing."

Professionals felt that patient medical history questionnaires should be expanded to include more alcohol screening questions:

TS3, *"I think yeah possibly you could expand out when you are doing your medical history questionnaire, ask one or more questions in relation to alcohol use, so maybe it's not enough to know what units, but maybe when they are taking them and you could add in smaller questions like, what type of alcohol do you consume?"*

Professionals also felt that patients could be given alcohol screening questionnaires to fill out while in the waiting area before their appointment:

DNS1, *"Um maybe if they are able to write I'd give them a form to fill in to give them something to do while they are waiting, give them clipboards or whatever."*

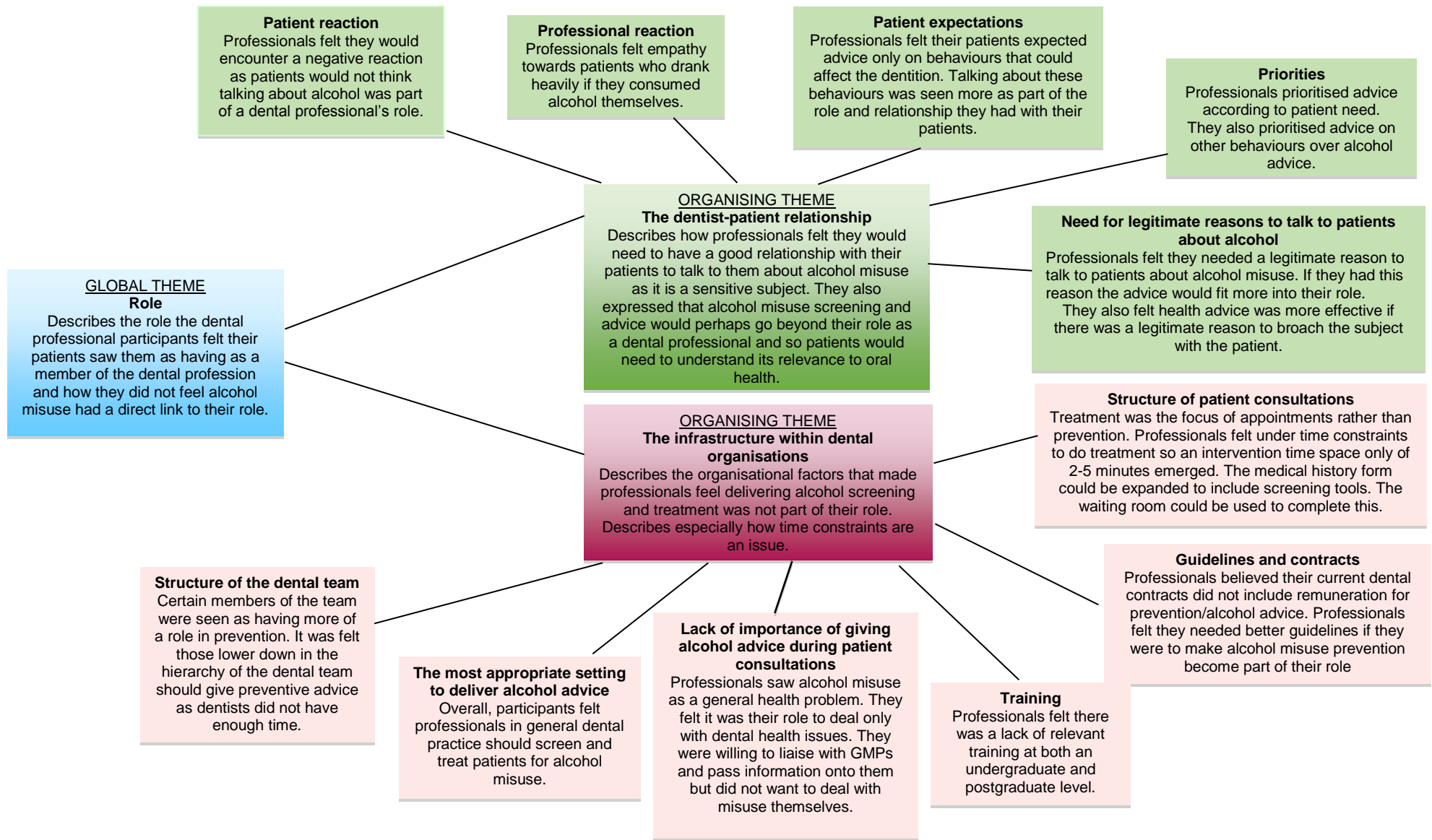
Professionals who were qualified professionals working in general dental practice felt that there was an intervention time space of only two minutes that they were willing to allocate to give any type of preventive advice to their patients:

GD1, *"Well I suppose the average time that I have to speak to somebody is probably about two minutes or so, like a check-up would be less than 10 minutes really and the odd filling appointment 20, 30 minutes but not actually speaking to the patient."*

This intervention time space was slightly longer for hygiene staff:

GCDH1, *"In general erm probably up to sometimes I give it while the anaesthetic is working and so if I am doing a filling while that is working and do it then erm so it is not longer than five minutes I don't think that is quite especially with the scale in here because I don't have a nurse and so usually yes five minutes maximum."*

Figure 4.3: Thematic network for professional participants



4.7.7 **Results for Patients**

The themes that emerged for the patients could be categorised as global, organising and basic. One global theme emerged which was central to the views expressed by patients and describes how patients felt that it was part of the role of dental professionals to talk to them about their alcohol use. The global theme could be broken down into two organising themes: perceived limitations to dental professionals being involved in alcohol misuse prevention and perceived positives of dental professionals being involved in alcohol misuse prevention. The organising theme of perceived limitations could be further structured into two basic themes, while the theme of perceived positives could be arranged into four basic themes.

4.7.8 **The global theme**

4.7.8.1 **Role of dental professionals**

Patients felt that all healthcare professionals should talk to them about their alcohol use:

PT2, *“I think that anyone that works in a healthcare profession, if they can gather information that can potentially recognise problems and work with other health professionals then it could be useful I suppose.”*

Patients felt that alcohol misuse was relevant to the role of dental healthcare professionals as alcohol misuse can impact on the health of the mouth:

PT5, *“Because it can I’d imagine it can cause certain diseases within the mouth in the gums umm alcoholic drinks often contain a large proportion of sugar as well like beer which obviously would affect the teeth as well, yes yeah I would say yes because it is sort of it’s relevant to the dental health, I would say it is relevant to discuss it during a consultation.”*

4.7.9 **Organising theme 1**

4.7.9.1 **Perceived limitations to dental professionals being involved in alcohol misuse prevention**

Even though patients recognised alcohol misuse could impact on their dental health, they identified there were limitations on the effects of alcohol on oral health and therefore to dental professionals being involved in alcohol misuse prevention. They felt other behaviours would cause more direct harm to their dental health:

PT5, *“I probably would say it isn’t as relevant because if you sort of drink sensibly I don’t think it would affect your teeth, I could be wrong but obviously if you have a diet high in sugar that would more more directly cause dental decay, so I would say it is in err an element of dental health but I wouldn’t say it was as much as big an element as not looking after your teeth properly or having a diet very high in sugar.”*

4.7.10 **Basic themes that emerged in relation to organising theme 1**

4.7.10.1 **More part of the role of other healthcare professionals to look after patients’ general health**

Patients felt a limitation to dental professionals being involved in alcohol misuse prevention was that a dentist’s role was normally viewed as looking after peoples’ teeth, with doctors looking after peoples’ general health:

PT1, *“Generally I see them only as looking after your teeth as I usually think that the doctor is doing everything general or hospital for emergency with the dentist specialising only in oral problems.”*

4.7.10.2 **Patient expectations**

Patients perceived a limitation, which could stop patients accepting alcohol advice from dental professionals, was other drinks were viewed as having more of a detrimental effect on their teeth. As a result, if dental professionals started to talk to them about their alcohol intake, most patients would expect their dentist to explain the link between alcohol misuse and the effects on their mouth or teeth. However, this could be overcome if dental professionals pitched alcohol advice as part of a general health awareness campaign:

PT2, *“I think that some people probably expect it at the dentist on how alcohol if alcohol could lead to anything that may affect their dental hygiene, you know which I wouldn’t have thought that so much but I suppose I tend to think of sweet drinks, fruit drinks, acidic drinks being more that would affect the enamel on your teeth, so I think*

that people would try and potentially look to see if there was a link unless as I say it was explained at the outset that it is just part of a general sort of health awareness using various health professionals to gather information.”

Patients felt that unless their alcohol use was going to damage their teeth they would not expect their dental professionals as part of their role to talk to them about their alcohol intake:

PT3, *“You know having too much sugar is going to damage your teeth and all this whereas alcohol, like I said unless it is really sugary then that is the only reason they should ask you because otherwise it is none of their business.”*

4.7.11 **Organising theme 2**

4.7.11.1 **Perceived positives to dental professionals being involved in alcohol misuse prevention**

Even though they recognised the limitations of dental professionals being involved in alcohol misuse prevention, patients seemed to also view dental professionals being involved as a positive:

PT1, *“Erm, probably a pleasant surprise as at least they tend to seem a bit more, it is hard to say it out loud without sounding weird, it almost they seem more connected to the rest of the medical world as a whole and so then they are scratching the back of other departments.”*

4.7.12 **Basic themes emerging in relation to organising theme 2**

4.7.12.1 **Patient reactions**

Patients felt that the only patients who might react badly to a dental professional talking to them about their alcohol use are those patients who have a drinking problem:

PT3, *“Me personally it probably won’t bother me because I don’t have a problem with it, with alcohol or anything but I suppose if someone did have a drinking problem they might have a problem with it.”*

They felt that if dental professionals explained to them why they ask and talk to them about their alcohol consumption, how alcohol misuse can affect their health and why it is relevant to the role of a dental professional to know about their alcohol intake, then most patients would accept this advice:

PT5, *“Umm I think if they put in context if they ask you if they’ve just asked you a question and then don’t really explain why they’ve asked you it then I can see why you know a lot of people would feel it’s inappropriate but if then they ask you and then explain the relevance of the question then give you advice based on your answer say I would be happy with that because then it sounds like they aren’t just filling in boxes on your record they are then actually bringing it together with good advice so no I don’t think that would be a problem.”*

4.7.12.2 General dental practitioners see patients regularly

Patients felt that professionals in general dental practice were in a good position to talk to them about their alcohol use as they felt, of all NHS services, the general dental service was used most by patients:

PT5, *“Umm I would probably say general dental service because the majority of the population would go to a dental practitioner so I guess that sort of information should be made available to the widest sort of patient base so I would say start there start in the general setting.”*

Patients also felt that they had a better relationship with their family dentist and trusted them more than their general medical practitioner since they saw the dentist more regularly:

PT2, *“Some people may trust the dentist more than they do the doctor or may feel more at ease with the dentist than the doctor, personally I think that I would have been in that category because I have been going to a dentist probably from the age of three or four or five onwards where as I very rarely go to the doctor.”*

Patients felt that people attend their family dentists more regularly due to their attendance for check-ups. In contrast, they only attended the general medical practice when there was a specific reason:

PT2, *“Yeah, so the dentist, you are used to an annual, generally an annual check whereas the doctor then unless you had any reason to go to the doctor you might not see them for five years, yeah so, erm, so from that point of view the dentist could see some people more regularly than the doctor might.”*

4.7.12.3 Valuing the information

Patients expressed that they would value being told preventative advice with regards to their alcohol habits:

PT5, *“I think it would be useful because if you go to your doctors and they say certain parts of your lifestyle could cause problems in the future then that would sort of be that’s relevant so if your dentist said your teeth may be fine now but if you carry on drinking this amount this could potentially happen then it’s sort of prevention rather than a cure and obviously preventive advice is good so I would sort of say it would be good advice.”*

Patients stated they would appreciate being told by dental professionals why they have been asked about their alcohol consumption and its relevance to their dental health:

PT5, *“With alcohol I’ve been asked quite a lot how much alcohol I would tend to drink but I don’t think I’ve ever been specifically advised why it’s better to cut down, why it’s better not to have as much in your diet, I’ve mentioned I’ve written down how much I drink but then they don’t really I’ve never really been told the relevance of that, obviously because you’ve been asked I think it’s important to know why they are asking you how it’s err it’s important to your dental health.”*

Patients identified that it would be valuable for dental professionals to know about their alcohol intake so that they could assess them for their risk of harm:

PT4, *“Well as with everything you have got to really know the ins and outs of the patients I suppose and know what they are doing so it can effect, I mean a perfect example somebody drinks a little bit too much alcohol, cracks a tooth. You know and so it is, well you can do a better risk assessment of people if they drink heavy amounts of alcohol the chances are they are going to fall on their face and smash a tooth.”*

The same participant stated that he would listen to the advice given:

PT4, *“To be honest I would probably look at myself and go right how much am I, yeah maybe I should cut back a little bit but a lot of people aren’t that sensible.”*

4.7.12.4 Positions within the dental team

Patients felt that some people may be worried about the treatments their dentist is going to deliver and so the hygienist may be in a better position to talk to them about

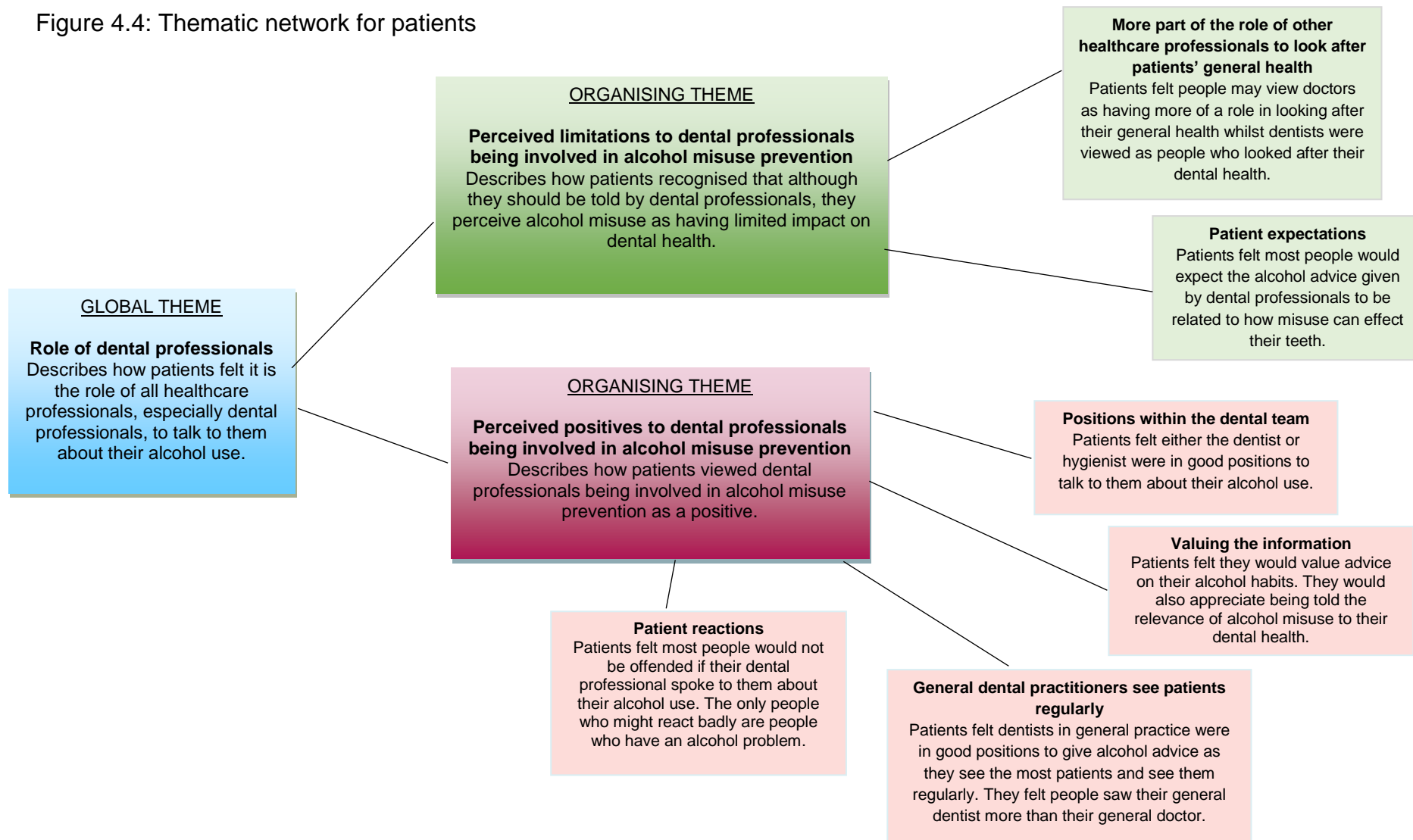
their alcohol use. Patients also felt the hygienist may have more time to speak to them:

PT2, *“I think that by the time you get round potentially to the hygienist and some people have got a fear of needles and whatever else, some people have got anxiety perhaps with the dentist, usually once all that is over it could be, mind you it needn’t be the hygienist when they are scraping quite close to somebody’s gums, can be just as bad to some people as a needle might be, but that is more towards the end obviously of an assessment where somebody would usually see the hygienist and so it is almost like we have done all this now, everything is fine now would you mind if we just completed a survey you know, erm I think that if it was earlier on in seeing the dentist erm then some people are still thinking about what is coming up next with regards to the treatment they may be needing for a filling or the drill going in their mouth or whatever else, it just seems to be once they have relaxed a little bit more and the hygienist has finished what she has done then I suppose as going back to the dentist, I would imagine then that the dentist would be ready preparing for the next person, you know and so I would have thought that the hygienist might have a little bit more time as well.”*

Patients also expressed though that they felt the dentist may be the more appropriate person to deliver alcohol advice as they were viewed as having the most knowledge in the dental team:

PT5, *“Umm I would probably say the dentist because most people would take that advice on board if they were told it by the sort of professional on board rather than anyone else in the team, I would say it would have more sort of gravitas if it was delivered from the from the dentist themselves umm maybe the follow up advice could be given then from the dental nurse or hygienist but I would say initially if you were sort of given the advice from the dentist more people might take it on board if they kind of think it is coming from a more knowledgeable practitioner.”*

Figure 4.4: Thematic network for patients



4.7.13 **Results for public health practitioners**

The themes that emerged from the interviews with public health practitioners could be categorised as global, organising and basic. One global theme emerged which was central to the views. This global theme described how public health practitioners felt it was the role of all healthcare professionals to talk to their patients about alcohol misuse, including dental healthcare professionals. This global theme could be broken down into two organising themes: perceptions of what works and perceptions of what doesn't work. The organising theme of perceptions of what works could be further structured into four basic themes, while the theme of perceptions of what doesn't work could be arranged into four basic themes.

4.7.14 **The global theme**

4.7.14.1 **Role of all healthcare professionals**

Public health practitioners felt that alcohol misuse is everyone's concern:

PHP2, *"But from a Public Health Wales perspective we sort of started to think along the lines of well whose business is alcohol, well it is everyone's business because we think everybody drinks more or less, we know there is a section of the population that is teetotal, and then there are young children but most of the population drink and because of the problems with the guidelines we think most people drink more than they should."*

In particular, public health practitioners felt that all healthcare professionals, as part of their role, should be concerned with improving the health of the population:

PHP1, *"They should be, anybody who works in health their first, their first job is to think about health of the population and ok the person in front of them but they are part of the population, you know what I mean, you shouldn't be working in health unless you actually care about improving the population of all of Wales in different ways, that is my opinion."*

Public health practitioners felt that alcohol misuse should be the concern of anyone who works in healthcare, including dental professionals, as alcohol misuse can affect the teeth:

PHP1, *“Whose problem is alcohol in society? Everybody’s exactly yeah it is you know anybody who works in health they should be concerned, the link in oral cancer and alcohol yeah the link between tooth decay and any fizzy drinks it is all there yeah?”*

4.7.15 **Organising theme**

4.7.15.1 **Perceptions of what works**

The public health practitioners interviewed expressed opinions on what they felt would work in the dental setting. They viewed the idea of introducing alcohol misuse screening and treatment interventions in dental settings as a positive:

PHP2, *“I think that it is a great idea, I think erm I think that you have got a perfect teachable moment because you have got the initial point of conversation, you have got the possible impact of alcohol on teeth, on disease, on gum disease, on mouth and throat cancers and everything else, erm I think that my question would be why not, forget the why, why not.”*

4.7.16 **Basic themes emerging in relation to organising theme 1**

4.7.16.1 **Peer led support**

Public health practitioners felt that all members of the dental team had the opportunity to speak to patients about alcohol misuse:

PHP2, *“Similarly dental, you know hygienists, everyone in the practice, the receptionist; everyone has got the opportunity to be a part of it.”*

In addition, they felt training whole teams could lead to members prompting others to deliver the interventions. From their past experience, even training students could help prompt senior members of staff to deliver brief alcohol interventions:

PHP1, *“So it is not all of the staff, not all of the health visitors, not all of the midwives have been trained, the response rate is very very low and the delivery rate is even lower. That doesn’t mean that they are the wrong people to be delivering but what it shows is for some professional groups you need that peer led support that everybody is doing it, the managers have been on the training, so it is from the top down but also the student midwives have been on it and when they are going out shadowing a senior midwife they are like lets not forget the brief intervention we learnt at the training, remember.”*

4.7.16.2 Bespoke training

Public health practitioners felt that training should be tailored to what the professional does for a living; otherwise the professional will not see why it is part of their role to talk to patients about alcohol misuse:

PHP2, *“I think this is where erm the importance of the erm training scheme that we have put together really comes to the fore because the way in which the alcohol brief intervention training delivered by us works is that it is a bespoke programme, so it is a two hour course, it is more or less the same for everyone but when I say more or less it means that if you are a physiotherapist the data that is delivered to you during the training session will relate to accidents and injuries say, so that there will be a context in there that relates to the person that is receiving the training, the custody sergeant will see data about assaults and violence because that is what is of relevance to him, if we are going to deliver this to staff in dental surgeries we will probably put in the data on links between alcohol and oral cancers on tooth decay and that is how you get over that issue of will they see it as their problem, we will prove to them that it is their problem.”*

4.7.16.3 Recognition of the teachable moment

Public health practitioners felt that identifying a teachable moment would help the advice given by healthcare professionals to resonate or motivate their patients to change. In particular the physical effects of drinking heavily on the dentition or mouth could help provide opportunities to speak to patients:

PHP1, *“It is pointless, I honestly find, and this is experience now, it is honestly pointless trying to talk to somebody about their drinking unless there is an issue, unless there is a hook. So start of the conversation might be you cracked your tooth how did that happen? Oh I got into a fight, were you drinking? Yeah, there is no doubt about it, forget smoking, forget stains on the back of the teeth from coffee at that point. You know the major bit of work that we are going to have to do today is to fix something that has come through the result of your drinking, linking a person’s situation to alcohol, boom, a teachable moment, brief intervention.”*

Public health practitioners also felt that showing patients their high score on a screening tool or questionnaire can act as a teachable moment:

PHP1, *“Once you know that, how much actually are you drinking, is this a regular occurrence, just fill this in and then you have got some evidence then to actually present to them because a lot of the time people seeing the cross as glass is half full,*

that is the wakeup call that they need, oh I didn't realise I was that far over the set guidelines, and that is because nobody knows what the guidelines is of course, and based on having that then you can actually start then to mount the advice which is very specific to the individual and their circumstances."

In addition, public health practitioners felt the success of brief alcohol interventions lies with recognising the opportunities to speak to patients rather than forcing it and making alcohol advice a compulsory or tick box exercise for professionals:

PHP2, *"They don't, maybe it is not the way to do it is maybe not to see it as a tick box that every patient that comes through has got to be talked to, the patients that have given you an opportunity are the patients that you talk to about alcohol, similarly with smoking, similarly with diet you know acid erosion, well ok are you really drinking to many fizzy drinks, forget the alcohol question they are probably over dosing on sugar, similarly yellow teeth lets worry about the smoking rather than the alcohol and I think this is something that we are very keen on in Public Health Wales is that these brief interventions are not seen as a, right I have done this one, have done this one, that it is seen as a recognition of a teachable moment and that without the teachable moment it is not appropriate to deliver and the teachable moment is probably relevant to one area not all of them."*

4.7.16.4 Individualised information

Public health practitioners felt brief alcohol interventions worked best when information was tailored to each patient. Professionals should grasp opportunities to recognise teachable moments so that individualised information can be delivered to patients. Patients would then take more notice of the information delivered by the professional:

PHP2, *"I think that you have got, I think that the problem is the issue with the teachable moment is, and this is why we don't use the every contact counts phrase within the alcohol brief intervention project in Wales, is it is recognising an opportunity not forcing it on someone, so someone comes in and says oh my mouth has been terribly dry, you have got there then the dentist to say oh really, bit dehydrated you know and it is, what the training does is it aims to help people recognise those teachable moments, I am concerned about an ulcer I have got dentist, oh right you know are you aware that type of thing can be, you know are you drinking a lot, you know have you been drinking more than usual lately and it is using those opportunities, so it is giving them the skills to recognise the opportunity rather*

than to force something on someone and deliberately lead them, you know deliberately say how much are you drinking, are you drinking too much, it is you know it is recognising the opportunity, oh my gums are bleeding, oh right what, I am not sure of the exact link you know if there is one between bleeding gums and tooth decay and alcohol but it is arming them with the tools to say well actually you know have you thought about alcohol consumption in relation to these things.”

4.7.17 **Organising theme 2**

4.7.17.1 **Perception of what does not work**

Public health practitioners also expressed views about their perceptions on what does not work with regards to brief alcohol interventions. In other words they expressed what they felt were the barriers towards these interventions:

PHP1, *“So there is those kind of barriers in place, so what we are trying to do all the time is to remove barriers and increase the facilitators, so yeah so that is a big part of what we do as well in terms of talking to the people that we train, as we follow them up at one month, three months, six months and twelve months to find out how many brief interventions they are delivering, and if they are what helped and if they are not what is getting in the way.”*

4.7.18 **Basic themes emerging in relation to organising theme 2**

4.7.18.1 **Conversation NOT an intervention**

Public health practitioners felt that dental professionals would not deliver brief alcohol interventions if they viewed them solely as an intervention. Professionals, they feel, need to see their role in giving advice in a conversation rather than in the form of a prescriptive intervention:

PHP1, *“We base our programme on the concept of have a word which is how we are branding it because everybody can have a word, they might choose not to but it is kind of it is it’s erm a statement but it is also a suggestion have a word, just have a word and as a marketing tool for either professionals or volunteers coming on the training it doesn’t dumb down but it makes motivational interviewing and brief interventions just a conversation and it comes away from that word intervention, people are open to giving advice as human beings we are all whatever you know which car are you going to buy what are you going to have for your supper everybody will have a, give advice but when you describe it as an intervention there is that*

reticence again so calling it have a word has been really effective because people see that they can.”

4.7.18.2 General practices are businesses

Public health practitioners felt that general dental practitioners were like general medical practitioners in that they view their practices as a business. Public health practitioners felt that professionals would not want anything to disrupt this business such as offending patients or making them feel that the professional did not want to deal with their acute health issue:

PHP1, “Yep, yeah we had focus groups on it, and certainly it is funny as I put dentists, pharmacists and GP’s in the same camp, because at the end of the day they are very keen to maintain their client base, they don’t want Joe Bloggs who is coming in and said something which has triggered a train of thought with the professional, started a brief intervention, started the motivational tool, and the person is going wow who are you talking to me like that, I am going to the dentist down the road instead of you from now on. Dentists and pharmacists particularly I think mirror each other in that sense because it is a business as well, so it is a difficult thing for them to balance in terms of giving lifestyle advice and making sure that they don’t offend somebody. Imagine a 60 year old bloke coming in, there is the dignity issue, there is the quality of life issue which the dentist or the pharmacist, or the GP, might be considering above their actual, the acute issues around the health.”

4.7.18.3 Length of brief alcohol interventions

Public health practitioners felt that if professionals forgot that brief alcohol interventions were meant to be brief and last more than five minutes they would lose their impact:

PHP1, “Brief intervention, that would probably can be done in five minutes, any more than that and it becomes, it loses its impact because it is picking up on that teachable moment, it is homing in on it and it is going bang, this is the issue, here is a potential solution.”

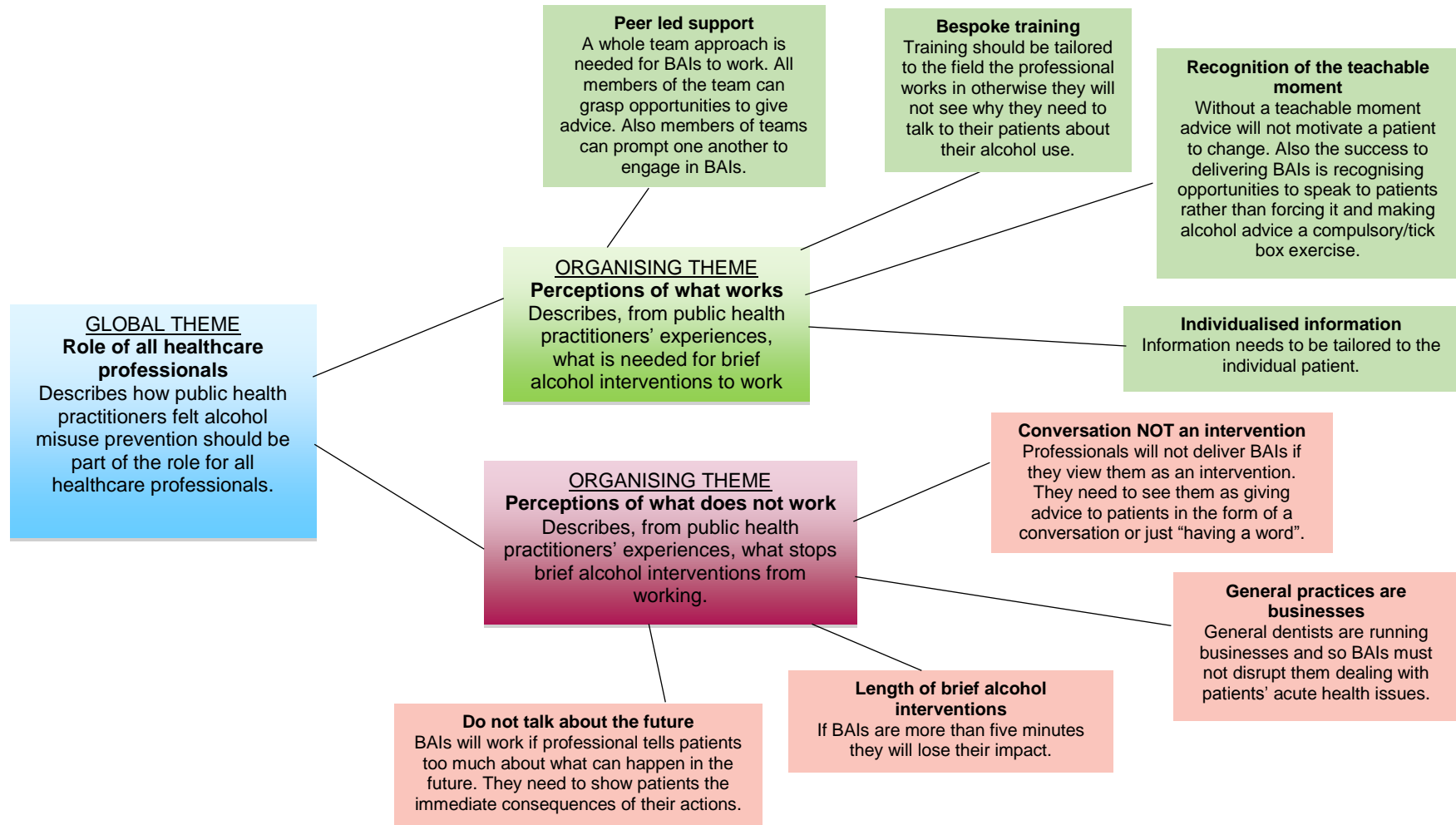
4.7.18.4 Do not talk about the future

Public health practitioners felt that brief alcohol interventions would not work if professionals tried to talk to patients about what could happen in the future.

Interventions, they felt, would be more successful if they showed patients the immediate consequences to their actions:

PHP1, *“Right, so if I was to talk to you about your alcohol, the risks of your drinking, erm, if I was to give you a leaflet, what it will say in there is a lot around the long term conditions, somebody of your age, you keep, you say that you go to the gym and you are thinking well it is not actually appropriate to me, that doesn’t resonate with me, it goes aside, yeah, whereas if you are out drinking and you fell over and you bounced off the kerb, your eyebrow and you have got to have stitches put into your eyebrow, the nurse that, a few days after being treated in A&E [Accident and Emergency] you go back and have the stitches taken out, with your age, the nurse would talk about the vanity side of things and make it relevant to you, the next time you get this drunk the scar could be on your cheek, it could be visible for life, it could have been much worse than this, you could have fainted while you were bleeding, you could have you know, you could have been attacked, people might have seen you in that state and think she is already drunk look at the state of her, oh hang on a minute she is vulnerable, so all those things would resonate more with you than the nurse sitting there saying think you have just hurt your eye but you know carry on drinking like this you could end up with liver disease. You don’t give a hoot about liver disease at that point but if somebody starts saying what if it is on your cheek next time? What if somebody had seen you and thought well am stood back off for now but where is she going because she is going to be quite vulnerable, it resonates more.”*

Figure 4.5: Thematic network for public health practitioners



4.8 Discussion of the qualitative data

4.8.1 Critique of the method

Shank (2002) defines qualitative research as “a form of systematic empirical inquiry into meaning”. The main aim of this type of research is to bring understanding to the situations people face by asking questions and unearthing answers that are grounded deep within a person’s world of experience (Silverman 2013). These answers can then be examined to provide intangible opinions on issues.

The main objective of this section of work was to explore the barriers to the use of alcohol misuse screening and treatment interventions in dental settings from the perspective of dental professionals, dental patients and public health practitioners. “Why” and “how” these barriers have arisen were the central focus, rather than “how many” people felt certain barriers existed. Furthermore, interest developed in determining opportunities when alcohol misuse screening and treatment could be delivered during primary dental care patient consultations, who in the primary dental care team had most potential to deliver alcohol misuse treatment interventions, and which primary dental care setting was the most appropriate for their delivery. A survey or questionnaire could have been created in order to provide these answers. However, while such a survey would quantify and highlight the prevalence of certain issues/problems, there were fears that it would not yield answers with enough depth. Furthermore, there would be no interviewer to probe respondents or observe their attitudes and therefore it would have been more difficult to draw conclusions. Qualitative methods were therefore adopted in this part of the research.

Participant selection

Taking into account the Social Ecology Model and relevant Medical Research Council guidance, it was decided that participants other than dental professionals should be interviewed. The reason was to gather as many perspectives as possible on barriers to alcohol misuse screening and treatment in dental settings.

All participants were selected purposively to ensure that the appropriate people answered the research questions. Within the evidence-base there have also been no investigations of this topic taking into account views of dental professionals, patients and public health practitioners.

Data collection

One-to-one semi-structured interviews were chosen as the main method of collecting data. One-to-one interviews were conducted rather than focus groups, as clinicians and patients may not have felt comfortable talking about their clinical practice or experiences amongst a group of people.

It may have helped add more validity to the study if various forms of data collection were adopted such as one-to-one interviews as well as focus groups. However, data analysis revealed there was enough information to answer the main research questions; it was concluded that conducting focus groups as well as interviews would not have added any more information to the results of the study.

Semi-structured interviews were mainly carried out with an interview schedule to provide a clear context for each interview and comparable qualitative data. One-to-one unstructured interviews were conducted only when certain points or opinions expressed by participants needed to be further explored to ensure opinions were similar for other participants and not just a spurious result (Silverman 2013). Structured interviews were not conducted as they would have been less flexible and would have limited the opinions expressed by participants.

This chapter is subdivided to reflect two phases of data collection. It felt logical that the pilot stage involved interviewing undergraduate dental professionals and university teaching staff, since these participants would themselves, or be involved with students starting a career in dentistry. Interviewing these participants first therefore helped to determine whether opinions and experiences were determined at early stages within the dental profession and whether views were similar to those of qualified dental professionals. Talking to these participants also helped refine the interview schedule before moving to the second stage of data collection. The semi-structured interview schedule was revised as data from each interview was collected and transcribed during the first stage of data collection. This allowed the interview schedule to be developed to a sufficient level for the second stage of data collection.

Method of analysis

Thematic analysis was chosen as the method of analysis (Braun and Clarke 2006). It was chosen preferentially to a grounded theory approach. In order to carry out an analysis using grounded theory, the researcher must be free from preconceptions,

ideas and knowledge of the area of interest so that theory can be developed inductively from a corpus of data. Thematic analysis was therefore the more appropriate method of analysis since the analysis was heavily driven by the research questions, as well as preconceptions and interests in the topic area. An inductive (allowed themes to emerge from within the data set), experiential (made meaning from direct experiences) and essentialist (reflected reality where relationships were assumed between meaning, experience and language) form of thematic analysis was chosen (Braun and Clarke 2006).

The analysis of the data corpus was slightly different to what is traditionally dictated by the six phases of thematic analysis. Each of the data sets for the two stages of data collection were examined for initial themes. The second data set, which resulted from the interviews with qualified professionals, patients and public health practitioners, were examined taking into account the themes that had emerged from the first data set. Studying the second data set in relation to the themes that had emerged from the first data set increased reliability that emerging codes and themes were true. The last few phases of the thematic analysis process were then completed for the entire data corpus with themes mapped into a thematic framework.

It may have been more appropriate to complete all six phases of thematic analysis for each data set and then to compare the results. However, since themes were similar for both undergraduates, teaching staff and postgraduate dental professionals, and were similar regardless of whether the professionals were based in secondary or primary dental care or their position within the dental team, a more in-depth story could be told by considering the data sets of all the professionals together. Furthermore, it was not until the final stages of the analysis process that it felt logical to report the data from three perspectives: the perspective of the dental professionals, the perspective of patients and the perspective of public health practitioners.

Another theory, called the Normalisation Process Theory, could have been used to analyse the data. Traditionally, this theory provides a conceptual framework for understanding and evaluating the factors involved in the routine incorporation of complex interventions into everyday practice (Murray et al. 2010). It also explains how these interventions work and how they are implemented and embedded into

normal routine practice (Murray et al. 2010). However, it was felt that thematic analysis was more appropriate to analyse the qualitative data presented in this chapter, as it helped to clarify what alcohol screening tools and treatment interventions could potentially be used in primary dental care settings and opportunities for their use. The Normalisation Process Theory would be more appropriate when evaluating at the end of a trial how a developed complex intervention fits into routine practice (Murray et al. 2010).

4.8.2 ***Critique of this study in relation to previous qualitative work***

Before planning this qualitative study, the literature was searched to determine whether there were any similar research studies that had explored the views of dental professionals to alcohol misuse screening and treatment in dental settings. The search found that a large amount of qualitative work had been carried out to explore the barriers to the implementation of alcohol misuse screening and treatment interventions in medical care settings, in particular primary medical care settings (Beich et al 2002, McCormick et al 2006).

However, qualitative work was more limited in dental settings. One study, by a research team in Dundee, was identified (Shepherd et al 2010). The aim of this qualitative study was to investigate the views of general dental practitioners (GDPs) on providing alcohol-related advice in their practices. Semi-structured interviews were conducted with twelve GDPs in the North Highland region in Scotland each lasting approximately ten minutes. Nine male and three female GDPs were recruited. Two of the participants were independent practitioners, while the remaining ten were salaried. The researchers created an interview schedule. A single interviewer conducted interviews and responses to questions were transcribed onto the schedule for each participant by hand. Additional comments not directly related to the questions were also incorporated as necessary. The responses were analysed with an inductive approach through basic thematic content analysis. Four main themes emerged: 1) recognition of the impact of alcohol and oral and general health 2) knowledge base regarding alcohol 3) current practices and 4) views on providing alcohol advice (barriers/facilitators, advantages/disadvantages, confidence).

The strengths of this study include that it explored an area of interest where there is a paucity of research. Furthermore, the aims of the study were clearly stated and

achieved by the authors. Unfortunately, there were also several limitations.

The first was that detailed background was not given to participants; for example, no specific details were reported about participants' ages and their professional experience. Secondly the participants recruited were only dentists. Ferlie and Shortell (2001) suggest that the delivery of health advice operates at the level of the individual health professional, the healthcare team to which the professional belongs, the organisations providing funding to the healthcare service (e.g. primary care trusts, local health boards), and the larger healthcare systems in which these organisations are embedded (e.g. the NHS as a whole). The factors mediating the provision of health advice within the field of dentistry include, therefore, not only individual professionals, but also the team within which they are members (Ferlie and Shortell 2001). Selecting only dentists gives a limited account of the situation in general dental practice, as dentists are not the only members of the team involved in patient care; dental nurses and dental hygienists are also involved. The third limitation was that study methods were not clear; how the researchers recruited their participants and how they developed their interview schedule is unclear from their published reports.

In addition, the interviews conducted were a maximum of 10 minutes long (the authors did not state why interviews were this length). This may not have been long enough to obtain detailed responses. The interviews were also not audiotaped. This immediately introduces bias into the study as the researchers may have only been writing down what they felt was relevant to the questions asked. Furthermore during their analysis they would have been unable to look at their interview data as a whole if they were only selecting certain responses and comments deemed necessary. The context within which certain answers were given may also have been missed. Data from interviews should be analysed as a set and should be challenged, supported and linked in order to reveal their full value and meaning (Braun and Clarke 2006). The researchers may therefore have interpreted the meaning of answers falsely if only certain responses were noted. The researchers also did not state whether a second analyser verified the analysis of the data. Furthermore, they did not state whether they checked their codes and themes for reliability. The validity of the results is therefore questionable.

Perhaps the most important criticism of this work is that the method of analysis is questionable. The authors stated that thematic content analysis was used. There is doubt in the literature that this term is correct as thematic analysis and content analysis should be thought of as two separate methods of analysis (Vaismoradi et al. 2013). From what the authors have reported, it is perhaps more appropriate to say that they adopted content analysis as their method of qualitative analysis. This is because they appear to have counted how often an instance or code within their data occurred and then appear to have integrated them into themes, rather than determining what their themes are and using the counts merely to add to the validity and reliability of the data. The authors did not give details as to how they analysed the data (e.g. there were no details on the phases of analysis that were adopted, how they coded their data and how these codes were formed into themes and whether a thematic network was mapped). Furthermore the themes chosen did not really provide a deep meaning or insight into this topic area. While they did state that the majority of GPs in their sample felt certain barriers existed towards the delivery of alcohol-related advice, such as a fear of damaging the dentist/patient relationship and a lack of remuneration for giving alcohol-related advice, they did not explore why these issues arose and how these barriers might be overcome. Thematic analysis would therefore have been a more appropriate method of analysis, as it would have been less descriptive and more meaningful; thematic analysis would have allowed the data to be understood rather than to provide response counts.

The work presented in this chapter, while similar, has improved on their work by:

- Including a structured sample of the dental team in the study.
- Comparing the views not just of dental professionals, but also of patients and public health practitioners.
- Conducting semi-structured interviews that were audiotaped and lasted approximately 20-30 minutes.
- Utilising the method of thematic analysis to analyse the data.
- Undertaking a second analysis, or verification of the analysis, by someone independent of the thesis.
- Developing initial themes from the first data set that could then be rechecked for reliability in a larger second data set. This helped to provide a far deeper insight into the barriers to tackling alcohol misuse in dental settings.

4.8.3 *Discussion of the main results*

The results showed that the global themes that emerged for the dental professionals, patients and public health practitioners each centred on the role they felt dental professionals had in the delivery of alcohol misuse screening and treatment interventions. It was interesting that the professional participants felt that alcohol misuse prevention was not relevant to their role. This opinion originated mainly from the feeling that their patients perceived them as people who cared for and gave advice only on the teeth. On the other hand, even though the role was recognised as limited, patients were more positive and felt dental professionals should talk to them, as part of their role, about their alcohol habits. This supports previous research in the literature that suggests patients have positive attitudes towards receiving alcohol-related advice (Aalto et al. 2002; Hutchings et al. 2006; Miller et al. 2006). Public health practitioners were the most positive and felt that all healthcare professionals, including those in the dental field, were in a prime position to tackle alcohol misuse. The perceptions of dental professionals in this study about their role in alcohol misuse prevention were therefore more negative compared to the patients and public health practitioners interviewed.

For professionals, one of the dimensions to the global theme of role was the dentist-patient relationship. Like Shepherd et al (2010), this study found that dental professionals did not want to disturb the dentist-patient relationship. However, the data from this study describe in more depth the reasons behind these feelings. Dental professionals felt that an individual's alcohol habits were a sensitive subject. This is similar to the views for medical healthcare professionals as identified in the systematic review by Johnson et al. (Johnson et al. 2010a). As a result, they expressed fears that their patients would react negatively and would be shocked if they spoke to them about their alcohol habits. This is, perhaps, surprising given the intimate role of dentists in carrying out detailed and prolonged oral examinations. This sensitivity about raising alcohol issues with patients may reflect the values and anatomical features of dental training.

Dental professionals expressed empathy towards patients who may be drinking alcohol heavily if they drank alcohol themselves, which in part also appeared to be contributing to why they did not feel alcohol misuse prevention was part of their role. It was interesting that patients, conversely, were able to see more positives in dental professionals talking to them about their alcohol consumption. Patients stated they

would value dental professionals talking to them about their alcohol use and felt the only people who might react negatively were those who had a problem with alcohol. Dental professionals therefore seemed to be letting their own mistaken concerns get in the way of delivering alcohol misuse screening and treatment interventions, when the patients interviewed felt the majority of people would accept this advice from dental professionals.

Dental professionals felt that alcohol misuse was a general health problem, having little impact on oral health. Despite recommendations from bodies such as the GDC, professionals did not see dealing with or giving advice on general health issues as part of their role. As a result, they saw alcohol advice as having little importance and did not feel the need to deliver alcohol advice. They felt that it was more the role of general medical practitioners to give this advice and would rather direct people with alcohol problems to their medical practitioner rather than deal with the issue directly. Preventive advice to patients focused on those behaviours seen as the most important in maintaining good oral health, such as oral hygiene instruction, smoking cessation and dietary advice. In addition, dental professionals felt that patients expected only to receive advice on these lifestyle choices. They felt patients did not expect to receive alcohol moderation advice. Therefore, professionals felt that oral hygiene instruction, smoking cessation advice and diet advice to patients was more important and relevant to dentistry, and as a result this took priority.

The views of patients were more complex. The patients in this study recognised excessive alcohol consumption was harmful to oral health and is not just a general health problem. This view was complicated though by the fact that patients felt heavy drinking may not have as much of an impact on oral health as other behaviours such as poor oral hygiene or consuming a diet high in sugar. Patients therefore understood that alcohol misuse, although important, was not the main determinant of oral health. However, patients stated that they still wanted to receive alcohol advice from dental professionals and would even welcome the advice if they were told it was part of a campaign to improve their general health. But they understood that, traditionally, it might be more of the role of a general medical practitioner to advise on their alcohol intake. It was only public health practitioner respondents who identified that alcohol misuse impacts on both oral and general health.

The dental professionals in the study further expressed that they prioritised the preventive advice they gave to their patients depending on the person's clinical need. For example, if a person had dental caries, oral hygiene and diet advice would be given. Professionals therefore felt they needed legitimate physical signs or clinical reasons to talk to their patients about their alcohol intake. Without a physical sign or clinical reason, professionals were reluctant to broach the subject of alcohol misuse with their patients, even if it was for preventive purposes. This was similar to findings from a study by Lock et al. that found that general medical doctors felt their patients had to have physical signs of heavy alcohol misuse in order for them to deliver alcohol advice (Lock et al. 2010).

Another interesting finding was that the dental professionals in this study believed preventive advice, as a whole, was only effective if there was a legitimate reason to talk to patients about harmful health behaviours; in other words if patients can see their behavior is causing harm to their oral cavity and teeth then they would be more willing to listen to this advice. Similar to the study by Shepherd et al., professionals felt there had to be relevance to the clinical situation in order for them to deliver alcohol advice to their patients (Shepherd et al. 2010). This was partly echoed by the views of patients who felt that unless there was a reason to talk to them about their alcohol use, many people might not understand why a dental professional was talking to them about their alcohol intake. Patients felt many people would expect their dental professional to explain the links between why they were being asked and advised about their alcohol use and a problem in their mouth. On the other hand, patients also felt that if they were told why it is important for a dental professional to ask them about their alcohol use they would accept their advice on this. For example, if they were told that some alcoholic drinks contain sugar, which might harm their teeth.

Public health practitioners also stated that they felt that dental healthcare workers would need a reason to talk to their patients about their alcohol use. Without this "teachable moment" they felt that patients would not engage with the advice; advice would have more impact if there were an immediate, visible oral health problem that related to someone's alcohol use. However, public health practitioners felt that even showing someone their high score from an alcohol misuse-screening tool would be enough of a motive to speak to a patient about their alcohol use and for the patient to respond positively. Therefore, making use of the scores on screening tools has

the potential to stop professionals feeling like they cannot bring up the subject of alcohol misuse without a valid physical reason.

The interviews revealed that treatment was the main focus of professionals' consultations with their patients. This is surprising given the culture of prevention-orientated regular check-ups in dentistry. In turn, however, this was related to the fact that professionals felt time dictated what care they could deliver to their patients. For example, a perceived lack of time made them feel they did not have the capacity in their professional environment for prevention, especially alcohol misuse prevention. As a result, the concept of an intervention time space emerged from the findings of this study; dentists felt they would only be willing to allocate around two minutes in consultations with patients to deliver preventive advice, and hygienists around five minutes. There is of course, a positive here. Dentists often see 30 or more patients per day, implying that only an hour a day, or 12% of their time, could be given to behavioural interventions.

Time pressures were especially noted as impacting heavily on the consultations of those professionals based in primary care practices, likewise to previous research (Johnson et al. 2010b; Shepherd et al. 2010). Public health practitioners also recognised that dental professionals, especially those in general practice, would only be able to use brief screening tools and treatment interventions. They further felt that alcohol misuse treatment interventions would lose impact if they were too long. Professionals suggested that waiting room time could be used by patients to complete screening questionnaires. The suggestion that standard medical history forms used in dentistry could be amended to incorporate valid and reliable screening instruments is helpful. This would most likely cause the least disruption to the running of clinics followed by a brief intervention of no more than a few minutes.

Although there were mixed opinions, dental professionals generally felt that alcohol misuse prevention was more the role of dental professionals based in general dental practice. This was because primary care professionals treat the majority of the population and see patients most often or regularly. Patients felt that general dental practices would be a good place to receive alcohol advice since most people would attend a general dental practice regularly. The patients in this study even suggested that patients might see their general dentist more than their family doctor. Dental professionals, however, felt that professionals in general practice in particular would

need remuneration as part of their dental contract in order to give alcohol advice. This could potentially be overcome by the introduction of new primary care dental contracts that focus on patient outcomes and the prevention of disease. Such a new contract is currently being formulated and tested in England (Department of Health 2015b), as mentioned in Chapter 1.

There were mixed findings with regard to who would be best placed in the dental team to deliver alcohol misuse screening and treatment. Patients identified both dentists and hygienists as potential people to deliver alcohol interventions. However, dental hygienists were identified as perhaps more appropriate by patients as they were considered to have more time to deliver advice and to be generally less formidable than dentists. Dental professionals also felt that dental hygienists had more of a role in prevention than other members of the dental team, with dentists being seen as having less time to deliver alcohol advice to patients. Dental hygienists may therefore have the most opportunity to deliver alcohol advice to patients.

Dental professionals felt there was a lack of guidelines and training for them at both an undergraduate and postgraduate level on alcohol misuse prevention, similar to the study by Shepherd et al. (2010). The views of qualified professionals and undergraduates were very similar on this point and indicated that professional participants would require further information on how to address behavioural issues such as alcohol misuse amongst their patients. Therefore, changes in training and education at an undergraduate level are indicated and, for those already qualified specific guidelines are needed. This is a proposal, which should be considered by NICE as an adjunct to its existing guidance on alcohol. Public health practitioners especially felt that individualised training focusing on how brief alcohol interventions can fit within the role of dental professionals would help to increase professional compliance.

Overall, the most important finding from this qualitative research was that dental professionals still see themselves as concerned almost exclusively with the dentition, as professionals dominated by the need for mechanistic, operative interventions, and not part of the wider family of health professionals in primary care. Furthermore, business priorities often seemed to trump prevention priorities. There was little evidence in the interviews of dental professionals' vocation to promote and

sustain general or even oral health. Helpfully, however, these interviews clearly showed that patients usually expect their dentist to care about and advise them on these issues.

4.9 Summary of the views that emerged from participants

The views of professionals	The views of patients	The views of public health practitioners
<ul style="list-style-type: none"> • Alcohol misuse is a general health problem. • Patients only want treatment for their teeth and advice on behaviours that affect the teeth only. • Need to have a clinical or legitimate reason in the mouth to talk to patients about alcohol. • Patients will react negatively to alcohol misuse advice. • Better training is needed for professionals at both an undergraduate and postgraduate level. • Better contracts are needed in primary care general practice. • Medical history forms can be expanded to include alcohol screening questions. • Patients can fill questions out while in waiting rooms. • General dental practices would be good places to screen and treat patients for alcohol misuse. • Prevention is more the role of hygienists and nurses as dentists have less time. • Intervention time space of two minutes available only. 	<ul style="list-style-type: none"> • Alcohol misuse has limited effects on oral health. • Patients would value alcohol advice from a dental professional. • Patients would especially value an explanation on the reasons as to why they are being asked about their alcohol use. • Links to how alcohol is affecting their oral health would also be appreciated. • Most patients would accept advice on moderation; only those with an alcohol problem. • General dentists see patients regularly and so may be in good position to deliver brief alcohol interventions. • Hygienists and dentists are in good position to deliver advice, with hygienist perhaps being best placed. 	<ul style="list-style-type: none"> • Alcohol misuse is a general and oral health problem. • Good idea for dental professionals to give advice on alcohol misuse. • Teachable moment is needed. This could include showing patients a high score on the alcohol misuse screening questionnaire. • Bespoke or individualized training can help professionals see relevance of alcohol misuse prevention to their role within the health profession. • BAIs should involve conversations. • Interventions need to be brief (no more than five minutes).

5 Synthesis of the findings from the literature and qualitative study that helped to inform the design of the exploratory trial

5.1 Introduction

This chapter consists of two sections. The first section highlights the main findings from the literature and qualitative study that helped to inform the design of the exploratory trial. The second section contains an evaluation of the use of the M-SASQ as a screening tool within dental settings.

5.2 The main findings from the literature and qualitative work that helped to inform the design of the Phase II exploratory trial

5.2.1 *The setting chosen for the exploratory trial*

As mentioned in Chapter 1.0, exploration of the background literature helped to highlight many reasons why primary dental care teams are well placed to tackle alcohol misuse amongst their patients. In addition, the background literature identified that there was a lack of research into alcohol misuse screening tools and treatment interventions in primary dental care. This became even more apparent when conducting the systematic literature search in Chapter 3, as there were no randomised controlled trials of alcohol misuse screening tools and treatment interventions in this setting.

In the UK, primary dental care settings include the community dental service (CDS) and the general dental service (GDS). The qualitative work in Chapter 4 further supported the conclusions from the literature that primary dental care settings would be an appropriate setting to screen patients and deliver alcohol misuse advice. The qualitative work also revealed that, overall, both dental professionals and patients felt that general dental teams were ideally placed to screen and treat people for alcohol misuse since they see patients regularly for dental checks. Dental professionals also felt that general practice was usually where the largest numbers of dental patients are seen; normally being a person's first port of call for dental care. Patients would usually only be referred to secondary care if they required specialist treatment. Furthermore, dental professional respondents said that

community dental services were mainly concerned with children. As a result of these findings, it seemed more logical to explore the introduction of an alcohol misuse screening tool and treatment intervention within a general dental practice setting rather than a community dental setting. Therefore, the setting chosen for the Phase II exploratory trial was an NHS general dental practice.

5.2.2 *The members of the dental team chosen to deliver the alcohol misuse screening tool and treatment intervention*

The qualitative work identified that patients could be screened for alcohol misuse whilst in waiting areas. This would not require any members of the team to ask the screening questions. Therefore, it was decided for the exploratory trial that patients would complete the screening questionnaire whilst they were in the waiting room before a dental professional saw them for their appointment. This meant, of course, that the receptionist or practice manager would need to provide patients with these questionnaires.

The systematic literature search revealed several studies that made use of dental hygienists to deliver preventive oral health advice to patients. The qualitative work correlated with this. Dental professionals interviewed felt that hygienists, potentially, had more of a role in giving patients preventive alcohol advice. Dentists were seen as having limited opportunity due to time constraints and pressures to achieve UDAs. Nurses and receptionists were also thought to be in a good position to deliver alcohol advice to patients. However, whilst patients also felt hygienists were in a good position, they felt that dentists might be the most appropriate professionals as they were viewed as having the most relevant knowledge in the dental team – counterintuitive finding from some perspectives. Patients did not say whether they felt nurses, receptionists or the practice manager should deliver alcohol advice. Therefore, taking into account these findings, it was decided that hygienists and dentists would be the members of the dental team to be investigated within the exploratory trial to determine who could most feasibly deliver an alcohol treatment intervention to patients.

5.2.3 *The alcohol misuse screening tool chosen for the exploratory trial*

From the literature, there was evidence that the M-SASQ was a reliable screening tool in identifying a large percentage of hazardous and harmful drinkers, especially in busy healthcare clinics. It could be argued that this question only identifies people who are binge drinking since it asks about heavy episodic drinking on one occasion and does not give an indication of the actual amount of alcohol consumed. However, as mentioned previously in Chapter 1, the literature suggested that it is in fact episodic heavy drinking that is the most valuable indicator in determining whether a person's drinking behaviours are problematic. Therefore, the M-SASQ appeared to be a valid and reliable screening tool to use within primary dental care.

The M-SASQ was also chosen as the screening tool for the exploratory trial as it consists of only one question. In practical terms, the qualitative work revealed that professionals felt that a lack of time during everyday dentistry, especially in general practice, is a real problem, so it was felt that it would be unrealistic to screen patients with more time consuming screening tools such as the AUDIT, MAST, CAGE or FAST.

5.2.4 *The alcohol treatment intervention chosen for the exploratory trial*

Literature suggested that there are mixed results in MI effectiveness in primary medical care settings. However, the systematic literature search identified two key papers where the intervention used to treat patients attending maxillofacial trauma departments with alcohol-related injuries was a brief MI (Smith et al 2003, Goodall et al 2008). Both of these studies concluded that this treatment method was effective in reducing patients' hazardous alcohol use in secondary dental care. In the paper by Goodall et al (2008) it was also shown that MI is more effective than self-help leaflets. Therefore, it seemed logical to explore the use of MI as the treatment intervention in the exploratory trial.

An interesting finding from the qualitative research was that dental professionals felt they had intervention time space of two to five minutes only in which to give any type of preventive advice to their patients, be it oral hygiene instruction, smoking cessation advice and diet advice, as well as alcohol advice. Professionals across all dental services felt that if they were to give alcohol advice they needed to deliver

something very brief due to time constraints. This was especially viewed as being the case for those professionals working in general dental practice. The public health practitioners interviewed also advised that alcohol interventions should occupy no more than five minutes. It was therefore decided that staff in a general dental practice would be trained in the delivery of brief MI, by the Have a Word team in Public Health Wales, within this time frame for the exploratory trial.

The literature suggests that lifestyle advice with no motivational or theoretical basis has low success rates. The literature search also suggested that interventions that followed an acronym, such as the FRAMES acronym, were useful in adding structure to the delivery of advice.

Public health practitioner respondents stated that in order for alcohol treatment interventions to be successful there should be a “teachable moment” in which patients could be educated about the consequences of their lifestyle or behaviour on their health. Dental professionals also felt that advice was more effective if patients were able to see the physical effects of their behaviour on the condition of their mouth and teeth. However, patients said that they would take notice of alcohol advice if their dental professional explained more fully why they were talking to them about their alcohol habits. Helpfully, public health practitioners felt that a high screening score could be used as the teachable moment even if there are no physical signs in the mouth due to alcohol misuse. Therefore, there was justification for the use of screening tool scores as a way of starting the MI with dental patients and explaining the relevance of alcohol misuse on general and oral health in a subsequent conversation.

5.2.5 *Other important findings*

The systematic literature search revealed studies showing that it was possible to train professionals in one to two hour sessions how to deliver interventions. The search also highlighted the need to assess the fidelity of intervention delivery in trials. Looking at the findings of the literature search, one-to-one interventions, delivered chair side by the dental professional, rather than in part by a separate counsellor or oral health educator also seemed to be the most applicable to an exploratory trial in a general dental practice setting. Therefore, it was decided that the staff in the general dental practice would be trained in the delivery of brief MI, by the alcohol team in Public Health Wales, in a short session prior to the start of the

study. The staff would then be assessed for fidelity or competency in their intervention delivery. The intervention would be delivered chair side and to individual patients as this would be less complicated than trying to create a group intervention and find another room or employing extra members of staff to deliver an intervention.

5.3 Two evaluations of alcohol screening instruments used by dental professionals

5.3.1 *Aims and objectives*

In order to test the notion that the MSASQ would be an appropriate screening tool in the exploratory trial, an evaluation of the use of the M-SASQ in Cardiff University Dental Hospital was carried out. The emergency clinic at Cardiff University Dental Hospital was chosen as the setting for this evaluation because it is a primary dental care service.

Traditionally, dental professionals usually ask patients “how many units of alcohol do you consume each week?” as part of routine medical and social history taking. Two evaluations were carried out. The first evaluated the extent to which the alcohol units question was answered by patients attending the emergency clinic and whether this question was reliable in detecting patients who were drinking at a hazardous and harmful level. The second, based on the findings of the first evaluation, aimed to explore whether the substitution of the units question with a valid and reliable screening tool (the M-SASQ) was more efficient in identifying dental patients who misuse alcohol.

5.3.2 *Section 1: Evaluation of the use of the alcohol units question on the medical history forms used by dental professionals*

5.3.2.1 Method for section 1

The standard for assessing completion rate for the units question was set at 100%. This first evaluation took place over four weeks using a convenience sample of 10 to 15 male and female, new and follow-up patients, aged 18-75 years old selected by reception staff each day. Completed medical history forms were examined.

5.3.2.2 Results

261 patient records were analysed in which 233 (89%) included responses to the alcohol question. In 54 of these (23%), numbers of units were not recorded. Instead, responses comprised a phrase or sentence that made it impossible to assess whether the patient was drinking above recommended limits. Examples included “occasionally drinks” and “patient drinks only on weekends”. Notwithstanding this, 18 out of 233 patients (7%) were identified as drinking at dangerous levels.

5.3.2.3 Agreed outcomes

This work demonstrated limited compliance with the alcohol units screening question. In addition, the units question was shown to be unreliable since the levels of consumption for nearly a quarter of patients could not be determined. These findings meant that changes to clinical practice were needed. Agreed recommendations were that the medical history alcohol question should be substituted with a reliable and valid screening instrument. Emergency clinic staff were notified of the changes to be made through the clinical audit process.

5.3.2.4 Changes made to clinical practice

The M-SASQ was chosen to replace the alcohol units question due to its brevity and evidence of its reliability and validity in busy healthcare settings (Figure 5.1). A pictorial reference of what constitutes a standard drink was available on clinic for clinicians to advise patients (taken from SIPS factsheet M-SASQ 2008).

Please place a cross in the relevant box.

MEN: How often do you have EIGHT or more standard drinks on one occasion? WOMEN: How often do you have SIX or more standard drinks on one occasion?				
Never	Less than monthly	Monthly	Weekly	Daily or almost daily
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Scoring the M-SASQ

If the patient's response is 'Monthly', 'Weekly' or 'Daily or almost daily' the score is M-SASQ positive.

If their response is 'Never' or 'Less than monthly' the score is M-SASQ negative.

Figure 5.1: The Modified-Single Alcohol Screening Question (M-SASQ) and its scoring system (Source: SIPS factsheet M-SASQ 2008)

5.3.3 **Section 2: Evaluation of the use of the Modified-Single Alcohol Screening Question in the medical history forms routinely used by dental professionals**

5.3.3.1 **Method**

The main objective of this second evaluation was to find out if the new alcohol item (the M-SASQ) was completed more often and efficiently than the previous alcohol units question.

Over four weeks, reception staff selected 10-15 records from the clinic each day as in the first evaluation. This time, however, responses to three versions of the medical history form were compared: one with the units question only, one with the M-SASQ only and one with both questions. Medical history forms were then examined to assess the extent to which the alcohol questions were answered.

5.3.3.2 **Results**

284 patient records were analysed of which 74 included a medical history form with the units question only, 81 included both the units question and the M-SASQ and 124 records included the M-SASQ only. Five patient records did not include evidence that a medical history had been recorded.

Forms with the medical history units question only

This alcohol units question was answered by 53 of the 74 (72%) patients but just 27 out of these 53 (50%) included unit numbers; 26 forms included a phrase or sentence of no value. Using this screening question, three out of 53 (6%) patients were identified as drinking at harmful levels.

Forms with both the M-SASQ and the units question

76 out of 81 (94%) patients who were asked both the M-SASQ and the units question provided information about their drinking. 55 had answered the M-SASQ only and 21 answered both questions. No forms included answers to the units question only. 30 out of 76 (39%) patients were identified as risky drinkers.

Forms with the M-SASQ only

This screening question was completed by 122 out of 124 (98%) patients. Of these, 25% were identified as drinking above the M-SASQ threshold for safe drinking.

5.3.4 ***Discussion and conclusions***

Although commonly used on the medical history forms in dental clinics, the units question is not an evidence-based screening tool. It had never been assessed before as a screening tool in dentistry. The M-SASQ, as mentioned however, is known to be effective in screening patients for alcohol misuse. The results reflected this and showed that the M-SASQ was completed more often than the units question. Even when both the units question and the M-SASQ were present on the medical history form, the M-SASQ was answered more often and the M-SASQ identified more patients who had an alcohol problem than the units question. Conversely, dental emergency clinic staff in 11% and 28% of cases respectively, did not complete the units question. Staff also incorrectly completed the units question in 23% and 49% of cases respectively, resulting in the drinking status of these patients being unknown. The M-SASQ was therefore found to be a much more valid and reliable screening question than the units question.

From these conclusions, alongside the findings from the background literature and qualitative study, the M-SASQ was chosen as the screening tool to be used in the exploratory trial presented in Chapter 6.

6 The Phase II exploratory trial (feasibility study)

6.1 Introduction

This chapter consists of six sections. The first and second sections contain the aims and objectives of the exploratory trial. The third section consists of the hypotheses for the trial. The fourth section highlights the methodology for the trial, whilst the fifth and sixth sections consist of the results and a discussion of the findings of the trial.

6.2 The aim of the exploratory trial

The aim of the exploratory randomised controlled trial was:

- To determine whether it is feasible to screen patients and deliver a brief treatment intervention for alcohol misuse within primary dental care.

6.3 Objectives of the trial

The primary objectives were:

- To determine the feasibility of screening patients for alcohol misuse within primary dental care.
- To determine the feasibility of delivering a brief treatment intervention in primary dental care.

The secondary objectives were:

- To assess the acceptability of alcohol misuse screening and treatment interventions by patients and staff in primary dental care.
- To determine whether it was possible to collect informed consent and screen primary dental care patients in the reception area/waiting room environments.
- To determine whether dentists or hygienists are best placed and able to deliver the treatment intervention and to assess time constraints for these members of staff.
- To determine intervention fidelity and selection biases.
- To determine appropriate sample size estimates for a larger, definitive randomised controlled trial.
- To inform the design of a larger, definitive trial.

6.4 Hypotheses

The hypotheses to be tested were:

- 1) Staff in a general dental practice would be able to screen patients for alcohol misuse following adequate training.
- 2) Staff in a general dental practice would be able to deliver a treatment intervention for alcohol misuse following adequate training.
- 3) More patients seeing a dental hygienist would be recruited than those seeing a dentist.
- 4) The dental hygienist would have more opportunity than the dentist to deliver the treatment intervention.

6.5 Methodology

The reporting of the methodology followed the 2010 CONSORT guidelines (CONSORT Transparent Reporting of Trials 2010).

6.5.1 *Trial design*

This trial was a pragmatic randomised controlled trial. The study was designed to have two strata (patients were stratified according to their appointment with the dentist or hygienist) and with balanced randomisation patients were allocated into one of four parallel groups [allocation ratio 1:1]. These were dentist- intervention group, dentist-control group, hygienist-intervention group and hygienist-control group. The control groups received active or usual care. The trial took place in a single dental practice in South Wales, UK, had balanced randomisation, and was double blind in that patients and the outcome assessor were blinded to group assignment.

6.5.2 *Participants*

6.5.2.1 **Settings**

The setting was Glynneath Dental Centre, (25 High Street, Neath, South Wales, SA11 5BS) a primary care general dental practice. This practice had three dentists (two of which were the principals and owners of the practice and one an associate salaried dentist), one dental hygienist, two dental nurses, one practice manager/senior nurse and one receptionist.

Glynneath Dental Centre was identified to take part in the study being a largely NHS practice that has a dental hygienist. The practice was also identified to take part in

the study due to its location. It is the only dental practice in the town of Glynneath and has patients from a broad range of social backgrounds. According to the 2008 Welsh Index of Multiple Deprivation (WIMD) Glynneath is overall a deprived area; IMD ranging from 13.7 to 34.9 with deprivation more in certain parts of the town. However, the practice had patients not only resident in Glynneath, but also in neighbouring towns such as Port Talbot and Neath, and in the city of Swansea that had higher IMD scores.

One of the practice principals was a Cardiff School of Dentistry graduate. Contact was made with the principal via the telephone. A meeting was held with the principal in order to give details of what the study would entail. The principal provided written agreement to facilitate the trial on behalf of his dental team.

6.5.2.2 Staff training

Prior to the start of the recruitment period of the study, staff at Glynneath Dental Centre received training on study protocol procedures, including participant eligibility and recruitment, the consent process and data management/handling. Standard Operating Procedures for the study were available in a Site Master File for staff to refer to as necessary.

6.5.2.3 Participant inclusion criteria

Recruitment of participants was carried out over eight weeks. All new and routine dental patients, aged 18-65, male and female, attending the practice during the recruitment period were eligible to take part in the study if they were able to provide informed written consent. All participants had to be able to read and understand English sufficiently.

6.5.2.4 Participant exclusion criteria

Participants under the age of 18 years old were not eligible to participate. Resources were not available for translators and interpreters and so participants who did not speak or understand English and who had learning difficulties were not invited to participate. There were also no translators and interpreters for solely Welsh speakers, readers and writers, although invitation letters, information sheets and consent forms were available in Welsh. Participants who could not provide written informed consent were not recruited.

6.5.2.5 Identification of participants

The practice manager and receptionist assessed patients for eligibility. One month prior to the start of the study, eligible patients were sent in the mail or, if they happened to attend the practice, given in person an invitation letter and information sheet detailing what the study would involve by the practice manager. Patients were informed through the information sheet that they did not have to take part in the trial when they attended the practice for their appointment during the eight-week study period and that they were free to refuse participation at any time. They were also informed that refusal would not affect their rights to dental treatment/care or their legal rights.

Provision of information sheets one month prior to the start of the study, gave patients sufficient time to decide whether or not they would like to take part in the study before they attended the practice during the eight-week study recruitment period. This also gave them sufficient time to contact the researchers prior to the start of the study to ask questions (the researchers' contact details were on the information sheet).

The invitation letter and information sheets were given to patients either when new and routine appointments were made in person at the practice for the up-coming two month recruitment period or when appointment reminders were mailed to patients. The practice manager and receptionist therefore approached patients to take part in the study. The researchers were not involved with the identification, selection or approach to patients.

6.5.2.6 Recruitment of participants

When patients attended the practice for their appointment during the eight-week study recruitment period, the practice manager or receptionist asked them if they wanted to take part in the study. If the patient agreed, they were stratified according to whether they had an appointment that day with either a dentist or hygienist and were given a participant trial pack.

6.5.2.7 Participant trial packs, the materials inside and their coding

Each pack was coded with either D or H to represent whether the patient was seeing a dentist or hygienist that day. A number to represent the order of

recruitment followed this. For example, a pack coded D2 meant this pack was for the second patient who agreed to take part in the study and had an appointment with a dentist. Patients who had an appointment with both the hygienist and dentist on the same day were given a pack depending on which clinical staff member they were due to see first (e.g. the dentist if they were due to see them before the hygienist).

Within each pack there were three copies of the consent form, the screening question (the M-SASQ) and a short survey collecting socio-economic information, reasons for attendance and contact details. Patients were asked to read this information and record the necessary information while in the reception/waiting area. The packs also contained smaller, opaque, sealed envelopes that had the words “dentist to open only” or “hygienist to open only”. Once they had completed the materials the patient gave the pack to the receptionist/practice manager, who then gave the pack to the dentist or hygienist to oversee signing of the consent forms and read the M-SASQ answer provided by the patient (Appendix 9b).

6.5.2.8 Participant consent process

Patients who agreed to take part in the trial provided written consent. The dentists and hygienist seeing the patient also signed the consent forms if the patient agreed to take part in the study. A copy of the consent form was given to the patient; one copy was also placed in the patient’s dental notes and the thesis author kept a copy for their own record (Appendix 9b).

6.5.3 Intervention

6.5.3.1 The BAI

The screening tool used was the M-SASQ and the treatment intervention was MI according to the FRAMES approach.

6.5.3.2 Intervention training

Before the study began, all staff were trained on how to screen patients for alcohol misuse using the M-SASQ by the thesis author. Staff were also trained on how to deliver the alcohol treatment intervention MI, by the Public Health Wales (PHW) Have a Word team. They all completed the PHW Alcohol Brief Intervention National Training Programme (one, two-hour in-practice training session accredited by the

Royal College of Nursing and the national accreditation body in Wales, Agored Cymru). The training provided staff with general information about the risks of alcohol misuse to oral and general health, the types of screening tools and treatment interventions that can be used to advise at-risk patients, as well as detailed information on the style of MI and the specific strategies that could be selected according to the needs of each participant when trying to motivate patients to alter risky consumption. The staff were trained on how to deliver MI that lasted no more than five minutes. Standard Operating Procedures on how to use the M-SASQ and the delivery of the intervention were available in the Site Master File for staff to refer to as necessary.

6.5.3.3 Fidelity checks for study protocol procedures and intervention delivery

Prior to the start of the participant recruitment period, a dummy or trial run of the protocol procedures was carried out over three days. This was to familiarise staff with the study protocol and ensure fidelity of intervention delivery. The three dentists and the hygienist were observed delivering the MI following their training from Public Health Wales. Competency in intervention delivery was based on being able to deliver all elements of the FRAMES approach.

Table 6.1: Fidelity checks for the dentists and hygienist in the practice

Key element	Response by dentist 1
Feedback	"Your screening answer indicated you drink in an at-risk category"
Responsibility	"We are concerned about oral cancer, gum diseases"
Advice	"You know the numbers, try not to drink more than two glasses a night"
Menu of Options	"Miss a drink, have a drink free evening, get mini bottles of wine"
Empathy	"I'm not trying to say it's easy"
Self-efficacy	"You can break the habit."

Key element	Response by dentist 2
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Feedback	'The screening question shows you drink more than you should"
Responsibility	'I want you to be aware alcohol in large amounts can cause certain dental diseases"
Advice	'I know it's difficult to cut down but I think you could cut down by two or three drinks"
Menu of Options	'Have some water, skip a round"
Empathy	'I know it's hard"
Self-efficacy	'Doing other things will help you"

Key element	Response by dentist 3
Feedback	"Your drinking habits are a high priority"
Responsibility	"You are damaging your body quite a bit"
Advice	"Try and have two alcohol free days a week and spread out your drinking throughout the month rather than having it all in one go"
Menu of Options	"Every other drink have a soft drink"
Empathy	"It won't happen straight away"
Self-efficacy	"Make it your aim"

Key element	Response by hygienist
Feedback	"You are drinking quite a bit"
Responsibility	"It can cause damage to your mouth"
Advice	"Try and decrease the amount you are drinking"
Menu of Options	"Why not have lemonade or water instead, try and limit the amount of alcohol in your house, don't have it every night"
Empathy	"I understand too"
Self-efficacy	"You don't need it every night"

The dentists and hygienist were given feedback by the thesis author on how to improve their responses. For example, the dentist who responded "Try and have two alcohol free days a week and spread out your drinking throughout the month rather than having it all in one go" was advised to inform patients the recommended daily and weekly limits.

The thesis author also observed the practice staff once a week during the study recruitment period to ensure trial procedures were performed (e.g. did staff ask patients if they wanted to take part in the study? Were packs given to patients in the waiting area?).

6.5.3.4 Screening procedure

Patients who agreed to take part in the study filled out the M-SASQ in the waiting room. Consistent with M-SASQ rules, if the participant scored “Never”, “Less than monthly” they were deemed to have a negative score. If they scored “Monthly”, “Weekly” or “Daily/almost daily” they scored positively.

6.5.3.5 Details of the treatment intervention

Participants, who scored positively on the M-SASQ, were randomised to receive usual care plus the treatment intervention by either the dentist or hygienist or to control conditions (received usual care only). The standard brief treatment intervention (Motivational Interviewing or MI) incorporating the FRAMES approach was used. Using the Template for Intervention Description and Replication (TIDieR) checklist (Hoffmann et al. 2014), details of the treatment intervention, MI, are reported in Table 6.2.

Table 6.2: Detailed summary of the treatment intervention

Brief name of the treatment intervention.	Motivational Interviewing (MI) using the FRAMES approach.
Why: rationale, theory or goal of the elements essential to the intervention.	<p><i>Rationale</i> MI was delivered by either a dentist or hygienist to those patients randomly allocated to an intervention group in the feasibility study. There is evidence that the effectiveness of simple advice about lifestyle changes is not strong with success rates of only 5–10% (Britt et al. 2004). In contrast, however, there is evidence that more individualised and patient-centred approaches, such as MIs, produce better outcomes.</p> <p><i>Theory</i> MI appears consistent with a number of models of health behaviour, such as Locus of Control, Theory of Reasoned Action, Social Cognitive Theory, Decisional Balance, Health Belief Model, Health Action Process Model, Self-determination Theory and Self-regulatory Model. All of these models, despite differences in their terms and emphasis, share three common constructs, which are the focus of MI. These are the patient’s expectations about the consequences of engaging in the behaviour, the influence of the patient’s perception of, or beliefs about, personal control over the</p>

	<p>behaviour, and the social context of the behaviour.</p> <p><i>Goal</i></p> <p>The main goal of the intervention was to motivate dental patients to reduce alcohol misuse. The MI was to be directive in that there was the clear goal of listening to a patient's responses and then using these to explore the patient's ambivalence to altering their drinking behaviours in such a way that the patient would then be more likely to choose to change his or her behaviour in the desired direction. The systematic strategy of the FRAMES acronym was used to facilitate behaviour change by ensuring the professional covered all the main elements required to help patients to explore and resolve their ambivalence about behaviour change. Studies have shown MIs to be effective in reducing alcohol misuse in a range of healthcare settings including primary medical care and secondary dental care.</p>
<p>What (materials): Description of the physical or informational materials used in the intervention, including those provided to participants or used in intervention delivery or in training of intervention providers.</p>	<p>The FRAMES acronym was adopted so as to ensure the MI covered the main elements. The details of this approach can be found in Zabel et al. (2010). This acronym was adopted to help primary care dental healthcare professionals deliver the main ingredients or techniques required for an effective brief intervention: Feedback (about the person's drinking habits and how drinking may affect their health/oral health), Responsibility (emphasis to patients that reducing their alcohol consumption is their own), Advice (provision of simple advice), Menu (to help the patients identify from a menu of options actions that can change their behaviour), Empathy (the staff were taught to maintain an empathetic approach throughout) and Self-Efficacy (to help the patient believe they are capable of change and give them the confidence to do this).</p>
<p>What (procedures): Description of the procedures, activities, and/or processes used in the intervention.</p>	<p>MIs were delivered one-to-one, and verbally at chairside to individual patients allocated into the intervention group, by either a dentist or hygienist. Dental healthcare professionals were trained by Public Health Wales to deliver an intervention that lasted no more than five minutes.</p>
<p>Who provided the intervention?</p>	<p>As mentioned, either a dentist or hygienist delivered the intervention.</p>
<p>How: Modes of delivery.</p>	<p>There was only one mode of delivery of the intervention, which was one-to-one and verbally at chairside.</p>
<p>Where the intervention occurred.</p>	<p>The interventions were delivered when patients saw either the dentist or hygienist. The study took place in Glynneath Dental Centre, a mainly NHS primary care general dental practice with a dental team consisting of three dentists, one hygienist, two dental nurses, one receptionist and one senior dental nurse/practice manager.</p>
<p>When and how much.</p>	<p>The intervention was delivered only once to the patient.</p>
<p>Tailoring of the intervention.</p>	<p>Professionals were encouraged and trained to tailor the intervention to each patient depending on the responses that they gave the professional. Each intervention was therefore individualised to the patient.</p>
<p>Modifications.</p>	<p>None were made during the study period. This was a feasibility study and so a process evaluation of the intervention itself was to take place at the end of the study period.</p>

How well (intervention adherence).	Professional adherence or fidelity in delivering the intervention was assessed once following training prior to the official start of the study. The assessment of competency was not assessed during the recruitment period. The thesis author assessed fidelity and professionals were given feedback to improve through observation in the clinical room with the dentist or hygienist and their patient.
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6.5.3.6 The control group

Patients allocated to the control groups were screened using M-SASQ and received usual care only. There was no placebo in this study.

6.5.4 Outcomes

6.5.4.1 Follow-up procedures

Only those patients who scored positively on the M-SASQ were allocated into either a control or intervention group and followed up. Follow-up was carried out by the thesis author and took place at three months after recruitment by telephone, email and post. Participants were initially contacted via telephone (phone calls and text messages). Those participants who did not respond after one week were sent a reminder email. Those who did not respond after a further one week were then sent a letter in the post, asking them to fill out their responses to the outcome measures on the paperwork enclosed and to return them in a pre-paid envelope (Appendix 9c).

6.5.4.2 Primary outcome

The primary outcome assessed was the feasibility of the trial tools (M-SASQ and MI) and the trial procedures being delivered in primary care general dental practice.

6.5.4.3 Secondary outcomes

Additional data were collected to assess change in M-SASQ score and to determine patients' health-related quality of life and opinions on present health status (EQ-5D questionnaire) following SIPS trial methodology (Kaner et al 2013). Patients were also asked at three months whether they recalled alcohol advice and what the advice comprised (Appendix 9c).

6.5.4.4 Process evaluation

A process evaluation was carried out to critically assess the framework of design for the study to inform a larger, definitive trial. It helped to determine whether the design framework was feasible in the context of the trial objectives and identify any recruitment biases by practitioners, whether interventions were delivered as instructed, whether there was enough time for patients to complete written material

tasks, whether the process of randomisation and recruitment worked and whether trial attrition was related to alcohol use. Professionals were asked to comment at three months on the acceptability of the screening tool and treatment intervention, as well as their views on how they felt the screening tool and treatment intervention fitted into the design of the study, and with practice routine. Patients were asked at three months their opinions on the screening tool and treatment intervention.

6.5.5 Sample size

Since this was a feasibility study, sample size estimates could not be calculated at this stage. However, from initial observations of Glynneath Dental Centre, around 3000 patients were estimated to attend the practice over an eight-week period. Of these, it was estimated that around 800 patients would be eligible for the study, of which 160 would screen positive for at-risk alcohol use. Two strata and two intervention groups would give a cell size of 40. It was anticipated that these numbers, with reference to Browne (1995) and Lancaster et al. (2004) would yield sufficient data to conduct sample size estimates for a larger definitive trial, and to assess sampling biases and attrition rates (Browne 1995; Lancaster et al. 2004) .

6.5.6 Randomisation

6.5.6.1 Sequence generation

The randomisation sequence was generated using balanced block randomisation with an allocation ration of 1:1. Within each group (dentist or hygienist), patients were randomly allocated to intervention or control using the blocked design. 100 blocks were used, each with two patients per block, to ensure (roughly) equal numbers of patients were allocated to intervention and control in each group (dentist or hygienist). For each group (dentist or hygienist), separate randomisation schedules were developed using a computerised random number generator (www.randomizer.org). For each group (dentist or hygienist), group allocations were placed in sequentially numbered, opaque and sealed envelopes. Either the dentist or hygienist opened the envelopes sequentially if the patient scored positively on the M-SASQ.

6.5.6.2 Allocation concealment mechanism

An independent researcher within Cardiff School of Dentistry created the randomisation sequence (member of the Cardiff University's Violence Research

Group). This independent member of staff kept the randomisation schedule until all patients had been followed up.

6.5.6.3 Implementation of randomisation procedures

The packs given to patients were randomly pre-allocated and coded into control and intervention groups by strata (according to whether the patient was seeing the hygienist or a dentist). As mentioned, this allocation was administered in a smaller sealed opaque envelope within the larger pack. The independent researcher, who created the randomization schedule, determined the randomisation of the packs before the start of the study.

6.5.7 Blinding

Participants were informed through the information sheets that one of the aims of the study was to see if an alcohol misuse treatment intervention could be delivered in a general dental practice setting and that as a participant they had an equal chance of receiving the alcohol intervention or not. Participants therefore knew that there was a possibility they would receive a treatment intervention from their dental professional. They did not know whether they were going to receive the intervention or not as members of staff were told not to tell patients whether they had been allocated into the control or intervention group.

All members of staff were blind to the pre-determined randomisation schedule to try to prevent practitioner bias in recruitment and delivery of the intervention. Reception staff and the practice manager were kept blind to randomisation throughout the recruitment period to try and keep recruitment bias to a minimum. The only people who were informed they could open the smaller envelopes that stated whether the patient was in control or intervention groups were the dentists and hygienist. The dentists and hygienist therefore became non-blind when they opened the smaller envelopes in the pack if the patient scored positive on the M-SASQ. Otherwise the smaller envelopes were kept sealed and left unopened in the packs. This was to try and keep guessing of the randomisation schedule to a minimum. The dentists and hygienist delivered the intervention to the experimental group and usual care to the control group.

The outcome assessor (the thesis author) following up the patients was blind to the randomisation schedule that was generated and kept by the independent researcher.

6.5.8 **Statistical analysis**

All data were analysed using the statistical packages SPSS (version 20) and Stata with help from the project supervisor. SPSS was used to determine the descriptive statistics for the study sample. Cross-tabulations were completed to identify the frequency of co-occurrence of two or more categorical variables. Pearson chi square was utilised to test for independence to ensure no bias in allocation of certain participant characteristics and the control and intervention groups. Stata was used to perform ordered logistic regression to predict the likelihood that age and gender are associated with a positive M-SASQ score at baseline. Exact logistic regression (as the sample size was very small) was also used to determine the likelihood or odds of those in the intervention group changing M-SASQ score at follow-up and whether those patients, in either group allocation, who changed M-SASQ score at follow-up, were more likely to remember receiving advice from their dental healthcare professional. In addition, stata was used to calculate the sample size estimates for a larger, definitive trial.

6.5.9 **Other information**

6.5.9.1 **Funding**

The Royal College of Surgeons of England provided the funding for this study through a Faculty of Dental Surgery (FDS) Research Fellowship Grant.

6.5.9.2 **Registration**

This trial is registered with the ISRCTN registry, number ISRCTN18745862.

6.5.9.3 **Protocol**

The study protocol adopted for this study was version 8.0 (Appendix 9a).

6.5.9.4 **Financial incentives**

The practice was not offered any financial incentives to take part in the study. Likewise, patients were not offered any incentives.

6.5.9.5 Ethical approval

Ethical approval was gained from the South West Wales Research Ethics Committee on 6 September 2013 (Appendix 10).

6.5.9.6 Overall timescale for the study

Training took place at the practice by the researchers one month before and by PHW two weeks before the start of the study (PHW training comprised two-hour accredited Have a Word training). The dummy trial run took place for three days before the official start of the study. The study recruitment period took place at the practice over two-months. Follow-up took place at three months after recruitment for intervention and control patients. Overall the study took six months to recruit and follow-up patients. Analysis took place during the following two to three months.

6.5.10 *Summary diagram of the study procedure*

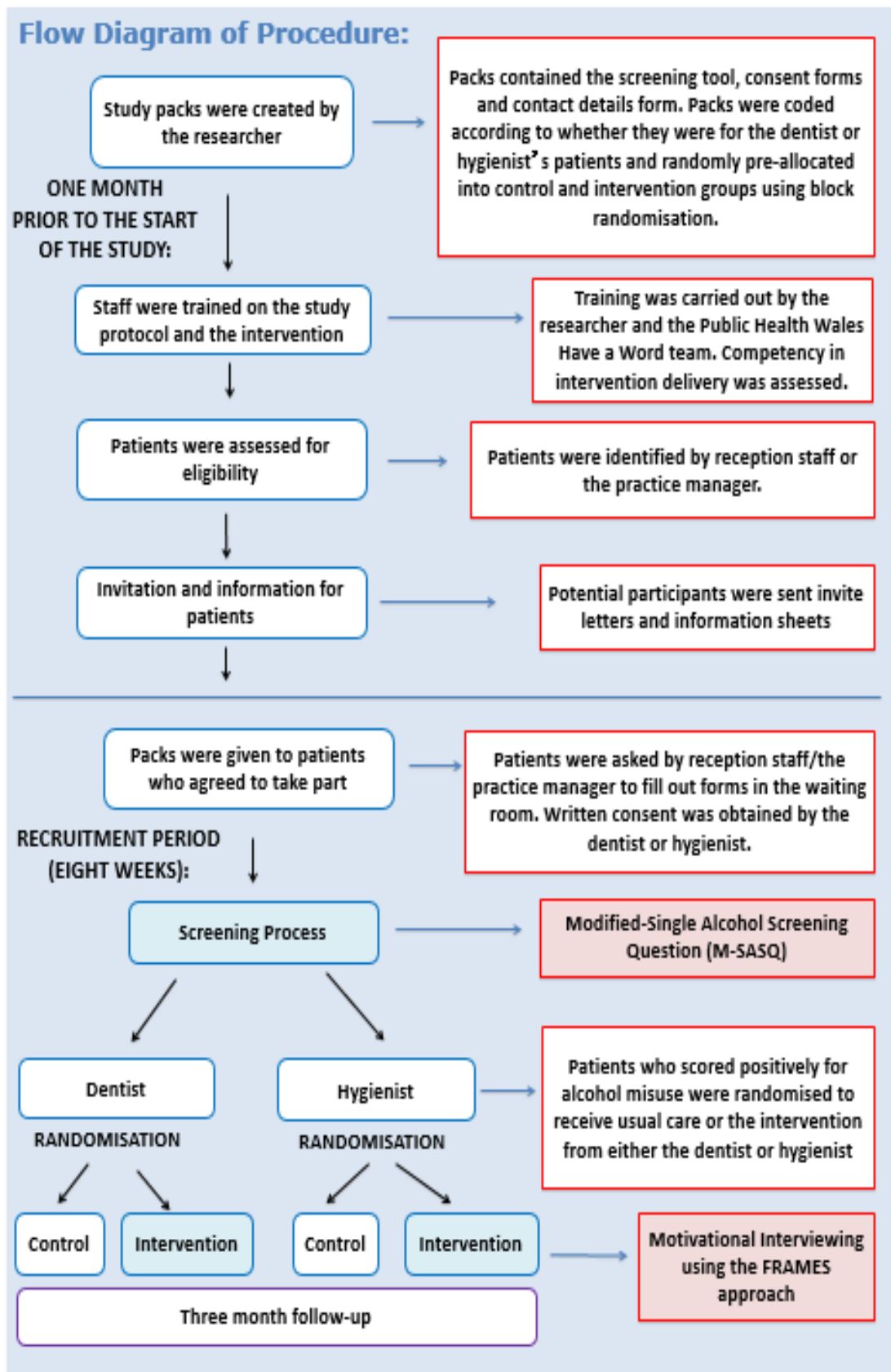
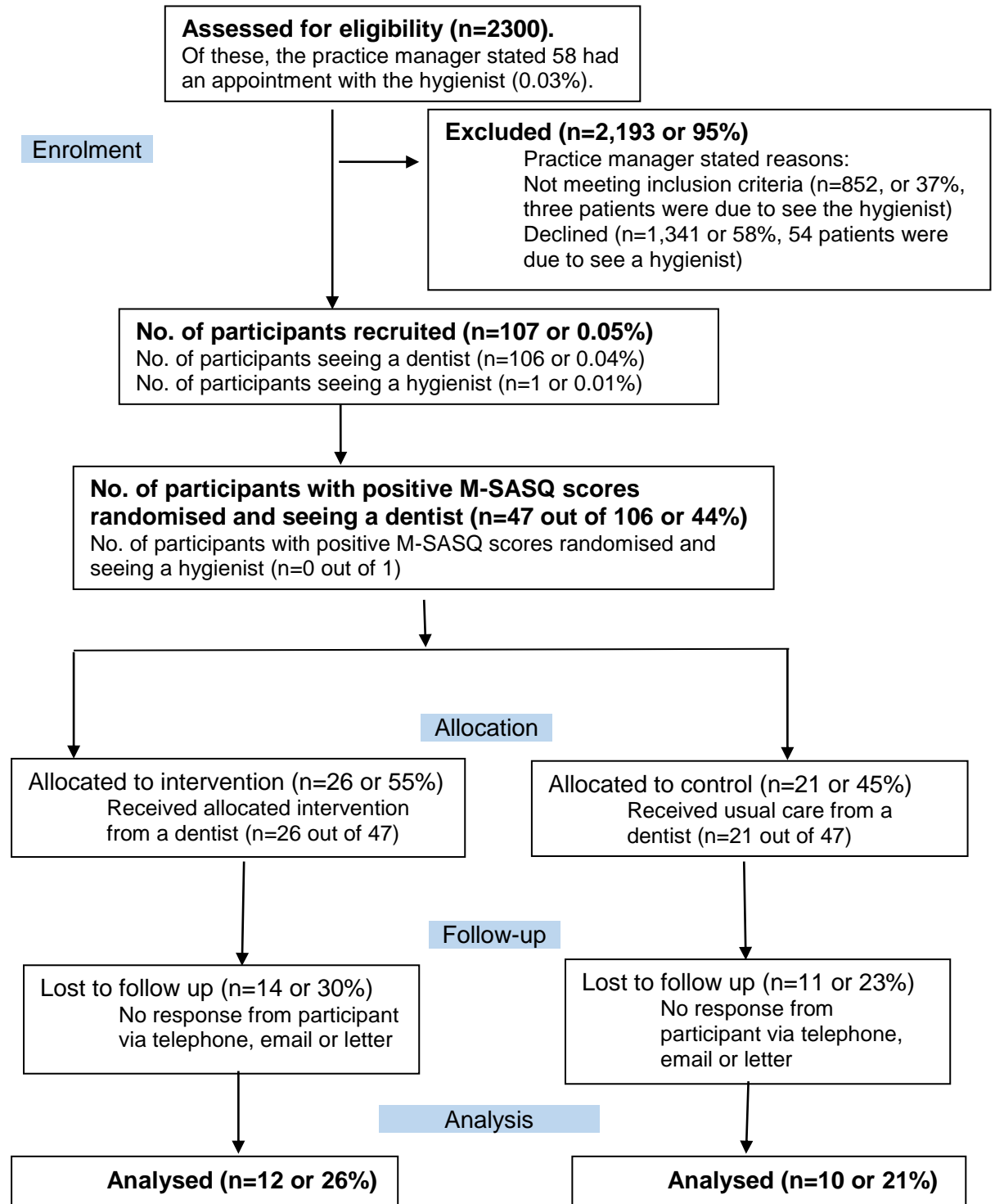


Figure 6.1: Summary of procedure for the exploratory trial

6.6 Results

6.6.1 Participant flow



6.6.2 Recruitment

Recruitment of participants was carried out over eight weeks and began officially on the 16th January 2014 and ended on the 14th March 2014. It can be seen from the flow diagram that 0.05% of patients attending the practice during this time were recruited.

6.6.3 Baseline data

6.6.3.1 Descriptive statistics of the whole sample

107 patients were recruited over the eight-week study recruitment period. 106 of the 107 patients had an appointment with a dentist. 43 of the 107 patients were male and 64 were female. Ages ranged from 19-65; mean age was 39.7 years (SD 12.97), median age was 42 years.

6.6.3.2 Descriptive statistics of participants who saw a dentist

Appointment type

50 out of 106 (47.2%) patients who had an appointment with a dentist attended for a check-up, 20 (18.9%) patients attended for routine treatment, 23 (21.7%) patients attended for emergency treatment, and five (4.7%) attended for a new patient appointment. Eight (7.5%) patients did not disclose why they attended the practice.

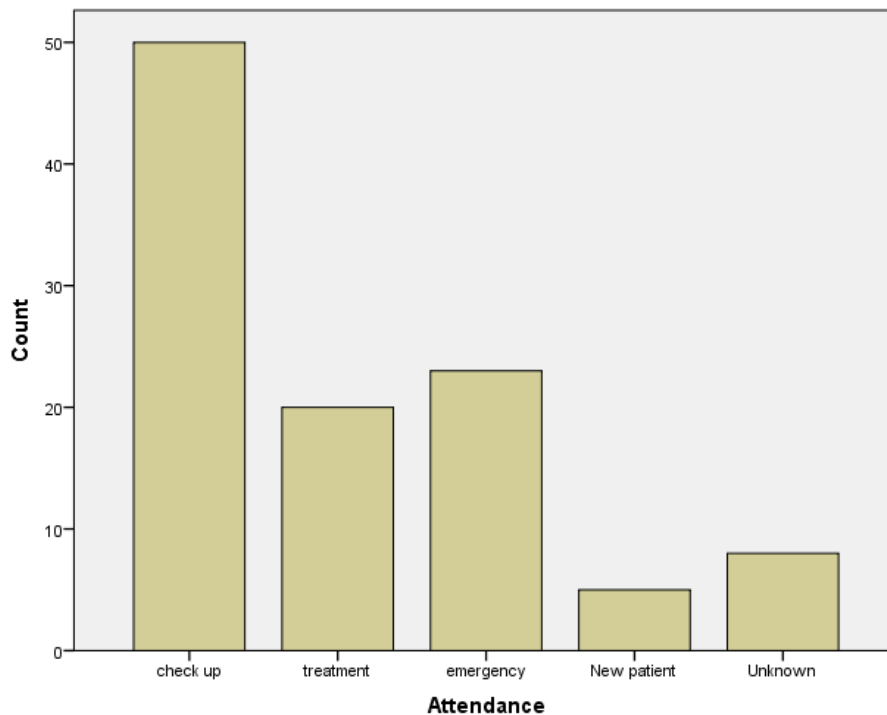


Figure 6.2: Bar chart showing patients' main reason for attendance at the dentist

M-SASQ scores before randomisation into control or intervention groups for those seeing a dentist

M-SASQ scores for the 106 patients seeing a dentist were as follows: 35 (33%) patients answered “never”, 24 (23%) answered “less than monthly”, 25 (24%) answered “monthly”, 21 (19%) answered “weekly” and one (1%) answered “daily/almost daily”.

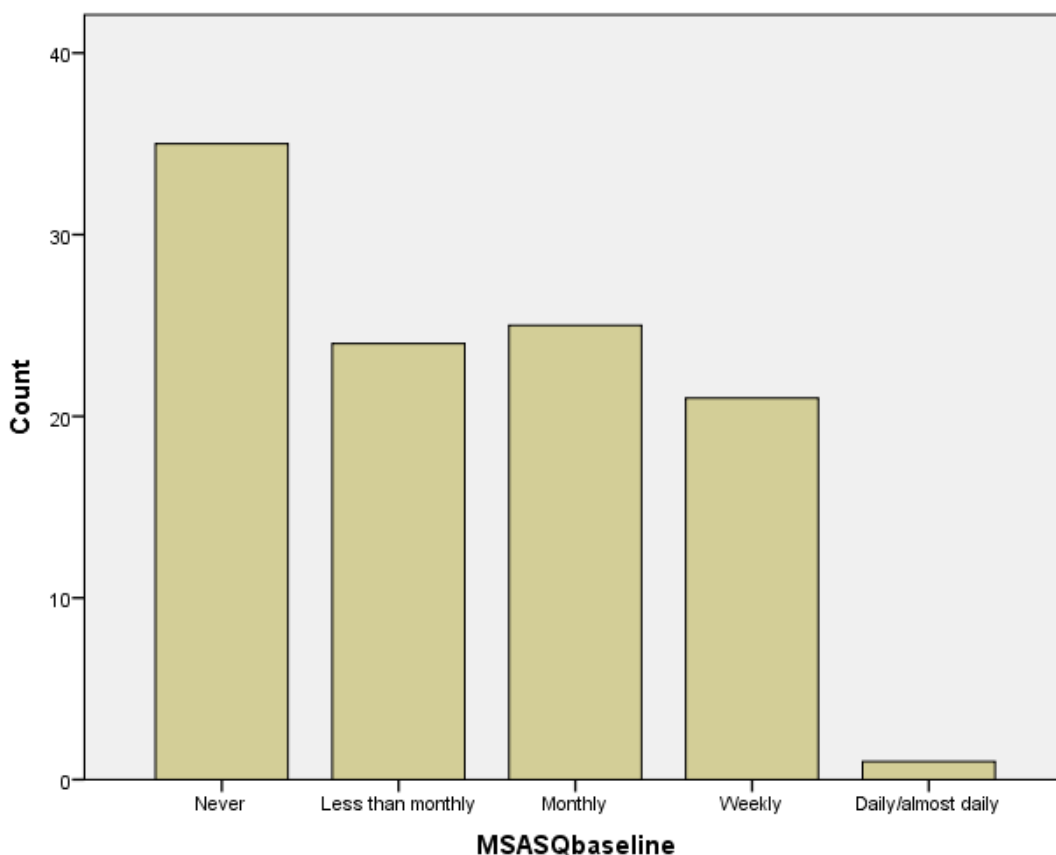


Figure 6.3: Bar chart showing the frequency of baseline M-SASQ scores for patients seeing a dentist

For the one patient seeing the hygienist, they scored negatively on the M-SASQ with “less than monthly”.

Percentage of M-SASQ negative and positive patients before randomisation

59 (56%) patients who had an appointment with the dentist were M-SASQ negative or low risk drinkers, with 47 (44%) M-SASQ positive for alcohol misuse and therefore classed as high risk drinkers.

M-SASQ positive scores and gender

22 (52%) out of the 42 men recruited who had an appointment with the dentist were M-SASQ positive, whilst 25 (39%) out of the 64 women recruited were M-SASQ positive.

Table 6.3: Positive and negative baseline M-SASQ scores according to patient gender

		Gender		Total
		Male	Female	
Baseline	High risk	22	25	47
M-SASQ	Low risk	20	39	59
	Total	42	64	106

M-SASQ positive scores and age

The majority of patients who were high risk drinkers, scoring positively on the M-SASQ, were aged 45 or below (32 out of 47). The highest number of high risk drinkers were aged 26-35 years (17 out of 47).

Table 6.4: Positive and negative baseline M-SASQ scores according to patient age

		Age Category					Total
		18-25	26-35	36-45	46-55	56-65	
Baseline	High risk	9	17	6	10	5	47
M-SASQ	Low risk	4	17	15	14	9	59
	Total	13	34	21	24	14	106

Gender, age and a positive M-SASQ score before randomisation

Ordered logistic regression of the data set showed that women were more likely to score negatively on the M-SASQ (OR 0.40, P value 0.01, 95% CI 0.19 to 0.83). Older people were also more likely to score negatively on the M-SASQ (OR 0.97, P value 0.05, 95% CI 0.95 to 1.00).

Table 6.5: Ordered logistic regression to predict likelihood that age and gender were associated with a positive baseline M-SASQ score

Baseline M-SASQ

	Coef	Std.Err	OR	P value	[95% Conf. Interval]
Age	-0.03	0.01	0.97	0.05	0.95 to 1.00
Gender Ref(Male)					
Female	-0.91	0.37	0.40	0.01	0.19 to 0.83

Allocation of M-SASQ positive patients into control and intervention group

Of the 47 patients who scored M-SASQ positively for alcohol misuse, 26 were allocated to receive usual care plus the intervention from a dentist and 21 were allocated to receive control or usual care only. Pearson's chi square was 0.01 with a P value of 0.94 (non-significant).

Of the 26 patients who scored M-SASQ positive (high risk group) and were allocated into the intervention group, 14 scored "monthly" and 12 scored "weekly". Out of the 21 who scored MSASQ positive (high risk group) and were allocated into the control group, 11 scored "monthly", nine scored "weekly" and one patient scored "daily/almost daily". It can be seen in Table 6.6 that 59 participants scored negatively on the MSASQ (low risk group).

Table 6.6: Details of those patients with positive baseline M-SASQ scores allocated into control and intervention groups

		Low risk group	High risk group		Total
			Intervention	Control	
Baseline M-SASQ	Never	35	0	0	35
	Less than monthly	24	0	0	24
	Monthly	0	14	11	25
	Weekly	0	12	9	21
	Daily/almost daily	0	0	1	1
	Total	59	26	21	47

Allocation into intervention and control group according to gender

There were more women in the intervention group and more men in the control group.

Table 6.7: Allocation of males and females to control and intervention groups

		Gender		Total
		Male	Female	
Group	Intervention	9	17	26
	Control	13	8	21
	Total	22	25	47

Pearson chi square was 2.9359 with the P value = 0.087 (non-significant).

Allocation to groups according to age

There were no differences in mean age between those allocated into the intervention and control groups. The difference using a two-sample t test with equal variance was 1.49 (t = 0.37, P value = 0.71, SE 3.99, 95% CI -6.57 to 9.54).

6.6.4 **Results at three month follow up**

Data were available for 12 patients allocated into the intervention group at follow-up and 10 patients in the control group at three-month follow-up.

Primary outcome

- The recruitment rate in this study was 0.05%.
- The retention rate at follow-up was 47% of the participants randomised.
- It was possible to screen and treat those patients who were recruited into the study for alcohol misuse. However, it cannot be stated whether this is definitely feasible (discussed further in section 6.7).

Secondary outcomes

Changes in M-SASQ score according to group allocation

M-SASQ scores changed from positive to negative for two patients in the intervention group and five in the control group.

Table 6.8: Changes in M-SASQ score at follow-up between intervention and control groups

	Baseline M-SASQ score		M-SASQ score at follow-up		
	<i>N</i>	%	<i>N</i>	%	
<i>Intervention</i>	Never	0	0	1	8
	Less than monthly	0	0	1	8
	Monthly	7	58	6	50
	Weekly	5	42	4	34
	Daily	0	0	0	0
	Total	12	100	12	100
<i>Control</i>	Never	0	0	0	0
	Less than monthly	0	0	5	50
	Monthly	3	30	1	10
	Weekly	7	70	4	40
	Daily	0	0	0	0
	Total	10	100	10	100

Could allocation to the intervention and control group predict changes in M-SASQ score?

Since the sample size was very small, exact logistic regression was carried out to further determine whether those in the intervention group were likely to change their M-SASQ score on follow-up. In order to help determine the Odds Ratio (OR), using the change in M-SASQ score, a binary risk indicator for change before and after intervention was created. The binary outcome was therefore called “Change” where no change = 0, if MSASQ score change was better = +1. Other binary predictors used were “remembered” (indicates whether participants remembered receiving advice from the dentist where 0 = not remembered and 1 = remembered) and group (indicates high risk group or low risk according to MSASQ score where 0 = control and 1 = intervention).

Exact logistic regression showed those in the intervention group were less likely to change their MSASQ score than those in the control group. This difference was not significant.

Table 6.9: Exact logistic regression to determine the likelihood of patients in the intervention group changing M-SASQ score at follow up

Change in M-SASQ score			
	OR	P value	95% Conf. Interval
Group	0.22	0.23	0.02 to 1.91

Could a change in M-SASQ score be predicted by whether a patient stated they remembered receiving advice?

Exact logistic regression also showed that those who remembered advice were more likely to change their MSASQ score. This was not significant.

Table 6.10: Exact logistic regression to determine the likelihood of those patients who changed M-SASQ at follow up remembering alcohol advice

Change in M-SASQ score			
	OR	P value	95% Conf. Interval
Remembered	2.54	0.55	0.30 to 25.08

EQ-5D

At follow-up, according to this measure, all 22 participants who the outcome assessor was able to contact, whether in the intervention or control group, were in the adequate health status category. Participants in both groups rated their health status as 80% or above.

6.6.5 Harms

The results show no evidence of any adverse reaction to the intervention (no participant M-SASQ scores changed from negative to positive/became worse).

6.6.6 Sample size estimate for a definitive trial

Using Stata 14 MP calculations were made at a power of 0.80 where alpha is less than or equal to 0.05 and the minimum number of participants for each arm of a larger trial to be followed up would be 70 patients. Taking the attrition rate in the exploratory trial of 47%, 135 patients would therefore be required in each arm.

6.7 Discussion

6.7.1 Interpretation of the findings

The results show that for the total of 107 patients recruited into the exploratory trial, staff in the practice were able to hand out packs containing screening materials and to deliver MI to those who scored positively. The hypotheses that staff in a general dental practice would be able to screen and deliver a treatment intervention for alcohol misuse following training were supported. This suggests that there is potentially a new approach to alcohol misuse prevention involving primary care dental teams, as those patients who took part in the study, although small in number, appear to have received the M-SASQ and MI. Unfortunately, it cannot be confirmed from this trial's findings whether it is definitely feasible to introduce alcohol misuse screening and treatment in this primary care setting (which was the main outcome being assessed), since a high percentage of patients attending the dental practice were not recruited into the study. In addition, retention rates were also low in this study. A further intermediary exploratory trial is therefore required before this work can be taken forward in a definitive, Phase III trial following MRC guidance. This is further discussed in the process evaluation.

In total, 106 patients seen by a dentist and one patient seen by a hygienist were recruited into the study. This suggests that the dentists in this practice were better placed to deliver the treatment intervention than the hygienist. This finding is counter-intuitive since the systematic literature search summarised in Chapter 3 and the qualitative work reported in Chapter 4 suggested that hygienists would prove best placed to intervene. The hypothesis that dental hygienists are the key dental professionals in this context cannot be accepted. However, whether hygienists should be excluded from future alcohol misuse trials in primary dental care is discussed in the process evaluation.

The results highlighted that out of the 106 patients who saw a dentist, 50 attended for a check-up and 20 attended for on-going treatment post check-up. This shows that 70 out of 106 or 66% of the participants were attending this dental practice regularly; they were not being seen on an emergency basis. Nevertheless, 22% of subjects did attend for emergency reasons. Both these findings indicate that there were a large percentage of people who either had regular access to this general dental practice or were able to access a dentist for emergency care. This supports the notion earlier in the thesis that general dental practitioners are in strategic positions to screen and treat patients for alcohol misuse, with the main opportunity being patients who receive regular care.

The results showed that 44% of the participants recruited were M-SASQ positive or high-risk drinkers. Looking at survey data this seems to be representative of the population in Wales since 2012 and 2014 Welsh Health Survey data indicate that 43% and 40% of the adult population in Wales respectively reported drinking above the recommended DoH guidelines on at least one day in the previous week (Statistics for Wales 2015).

It was interesting that the results from this trial showed women (39% of women compared to 52% of men in this study) and older people were less likely to score positively on the M-SASQ. Looking at the survey results reported in Chapter 1, this is reflective of what would be expected since surveys find that men and those in younger age groups engage more frequently in heavy episodes of drinking (General Lifestyle Survey 2010). However, survey data also indicate that 16-24 year olds particularly, are most likely to drink heavily on an episodic basis, whilst in this study the majority of patients who scored positively on the M-SASQ were aged 45 or

below with the highest number of high risk drinkers being 26-35 years old. Despite this, these results are still reflective of the survey data reported in Chapter 1, whereby alcohol misuse is present across both genders but mainly in men and is prevalent across all age groups especially in younger age groups.

The results of the study revealed no significant association between change in M-SASQ score and the intervention group. However, the results show no evidence of any adverse reaction to the intervention (no participant M-SASQ scores became worse).

Furthermore, exact logistic regression, although not revealing significant differences and should be interpreted with caution due to the low sample size, showed that those in the intervention group were less likely to have changed their M-SASQ score than those in the control group; M-SASQ scores changed from positive to negative for two patients in the intervention and five in the control group. This may have occurred due to a number of reasons, discussed further in the process evaluation, including the dentists not adhering to the randomisation protocol or the control condition of screening with M-SASQ and usual care possibly being more effective than the intervention itself.

However, despite a lack of association between change in M-SASQ score and the intervention group, it was interesting that people in both the control and intervention groups who reported remembering receiving advice from the dentist were more likely to change their M-SASQ score. Patients were asked at the three-month follow-up whether they remembered the information delivered to them, as a way of assessing if the professionals were compliant in giving their patients alcohol advice. This finding therefore suggests that patients, who remember the intervention, were more likely to change behaviour. This result is promising and supports the notion that MI is potentially useful in tackling alcohol misuse amongst patients in primary dental care settings. It also suggests that the MI may have had some effect despite there being no significant results in this trial.

At follow-up, all participants, whether in the intervention or control group, had adequate health status according to the EQ-5D questionnaire findings and rated their health as 80% or better. Even though the numbers of participants are limited, this suggests that overall; most patients attending this dental practice were healthy

drinkers. This supports the notion that general dental practitioners are in a prime position to screen and treat people for alcohol misuse, as people who are healthy may not see a general medical practitioner but, reflecting a culture of regular dental checks, would attend for dental care.

6.7.2 *Process evaluation and critique of the method*

6.7.2.1 What worked well

The aim of this study was to determine the feasibility of introducing an alcohol misuse screening tool and treatment intervention in a general dental practice setting and to carry out a process evaluation of the study. The goal was not necessarily to prove effectiveness of the treatment intervention. The design of the study as a pragmatic randomised controlled trial was therefore appropriate to satisfy these aims. The study procedures for this trial were also appropriate to address the main objectives of the study.

An adequate range of patients from both genders and various age groups were recruited. The age range of participants who took part in the study was 19-65 years and the mean and median age range of participants was 39 and 42 years respectively. This was representative of the patients attending the practice during the recruitment period, as the practice manager stated the average age was 41.8 years. Out of the 107 patients recruited into the trial, 43 (40%) were male and 64 (59%) female, which was fairly representative of the male and female patients attending the practice during the study period (48% male and 52% female). There is evidence in the literature that, especially in the 1980s and 1990s, clinical trials of treatment interventions often focused on the health problems of men (Merkatz et al. 1993; Killien et al. 2000). For example, the study by (Smith et al. 2003) that evaluated the effectiveness of MIs in reducing alcohol misuse amongst patients attending secondary dental care maxillofacial trauma departments with an alcohol-related injury only recruited male participants. Whilst this was appropriate for given the fact men are injured in alcohol-related violence more than women, the exploratory trial in this thesis was successfully designed to include a broad age range of men and women in order to make the findings more generalisable to the whole population.

Although the association between M-SASQ score and residence in areas of

deprivation was not explored in this study, the fact that the practice was located in Glynneath, and used by both deprived and more affluent groups of patients, meant that the practice was suitable to identify a wide range of alcohol consumers; the results suggest this was true as there was a wide variation in M-SASQ scores for the patients recruited.

Elements of the study protocol worked well in this dental care context. For example, the packs created worked well, in particular the use of smaller opaque, sealed envelopes to conceal group allocation from the outcome assessor. Furthermore, giving patients packs in the waiting room worked well, with patients stating at follow-up they felt they had enough time to complete the questionnaires and to give written consent. Patients also reported they easily understood trial instructions.

The randomisation method of block randomisation was also found to be appropriate. There was no recruitment or selection bias, with the results showing no significant differences between gender and age for the intervention and control groups. There was also no selection bias of high-risk drinkers into the control and intervention groups.

The process evaluation showed that the practice principals used the fact they were taking part in this study as a selling point for their practice. They put up posters saying they were taking part. They also made it known to their Local Health Board that they were involved in alcohol misuse prevention. The practice team comprised young health workers who were very keen to provide a preventive service. They were also keen on showing their patients that the care they offered was consistent with the British Dental Association best practice guidance. Further, they were in the process at the time of the study of becoming dental foundation trainees so were keen to be innovative. These factors may have contributed to implementation of the trial procedures by the practice owners and could be capitalised upon in further trials in primary dental care. However, it is also important to ensure in future trials that all dental professionals realise the importance of taking part in research. Future work should therefore include more practices to determine ease of recruitment and to see if the practice in Glynneath was usual to other practices.

The patients who were followed-up stated they generally appreciated the information given to them. Some of the patients stated they may not have listened to the advice

but understood why the dentist talked to them about their alcohol use. One patient who was followed-up who had scored positively on the M-SASQ and was allocated into the control group even stated she felt aggrieved she had not received any advice from her dentist about her alcohol use and would have liked to have received information on why she should cut down.

The mapping of the systems for this study shows that the supporting members of the dental team (practice manager, dental nurses and receptionist) were heavily involved in the study. In comparison to the maps of how alcohol misuse screening and treatment were introduced into secondary dental care (Figure 6.4) and primary medical care (Figure 1.5) it can be seen that there is more of a whole team approach in primary dental care and it was not just the dentists directly involved in intervention delivery that were involved in the procedures of the study (Figure 6.5). This study also involved input from the thesis author based in secondary dental care and Public Health Wales. In addition, the dental practice principals informed their local health board that they were taking part in the study, which further broadened the mapping of the systems for this study. Using Bronfenbrenner's ecological framework, this study took into consideration the microsystem (e.g. considerations were given to the patient and dental professionals in the practice), the mesosystem (e.g. the trial capitalised on the interaction between patients and their dental professional during intervention delivery) and involved the exosystem (e.g. the local health board who was informed the practice were taking part in the study). Future work could give thought to the macrosystem and how, for example, primary dental care contracts and guidelines can be altered to include alcohol prevention.

6.7.2.2 Areas that need improvement

In this study, recruitment rates were very low. Sample size calculations revealed that for a larger study approximately 135 patients would be needed in each arm of the trial. Recruitment strategies would therefore need to be improved before a definitive trial is conducted. The practice manager at the end of the study was asked to report how many patients in total attended the practice over the eight-week recruitment period. She estimated that approximately 2300 patients attended. Recruitment into the study was therefore only 0.05%. The reasons for this were that, reportedly from the receptionist and practice manager that certain patients did not meet the exclusion criteria. They also stated that many patients did not want to be bothered filling out questionnaires in the waiting room and many were too nervous about

seeing a dentist to apply themselves to this task. Others told the receptionist that they did not want to divulge their alcohol habits to their dental professional. As mentioned in section 6.5.3.3, although the thesis author observed the practice staff once a week, it may have been that when she was not there staff did not ask patients to take part. These findings suggest that a researcher should be on site at the practice more frequently in order to help with staff/patient queries and to work more closely with receptionists and the practice manager to ensure staff are asking patients to participate in the study. In addition, the importance for healthcare trials and the relevance to dentistry of alcohol misuse need to be emphasized to patients in recruitment to future trials.

The results of this study suggest that dentists were best placed to deliver the intervention rather than the hygienist. This was because the majority of the patients recruited into the study had an appointment with a dentist. A practice dentist had also seen all of her patients before they were prescribed a hygiene appointment. Furthermore, the hygienist in this dental practice only worked for one four hour session a week and had on average only six to eight patients per session. Looking at the dynamics of NHS dental practices across Wales, most NHS practices in South Wales have a hygienist for one to two days maximum (two to four sessions out of ten per week), but the number of patients the hygienist would see in another practice is unknown. It could be in other general dental practices, the hygienist sees a larger proportion of patients and so would be in a better position to give alcohol advice. However, from this exploratory trial, the dentists seemed to be in a good position to talk to patients about their alcohol use. Therefore, it could be suggested from these findings that a definitive trial should not seek to involve hygienists to deliver the intervention. This would need further exploration before a definitive trial is conducted.

From the process evaluation, it was evident that for those recruited, it was possible to screen patients and deliver the intervention in this primary care setting in the time normally available. On average, the staff stated that the intervention took two and a half minutes to deliver. The practice principals felt the study ran well in their normal practice routine but they were worried about their ability to give alcohol advice regularly. This was because a few patients took five to ten minutes to complete questionnaires and receive advice. As the practice business owners it worried them whether this preventive work would be cost-effective/cost-beneficial in the long-term.

If they were getting paid/remuneration as part of their primary care dental contract, it would be cost-effective but if not they doubted most GDPs would be prepared to embed this in their practices. If, they reported, there were other incentives (e.g. part of statutory professional development, part of primary dental care contract) or if they were told they would get financially penalised by the local health board if they did not contribute to alcohol harm prevention then they felt it would likely be more acceptable to general dental practitioners. On the other hand, the associate dentist and other staff members (receptionist/nurses/manager) felt the study protocol worked well. The reception staff/manager and nurses had no problems handing out and collecting packs/screening patients. The associate was more positive than the principal dentists and generally had no problems delivering the alcohol intervention; this might be because he was salaried and only received half the worth of each Unit of Dental Activity undertaken. To these members of staff time perhaps was not as important. Again, these findings are relevant to the design of a definitive trial. On this basis, salaried dentists who are not practice partners might be more able to deliver the intervention.

Patients were followed-up at three months. However, even though patients were followed up by telephone, email and letter, data at three months were available for only 22 (47%) out of the 47 M-SASQ positive patients (12 in the intervention and 10 in the control group). There is evidence in the literature to suggest that participant recruitment and retention can be low in trials based primary care and particularly within primary dental care (Keightley et al. 2014). The study by Keightley et al. (2014) and guidelines from the National Institute for Health Research School of Primary Care Research suggest several ways of increasing participant involvement and reducing attrition, including the use of incentives and promotional materials such as posters, leaflets and trial merchandise to ensure participants understand more fully the importance of the research (National Institute for Health Research (NIHR) 2010). In addition, it seems rational to schedule follow up for patients' routine dental checks and treatment appointments. These methods should be adopted in future trials.

Importantly, from feedback from practice staff it was evident that, although it was possible to deliver the intervention, it felt too generic. They would have liked to deliver a more oral-health related intervention. They felt unable even after training to relate the intervention to their clinical practice and oral health. It was suggested by

the practice principals that they should have had training with Public Health Wales and then a separate session just with the thesis author to go through in more detail how to deal with different scenarios when giving patients alcohol advice. They stated that the hardest part was starting the conversation with patients. They felt slightly uncomfortable not necessarily having a physical dental reason to bring up the topic. The studies in secondary dental care seemed to be successful because a clear teachable moment was identified making it easy for staff to bring up the subject of alcohol misuse with patients; in this case the teachable moments were suture removal appointments five to seven days after an alcohol-related injury (Smith et al. 2003; Goodall et al. 2008). Whilst the positive score on the M-SASQ gave a small opportunity for the dentists in this study to broach the subject of alcohol misuse with their patients, they still felt awkward doing so. They would therefore have liked more guidance on how to begin the conversations and how to relate them more to a patient's oral health needs/condition. This therefore suggests that training needs to be developed to help professionals feel more comfortable delivering the intervention.

Even though competency was assessed during the trial run of the study (dentists and the hygienist were observed delivering the intervention to a patient) and feedback was provided to them, professionals still felt unsure they had given patients enough information. Fidelity should therefore have been assessed throughout the study at several time points to help ensure professionals were delivering all the FRAMES components. Standardised leaflets on what to say under each element of the FRAMES approach were suggested by the staff at the end of the study. On the other hand, practice staff stated it was much easier to use the M-SASQ and patients reported that they felt it was easy to understand.

Although this trial was exploratory in nature (the main goal was to determine whether it was feasible to screen and treat dental patients for alcohol misuse rather than to identify changes between groups), it was still useful to explore changes in M-SASQ score as a secondary outcome. This is because it gave valuable information that can be utilised in the design of future alcohol trials in primary dental care. For example, follow-up data suggests more patients in the control group changed M-SASQ score than those in the intervention group, with M-SASQ scores changing from positive to negative for two patients in the intervention group and five patients in the control group. When patients were followed-up they were also asked to report what information they remembered receiving from their dental professional about

their alcohol habits. There are several implications. First, two out of the five patients in the control group who changed M-SASQ score reported receiving at least one element of the MI. This suggests that the dentists may not have complied with the randomisation protocol. Second, contamination may have occurred from other patients. For example, if patients taking part in the study knew each other they may have discussed the advice they received. Third, it may be that the M-SASQ screening alone could have been a more powerful motivator to reduce harmful drinking than the intervention – especially as the intervention was delivered concurrent with intimate, anxiety-generating oral examination and treatment. This is more consistent with the SIPS trials' findings that screening, feedback and a leaflet are sufficient (Kaner et al. 2013). Perhaps, the intervention actually detracted from the positive effects of the screening. A future trial should therefore investigate whether the M-SASQ alone is an effective intervention, as there is not enough data in this trial to confirm this finding as definite. A multi-centre, cluster randomised controlled trial to eliminate the chances of staff not adhering to the randomisation protocol and patients in control and intervention groups discussing advice could also be designed. However, issues of improving recruitment would need to be addressed as cluster trials would need more patients to enrol into the study than a single-centre randomised controlled trial.

A further concern with brief alcohol interventions is that the baseline assessment of alcohol intake can increase performance bias whereby participants' change their intake in response to assessment alone (McCambridge et al. 2012). One way to overcome this could be to blind participants to baseline assessment by hiding the M-SASQ in a dental health questionnaire amongst other questions on oral hygiene and smoking. Unfortunately, this would involve some deception, as consent would need to be given without participants' knowledge that they were taking part in a trial on alcohol misuse screening, but could potentially reduce the likelihood of control group participants reducing alcohol intake in response to baseline assessment of the M-SASQ only. Furthermore, it may increase sustainability of screening and treating patients for alcohol misuse within primary dental care, as a general screen for oral hygiene, diet, smoking and alcohol would, perhaps, be more acceptable to dental professionals.

6.7.3 ***Limitations of the exploratory trial***

- The exploratory trial took place in one practice only.
- The same staff delivered both the MI and usual care. The dentists may not have adhered to the randomisation protocol.
- The recruitment and retention of participants was very low.
- The assessment of adherence/fidelity of the professionals delivering the treatment intervention was assessed only once prior to the study recruitment period.
- Patients were followed-up at three months only.
- Despite yielding some useful information for future work, due to the low sample size in this trial, statistical calculations looking at changes in M-SASQ between the control and intervention groups should be interpreted with caution. In addition, it is important to remember that this trial was exploratory and so its main goal was to determine whether it was feasible to screen and treat dental patients for alcohol misuse rather than looking at changes between groups.

6.7.4 ***Trial design improvement and further work***

The findings of the exploratory trial and its process evaluation provide several useful pointers to trial design improvement and future work:

- The study protocol should be refined to improve recruitment and retention of participants by using incentives and promotional materials, such as posters and leaflets, as well as recruitment materials with information on specific alcohol-related dental disease, to help patients fully understand the importance of alcohol intervention trials in primary dental care. In addition, recruitment and screening of dental patients for alcohol misuse could be improved by working more closely with receptionists and by having a researcher more frequently on site to ensure staff in future trials are asking all patients to take part. Follow-up times could also be scheduled when patients return to the practice for routine dental checks or treatment.
- The adherence of dental professionals to treatment protocols could be improved by completing repeated fidelity checks during pre-trial training. Audio recording with feedback on intervention content should be given to dentists at three, six and 12 months.

- Dental professionals' training should be amended to include information on specific alcohol-related dental disease and guidance on how to begin and complete the MI conversation.
- It needs to be investigated further whether change in M-SASQ score, assessing health status using the EQ-5D questionnaire and whether patients remember receiving intervention advice are appropriate outcomes for a larger trial.
- It needs to be investigated whether the M-SASQ alone could potentially act as an effective intervention.
- It needs to be investigated further whether hygienists should be utilised to deliver interventions.
- A definitive trial should involve salaried dentists.
- A trial environment provided by a group of practices, especially those committed to prevention, could be adopted in future work. However, efforts should be made by research teams to ensure there is better understanding of the importance of taking part in research amongst practice staff.
- It would be useful to investigate the differences in the change of alcohol behaviours between different age groups and genders following intervention. The design of future trials should therefore take account of this.
- A multi-centre, cluster randomised controlled trial could be the eventual design of choice for a Phase III definitive trial, with general dental practices as the unit of randomisation. However, this would require more patients being recruited, which may be difficult as the results of the exploratory trial in this thesis shows recruitment rates were extremely low.
- Before a definitive Phase III trial can be designed, an intermediate exploratory trial should therefore be carried out. This intermediary trial would

not repeat the work described in this thesis but would build upon its findings. The main objectives would be to help determine ease of recruiting more than one practice, to help determine the best methods of improving patient recruitment and retention and whether recruitment will meet the sample size requirements identified in the work described in this thesis, to help determine professional adherence/fidelity of intervention delivery, to help develop training materials for professionals and, finally, the findings would be used alongside the findings from this exploratory trial to help re-calculate sample size estimates and to determine whether a cluster trial is the best design of choice for a definitive study.

- Liaison with the South East Wales Trials Unit (SEWTU), or other trial centres, would be needed to further develop this work. A steering group would also need to be developed.

6.7.5 Implications of this work

The results of this exploratory trial suggest a potential new approach to tackling alcohol misuse, which involves the dental team. However, future work and trial design needs to take account of lessons learned. For example, recruitment and screening of dental patients for alcohol misuse could be improved by having a researcher more frequently on site to help enrol patients into a future trial.

More widely, this work demonstrates the importance of re-integration of primary dental care with primary medical care. Tighter partnership between these two sectors would have many benefits, not least in joint familiarity with evaluation science especially randomised trials. It seems surprising that the literature search revealed not one trial that had been carried out jointly, especially since dietary factors and smoking represent such heavy burdens on both dental and general health.

This work also provides evidence that contractual arrangements in primary dental care, and professional cultures, need to be amended to increase the incentives for primary care dental teams to deliver a range of behavioural interventions. This is beginning to happen in England (Department of Health 2015b) but the Faculties of Dental Surgery could also very effectively provide a lead.

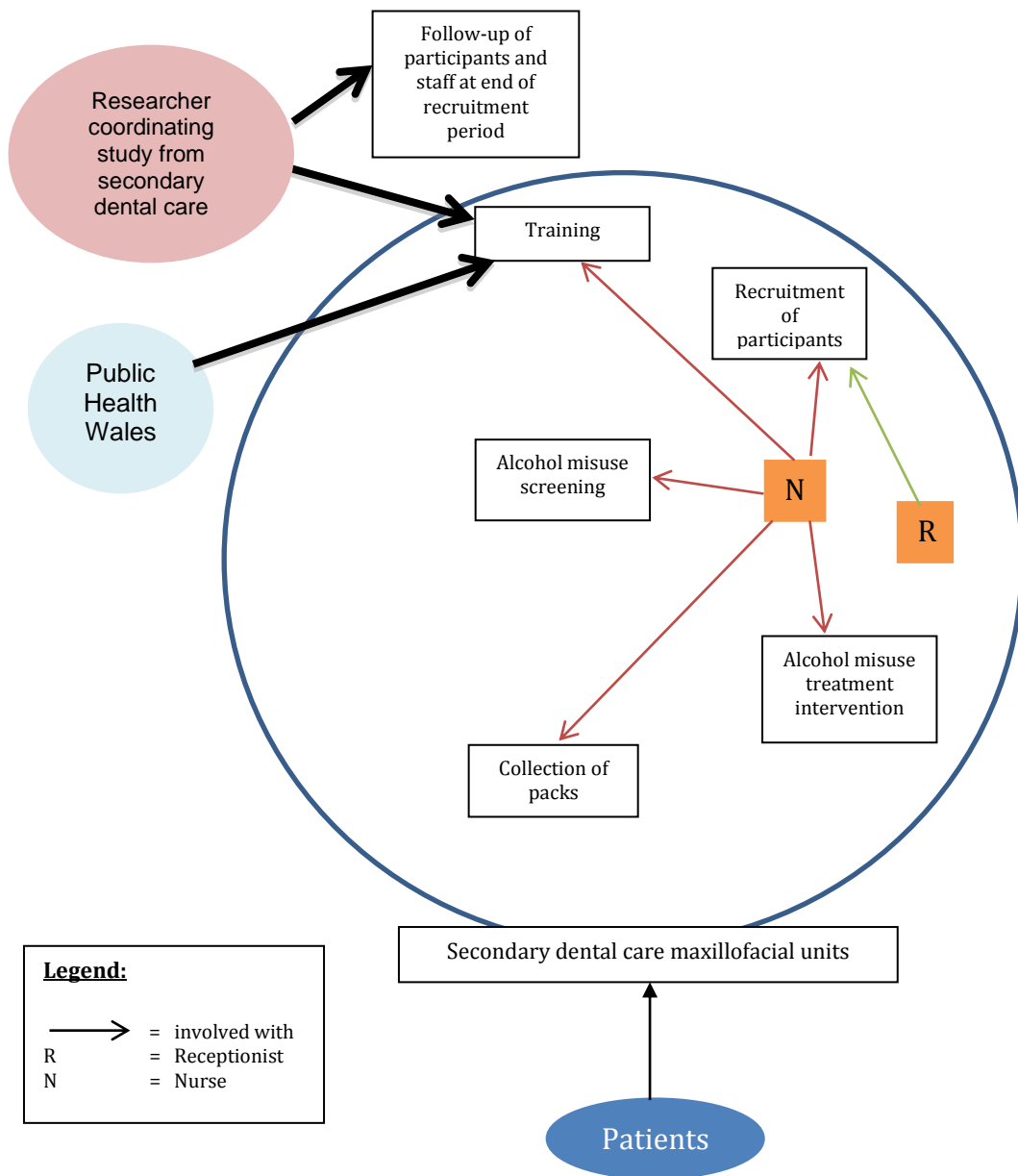


Figure 6.4: Mapping of systems for secondary care maxillofacial units (Smith et al. 2003; Goodall et al. 2008)

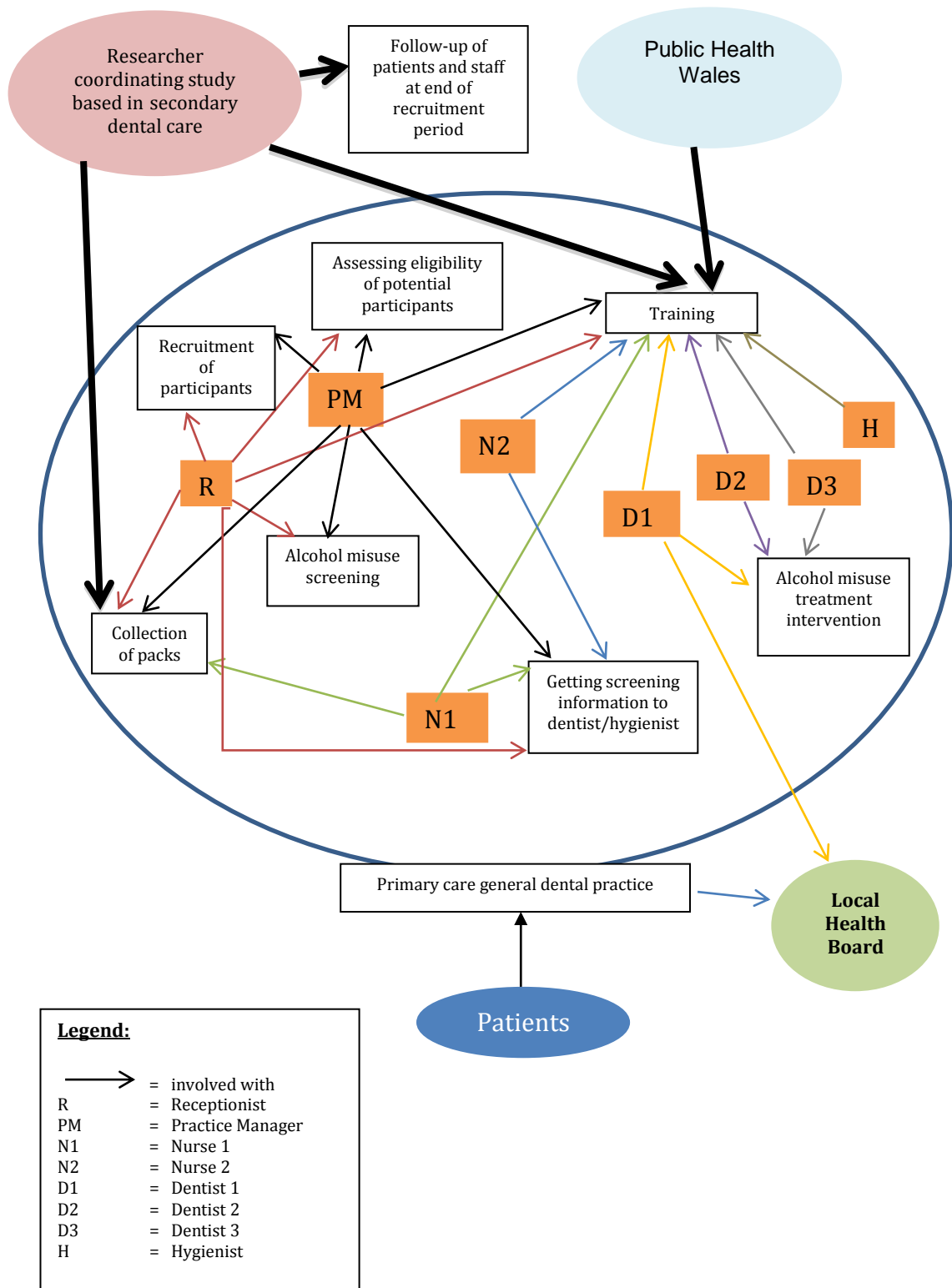


Figure 6.5: Mapping of the systems for this exploratory trial

7 Impact of the work of this thesis

A number of articles have been published from the work that has been carried out for this thesis (Appendix 11-13):

- Roked Z, Moore SC, Shepherd JP. 2012. Alcohol misuse: screening and treatment in primary dental care. *Faculty Dental Journal* 3, pp. 73-77.
- Roked, Z. et al. 2014. Identification of alcohol misuse in dental patients. *Faculty Dental Journal* 5(3), pp. 134-137.
- Roked, Z., Moore, S. C. and Shepherd, J. P. 2015. Feasibility of alcohol misuse screening and treatment in the dental setting. *The Lancet* 385, pp. S84.

The 2012 article received a great deal of media attention with several national newspapers and news programmes highlighting the main point: dental teams in primary care should be involved in promoting and protecting both general and oral health and so should be concerned with identifying and delivering advice to those patients who consume alcohol excessively. This article also generated a question in April 2012 in The House of Commons by the Shadow Minister (Public Health) Diane Abbot to the Minister of State for Health, Simon Burns, about the recommendations in this article for primary care dental teams to be involved in identifying and treating alcohol misuse. The Minister responded by stating that he would consider the recommendations.

Question in The House of Commons. "Alcoholic Drinks: Misuse". Hansard Written Answers 30 April 2012; 105363

(Source:<http://www.publications.parliament.uk/pa/cm201212/cmhansrd/cm120430/text/120430w0007.htm#12050176001193>.)

Ms Abbott: To ask the Secretary of State for Health what assessment he has made of the Royal College of Surgeons' conclusions and recommendations on the role of dental teams in identifying and treating alcohol misuse; and if he will incorporate this advice as part of his strategy to tackle alcohol abuse. [105363]

Mr Simon Burns: We will consider the recommendations made by the Royal College of Surgeons for further work in relation to the benefits of introducing alcohol screening and brief interventions in a primary dental care setting. As the report notes, the Government intend to strengthen the approach to prevention in the planned new dental contract. Under the pilot care pathway, all patients receive an oral health assessment that screens for risk factors including alcohol consumption. Where patients report that they consume alcohol beyond the safe limits they receive targeted advice including, if required, signposting to appropriate specialist services.

The 2014 article recommended the replacement of the units question in many current medical history forms used in dentistry with the valid and reliable Modified-Single Alcohol Screening Question (M-SASQ). This paper won first prize at the 2014 British Association of Oral Surgery's annual conference.

During the work for this thesis, links were established with the Department of Health including with the Deputy Chief Dental Officer, together with senior public health managers in Public Health England (PHE). The work from this thesis has been discussed with PHE to contribute to piloting of new risk assessment software as an adjunct to the new dental contracts in England and the development of the "delivering better oral health" toolkit (Public Health England 2014; Department of Health 2015a, 2015b).

8 Overall conclusions

From the systematic literature search, it was concluded that:

- There are a limited number of trials in dentistry evaluating behavioural interventions to alter harmful health behaviours, such as oral hygiene neglect, smoking, diet and alcohol misuse. There is an urgent need for further research in this area.
- In dentistry, research is especially limited on the use of alcohol interventions.
- An increase in trials testing the effectiveness of alcohol interventions in dental settings needed.
- Alcohol interventions such as MI are effective in reducing alcohol-related harm when delivered to patients in secondary dental care settings.
- There is a paucity of research in primary dental care indicating trials in this setting are also urgently needed.

From the qualitative research, it was concluded that:

- Dental professionals see themselves as concerned almost exclusively with the dentition.
- Dental professionals view themselves in an isolated manner and feel that their patients expect them to care only for their teeth.
- Dental professionals do not see themselves as part of the wider family of healthcare professionals.
- Dental professionals do not see dealing with or giving advice on behaviours that can affect other aspects of patients' health as part of their role.
- Dental professionals felt giving advice on behaviours that can affect oral health was part of their role.
- The preventive advice and care given by dental professionals focuses on those behaviours deemed relevant to the dentition.
- Dental professionals are dominated by the need to carry out operative interventions/procedures but are willing to spend a few minutes of patients' appointment times giving preventive advice.
- Dental professionals' priorities in giving patients preventive advice are dictated according to a patient's clinical need and the impact on oral health. For example, if a patient has dental caries they may be given oral hygiene and diet advice.
- Dental professionals do not see alcohol advice as relevant to their role.

- Alcohol misuse prevention is seen by dental professionals as more relevant to the role of a medical professional.
- There was no evidence from the interviews with dental professionals that they currently liaise with medical practitioners about patients' alcohol consumption even if they are worried there may be evidence of misuse.
- Dental professionals fear a negative reaction from patients if they themselves became involved in alcohol misuse prevention.
- Patients felt alcohol advice should be part of routine dental care.
- Patients would like to be told why they are being asked about their alcohol consumption by a dental professional and would value alcohol advice in the dental setting.
- Dissonance exists between the views of dental professionals and their patients.
- Public health practitioners felt that alcohol misuse prevention was relevant to the role of dental professionals.
- Dental professionals, and patients especially, viewed general dental practices as ideal locations to carry out alcohol misuse prevention.
- Dental professionals and patients saw dentists and hygienists as potential people in the dental team to deliver alcohol interventions.
- The teaching of dental professionals at both undergraduate and postgraduate levels needs to be altered to include alcohol misuse prevention so that professionals realise its relevance to dentistry and their wider healthcare responsibilities.
- DH and NICE guidance should be improved to include better guidance for dentists on alcohol misuse prevention.
- The design of new dental contracts being developed for primary care dental teams should include consideration of remuneration for the provision of alcohol advice.

From the exploratory trial, it was concluded that:

- There was some potential for patients to be screened and treated for alcohol misuse in a primary dental care setting.
- However, there was not enough evidence to conclude whether it was definitely feasible to screen and treat patients for alcohol misuse in a general dental practice setting using the M-SASQ and MI.

- General dental practitioners are still potentially in a prime position to screen and treat people for alcohol misuse, suggesting a new approach to alcohol misuse prevention involving general dental teams that needs further investigation.
- Since all patients followed-up at three months reported a health status of 80% or above according to the EQ-5D questionnaire, most patients attending this dental practice seemed to see themselves as healthy drinkers who may therefore not see a general medical practitioner.
- However, more work is needed to further explore the ideas in this thesis.
- Further work is needed to determine the best outcomes measures for a larger trial.
- Those in the intervention group were less likely to change score: M-SASQ scores changed from positive to negative for two patients in the intervention group and five patients in the control group.
- There was no significant association between change in M-SASQ score and the intervention (MI).
- Reasons for more patients changing M-SASQ score in the control condition include professionals not adhering to randomisation protocols or contamination between groups. There is also the possibility that the M-SASQ alone could act as an effective intervention, however, this would need further investigation before it can be concluded as definite.
- Although there was no significant association between change in M-SASQ score and the intervention, exact logistic regression suggests MI may still have had some effect as those who remembered receiving advice, regardless of group allocation, were more likely to change score.
- Future work to investigate the differences in the change of alcohol behaviours between different age groups following intervention is needed.
- Further investigation is needed to determine whether the M-SASQ alone is an effective intervention.
- Taking into account the attrition rate in this trial, sample size estimates (power of 0.80 where alpha is less than or equal to 0.05) indicate that in a larger trial 135 patients would be needed.
- Future alcohol intervention trials should investigate further whether dental hygienists should be utilised to deliver interventions.
- Future trials should involve salaried dentists to deliver the intervention.

- Future trials in primary dental care should capitalise on practices committed to innovation and prevention, as well as helping practice staff understand the importance of taking part in research.
- To increase patient recruitment, the importance for healthcare trials and the relevance to dentistry of alcohol misuse need to be emphasised to patients in future trials.
- In order to reduce attrition rates in future trials, follow-up could be scheduled at routine dental checks and treatment appointments.
- Training materials need to be developed to help dental professionals deliver the intervention.
- A multi-centre cluster randomised controlled trial could potentially be the design of choice for an eventual Phase III definitive trial.
- However, an intermediate exploratory trial should be carried out before a definitive trial. This trial should include more than one practice to determine if the practice used in the exploratory trial in this thesis is usual to other practices. An intermediate trial would also help determine ease of practice recruitment for a future trials, help determine professional adherence/fidelity of intervention delivery, help develop training materials for professionals, help determine whether patient recruitment and retention can be improved, help re-calculate sample size estimates and help determine whether a cluster trial really is the best design of choice for a definitive study.

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Appendix 1

Alcohol Use Disorders Identification Test (AUDIT)

AUDIT

PATIENT: Because alcohol use can affect your health and can interfere with certain medications and treatments, it is important that we ask some questions about your use of alcohol. Your answers will remain confidential, so please be honest.

For each question in the chart below, place an X in one box that best describes your answer.

NOTE: In the U.S., a single drink serving contains about 14 grams of ethanol or “pure” alcohol. Although the drinks below are different sizes, each one contains the same amount of pure alcohol and counts as a single drink:



Questions	0	1	2	3	4	
1. How often do you have a drink containing alcohol?	Never	Monthly or less	2 to 4 times a month	2 to 3 times a week	4 or more times a week	
2. How many drinks containing alcohol do you have on a typical day when you are drinking?	1 or 2	3 or 4	5 or 6	7 to 9	10 or more	
3. How often do you have 5 or more drinks on one occasion?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
4. How often during the last year have you found that you were not able to stop drinking once you had started?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
5. How often during the last year have you failed to do what was normally expected of you because of drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
6. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
7. How often during the last year have you had a feeling of guilt or remorse after drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
8. How often during the last year have you been unable to remember what happened the night before because of your drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
9. Have you or someone else been injured because of your drinking?	No		Yes, but not in the last year		Yes, during the last year	
10. Has a relative, friend, doctor, or other health care worker been concerned about your drinking or suggested you cut down?	No		Yes, but not in the last year		Yes, during the last year	
						Total

Note: This questionnaire (the AUDIT) is reprinted with permission from the World Health Organization. To reflect drink serving sizes in the United States (14g of pure alcohol), the number of drinks in question 3 was changed from 6 to 5. A free AUDIT manual with guidelines for use in primary care settings is available online at www.who.org.

Excerpted from NIH Publication No. 07-3769 **National Institute on Alcohol and Alcoholism** www.niaaa.nih.gov/guide

Appendix 2

Fast Alcohol Screening Test (FAST)

Questions	Scoring system					Your score
	0	1	2	3	4	
	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
How often do you have 8 units (men) / 6 units (women) or more on one occasion?						
If you scored zero above, then FAST is negative and you may stop. If you scored 1-4 then carry on.						
How often in the last year have you not been able to remember what happened when drinking the night before?						
How often in the last year have you failed to do what was expected of you because of drinking?						
Has a relative/friend/doctor/health worker been concerned about your drinking or advised you to cut down?	No		Yes, but not in the last year		Yes, during the last year	

Scoring:

An overall total score of 3 or above is FAST positive and may indicate hazardous or harmful drinking.

Appendix 3

Modified-Single Alcohol Screening Question (M-SASQ)

Screening procedure

For the following question - 1 standard drink = 1 unit of alcohol, an indication of standard drinks is provided in the diagram below.



Please place a cross in the relevant box.

MEN: How often do you have EIGHT or more standard drinks on one occasion? WOMEN: How often do you have SIX or more standard drinks on one occasion?				
Never	Less than monthly	Monthly	Weekly	Daily or almost daily
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Scoring the M-SASQ

If the patient's response is 'Monthly', 'Weekly' or 'Daily or almost daily' the score is M-SASQ positive.

If their response is 'Never' or 'Less than monthly' the score is M-SASQ negative.

Appendix 4a

Study protocol for the qualitative research (first stage)

Version 2 20/06/11

Study Protocol

Title of study

A pilot study to explore dental healthcare professionals' views towards the use of health promotion interventions in the dental setting.

Study contacts

The chief investigator for this research project is Zairah Roked, Walport Academic Clinical Fellow and part-time PhD student at Cardiff Dental School, Heath Park, CF14 4XY, email address RokedZ@cardiff.ac.uk. The organisation sponsoring the research is Cardiff University. The research is affiliated with the organisation DECIPHer.

Summary

Rationale and objectives of the study

Despite its implications to oral health, within the field of dentistry, the majority of dental healthcare professionals (dentists, dental nurses and hygienists/therapists) do not appear to address the risky behaviour of alcohol misuse during their clinical practice. The objective of this pilot study is to explore dental professionals' views towards the use of health promotion interventions within the dental setting in order to gain a greater understanding as to why many dental healthcare professionals do not deliver these interventions to their patients but are more willing to deliver interventions that tackle other detrimental oral health behaviours (such as smoking and poor oral hygiene) as part of a prevention strategy.

Design

Qualitative study using semi-structured interviews.

Setting and participants

3 final year dental students, 3 final year nursing students, 3 final year hygiene/therapy students and 4 University staff members employed to teach students from Cardiff Dental School.

Timeframe

3-4 months to collect, transcribe and analyse data.

Expected outcomes

Identifiable themes that indicate the acceptance of, feasibility and barriers to health interventions in the dental setting.

Background to the study

A dentist's role can be variously defined, but it would be reasonable to presume most people would define that role as one preserving oral health. Dental healthcare professionals, including dentists, dental hygienists/therapists and dental nurses, are therefore taught how to identify and treat conditions that can effect an individual's oral health. Oral health is important because the oral and dental tissues allow us to chew, swallow, speak, taste and touch. They help us to convey our feelings (e.g. through smiling and frowning), as well as helping us to express our emotions both

physically (e.g. through kissing) and in sound (e.g. when we cry out in pain). The poor condition of these tissues can therefore lead to a lack of function, experiences of discomfort and pain, along with feelings of embarrassment should the teeth, or oral mucosa, look unaesthetically pleasing. Consequently, if oral health is not at its optimum, it will restrict not only the everyday aspects of a person's life that have been described, but also a person's general well-being.

The development of many oral diseases and poor oral health is often linked to an individual's lifestyle. Within the field of dentistry, health promotion interventions are used to deal with a range of harmful behaviours that act as risk factors for the development of an oral disease. These interventions involve offering patients advice and counselling on how to change their behaviour, giving them leaflets and self-help information, as well as delivering more structured intervention methods such as motivational interviews. The risky behaviours that are addressed include the consumption of a diet high in sucrose, poor oral hygiene and the use of tobacco.

One problematic behaviour that can also impact on an individual's oral health is the misuse of alcohol. In 2003, Rehm et al. reported that the greater the volume of alcohol a person consumes, the greater their risk of developing potentially fatal diseases, such as cancer of the mouth, larynx, pharynx and oesophagus, and experiencing oro-facial injury, either through falls, road traffic accidents or interpersonal violence. Since those working in primary care particularly see patients regularly, dentists are often the first to notice abnormalities in the oral mucosa suspect of dysplasia and malignancy. Dentists in primary, community and secondary care may also find patients attend their clinics with alcohol-related facial and dental trauma. In addition, alcohol can have other detrimental effects on the dentition. Many people who drink hazardously may suffer from tooth erosion, with those alcoholic beverages high in sugar also possibly contributing to the development of dental caries. Dentists must also be aware if the patient they are treating suffers from an alcohol-related condition as the delivery of their care may need to be altered (Longman and Wilkinson 2008). There is also evidence to suggest that risky drinkers engage in other harmful oral health behaviours. A study by Kranzler et al (1990) found that moderate to heavy drinkers showed an increase in suffering from dental pathology, such as periodontal disease, when compared to light drinkers possibly due to the fact that harmful behaviours such as risky drinking are often clustered with other detrimental behaviours such as poor oral hygiene and smoking. Thus, tackling alcohol misuse alongside other harmful oral behaviours within the dental setting will have the potential to help dental professionals broaden their strategy in oral disease prevention and oral health promotion. Hazardous drinking within the population is therefore relevant to all dental healthcare professionals whether they are in primary care settings, the community services or based within secondary care.

Statistics show that most people have regular contact with a dental team, particularly those teams based within the primary care and community services where they mostly attend for a check-up. This demonstrates most people are willing to visit the dentist even if they are not experiencing any problems. The dental setting, and especially the primary dental care and community settings, therefore may particularly be in a prime position to prevent disease by delivering health promotion

interventions, such as those to tackle alcohol misuse. In 1981, Rose suggested a paradox of prevention where professionals were advised to use “a mass strategy” towards their efforts of health protection and promotion. In other words, professionals must not just target those at high risk, but they must look more on the population as a whole, as concentrating only on certain high risk individuals will not reduce the burden of disease within countries. By way of illustration, with regards to tackling alcohol misuse within the dental setting, if the dental team were to target, say, borderline risky or moderate drinkers, as well as light drinkers, then the absolute risk of members of the population developing alcohol-related diseases and conditions may be decreased far greater than if only heavy drinkers with a high relative risk were targeted.

Unfortunately, however, even though there is some evidence that members of the dental team within secondary care settings utilise alcohol interventions (Smith et al 1998, Oakey et al 2008), research into the implementation of these interventions is overall extremely limited suggesting that they are not implemented regularly as part of a prevention strategy within the dental setting. On the other hand, the health promotion interventions that aim to tackle behaviours such as poor oral hygiene and smoking are more regularly delivered. This raises several questions: even though alcohol misuse is relevant to dentistry, and likewise often coexists with and is as potentially harmful to oral health as other detrimental behaviours such as smoking and poor oral hygiene, why is it that members of the dental team do not address such a risky behaviour? Why is it that they address the detrimental behaviours of smoking, poor dietary habits and poor oral hygiene? Is it that these interventions are viewed as more acceptable and that barriers exist with regards to alcohol interventions? Finally, is the use of interventions to tackle alcohol misuse realistic within dental settings?

Research into finding out how the dental profession deals with and responds to health issues is extremely important as it will help identify the gaps in the evidence-base and to improve dental healthcare provision generally.

Study aims/objectives

The aim of this qualitative study is to explore the views of dental healthcare professionals towards the use of health promotion and protection interventions in the dental setting. In particular the study will look to explore professionals’ acceptance of and barriers to these interventions within the dental setting in order to gain a greater understanding as to why many dental healthcare professionals may not deliver interventions to their patients as part of a prevention strategy.

Study design

This pilot study is a qualitative study that will look to provide an understanding of dental healthcare professionals’ views towards the use of health promotion interventions in dental settings. This is more appropriate than conducting a quantitative study or designing a questionnaire since it is hoped the data collected will contribute to providing an in-depth insight into their acceptance of and barriers towards these interventions within the dental setting.

Participants and sample size

3 final year dental students, 3 final year nursing students and 3 final year hygiene/therapy students and 4 University staff members employed to teach students (male and female and any age) will be recruited from the School of Dentistry (2 dental staff members, 1 nursing staff and 1 hygiene/therapy staff member will be recruited). Participants will be final year students since they will be close to qualifying so will be more familiar with practising and communicating with patients in the dental setting. University staff members will be recruited since they are employed within the University to teach the students about oral health promotion and disease prevention. The dental staff members will be senior lecturers and clinical fellows from any department employed to teach the dental students, the nursing and hygiene/therapy staff will be senior lecturers employed to teach the nursing and hygiene/therapy students respectively. No other inclusion/exclusion criteria will be put in place.

Procedures

The researcher will approach a large group of potential participants from the School of Dentistry either at the end of lectures or clinics or via informal face-to-face contact where participants are familiar to the researcher. The researcher will introduce himself and will inform potential participants about the purpose of the project (also be given information sheet). They will be told that participation is completely voluntary and that they can withdraw at any time. They will be asked to give written consent. They will be informed all data collected is confidential. The researcher's name and contact details will also be available should they wish to enquire further about the study.

One-to-one semistructured interviews will be conducted in a private room with all participants. This is because participants will be asked about their clinical practice and they may not feel at ease sharing this information in focus groups. An interview schedule will be created as an initial starting point, however, it will not be a rigid construct and questions will be asked depending on participants answers. Interviews will last no more than 30 minutes and will be recorded on audiotapes via a dictaphone. Interviews will take place at a time convenient to the participant and will not interfere with School commitments.

Proposed interview schedule

Introductory questions:

- Generally do you know about ways in which dental healthcare professionals tackle risky oral health behaviours in the dental setting?
(Prompts: *Where in dentistry are they used e.g. primary care etc? By whom?*)
- What do you know about the oral hygiene interventions, smoking interventions and diet interventions used in the dental setting?
- What do you know about alcohol interventions in the dental setting?
(Prompts: *What clinical settings are they used in (primary/secondary/community)? By whom?*)
- What is your opinion on these interventions? Are they useful?

Topic 1: Experience (I am going to ask you questions now along the same theme as above but going to change topic slightly)

- When do you take down information on people's oral hygiene habits, smoking habits, dietary habits?
 - How do you feel about taking down this information? Do you feel you should?
 - Does anyone or anything influence your actions to take down any of this information?
 - Tell me what you do with this information.
 - Would you do anything different?
-
- When do you take down information on people's drinking habits?
 - How do you feel about taking down this information? Do you feel you should?
 - Does anyone or anything influence your actions to take down any of this information?
 - Tell me what you do with this information.
 - Would you do anything different?

Have you ever delivered any health interventions?

If yes, why? what do you do? where? do you always deliver one?
what was good or bad about the experience?

If no, do you think you could - why/why not?
Do you think you should deliver these interventions?

Topic 2: Relevance

- Do you feel poor oral hygiene is relevant to dentistry? Diets high in sugar?
Do you feel smoking is relevant to dentistry?
- Do you feel alcohol misuse is relevant to dentistry?
(Prompt - if so why and where and to whom?)

Specifically to alcohol misuse:

- What is the relationship between alcohol misuse and dental practice?
 - Do you think dental professionals should be concerned with the health issue of alcohol misuse?
 - Do you think delivering alcohol interventions would be valuable to your practice?
to patients?
-
- Do you think patients think alcohol misuse is relevant to dentistry? How do you think they feel about smoking, poor oral hygiene, high sugar diets?

Topic 3: Normalisation

- Do you think it's normal practice to deliver health interventions in the dental setting? If so, which ones (i.e. smoking, alcohol etc)?
- Is it different if someone works in hospital/community/practice?
- Do you know of any other dental professionals who deliver these interventions?
- How do you think other dental professionals view these interventions?

Topic 4: Willingness

-What would enable you to deliver these interventions?

or

-What enables or makes you want to deliver them?

Topic 5: Barriers

- What prevents you delivering these interventions?

or

- What can prevent you delivering them?

Outcome measures

Categories/themes will be identified that indicate the acceptance of and barriers to the implementation of interventions within dental healthcare settings.

Analysis

All audiotapes of interviews with participants will be transcribed by hand onto a Cardiff Dental School computer. A data analysis software package will be used to analyze the interview data. Analysis method will be through Thematic Analysis.

Dissemination and outcome

The findings of this study will be written up as part of my PhD thesis. They will also be disseminated through appropriate peer review journals.

The pilot study will help to verify whether the structure of the interviews schedule is appropriate to gather the views of dental healthcare professionals towards health interventions in the dental setting. The revised interview will then be used in a definitive study as part of my PhD degree.

Ethical considerations

The research participants will enter into the study voluntarily. No elements in the study are intrusive. Participants are under no obligation to answer all the questions that will be asked. They will not be asked to reveal any information relating to their own health behaviours, only their opinions on the use of health interventions to patients. There are no elements in the study that can cause physical/psychological distress. However, if a participant does express concern they will be given details on the information sheet on how to contact the project supervisors (Dr Simon Moore and Professor Jon Shepherd) who will refer them accordingly. All the data collected will be confidential. All recording equipment, audiotapes and transcription codes will be stored in a locked cupboard in Cardiff Dental School. Data will be transcribed and stored on a Cardiff Dental School computer with a secure password.

Start and duration

It is anticipated that the research will begin as soon as ethical approval is granted. The research should take approximately eight to twelve weeks to recruit people, to collect and analyse data.

Project management

The supervisors for this project are Dr Simon Moore and Professor Jon Shepherd, who are both based in the Oral Surgery, Oral Medicine and Oral Pathology Department in Cardiff Dental School, who can be contacted via email respectively on mooresc2@cf.ac.uk or shepherdjp@cf.ac.uk.

Past experience of the chief investigator

Although experience in qualitative work is limited, it is hoped through this pilot study that the chief investigator (Zairah Roked) will gain experience in qualitative interviewing and methodology. Training is also ongoing in qualitative methods and analysis. Initial advice has been sought from staff such as Dr Fiona Wood in the School of Medicine. Further advice will be sought from Dr Wood and other members of University staff familiar with Qualitative research (such as Dr Tricia Price, Wound healing, Cardiff University).

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Appendix 4b

Information sheet for qualitative research (first stage)

Version 2 20/6/11

Participation information sheet

1. Study Title

A pilot study to explore dental healthcare professionals' views towards the use of health promotion interventions in the dental setting.

2. Invitation paragraph

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

3. What is the purpose of the study?

This research seeks to understand your views towards the use of health promotion interventions in the dental setting.

4. Why have I been chosen?

We are recruiting 3 final year dental students, 3 final year nursing students, 3 final year hygiene/therapy students and 4 University staff employed to teach students from Cardiff Dental School (male or female and any age). There is no specific reason why you have been chosen other than that you are learning to become a dental healthcare professional or teach those who are studying to become a dental healthcare professional.

5. Do I have to take part?

It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep safe. If you decide to take part you are still free to withdraw at any time and without giving a reason.

6. What will happen to me if I take part?

I would like to ask you questions about your opinion on the use of health promotion interventions in the dental setting. These questions will be asked verbally. Your answers will be recorded using a tape-recorder. This process should not take longer than 30 minutes and will be conducted in a private room. If you do not wish to answer any questions then you are under no obligation to do so. You will not be asked to reveal any information relating to your own health behaviours, only your opinions on the use of health promotion interventions to patients.

7. What about confidentiality?

You will never be identified by name and your name will never be referred to in public e.g. presentations or publications. The recorded information obtained during the study will be stored in locked research cabinets in the Oral Surgery, Medicine and Pathology Department of the Dental School in Cardiff. The information will be written-up and stored on a password-locked University computer in the Dental School.

8. What do I have to do?

I will explain fully what you have to do at the start of your participation. If there is anything you do not understand or are concerned about then please feel free to say.

9. Are there any risks?

There are no known risks associated with any of the stages in this project.

10. What will happen to the results of the research study?

The results from this study will be written up in a project thesis. Data may be used in formal presentations and may be sent for publication.

11. Who is organizing the research?

The chief investigator is Zairah Roked (an Academic Clinical Fellow in Cardiff Dental School), who can be contacted via email RokedZ@cardiff.ac.uk. The study supervisors are Dr Simon Moore and Professor Jon Shepherd from the Oral Surgery, Medicine and Pathology Department in Cardiff Dental School. If you have any concerns please feel free to contact the research supervisors via email: mooresc2@cf.ac.uk or shepherdjp@cf.ac.uk.

Appendix 4c

Consent form (first stage)

Version 2 20/6/11

Consent Form

Title of project: Pilot study exploring dental healthcare professionals' views towards the use of health promotion interventions in the dental setting.

Name of researcher: Zairah Roked

Project supervisors: Dr Simon Moore and Professor Jon Shepherd

1. I confirm that I have read and understand the information sheet for the above study and have had the opportunity to ask questions.

2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving a reason.

3. I agree to take part in the above study.

_____	_____	_____
Name of participant	Date	Signature

_____	_____	_____
Name of person taking Consent (if different from Researcher)	Date	Signature

_____	_____	_____
Researcher	Date	Signature

Appendix 5

Reflexivity (first stage)

My background

I am a qualified dentist. I intercalated after my second year of dental school and so I have a BSc in Oral Diseases, as well as a BDS (Honours) degree.

I completed modules during the Intercalated BSc degree that focused on the risk factors for different oral diseases. These included the aetiology and pathogenesis of oral diseases and the molecular science of cancer. Furthermore during my Intercalated degree I undertook a research project that explored ways in which to change behaviour and reduce risky drinking in male students aged 18-24 years old. The aim was to determine whether the use of emotive images, depicting alcohol-related oro-facial injury and disease, increased the effectiveness of a computer-based brief alcohol intervention. The intervention was developed based on the Hyperbolic Model of Discounting and a randomized controlled trial was completed whereby participants were randomly allocated into control or intervention groups (intervention group viewed a computer-based intervention that included writing and the images depicting alcohol-related disease and injury, whereas the control group viewed an intervention with writing only).

During my BDS degree I was taught Oral Surgery and Oral Medicine. Within these disciplines I learnt briefly about how alcohol misuse can impact on a patient's care and also its role in certain diseases. In addition, my interest in producing behavior change was further developed during my final year research project. This project was a pilot study that aimed to determine the relationships between student's beliefs and the risky behavior of alcohol misuse. Furthermore I learnt about health promotion and prevention within dentistry particularly within the Dental Public Health Module. I also experienced working in Community and District Hospital Settings, as well as the University Hospital itself during my clinical attachments and teaching.

In 2009 I qualified and completed my Foundation Training in a general dental practice in Swansea. Currently I am now working part-time as an Academic Clinical Fellow, while working for my PhD, within the Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology and Exam and Emergency Departments within Cardiff School of Dentistry. I am also a member of the Cardiff Violence and Society Research Group. In this group we have monthly meetings where we discuss current and up-coming research with regards to tackling alcohol misuse and alcohol-related harm and violence within healthcare services and wider society.

My supervisors for this research are Dr Simon Moore and Professor Jonathan Shepherd. Both supervisors are members of the Cardiff Violence and Society Research Group and have interests in exploring behaviour change and achieving risk-reduction in relation to alcohol misuse.

With regards to my personal life I am a non-alcohol drinker. My parents also do not drink alcohol and those in my social circle are relatively sensible when they drink.

Bias as a result of my background

1) Prior knowledge of the relevance of alcohol misuse to dentistry (interviewer/research reporting bias)

Both of my undergraduate degrees had elements within the courses that looked at health promotion and the prevention of oral disease, notably alcohol-related oral disease. Particularly relevant to my research is the module on the “molecular science of cancer” that I completed during the BSc degree where we learnt about not only the molecular pathogenesis of cancers (which included cancers of the oral cavity, larynx, pharynx and oesophagus) but also some of the environmental/social causes e.g. smoking, heavy drinking, and exposure to chemicals. In addition, within the BDS degree, learning about Dental Public Health helped stress and add value to the importance of oral health promotion and disease prevention in the dental setting.

Completing both research projects during my undergraduate training helped me to develop my interest in exploring novel ways in which to prevent and reduce alcohol related harm within groups of the population. Also, through these projects, I gained a vast amount of knowledge about the hazards of risky alcohol consumption.

Working within the Oral Surgery, Oral Medicine and Oral Pathology departments I regularly encounter patients, who have suffered from alcohol-related harm e.g. alcohol-related trauma and alcohol-related disease e.g. pre-cancerous lesions such as leukoplakia, erythroplakia, dysplasia and malignancies such as oral cancer. I also encounter patients who binge drink on weekends and also those who are consume above the recommended limits, as well as those who are heavy drinkers and dependent on alcohol. Furthermore, I have encountered patients who have attended the clinics drunk and have also dealt with patients whose delivery of treatment needs to be altered due to their alcohol consumption (e.g. I have encountered a patient with long term alcohol abuse whose liver function was abnormal and so extractions could not be undertaken without the necessary precautions).

One of the main biases with regards to this research is that I therefore have a vast amount of prior experience and knowledge, compared to other dental healthcare professionals, as to why oral health promotion and disease prevention is important in dentistry. I also have knowledge of why alcohol misuse is especially relevant to the dental field. This could have introduced bias into my interview schedule and analysis as I may be questioning people and analyzing the transcripts in such a way that I want participants to realize that alcohol misuse is important to dentistry. In other words I therefore may have already decided that alcohol misuse screening and treatment interventions should and can be implemented in dental settings.

2) Experience within different dental settings (interviewer/research reporting bias)

Since I have experience working in both primary care dental settings (general practice and community) and secondary care dental settings (University and district hospital), I have prior knowledge of how the clinics within each setting are run. I also have knowledge of the roles of various members of the dental team. I therefore may be biased during the interviews and analysis as I may be particularly looking to see who I think could deliver the screening and interventions and where within the day-to-day workings of the clinics they could be implemented.

In addition, I have a lot of experience in giving smoking advice, oral hygiene, diet and even alcohol advice. I have given this advice in hospital, general practice and community settings and have no problem informing and educating patients about behaviour change. I feel fairly confident broaching all these issues with patients. Since I don't feel uncomfortable talking to patients about these problems I perhaps may therefore feel other clinicians shouldn't either.

On reflection of points 1) and 2)

I should be thinking more: "is there a case for tackling alcohol misuse within dentistry and if so would it be possible to implement alcohol screening and treatment interventions in dental settings?" rather than immediately assuming "alcohol misuse is relevant to dentistry and everyone should also think in this way and so I therefore want to find out where screening and treatment can be implemented?" I have just assumed that because I don't feel uncomfortable talking to patients about alcohol misuse and because alcohol misuse is important to me and my research and the research group I work with all dental healthcare professionals and other participants should think the same.

3) My role as dentist within the hospital in relation to participants

The participants I have interviewed know that I am a member of staff in Cardiff School of Dentistry. During the first stage of data collection I will interview many students. Such participants may give biased answers that they may feel I want to hear as they may want to impress me as a member of staff who often supervises and teaches them on clinic. In addition, nursing staff and hygiene staff may also give answers that they may feel I want to hear as I am a dentist that often directs them on clinic. On the other hand, clinicians who are older and also who are ranked higher than me within the School of Dentistry have been interviewed. They may purposely not want to give answers that are desirable as I am younger and of a lower grade clinically than them.

4) My personal background

Since I do not drink alcohol and have never been around people who drink a lot of alcohol, I sometimes feel other people should also not be drinking alcohol regularly or should cut down. If I reflect on my life and how little an impact alcohol has within it, I am biased as I do not understand why tackling alcohol misuse as a professional would be a problem for other clinicians. For me I can easily separate my personal lifestyle from that which I am promoting to patients as I do not drink myself. In addition, when I go out with friends and family we don't go out with the sole purpose that they will get drunk. We go out just to socialize and have fun. If on the other hand I did drink alcohol, sometimes becoming severely intoxicated, and then had to tell my patients to cut down on their own alcohol intake, I may feel differently and less inclined, than I do now, to want professionals to tell people to reduce their drinking. In addition, since I have witnessed drunken people during nights out, as a non-drinker you can more so disagree when people behave stupidly under the influence of alcohol or get into fights. I therefore am biased as think professionals should definitely tackle alcohol misuse in dental settings.

My overall opinions prior to developing the interview schedule (first stage of data collection)

Alcohol misuse is a serious health and social problem.

Alcohol misuse is relevant to dentistry for a number of reasons and so alcohol misuse screening and treatment should be implemented during consultations with patients.

Alcohol misuse is perhaps more relevant to those in secondary care, but should be for everyone. In particular, primary care may be a new setting to tackle this behaviour with alcohol advice reaching more people in the population.

Hygienists and nurses may not want to be involved, but all the team should be.

Appendix 6

Ethical approval for the qualitative research (second stage)

Health Research Authority

NRES Committee East Midlands - Nottingham 1

The Old Chapel
Royal Standard Place
Nottingham
NG1 6FS

Telephone: 0115 8839390 (Direct Line)
Facsimile: 0115 9123300

23 January 2012

Dr Simon Moore
Reader
Cardiff University
School of Dentistry
Heath Park
Cardiff
CF14 4XY

Dear Dr Moore

Study title: The screening and treatment of alcohol misuse in the dental setting
REC reference: 12/EM/0035

Thank you for your emailed correspondence dated 16 January 2012 (from Zairah Roked), responding to the Proportionate Review Sub-Committee's request for changes to the documentation for the above study.

The revised documentation has been reviewed and approved by the sub-committee.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised.

Ethical review of research sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

Conditions of the favourable opinion

The favourable opinion is subject to the following conditions being met prior to the start of the study.

Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.

Management permission ("R&D approval") should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements.

Guidance on applying for NHS permission for research is available in the Integrated Research Application System or at <http://www.rdforum.nhs.uk>.

A Research Ethics Committee established by the Health Research Authority

Where a NHS organisation's role in the study is limited to identifying and referring potential participants to research sites ("participant identification centre"), guidance should be sought from the R&D office on the information it requires to give permission for this activity.

For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.

Sponsors are not required to notify the Committee of approvals from host organisations.

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

You should notify the REC in writing once all conditions have been met (except for site approvals from host organisations) and provide copies of any revised documentation with updated version numbers. Confirmation should also be provided to host organisations together with relevant documentation.

Approved documents

The documents reviewed and approved by the Committee are:

Document	Version	Date
Covering Letter		22 December 2011
Evidence of insurance or indemnity	x 2 Letters	06 July 2011
Interview Schedules/Topic Guides	Interview Schedule for Patients version 4.0	03 January 2012
Interview Schedules/Topic Guides	Interview Schedule for Policy Makers version 4.0	03 January 2012
Interview Schedules/Topic Guides	Interview Schedule for Dentists, Dental Nurses and Hygienists version 4.0	03 January 2012
Investigator CV	Simon Moore	03 October 2011
Investigator CV	Jonathan Shepherd	21 December 2011
Investigator CV	Zairah Roked	21 December 2011
Letter from Sponsor		02 December 2011
Letter of invitation to participant	Letter of Invitation to Patients version 4.0	03 January 2012
Letter of invitation to participant	Letter of Invitation to Dental Healthcare Professionals in General Practice and Community Services version 3.0	21 December 2011
Letter of invitation to participant	Invitation Letter to Dental Healthcare Professionals in Hospital Services version 3.0	21 December 2011
Letter of invitation to participant	Invitation Letter to Policy Makers	21 December 2011
Other: Reminder Letter to all Dental Healthcare Professionals	3.0	21 December 2011
Other: Reminder Letter to Policy Makers	3.0	21 December 2011
Other: Extended Study Protocol	3.0	21 December 2011
Participant Consent Form: CF for Policy Makers	5.0	09 January 2012
Participant Consent Form: CF for Dental Professionals	5.0	09 January 2012
Participant Consent Form: CF for Patients	6	16 January 2012
Participant Information Sheet: PIS for Dental Professionals	5.0	09 January 2012

Participant Information Sheet: PIS for Policy Makers	5.0	09 January 2012
Participant Information Sheet	6.0	16 January 2012
Protocol	3.0	21 December 2011
REC application	91447/278530/1/176	21 December 2011
Referees or other scientific critique report		21 December 2011
Response to Request for Further Information		16 January 2012

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Reporting requirements

The attached document "After ethical review – guidance for researchers" gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Notification of serious breaches of the protocol
- Progress and safety reports
- Notifying the end of the study

The NRES website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

Feedback

You are invited to give your view of the service that you have received from the National Research Ethics Service and the application procedure. If you wish to make your views known please use the feedback form available on the website.

Further information is available at National Research Ethics Service website > After Review

12/EM/0035	Please quote this number on all correspondence
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With the Committee's best wishes for the success of this project

Yours sincerely


 Reverend Keith Lackenby
 Vice-Chair

Email: trish.wheat@nottspct.nhs.uk

Enclosures: "After ethical review – guidance for researchers"

Appendix 7a

Study Protocol for the qualitative research (second stage)

Tackling alcohol misuse in dental settings v3

DATE 21/12/11 version 3.0

Study Protocol

Title of study

The Screening and Treatment of Alcohol Misuse in the Dental Setting.

Study contacts

This study is part of work under consideration for a PhD. The student undertaking the project is Zairah Roked, Walport Academic Clinical Fellow and part-time PhD student at Cardiff School of Dentistry, Heath Park, CF14 4XY, email address RokedZ@cardiff.ac.uk.

The supervisors for this project are Dr Simon Moore (first supervisor and lead/chief investigator) and Professor Jonathan Shepherd (second supervisor), who are both based in Cardiff School of Dentistry, Heath Park, CF14 4XY who can be contacted via email respectively on mooresc2@cf.ac.uk or shepherdjp@cf.ac.uk.

Organisations with whom this research is affiliated

The research is affiliated with the organisation DECIPHer.

Summary

Rationale and objectives of the study

Despite its implications to oral health, the majority of dental healthcare professionals (dentists, dental nurses and dental hygienists) do not routinely intervene to reduce the alcohol use of patients who demonstrate risky levels of consumption. The objective of this study is to therefore explore the views of dental professionals, their patients and dental policy makers/public health practitioners towards the use of health promotion within the dental setting in order to gain a greater understanding of the barriers to alcohol screening and treatment interventions. Comparisons will be made between professionals, patients and policy maker/public health practitioners' views towards screening and treating harmful alcohol consumption and other behaviours such as oral hygiene neglect and smoking. Through a better

understanding of prevention in this context we will aim to describe the processes that can support or hinder screening and treatment delivery and document barriers. This work will go towards developing alcohol screening and treatment interventions that are more likely to be adopted and to inform healthcare policy (e.g. future revisions to primary care contracts).

Design

Qualitative study using semi-structured interviews.

Setting and participants

5 dentists, 5 dental nurses and 5 dental hygienists from general practice will be recruited. In addition, 5 dentists, 5 dental nurses and 5 hygienists will be recruited from community dental services, as well as 5 dentists, 5 dental nurses and 5 hygienists from within the hospital service. All dental healthcare professionals will work with adult patients aged 16 and above. 5 patients, aged 18 years and above, who attend dental services in either the general practice, community or hospital dental services will also be recruited. In addition, 5 participants who work for the Welsh Assembly Government (WAG) or Public Health Wales and are involved in the delivery of alcohol interventions or have knowledge of the policy making within dental healthcare services will be recruited. Therefore 55 participants will be recruited in total.

Timeframe

9-12 months to collect, transcribe and analyse data.

Expected outcomes

Identifiable themes that indicate the acceptance of, feasibility and barriers to alcohol screening and treatment in the dental setting.

Background to the study

A dental professional's role can be variously defined, but it would be reasonable to presume most people would define that role as one preserving oral health. Dental healthcare professionals, including dentists, dental hygienists/therapists and dental nurses, are therefore taught how to identify and treat conditions that can effect an individual's oral health. Oral health is of significant importance because the oral and dental tissues allow us to chew, swallow, speak, taste and touch. They help us to convey our feelings (e.g. through smiling and frowning), as well as helping us to express our emotions both physically (e.g. through kissing) and in sound (e.g. when we cry out in pain). The poor condition of these tissues can therefore lead to a lack

of function, experiences of discomfort and pain, along with feelings of embarrassment should the teeth, or oral mucosa, look unaesthetically pleasing. Consequently, if oral health is not at its optimum, it will restrict the everyday aspects of a person's life and as a result their well-being.

The development of many oral diseases and poor oral health is often linked to an individual's lifestyle. The risky behaviours that can compromise oral health include the consumption of a diet high in sucrose (which can result in dental caries), poor oral hygiene (that can result in dental caries, halitosis, poor aesthetics and periodontal disease) and the use of tobacco (that can result in oral conditions such as periodontal disease and oral cancer). However, in addition to affecting oral health and well-being these behaviours also effect a person's general health, acting as risk factors for several non-communicable, chronic diseases such as cardiovascular disease, diabetes mellitus, cancer and chronic obstructive pulmonary disease or COPD (Petersen 2003). Therefore, within the field of dentistry, health promotion interventions have broader implications. These interventions can involve offering patients counselling on how to change their behaviour, giving them leaflets and self-help information and delivering more structured intervention methods such as motivational interviews.

A problematic behaviour that also impacts on both oral and general health is alcohol misuse. Heavy drinking is associated with several conditions that can affect a person's general health such as liver damage, high blood pressure, stroke, cardiac damage, depression and can also result in premature death. In addition, Rehm et al. (2003) reported that the greater the volume of alcohol a person consumes, the greater their risk of developing potentially fatal oral diseases, such as cancer of the mouth, larynx, pharynx and oesophagus, and experiencing oro-facial injury, either through falls, road traffic accidents or interpersonal violence. Since those working in primary care particularly see patients regularly, such dental providers are therefore often the first to notice the abnormalities in the oral mucosa suspect of dysplasia and malignancy. Dental professionals in primary and secondary care may also find patients attend their clinics with alcohol-related facial and dental trauma. Furthermore, all dental professionals must be aware if the patient they are treating suffers from an alcohol-related condition as the delivery of their care may need to be altered (Longman and Wilkinson 2008).

Alcohol can have other detrimental effects on the dentition. Many people who drink hazardously may suffer from non-carious tooth surface loss such as dental erosion and alcoholic beverages high in sugar may possibly contribute to the development of dental caries. Additionally, a study by Kranzler et al (1990) found that moderate to heavy drinkers were more likely to suffer from dental pathologies, such as periodontal disease, when compared to light drinkers possibly due to the fact that harmful behaviours such as risky drinking are often clustered with behaviours such as poor oral hygiene and smoking.

Tackling alcohol misuse alongside other harmful oral behaviours within the dental setting will therefore have the potential to help dental professionals broaden their strategy in oral disease prevention and oral health promotion. In addition, it will enable dental healthcare providers to adopt an approach that is more consistent with medical professionals, drawing closer to promoting uniform messages and widening the efforts to care for a patient's general health. Hazardous drinking within the population is therefore relevant to all dental healthcare professionals whether they are in primary care settings or based within secondary care.

Dentistry has, unusually compared to other healthcare professions, successfully nurtured a proactive approach to oral health in the population. Statistics show that most people have regular contact with a dental team, particularly those teams based within primary care services (including general and community dental services), where the majority of patients will attend for a routine check-up regardless of suffering from problems (Office for National Statistics 2010a, Office for National Statistics 2010b). The dental setting, and especially the primary dental care setting, are therefore prime locations in which health promotion interventions, such as those to tackle alcohol misuse, can be delivered.

Differing levels of alcohol use appear to be related to differing levels of service use, with routine dental visits least likely in the heaviest drinkers (Cryer et al 1999). This does not mean, however, that regular dental attenders are not eligible for interventions. In 1981, Rose described a "paradox of prevention" arguing that professionals should use "a mass strategy" in health promotion, targeting not just those at high risk. Generalizing to alcohol misuse, the risk of harm increases as the level of alcohol consumed increases but as there are vastly more moderate than risky drinkers the number of those experiencing alcohol-related harm will be greater

in moderate drinkers due to weight of numbers. The implication is that there are therefore opportunities to provide a consistent approach to alcohol misuse across the dental team and one that may reach both moderate and risky drinkers especially if adopted within primary care settings.

Although brief alcohol interventions have been deployed in secondary care settings (Smith et al 1998, Oakey et al 2008), dental professionals within primary care particularly do not seem to be capitalizing on the opportunities to improve patients' general and oral health. While research into the use of interventions across the dental team is limited, interventions that tackle poor oral hygiene and smoking, for example, have been developed for utilization within primary and secondary care dental settings (Cohen et al 1989, Tedesco et al 1992, Little et al 1997, Blinkhorn et al 2003, Clarkson et al 2009 & Jonsson et al 2009). In addition, there is also growing evidence that alcohol interventions should be better integrated within dental practice (McAuley et al 2011). One explanation for this discrepancy, but as yet unstudied, might involve the opinions of professionals' on which interventions are feasible in various dental settings. Specifically, even though alcohol misuse is relevant to dentistry, and likewise often coexists with and is as potentially harmful to oral and general health as other detrimental behaviours such as smoking, poor dietary habits and poor oral hygiene, why is it that members of the dental team, as a whole, do not routinely address this risky behaviour?

In 1977, Bronfenbrenner suggested that an interwoven relationship exists between individuals and their environment. While individual patients are responsible for instituting and maintaining the lifestyle changes necessary to reduce risk and improve health, individual behaviour is determined to a large extent by their social environment. One aspect of the social environment that can particularly influence behaviour is the healthcare workers with whom an individual comes into contact. In addition, local policies will in turn impact on the care health service providers will deliver and therefore the care an individual patient will receive. The individual must not therefore be the sole focus when trying to produce behaviour change. A more complex outlook must be adopted whereby influences and interactions with the social environment, such as those from healthcare workers, as well as those influences at a policy level, should also be acknowledged. The Medical Research Council (2008) also suggests that when looking at ways to improve the process of tackling risky health behaviours such as alcohol misuse, within the clinical setting, a

more complex and multi-level approach is required. If members of the dental team are to intervene amongst those patients exhibiting risky behaviours such as misusing alcohol, it is important to identify all the necessary components that will make the intervention procedure effective. In other words, it is not just individual patient adherence that is required for an intervention to be successful, but also multi-level adherence and commitment by the healthcare professional and the production of policies that will help to promote good health.

Research into how the dental profession deals with and responds to health issues, such as alcohol misuse, is extremely important as it will help identify the gaps in the evidence-base and to improve dental healthcare provision generally.

Study aims/objectives

The objective of this study is to explore the views of dental professionals, their patients and dental policy makers/public health practitioners towards the use of health promotion within the dental setting in order to gain a greater understanding of the barriers to alcohol screening and treatment interventions. Comparisons will be made between professionals, patients and policy makers/public health practitioners' views towards screening and treating harmful alcohol consumption and other behaviours such as oral hygiene neglect and smoking. Through a better understanding of prevention in this context we will aim to describe the processes that can support or hinder screening and treatment delivery and document barriers.

Study Design

This study will be a qualitative study using semi-structured interviews. This is more appropriate than conducting a quantitative study or designing a questionnaire since it is hoped the data collected will contribute to providing an in-depth insight into the acceptance of and barriers towards health promotion interventions, and more specifically alcohol screening and treatment interventions, within the dental setting.

Participants and sample size

Participants will be sampled using a purposive and convenience technique.

Participants will include dental healthcare professionals (dentists, dental nurses, hygienists), patients and policy makers/public health practitioners. Since the design of the study is qualitative, the size of the sample and the types of participants who will be recruited are not necessarily meant to be representative of the population as

a whole. Instead, the sample chosen is determined more by the optimum number necessary to enable valid inferences to be made about the population.

The participants recruited will be allocated into groups. There will be eleven groups in total and 55 participants in total.

Members of the dental team will be stratified into groups according to their functional role in the dental team and according to the dental sector within which they work. Therefore dentists who work in the general dental service will be allocated into one group, with dental nurses and hygienists who work in general dental services also in two respective groups.

Dentists, dental nurses and hygienists who work in community dental services will also be allocated into three groups respectively.

Furthermore, dentists, dental nurses and hygienists who work within the hospital dental service will be allocated into three groups.

In addition, there will be one group for patients recruited from within either general, community or hospital dental services (therefore patients will be recruited from across all three sectors). Representatives from either the Welsh Assembly Government or Public Health Wales will also be recruited forming one group for policy makers/public health practitioners.

We estimate that a minimum of five per group will allow data saturation (therefore 55 participants in total), but we are prepared to interview fewer if data saturation occurs earlier or more if more themes emerge on data analysis.

Inclusion criteria

All participants will be eligible who are able to provide informed written consent and who are above the age of 18.

All dental professionals who practice in the area covered by the Cardiff and Vale University Health Board will be eligible (within which includes the Cardiff and Vale

NHS Trust for hospitals, the Cardiff and Vale Community Dental Services, Cardiff Local Health Board (LHB) and Vale of Glamorgan Local Health Board (HB)).

The dental healthcare professionals recruited will all work mainly with patients aged 16 and above since they are more likely to encounter patients with alcohol problems.

Dentists within general practice settings will be either foundation trainees, associates or principals, while those in community will be senior or junior dental officers or foundation trainees. Dentists in the hospital setting will be foundation trainees, senior house officers, staff grades, registrars or consultants. Nursing and hygiene staff in general practice, community or hospital settings will be senior or junior staff.

Dental healthcare professionals within the hospital service will be recruited mainly from Oral and Maxillofacial, Oral Medicine, Special Care and Restorative departments since they are more likely to encounter patients with alcohol problems than for example those based in Orthodontics or Child Dental Health Departments. Dental healthcare professionals recruited in general practice will be recruited if they work mainly with adults aged 16 and above. Community dental professionals will also be recruited if they work with adults aged 16 and above.

Patients will be individuals who attend the general, community and hospital dental services from which the dental healthcare professionals, recruited to participate in this study, were chosen.

Policy makers/public health practitioners will be representatives from the General Dental Council, the Welsh Assembly Government or Public Health Wales. Due to changes in these organisations it cannot be stated who will be recruited. However, senior personnel in Cardiff School of Dentistry (e.g. personnel in the Violence and Society Research Group in Cardiff School of Dentistry) will be asked to provide advice on who to contact.

Exclusion criteria

Participants under the age of 18 years old will not be eligible to participate. Resources are not available for translators and interpreters and so participants who

do not speak or cannot understand English and who have learning difficulties will not be invited to participate. There will also be no translators and interpreters for solely Welsh speakers. Participants who cannot provide written informed consent will also not be recruited.

Dental healthcare professionals who work mainly with children (e.g. in general practice or the orthodontic and child dental health services in general practice, the hospital or community settings) will be excluded.

Identification of participants

Principal dentists and senior dental officers who practice in general dental practices and community dental services will be identified from performer's lists that can be accessed directly online from the Cardiff and Vale University Health Board website or from functional business directories and written to directly. Nursing and hygiene staff in general practices and community settings will be identified through the dentists (therefore nursing and hygiene staff will be recruited from the same practice as the dentist written to).

Dentists, dental nurses and hygienists in hospital services will be identified from functional hospital directories or from lists that can be obtained online from the Cardiff and Vale University Health Board website and written to directly.

Patients will be recruited by the dental healthcare professionals that agreed to take part in the study. Patients will not be contacted directly by the researchers.

Policy makers/public health practitioners will be identified via opportunistic identification through recommendations from senior personnel in Cardiff School of Dentistry (e.g. personnel in the Violence and Society Research Group in Cardiff School of Dentistry) will be asked to provide advice on who to contact.

Selection and recruitment of participants

After identification, principal dentists in every second general dental practice will be written to. Senior dental officers from the first five community dental centers will be written to. Every fifth dental professional (dentist, nurse and hygienist) in the hospital directories will be written to.

All participants will be invited to take part in the study through letter. In the case of policy makers they will be written to directly, with details of who to contact should they wish to gain further information. Dentists, dental nurses and hygienists within the hospital service will also be written to directly, with details of who to contact should they wish to gain further information. Principal dentists and senior dental officers within the general practice and community settings respectively will be written to directly and asked whether one dentist (which could be themselves), one nurse and one hygienist within their place of work would be willing to participate in the study. They will also be given details of who to contact should they wish to gain further information. If within one week there is no response they will be sent a second letter. If again after one week there is no response they will then be contacted via telephone.

In the case of patients, the dental healthcare professionals recruited will be asked to contact and distribute letters to their patients (the researchers will not contact patients directly themselves in order to recruit them). Professionals will be asked to leave letters of invitation in the reception of their places of work and the first five participants who contact the researchers for further information will be selected to participate.

The researcher's name and contact details will be available to all participants should they wish to enquire further about the study.

If the participant accepts the invitation and contact is made with the researchers, they will be sent an information sheet and a consent form with pre-paid envelopes. Once these have been returned arrangements will then be made as to whether the interview will be via the telephone or face-to-face and for a suitable date and time on which the interview can take place. Upon meeting the participant the researcher will re-inform potential participants about the purpose of the project. They will be told that participation is completely voluntary and that they can withdraw at any time. They will be reassured that all data will be kept anonymous and confidential. They will then be interviewed.

Procedure

One-to-one telephone or face-to-face semi-structured interviews will be conducted with all participants. For policy makers/public health practitioners and the dental

healthcare professionals, this will be at their place of work. For patients this will be at a public venue e.g. in a coffee shop or in a private room in Cardiff Dental School (whatever is more convenient for the patient). Both options for meeting have been put, as elderly participants, or even participants who have no mode of transport, may not want to travel to the dental school. Even though out of pocket expenses will be paid by the dental school, participants may feel more comfortable meeting in a public venue. There is no sensitive matters/information in the interview schedules that will be discussed and so speaking about issues in a public place should not put patient participants at risk. In addition, for safety of the researcher, if a participant cannot travel to the dental school giving the option of meeting in a public place will not put the researcher at risk as they then do not have to go to a private place at a patient's home.

None of the data collected from participants is sensitive in nature and will not require personal information on drinking or oral health habits to be divulged and so meeting in places of work and public venues will be more convenient for participants and also will ensure the safety of the researchers.

Focus groups will not be conducted as it is the aim of the study to gain individual views on health promotion in the dental setting, particularly alcohol screening and treatment interventions.

An interview schedule will be created as an initial starting point, however, it will not be a rigid construct and questions will be asked depending on participants answers. Interviews will last no more than 30 minutes and will be recorded on audiotapes via a dictaphone. Interviews will take place at a time convenient to the participant and will not interfere with clinical or personal commitments.

Materials

Interview Schedule for professionals
<p>Begin by explaining you are not interested in respondents' habits or personal use but only their views on alcohol screening and treatment in dental settings.</p> <p><u>Introductory questions:</u></p> <ul style="list-style-type: none">• What do you understand by the term "alcohol misuse"? Can you give me an example?• Do you know of any recommendations on safe drinking?• Do you know what a unit of alcohol is? (If respondent does not have answers explain what they are)
<p><u>Topic 1: Relevance</u></p> <ul style="list-style-type: none">• Do you think alcohol misuse is relevant to dentistry?• Do you feel it's as relevant as other health behaviours e.g. smoking?• Do you think patients think alcohol misuse is relevant to dentistry?• How do you think they feel about smoking, poor oral hygiene, high sugar diets?• Do you feel alcohol misuse is relevant to general or oral health or both?
<p><u>Topic 2: Prevention</u></p> <ul style="list-style-type: none">• What preventive advice do you give to adult patients?• How long would you say, on average, you spend giving this advice? What do you think is the most important advice to give among smoking, oral hygiene, diet and alcohol?• What preventive advice do you think patients expect to receive?
<p><u>Topic 3: Experiences and knowledge</u></p> <ul style="list-style-type: none">• What do you understand is meant by the term "screening for alcohol misuse"? (Where is this done e.g. primary/secondary care? What does it involve?)• Is there anything that you do to screen for alcohol misuse?• Do you know why we might screen and ask patients about their alcohol consumption?• Have you ever used specific screening tools for alcohol misuse (e.g. screening questionnaires such as the FAST)? Have you heard of these?• What do you understand by the term "alcohol treatment interventions"? Do

you know what interventions could be used?

- Have you ever delivered any alcohol treatment interventions?
- Do you ever deliver treatment interventions for any other risky behaviours e.g. smoking, diet? What treatments do you provide?

Just before we move on I'm going to give you some information. Alcohol screening can include use of questionnaires e.g. AUDIT (alcohol use disorders identification test), FAST (fast alcohol screening test) and CAGE.

Treatment can include brief structured motivational advice, brief counselling and leaflets.

I'm now going to ask questions and want you to keep this information in mind.

Topic 4: Normalisation

- Do you think it is normal practice for patients to be screened and treated for alcohol misuse in dental settings?
- How do you think patients view alcohol screening and treatment in dental settings? Would they expect it?
- How do you think they would react?

Topic 5: Facilitators and Willingness

- What would enable you to screen for alcohol misuse and deliver treatment interventions?
- Would you be willing to screen and deliver treatment interventions? If yes, why. If no, why not?
- When could you screen and deliver them? What treatments would you be willing to use?
- What dental setting do you think is best?
- Who in the dental team is best placed to deliver alcohol misuse screening and treatment in your opinion?

Interview schedule for patients

Begin by explaining you are not interested in participant's habits or personal use but only their views on alcohol screening and treatment in dental settings.

Introductory questions:

- Where do you go to receive dental care? (general practice/hospital/ community centre)

- What do you understand by the term “alcohol misuse”? Can you give me an example?
- Do you know any recommendations on safe drinking?
- Do you know what a unit of alcohol is?

Topic 1: Relevance

- Do you think it’s relevant to dentistry for dental healthcare professionals to ask patients about alcohol consumption?
- Do you think patients should be asked about it by their dental practitioner?
- Do you think other behaviours such as oral hygiene neglect, smoking are more relevant than alcohol misuse?

Topic 2: Prevention

- What behaviours have you been asked about in dental clinics (e.g. oral hygiene habits, smoking, diet, alcohol) and what advice have you been given by dental practitioners?
- What advice do you expect to get in dental settings? How long does the dental professional spend giving it?

Topic 3: Knowledge and Experiences

- Have you ever been asked by your dental professional (dentist, dental nurse or hygienist) about your alcohol consumption?
- Do you know why a dental professional may ask patients about their alcohol consumption? Has your dental professional ever explained to you why if they have asked you about this?
- How do you feel when asked by a dental professional to give this information? Do you feel differently if dental professionals ask about smoking, oral hygiene?

Topic 4: Normalisation

- Has anyone apart from your dentist ever asked about your alcohol consumption as part of a routine consultation? (e.g. GP)
- Do you think it is normal practice for your dental professional to ask you about alcohol misuse?
- Do you think it is normal practice for dental professionals to offer advice or treatment for alcohol misuse (for example, gave you leaflets or offered you advice?)
- Do you think it’s more normal/common for dental patients to receive advice on smoking, oral hygiene?

Topic 5: Willingness

- Do you think dental professionals should screen patients for alcohol misuse?
Give treatment?
- How would you feel if your dental professional included this in their service?
Who in dental team should screen and deliver this advice?

Topic 6: Barriers

- If you were screened for and treated for alcohol misuse in dental settings?
Would you be happy/unhappy to accept this?
- Would you take on board the advice given? What would prevent you from acting on this advice?

Interview schedule for policy makers

Begin by explaining you are not interested in participant's habits or personal use but only their views on alcohol screening and treatment in dental settings.

Introductory questions

- What do you think about dental professionals being involved in alcohol misuse prevention?

Topic 1: Knowledge

- What interventions are currently used for alcohol misuse prevention in dental settings?

Topic 2: Relevance

- Do you think dental professionals should be concerned with the health issue of alcohol misuse?
- Do you think alcohol misuse is relevant to dentistry?
- Do you feel it is as relevant as other health behaviours e.g. smoking?
- Do you think patients think alcohol misuse is relevant to dentistry?
- How do you think dental patients feel about being asked about smoking, poor oral hygiene, high sugar diets in a dental context? Do you think they view these behaviours as more relevant than alcohol misuse?
- How do you think patients view alcohol screening and treatment in dental settings?
- Would they expect it?
- How do you think they would react?

Topic 3: Normalisation

- What interventions do you think dental professionals currently use?
- Do you think currently it is normal practice to screen for alcohol misuse in dental settings?
- Do you think it is normal practice to deliver alcohol misuse treatment in dental settings?
- Is it different if for dental professionals working in hospital/community/practice?

Topic 4: Willingness

- Do you think dental professionals should screen for alcohol misuse and deliver treatment interventions?
- Who should deliver these in the dental team? Which dental services should they be used in?
- What would make dental professionals more willing to deliver these behavioural interventions?

Topic 5: Barriers

- What are the barriers to dental healthcare professionals delivering these interventions?

Analysis

All audiotapes of interviews with participants will be transcribed by hand onto a Cardiff School of Dentistry computer. A data analysis software package (Nvivo 8) will be used to analyze the interview data. Analysis method will be through Thematic Analysis. The semi-structured interview will be revised as interview data are collected to reflect any new themes that might emerge.

Outcome measures

Categories/themes will be identified that indicate the acceptance of and barriers to the implementation of alcohol screening and treatment interventions within dental healthcare settings.

Dissemination and outcome

The findings of this study will be written up as part of the research student's PhD thesis. They will also be disseminated through appropriate peer review journals. Participants who contact the researchers and wish to receive a summary of the findings will be sent one.

Ethical considerations

The research participants will enter into the study voluntarily. In order to help them make an informed decision to take part in the study, participants will be given contact information to gain as much information as they would like from the researchers and also will be sent information sheets before they decide to take part. Should they agree, written consent will be obtained in order to demonstrate that informed consent has been obtained.

No elements in the study are intrusive (i.e. no elements ask for sensitive information from patients). Participants are under no obligation to answer all the questions that will be asked. They will not be asked to reveal any information relating to their own health behaviours, only their opinions on the use of health interventions in dental settings.

There are no elements in the study that can cause physical/psychological distress. However, if a participant does express concern (e.g. should they express concern over their own or a patient's levels of alcohol consumption) they will be given details on the information sheet on how to contact the project supervisors (Dr Simon Moore and Professor Jonathan Shepherd) who will refer them accordingly.

All the data collected will be confidential and will be held separately from participant contact information. Participant contact information will be held in a secure filing cabinet in Cardiff School of Dentistry and kept for no longer than 3 months after the end of the study. The data collected will be anonymous with codes allocated to participants that only the researchers know. All recording equipment, audiotapes, transcripts and transcription codes will be stored in a locked cupboard in Cardiff School of Dentistry. All participant codes and transcript codes will also be kept separate to participant contact information in secure cabinets. Data will be transcribed and stored on a Cardiff School of Dentistry computer with a secure password.

After the study has finished all computer files will be stored and encrypted on Dr Moore's password locked, University computer and kept for 9 years. All paper transcripts, transcription codes and audiotapes will also be stored and archived in a secure cupboard in Dr Moore's office and kept for 9 years.

Experience of the research student

Although experience in qualitative work is limited, the research student (Zairah Roked) has completed a pilot study within the School of Dentistry in order to gain experience in qualitative interviewing and methodology and also to develop the interview schedule that will be used in this study. Training is also ongoing in qualitative methods and analysis, with the student attending courses within Cardiff University as well as externally (e.g. University of West England) in order to help gain the necessary skills for this project. Advice and guidance has been sought from staff within Cardiff School of Medicine (e.g. Dr Fiona Wood, Senior lecturer in Qualitative Methods) and Cardiff School of Dentistry (e.g. Dr Paul Jordan, Knowledge Transfer Person for the implementation of brief alcohol interventions in NHS services). Further advice will be sought from Dr Wood and Dr Jordan and other members of University staff familiar with Qualitative research (e.g. Dr Tricia Price, Wound healing, Cardiff University).

Start and duration

It is anticipated that the research will begin as soon as ethical approval is granted. The research should take approximately nine to twelve months to recruit people, to collect and analyse data.

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Appendix 7b

Information sheets (qualitative second stage)

Tackling alcohol misuse in dental settings v3

DATE 16/01/12 version 6.0

Participant information sheet for patients

You are being invited to participate in a research study. Before you decide, you need to understand why the research is being done and what it would involve for you.

Please take time to read the following information carefully. If there is anything that is not clear or you would like further information, please contact us using the details provided on the next page. Take time to decide whether or not you wish to take part.

What is the purpose of the study?

This research seeks to understand your views towards the use of health promotion interventions in the dental setting, particularly with regards to alcohol screening and treatment interventions.

Why have I been invited?

The only reason you have been chosen is because you are a patient that undergoes dental treatment within either general practice, the community or hospital dental service.

Do I have to take part?

It is up to you to decide whether or not to take part. If you decide to take part you will be given this information sheet to keep safe. If you decide to take part you are still free to withdraw at any time and without giving a reason.

What is required of me?

I would like to conduct a one-to-one interview with you in order to ask you questions about your opinion on the use of health promotion interventions in the dental setting, particularly with regards to alcohol screening and treatment. This can be face-to-face or via telephone. These questions will be asked verbally. Your answers will be recorded using a tape-recorder. This process should not take longer than 30 minutes. If conducted face-to-face, the interview will take place in a private room in Cardiff School of Dentistry. All out of pocket expenses will be paid for by the Dental School.

If you do not wish to answer any questions then you are under no obligation to do so. You will not be asked to reveal any information relating to your own health behaviours, only your opinions on the use of health promotion interventions in the dental setting.

Risks to participants

There are no risks associated with the completion of this study.

Who has reviewed the study?

This study has been reviewed by the Nottingham 1 Research Ethics Proportionate Review Sub-Committee.

Will my participation in the study be confidential?

Yes, all information provided by you will be kept strictly confidential and only used by the research team. You will never be identified by name and your name will never be referred to in public e.g. presentations or publications. When the information gained is presented in project reports or publications any identifiers will be removed to ensure you remain anonymous.

The recorded information obtained during the study will be stored in locked research cabinets in the School of Dentistry in Cardiff and will be stored separately to your contact

details. The information will be written-up and stored on a password-locked University computer in the School of Dentistry.

The only time confidentiality will not be maintained is in the event of malpractice or misconduct being revealed.

What if I change my mind about taking part?

You are free to leave this study at any time without any explanation or obligation. If you wish to withdraw from the study at any point you can contact the project supervisors Dr Simon Moore or Professor Jonathan Shepherd by email on moore2@cardiff.ac.uk or shepherdjp@cardiff.ac.uk and your data will not be used in the study. Otherwise non-identifiable data will still be used.

Remember you may withdraw from this study at any time.

What happens after I have taken part?

The results from this study will be written up in a project thesis. Data may be used in formal presentations and may be sent for publication.

You can send a contact email to the project supervisors (Dr Simon Moore and Professor Jonathan Shepherd) so that they can send you a summary of the findings when the information is analyzed and a report produced. You can request this, even if you withdraw from the study, by emailing moore2@cardiff.ac.uk or shepherdjp@cardiff.ac.uk.

What shall I do if I have any concerns or questions about or during the study?

If there are any further questions you would like answered or if there is a problem or you have any concerns about any aspect of this study, including concerns over your own alcohol use, please telephone or email Dr Simon Moore or Professor Jonathan Shepherd using the contact details below.

Contact details

The research will be carried out by Zairah Roked an Academic Clinical Fellow in Cardiff School of Dentistry and PhD candidate, who can be contacted via email RokedZ@cardiff.ac.uk.

The project supervisors are Dr Simon Moore (lead/chief investigator) and Professor Jonathan Shepherd from Cardiff School of Dentistry. They can be contacted via email: moore2@cf.ac.uk or shepherdjp@cf.ac.uk or telephone 029 2074 4246 (Dr Moore) 02920 744215 (Professor Shepherd).

THIS SHEET IS FOR YOU TO KEEP

Participant information sheet for Dental Professionals

You are being invited to participate in a research study. Before you decide, you need to understand why the research is being done and what it would involve for you.

Please take time to read the following information carefully. If there is anything that is not clear or you would like further information, please contact us using the details provided on the next page. Take time to decide whether or not you wish to take part.

What is the purpose of the study?

This research seeks to understand your views towards the use of health promotion interventions in the dental setting, particularly with regards to alcohol screening and treatment interventions.

Why have I been invited?

The only reason you have been chosen is because you are a dentist, dental nurse or hygienist that works within general practice, the community or hospital dental service.

Do I have to take part?

It is up to you to decide whether or not to take part. If you decide to take part you will be given this information sheet to keep safe. If you decide to take part you are still free to withdraw at any time and without giving a reason.

What is required of me?

I would like to conduct a one-to-one interview with you in order to ask you questions about your opinion on the use of health promotion interventions in the dental setting, particularly with regards to alcohol screening and treatment. This can be face-to-face or via telephone. These questions will be asked verbally. Your answers will be recorded using a tape-recorder. This process should not take longer than 30 minutes and will be conducted in a private room at your place of work. If you do not wish to answer any questions then you are under no obligation to do so. You will not be asked to reveal any information relating to your own health behaviours, only your opinions on the use of health promotion interventions in the dental setting.

Risks to participants

There are no risks associated with the completion of this study.

Who has reviewed the study?

This study has been reviewed by the Nottingham 1 Research Ethics Proportionate Review Sub-Committee.

Will my participation in the study be confidential?

Yes information provided by you will be kept strictly confidential and only used by the research team. You will never be identified by name and your name will never be referred to in public e.g. presentations or publications. When the information gained is presented in project reports or publications any identifiers will be removed to ensure you remain anonymous.

The recorded information obtained during the study will be stored in locked research cabinets in the School of Dentistry in Cardiff and will be stored separately to your contact details. The information will be written-up and stored on a password-locked University computer in the School of Dentistry.

The only time confidentiality will not be maintained is in the event of malpractice or misconduct being revealed.

What if I change my mind about taking part?

You are free to leave this study at any time without any explanation or obligation. If you wish to withdraw from the study at any point you can contact the project supervisors Dr Simon Moore or Professor Jonathan Shepherd by email on mooresc2@cardiff.ac.uk or shepherdjp@cardiff.ac.uk and your data will not be used in the study. Otherwise non-identifiable data will still be used.

Remember you may withdraw from this study at any time.

What happens after I have taken part?

The results from this study will be written up in a project thesis. Data may be used in formal presentations and may be sent for publication.

You can send a contact email to the project supervisors (Dr Simon Moore and Professor Jonathan Shepherd) so that they can send you a summary of the findings when the information is analyzed and a report produced. You can request this, even if you withdraw from the study, by emailing mooresc2@cardiff.ac.uk or shepherdjp@cardiff.ac.uk.

What shall I do if I have any concerns or questions about or during the study?

If there are any further questions you would like answered or if there is a problem or you have any concerns about any aspect of this study, including concerns over your own alcohol use, then please telephone or email Dr Simon Moore or Professor Jonathan Shepherd using the contact details below.

Contact details

The research will be carried out by Zairah Roked an Academic Clinical Fellow in Cardiff School of Dentistry and PhD candidate, who can be contacted via email RokedZ@cardiff.ac.uk.

The project supervisors are Dr Simon Moore (lead/chief investigator) and Professor Jonathan Shepherd from Cardiff School of Dentistry. They can be contacted via email: mooresc2@cf.ac.uk or shepherdjp@cf.ac.uk or telephone 029 2074 4246 (Dr Moore) 02920 744215 (Professor Shepherd).

THIS SHEET IS FOR YOU TO KEEP

Participant information sheet for policy makers

You are being invited to participate in a research study. Before you decide, you need to understand why the research is being done and what it would involve for you.

Please take time to read the following information carefully. If there is anything that is not clear or you would like further information, please contact us using the details provided on the next page. Take time to decide whether or not you wish to take part.

What is the purpose of the study?

This research seeks to understand your views towards the use of health promotion interventions in the dental setting, particularly with regards to alcohol screening and treatment interventions.

Why have I been invited?

The only reason you have been chosen is because you are involved in or have some knowledge of alcohol misuse prevention interventions and policy making within dental services.

Do I have to take part?

It is up to you to decide whether or not to take part. If you decide to take part you will be given this information sheet to keep safe. If you decide to take part you are still free to withdraw at any time and without giving a reason.

What is required of me?

I would like to conduct a one-to-one interview with you in order to ask you questions about your opinion on the use of health promotion interventions in the dental setting, particularly with regards to alcohol screening and treatment. This can be face-to-face or via telephone. These questions will be asked verbally. Your answers will be recorded using a tape-recorder. This process should not take longer than 30 minutes and will be conducted in a private room at your place of work. If you do not wish to answer any questions then you are under no obligation to do so. You will not be asked to reveal any information relating to your own health behaviours, only your opinions on the use of health promotion interventions in the dental setting.

Risks to participants

There are no risks associated with the completion of this study.

Who has reviewed the study?

This study has been reviewed by the Nottingham 1 Research Ethics Proportionate Review Sub-Committee.

Will my participation in the study be confidential?

Yes, all information provided by you will be kept strictly confidential and only used by the research team. You will never be identified by name and your name will never be referred to in public e.g. presentations or publications. When the information gained is presented in project reports or publications any identifiers will be removed to ensure you remain anonymous.

The recorded information obtained during the study will be stored in locked research cabinets in the School of Dentistry in Cardiff and will be stored separately to your contact

details. The information will be written-up and stored on a password-locked University computer in the School of Dentistry.

The only time confidentiality will not be maintained is in the event of malpractice or misconduct being revealed.

What if I change my mind about taking part?

You are free to leave this study at any time without any explanation or obligation. If you wish to withdraw from the study at any point you can contact the project supervisors Dr Simon Moore or Professor Jonathan Shepherd by email on mooresc2@cardiff.ac.uk or shepherdjp@cardiff.ac.uk and your data will not be used in the study. Otherwise non-identifiable data will still be used.

Remember you may withdraw from this study at any time.

What happens after I have taken part?

The results from this study will be written up in a project thesis. Data may be used in formal presentations and may be sent for publication.

You can send a contact email to the project supervisors (Dr Simon Moore and Professor Jonathan Shepherd) so that they can send you a summary of the findings when the information is analyzed and a report produced. You can request this, even if you withdraw from the study, by emailing mooresc2@cardiff.ac.uk or shepherdjp@cardiff.ac.uk.

What shall I do if I have any concerns or questions about or during the study?

If there are any further questions you would like answered or if there is a problem or you have any concerns about any aspect of this study, including concerns over your own alcohol use, please telephone or email Dr Simon Moore or Professor Jonathan Shepherd using the contact details below.

Contact details

The research will be carried out by Zairah Roked an Academic Clinical Fellow in Cardiff School of Dentistry and PhD candidate, who can be contacted via email RokedZ@cardiff.ac.uk.

The project supervisors are Dr Simon Moore (lead/chief investigator) and Professor Jonathan Shepherd from Cardiff School of Dentistry. They can be contacted via email: mooresc2@cf.ac.uk or shepherdjp@cf.ac.uk or telephone 029 2074 4246 (Dr Moore) 02920 744215 (Professor Shepherd).

THIS SHEET IS FOR YOU TO KEEP

Appendix 7c

Consent forms (second stage)

Tackling alcohol misuse in dental settings v3

DATE 16/01/12 version 6.0

The Screening and Treatment of Alcohol Misuse in the Dental Setting

Consent Form Patients

Please initial box

1. I confirm that I have read and understand the information sheet dated 16/01/12 (version 6.0) for the above study and have had the opportunity to ask questions.

2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason.

3. I agree to have my interview audio taped.

4. I understand that data collected during the study, may be looked at by individuals from Cardiff University, from regulatory authorities or from the NHS Trust, where it is relevant to my taking part in this research. I give permission for these individuals to have access to my records

5. I understand in the event of misconduct or malpractice being revealed, confidentiality will not be maintained.

6. I agree to take part in the above study.

_____/____/____
Name of Participant Date Signature

_____/____/____
Name of Researcher Date Signature

The Screening and Treatment of Alcohol Misuse in the Dental Setting

Consent Form Dental Professionals

Please initial box

1. I confirm that I have read and understand the information sheet dated 09/01/12 (version 5.0) for the above study and have had the opportunity to ask questions.

2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason.

3. I agree to have my interview audio taped.

4. I understand that data collected during the study, may be looked at by individuals from Cardiff University, from regulatory authorities or from the NHS Trust, where it is relevant to my taking part in this research. I give permission for these individuals to have access to my records

5. I understand in the event of misconduct or malpractice being revealed, confidentiality will not be maintained.

6. I agree to take part in the above study.

_____ / / _____

Name of Participant Date Signature

_____ / / _____

Name of Researcher Date Signature

The Screening and Treatment of Alcohol Misuse in the Dental Setting

Consent Form Dental Policy Makers

Please initial box

1. I confirm that I have read and understand the information sheet dated 09/01/12 (version 5.0) for the above study and have had the opportunity to ask questions.

2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason.

3. I agree to have my interview audio taped.

4. I understand that data collected during the study, may be looked at by individuals from Cardiff University, from regulatory authorities or from the NHS Trust, where it is relevant to my taking part in this research. I give permission for these individuals to have access to my records

5. I understand in the event of misconduct or malpractice being revealed, confidentiality will not be maintained.

6. I agree to take part in the above study.

_____/_____/_____
Name of Participant Date Signature

_____/_____/_____
Name of Researcher Date Signature

Appendix 8

Reflexivity (second stage)

My opinions and bias after the development of the interview schedule (second stage of data collection)

The interviews completed during the first stage indicate that hygienist and nurses should be involved in alcohol misuse prevention.

Students/teaching staff do not think alcohol misuse is relevant to dentistry.

Students/teaching staff do not have enough time for alcohol misuse prevention.

Students/teaching staff prioritise other types of advice before alcohol advice e.g. smoking cessation advice, oral hygiene advice.

Alcohol misuse is a general health problem.

There is the chance that because I am exploring opinions expressed in the first stage I may introduce bias – I may be looking to confirm the opinions rather than disprove them. Providing counts of participants' views may counteract this and help to add validity. Also, using an independent researcher to provide a second analysis of the transcripts can help identify any bias in the interview schedule/interviews to ensure views expressed do exist and are not spurious.

In this second stage, I need to acknowledge that those who agree to take part in the study may be different to those who disagree to take part. There could be a bias present with regards to the participants who say yes to the interviews (recruitment/selection bias). In particular, patients may feel they have to give responses that are desirable.

Appendix 9a

Study protocol for the exploratory trial

Feasibility of alcohol screening and treatment in dental settings v8 DATE 04/07/13 version 8.0

Study Protocol

Title of study

A study to explore the feasibility of alcohol misuse screening and treatment interventions in a general dental practice.

Study contacts

The student undertaking the project is Zairah Roked, who is currently an Academic Clinical Fellow and part-time PhD student at Cardiff School of Dentistry, Heath Park, CF14 4XY, email address RokedZ@cardiff.ac.uk. Zairah Roked will act as the chief investigator for the study.

The supervisors for this project are Dr Simon Moore (lead supervisor) and Professor Jonathan Shepherd, who are both based in Cardiff School of Dentistry, Heath Park, CF14 4XY. They can be contacted via email on mooresc2@cf.ac.uk or shepherdjp@cf.ac.uk.

Organisations with whom this research is funded

The research is funded by an FDS research training fellowship from the Royal College of Surgeons of England.

Organisations with whom this research is affiliated

The research is affiliated with the organisation DECIPHer.

Summary

Rationale of the study

Despite its implications to general and oral health, the majority of dental healthcare professionals (dentists, dental nurses and dental hygienists) do not routinely intervene to reduce the alcohol use of patients who demonstrate hazardous or harmful levels of consumption. The new dental contract being piloted in practices across England reflects the coalition government's aims to focus the attention of dental professionals on health promotion¹. Since harmful alcohol consumption is strongly implicated in the development of several systemic and oral diseases such as oral cancer and oro-facial injury², educating dental patients about safe drinking is therefore relevant to the government's health priorities, as well as world-wide initiatives to promote health³.

Objective

The objective of this study therefore is to conduct a feasibility study in order to explore the implementation of an alcohol misuse screening and treatment intervention in a primary care general dental practice setting.

Design

This study will be a randomised controlled trial to determine whether it is feasible to introduce alcohol misuse screening and treatment in a general dental practice setting.

A process evaluation will also be carried out in order to assess the framework of design for the study in order to help inform a larger, definitive trial.

Setting

The study will take place in Glynneath Dental Centre a largely NHS practice with three dentists, one hygienist, two dental nurses and one receptionist.

Population

All new and routine patients, male and female, aged 18-65 will be eligible to be screened for alcohol misuse and receive a treatment intervention.

Recruitment

Patients will be sent an invite letter and an information sheet by staff at Glynneath Dental Centre one month before the start of the study and their attendance at the practice in order to give them enough time to decide whether they would like to take part. The study period will then take place within the practice during the following two months.

Screening and Randomisation

Patients who decide to take part in the study will be stratified according to their initial appointment (with the dentist or hygienist). Reception staff will administer packs to patients containing a consent form, screening materials (Modified-Single Answer Screening Question or M-SASQ) and a short survey collecting socio-economic information, reasons for attendance and contact details. Packs will be randomly pre-allocated into control and intervention groups by strata and will be administered in sealed envelopes to conceal allocation from receptionists (details given further in study protocol). Consenting patients identified as having risky alcohol use from the M-SASQ and allocated to the intervention group will receive the intervention from the hygienist or dentist.

Intervention

A standard intervention (Motivational Interview) incorporating the FRAMES approach (involves giving patients Feedback, Responsibility, Advice, Menu of Options, Empathy, Self-Efficacy) will be used. Patients allocated to the control group will be treated as usual.

Sample Size

This is a feasibility study so it is not clear how many patients will be recruited. However, from observation of Glynneath Dental Centre, around 3000 patients will attend the practice over a two month period. It is estimated that around 800 patients will be eligible for the study, of which 160 will screen positive for at-risk alcohol use. Two strata and two experimental groups should give a cell size of 40. This should yield sufficient data in order to help conduct sample size estimates for a larger definitive trial.

Outcomes

The primary outcome measure will be the M-SASQ. Additional data will be collected to address secondary outcomes, including drinking and health status (EQ-5D). The process evaluation will identify whether the framework of design for this study is feasible. Data from the process evaluation will also help inform a larger more definitive randomised controlled trial.

Timeframe

5-6 months to train professionals, recruit patients, collect data and for follow-up.

Background to the study

(Roked Z, Moore SC, Shepherd JP. Alcohol misuse: screening and treatment in primary dental care. *Faculty Dental Journal* 2012; 3: 73-77.)

Introduction

The number of alcohol consumers has increased substantially across the 20th and early 21st centuries⁸. It is now estimated that around 40 million British adults regularly consume alcoholic drinks and while many do so moderately, about 25% exceed Department of Health guidelines⁹. A prominent feature of risky alcohol consumption is “binge drinking”, varyingly defined as drinking to get drunk or consuming more than twice the recommended daily allowance of alcohol in one session². It is estimated that in the UK 1 in 5 men and 1 in 7 women regularly binge drink and statistics suggest that approximately 1.7 million men drink around 50 units each week and 600,000 women drink 35 units each week¹⁰. Binge drinking has become normalised, with many consumers believing perhaps that they are immune from the risks associated with misuse.

Severe intoxication and alcohol dependence affect all body systems: prolonged exposure causes liver cirrhosis, hypertension, various cancers, stroke, cardiovascular damage and results in premature death. Alcohol misuse also affects the central nervous system resulting in delayed responses, impaired coordination and attention, as well as contributing to the development of psychological conditions such as depression and anxiety. Furthermore, misuse can have indirect effects on the health and well-being of people in the wider community through alcohol-related crime and social problems such as unemployment. The cost of alcohol misuse to the UK economy is an estimated £25 billion⁹. Therefore, promoting moderation would decrease the considerable economic, social and health burdens associated with alcohol consumption¹¹.

The importance of alcohol misuse to primary dental care

Healthcare settings are appropriate locations in which drinkers can be educated about the importance of moderation¹². In 2010, the Royal College of Surgeons of England published a position statement calling for dental surgeons, surgeons and emergency medicine specialists in secondary care settings to help curb the epidemic of alcohol misuse¹³. Research into screening and the incorporation of brief structured motivational advice into the standard care of patients treated in maxillofacial and trauma services for alcohol-related injuries has shown that this hazardous alcohol consumption can indeed be curbed¹⁴⁻¹⁵. While maxillofacial and trauma departments are an ideal place to identify and intervene¹⁶, the primary dental care setting might provide another widely available opportunity to intervene. However, this setting has yet to be systematically examined for this purpose.

Alcohol misuse can impact on the oral health of patients attending primary care services in numerous ways. Excessive alcohol consumption is not only a risk factor for sustaining oro-facial injury (either through falls, road traffic accidents or interpersonal violence) but it is also implicated in the aetiology of potentially fatal oral disease, including cancer of the mouth, larynx, pharynx and oesophagus².

Alcohol can have other detrimental effects on the dentition. Many people who drink hazardedly may suffer from non-carious tooth surface loss such as dental erosion and alcoholic beverages high in sugar may contribute to the development of dental caries. Tackling alcohol misuse is therefore of significance for primary care dental professionals from a purely dental perspective. Since those working in primary care see patients regularly, these dental providers are often the first to notice abnormalities of the oral mucosa characteristic of dysplasia and malignancy. Dental professionals in primary care may also treat patients with alcohol-related facial and dental trauma. Moreover, comparisons between light and heavy drinkers identified in general dental practice have found that heavy drinkers are more likely to suffer from dental pathology, such as periodontal disease¹⁷, possibly due to clustering of harmful behaviours (smoking, alcohol misuse and oral hygiene neglect). Incorporating alcohol misuse treatment into interventions targeting other harmful behaviours within the primary dental setting could therefore help dental professionals broaden their strategy in oral disease prevention. Furthermore, since alcohol misuse affects patients' general health, addressing this within primary dental care settings also enables dental professionals to meet their wider health promotion responsibilities.

Recommendations for tackling alcohol misuse within primary dental care

Addressing alcohol misuse within the dental setting is relevant to the UK Coalition Government's health priorities. The new primary care dental contracts reflects the aims of the UK Government to focus the attention of dental healthcare professionals on quality, treatment outcomes and how well their patients are looked after, rather than what treatments are delivered¹. There is now more emphasis on health promotion; tackling risky behaviours including alcohol misuse, especially within primary care settings, will help professionals improve quality of service, improve patients' treatment outcomes and promote general health. Furthermore, the "Preparing for Practice: dental team learning outcomes for registration" General Dental Council" (GDC) guidance on the education of dental healthcare professionals recommends that members of the dental team are committed to "promoting the health and well-being of the public"¹⁸. The dental profession in the UK therefore has a responsibility, which starts early in the dental curriculum, to promote health. Furthermore, there are other calls from within the British dental profession, including the British Dental Association (BDA) and also from the National Institute for Health and Care Excellence (NICE), for dental professionals, especially those in primary care, to manage alcohol misuse¹⁹⁻²¹. This is supported internationally where, across Europe, Australia and the United States for example, the dental profession is also seen to have an important role in health promotion²². Primary care dental professionals should therefore be willing to screen patients for alcohol misuse and educate them to reduce their exposure to risk.

The screening and treatment of misuse in primary medical care

The Royal College of General Practitioners (RCGP) and NICE recommend that primary medical practitioners should screen all patients for hazardous and harmful drinking²³⁻²⁴. One way in which alcohol misuse can be identified in patients attending primary care medical services is through the use of screening questionnaires. There are several screening questionnaires that have been developed

such as the Alcohol Use Disorders Identification Test (AUDIT) ²⁵ and abbreviated versions including AUDIT-C, the Fast Alcohol Screening Tool (FAST) ²⁶ and the Modified-Single Alcohol Screening Question (M-SASQ) ⁷. A systematic review of the literature shows that these screening tools provide valid and reliable methods for detecting misuse among patients in primary care ²⁷. The questionnaires are accompanied by scoring systems that help professionals to identify risky levels of alcohol consumption. Patients who score highly for misuse are treated with interventions such as brief structured motivational advice and brief lifestyle counselling. The aim is to increase patients' knowledge of the risks of drinking too much and help them to set goals to reduce alcohol consumption, with a Cochrane meta-analysis concluding in favour of the effectiveness of these interventions in lowering alcohol consumption ²⁸. Patients identified as dependent on alcohol are referred to specialist alcohol treatment and mental health services for further care.

Screening for alcohol misuse and treatment within primary dental care

Taking into account the procedures used by primary medical practitioners, similar strategies in screening and treatment could be adopted in primary dental care. An important opportunity arises from questioning patients on their levels of alcohol consumption during medical history taking. Patients attending primary dental services could be asked to fill in screening questionnaires, during this point in their consultation, in order to identify hazardous alcohol consumption or perhaps, standard alcohol questions used might be substituted with a valid, reliable assessment tool. After screening, the individuals identified as misusing alcohol could then be offered treatment, including brief motivational advice sessions delivered by dentists or hygienists. Liaison with the patients' medical practitioner could also result in referral to bodies for specialist care should the patient demonstrate alcohol dependence or depression ⁹.

Would alcohol screening and treatment in primary dental care be beneficial?

Research into the use of screening questionnaires and alcohol interventions within primary dental care settings is very limited. However, since dental healthcare professionals have a responsibility to protect patients' oral and general health tackling alcohol misuse amongst patients is extremely relevant to the profession ¹⁸. In addition, alcohol-related ill-health is a huge burden to healthcare services, with patients suffering from alcohol-related ill-health especially imposing burdens on specialist dental services. For example, oral and maxillofacial surgeons and restorative specialists treat patients suffering from alcohol-related trauma, tooth erosion and oral cancer. As mentioned, alcohol interventions have already been developed for use and have been shown to be effective in reducing hazardous alcohol consumption amongst patients attending secondary dental care maxillofacial units with alcohol-related trauma. The next logical step and one way to reduce the demands on these services, therefore, is to intervene more upstream in primary dental care before harm has occurred. The alcohol interventions already developed could be instituted by specialist services but delivered across primary care dental services. This may help to reduce the demands on specialist dentistry and on general healthcare services as a whole to a far greater extent.

Dentistry has, unusually compared to other healthcare professions successfully nurtured a proactive approach to oral health in the population. While patients do not attend their medical practitioners regularly, only visiting when they have a health problem, national surveys show that most people have regular contact with a dental team. The majority will attend primary care services for a routine check-up irrespective of any oral health problem ²⁹. There is also evidence from analysis of the Health Survey of England data that heavy drinkers also attend primary dental care general practice settings regularly. This contradicts evidence that suggests that levels of alcohol use appear to be related to levels of service use, with routine dental visits least likely in the heaviest drinkers ³⁰. It therefore seems more productive to intervene in a primary dental care setting, where patients including heavy drinkers may be seen regularly in order to try and reduce the burden of alcohol-related harm in the population.

Further work

Although appropriate screening tools are available it is still unclear which of these are most effective and efficient in primary dental care. In addition, while interventions such as motivational advice have been found to be effective in primary medical care and secondary dental care settings, further work is required to understand their effectiveness in primary dental care. The feasibility of screening and treatment needs investigation to determine how best to deliver this care in this new setting. Interventions coordinated by specialist services but delivered strategically in primary care settings seem to be a logical way forward. Research into how the dental profession deals with and responds to health issues, such as alcohol misuse, is extremely important as it will help identify the gaps in the evidence-base and to improve dental healthcare provision generally.

The Medical Research Council's framework to design and evaluate randomised controlled trials for complex health interventions ⁴ describes a series of phases that can be applied to trial development in dental settings. A systematic search of the literature has informed the theoretical phase and provides evidence that brief motivational interviews (MIs) based on the FRAMES (Feedback, Responsibility, Advice, Menu of options, Empathy, Self-efficacy) approach are effective in reducing alcohol-related harm in a range of healthcare settings ⁵⁻⁶. Furthermore, a short, valid screening tool, such as the Modified-Single Alcohol Screening Question (M-SASQ) ⁷ is likely to be successful in identifying patients with risky alcohol consumption in busy clinics. Qualitative research carried out by myself with various primary and secondary care dental teams suggests that hygienists in general dental practice provide the main opportunity to deliver an alcohol misuse treatment intervention, with dentists having a relatively limited opportunity reflecting time pressures.

Study aims/objectives

The objectives of this study are therefore:

- To determine the feasibility of an alcohol misuse screening and treatment intervention in primary dental care.

- To assess the acceptability of alcohol misuse screening and treatment interventions by patients in primary dental care.
- To determine opportunities to collect informed consent and screen patients in the reception area/waiting room environment.
- To determine appropriate sample size estimates for a larger, definitive randomised controlled trial.
- To assess time constraints on hygienists and dentists in delivering brief interventions.
- To determine intervention fidelity and selection biases.
- To inform the design of a larger, definitive trial.

Study Design

This study will be a randomised controlled trial to determine whether it is feasible to introduce alcohol misuse screening and treatment in a general dental practice setting. A process evaluation will also be carried out in order to assess the framework of design for this study in order to help inform a larger, definitive trial.

Study setting

The study will take place in Glynneath Dental Centre. The point of contact is the principal Dr Roshahn Martin. Dr Martin and his partner Dr Dharminy Martin have provided written agreement to facilitate this trial on behalf of their dental team.

Participants and sample size

All new and routine patients, aged 18-65 will be asked to take part in the study. Recruitment of patients will be carried out over two months. From observation of Glynneath Dental Centre, around 3000 patients will attend the practice over a two month period. It is estimated that around 800 patients will be eligible for the study, of which 160 will screen positive for at-risk alcohol use. Two strata and two experimental groups should give a cell size of 40 and sufficient data to conduct sample size estimates for a larger definitive trial, assess sampling biases and attrition.

Inclusion criteria

All participants will be eligible if they are able to provide informed written consent. They must be above the age of 18 and aged up to 65 years old. Both male and female participants and of any ethnic background will be recruited. All participants must be able to read and understand English sufficiently.

Exclusion criteria

Participants under the age of 18 years old will not be eligible to participate. Resources are not available for translators and interpreters and so participants who do not speak or cannot understand English and who have learning difficulties will not be invited to participate. There will also be no translators and interpreters for solely Welsh speakers, readers and writers, although invite letters, information sheets and

consent forms will be available in Welsh. Participants who cannot provide written informed consent will also not be recruited.

Identification of participants

All staff (therefore reception staff, dental nurses, dental hygienist and dentists) in the practice will be trained on the study protocol by the researchers prior to the start of the study (e.g. on inclusion and exclusion criteria of participants). Reception staff will be trained by the researchers to identify those patients who fit within the inclusion criteria and how to identify and approach patients for recruitment.

Patients will be given by the reception staff, one month prior to the start of the study an invite letter and information sheet detailing what the study will involve. This will allow patients to have sufficient time to decide whether or not they would like to take part in the study before they attend the practice during the two month study and recruitment period. This will also give them sufficient time to contact the researchers prior to the start of the study to ask questions (the researchers' contact details will be on the information sheet). The invite letter and information sheet will be given to patients by staff at the practice one month prior to the start of the study when new and routine appointments are made and when reminders are sent to patients in the post from the practice.

Patients will therefore be identified and approached by trained reception staff. The researchers will not be involved with the identification, selection or approach of patients.

Recruitment and screening of participants

As mentioned, all staff (therefore reception staff, dental nurses, dental hygienist and dentists) in the practice will be trained on the study protocol by the researchers prior to the start of the study. Patients will be stratified by reception staff according to their appointment with either the dentist or hygienist. Reception staff will administer packs to those patients attending during the two month study period who feel that they would like to take part in the study.

The packs will contain a consent form, screening materials (M-SASQ) and a short survey collecting socio-economic information, reasons for attendance and contact details. Patients will be asked to read and fill out the packs while in the waiting area. Consenting patients identified as having risky alcohol use from the M-SASQ and allocated to the intervention group will be eligible to receive the alcohol intervention from either the hygienist or dentist, depending on who they have their appointment with that day. Patients who have an appointment with both the hygienist and dentist on the same day will, if they score positive on the M-SASQ, be allocated to receive an intervention with the member of clinical staff they are due to see first (e.g. the dentist if they are due to see them before the hygienist).

Consent Process

As mentioned patients will be sent invite letters and information sheets with the researchers' details one month prior to the study starting and their attendance at the practice so that they have sufficient time to contact them to ask questions. Patients will be informed on the information sheet that they do not have to take part in the

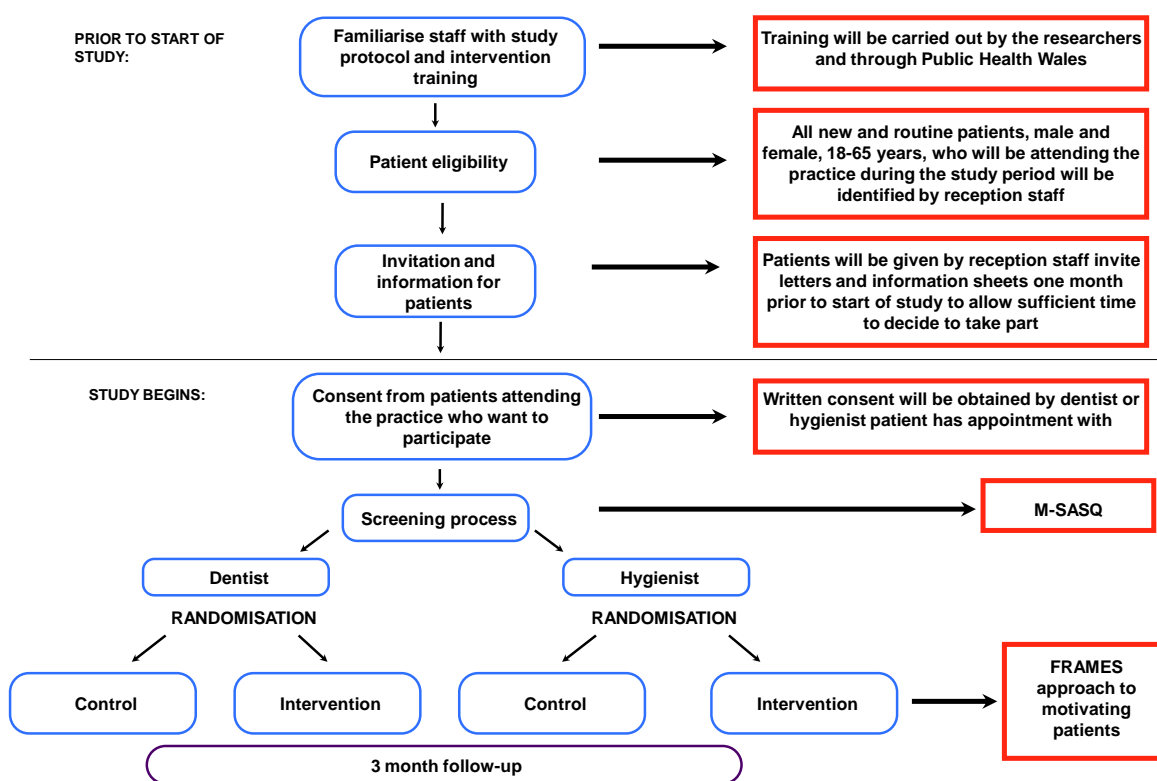
study when they attend the practice for their appointment during the study period and that they are free to refuse participation. They will also be informed that this will not affect their rights to dental treatment or care or their legal rights. They will also be informed on the information sheets that the aim of the study is to see if an alcohol intervention can be delivered in a general dental practice setting and that as a participant they have an equal chance of receiving the alcohol intervention or not.

Patients who want to take part in the study will provide written consent on attendance at the dental practice to demonstrate they have given their consent. All staff (therefore reception staff, dental nurses, dental hygienist and dentists) at Glynneath Dental Centre will be trained on the consent process by the researchers before the study begins. They will also be trained on the study protocol by the researchers and so will be able to answer any further questions patients may have on attendance that will further help the participant to give informed consent. The dentists and hygienist that the patient is seeing will also sign the consent form should the patient agree to take part in the study. Both the dentist and hygienist will be trained by the researchers on the consent process and taking and signing for consent. A copy of the consent form will be given to the patient, one for their dental notes and also one to the researchers for their records.

Randomisation

The packs given to patients will be randomly pre-allocated into control and intervention groups by strata (therefore according to whether they are seeing the hygienist or dentist). This allocation will be administered in a sealed envelope so as to conceal the patients' allocation from receptionists. The randomisation of packs will be determined before the study begins. Random number tables will be created by a member of research staff at Cardiff School of Dentistry independent to the study in order to allocate the packs into intervention or control group on the basis of odd or even numbers. The randomisation schedule and protocol will be kept by the researchers. The staff at Glynneath Dental Centre will be blind to the randomisation process so as to try and prevent practitioner bias in recruitment and the delivery of the intervention. All staff (receptionists, dental nurses, hygienist and dentists) in the practice will be trained on the scoring system of the screening instrument (M-SASQ) by the researchers and through Public Health Wales. As mentioned, consenting patients identified as having risky alcohol use from the M-SASQ and allocated to the intervention group will be eligible to receive the alcohol intervention from either the hygienist or dentist, depending on who they have their appointment with that day. Patients who have an appointment with both the hygienist and dentist on the same day will, if they score positive on the M-SASQ, be allocated to receive an intervention with the member of clinical staff they are due to see first (e.g. the dentist if they are due to see them before the hygienist).

Summary of Study Procedure:



Intervention

The dentist and hygiene staff at the practice will be trained to deliver the alcohol treatment intervention in collaboration with Public Health Wales and the Knowledge Transfer Partnership that is currently implementing MIs in maxillofacial clinics across Wales. Written agreement has been obtained from both Public Health Wales (Craig Jones, Senior Health Promotion Practitioner) and the Knowledge Transfer Partnership (KTP) (Dr Paul Jordan, KTP associate, Cardiff School of Dentistry).

A standard intervention (MI) incorporating the FRAMES approach will be used. The training will involve both the style of the intervention and the specific strategies that can be selected according to the needs of each participant. The dentist and hygienists will be trained on giving patients Feedback (about their drinking habits and how drinking may affect their health/oral health), Responsibility (emphasis to patients that reducing their alcohol consumption is their own), Advice (provision of simple advice), Menu (helps the patients identify from a menu of options actions that can change their behaviour), Empathy (the staff will be taught to maintain an empathetic approach throughout) and Self-Efficacy (helps the patient believe they are capable of change and give them the confidence to do this) ³¹. To ensure competency in delivering the intervention all staff will be audio taped and assessed prior to the start of the trial.

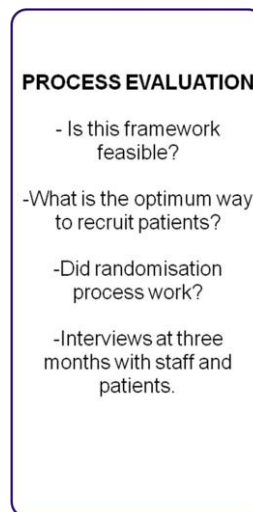
Patients allocated to the control group will receive treatment as usual. The patients in the intervention group will receive a standard intervention lasting 2-3 minutes long that will aim to motivate the participant to change their behaviour as outlined above.

Follow-up

Replicating SIPS trial methodology ⁹, patients in control and intervention groups will be followed-up at three months by their preferred means of contact. Patients will be followed up by Zairah Roked by telephone or post. At this point the M-SASQ will be administered, the primary outcome measure. Additional data will be collected to address secondary outcomes, including drinking and health status (EQ-5D). Patients will also be asked at three months whether they recall receiving a treatment intervention and what this comprised.

As already mentioned, a process evaluation will be carried out. This will help determine whether the framework of design is feasible to address the research study's objectives. It will also help identify recruitment biases by practitioner, whether interventions were delivered as instructed, whether there was enough time for patients to complete written material tasks, whether the process of randomisation and recruitment worked and whether trial attrition is related to alcohol use. Professionals will also be asked to feed back at three months how they felt the screening and treatment intervention fitted into practice routine.

Summary of the key points the process evaluation wants to look at:



Analysis

All data will be analysed on a Cardiff School of Dentistry computer. Data will be analysed using a statistical package (e.g. SPSS). Advice will be given from the Chief Investigator Dr Simon Moore on how best to do this. Advice will also be sought from Dr Rebecca Playle (senior lecturer in medical statistics at the School of Dentistry) e.g. advice on the randomisation protocol for the study.

Outcome measures

Replicating SIPS trial methodology⁹, patients in control and intervention groups will be followed-up at three months by their preferred means of contact at which point the M-SASQ will be administered, the primary outcome measure. Additional data will be collected to address secondary outcomes, including drinking and health status (EQ-5D), whether patients recall receiving a treatment intervention and what this comprised. The process evaluation will identify recruitment biases by practitioner, whether interventions were delivered as instructed, whether there was enough time for patients to complete written material tasks and whether trial attrition is related to alcohol use. Professionals will be asked to feedback how the screening and treatment intervention fitted into practice routine.

Dissemination and outcome

The findings of this study will be written up as part of the research student's PhD thesis. Study protocol and results will be published in peer reviewed journals. Participants who contact the researchers and wish to receive a summary of the findings will be sent one. Findings will be shared with the Chief Dental Officer for Wales and the Deputy Chief Dental Officer in England who is responsible for the development of the new dental contract. From discussions, findings of this research can inform risk assessment care pathway software. An application for funding for the larger definitive trial will also be made.

Ethical considerations

The research participants will enter into the study voluntarily. In order to help them make an informed decision to take part in the study, participants will be given an information sheet one month prior its start to help them to decide whether or not to take part (will have the researchers' contact details). Patients who want to take part in the study will provide written consent on attendance at the practice during the study period to demonstrate that informed consent has been obtained. All staff at Glynneath Dental Centre will be trained by the researchers on the consent process by the researchers before the study begins. They will also be trained by the researchers on the study protocol and so will be able to answer any questions patients may have on attendance to further help them give informed consent. A dentist or hygienist at the practice will sign the consent forms (depending on who the patient has their appointment with) and a copy will be given to the patient, as well as a copy for their dental notes and also to the researchers for their records. Patients will be informed on the information sheet prior to the start of the study that they are under no obligation to take part in the study and they are free to refuse. They will also be informed if they refuse to take part this will not affect their dental treatment, care or legal rights. Should they agree they will be informed they are free to withdraw from the study at any time.

There are no elements in the study that can cause physical/psychological distress (therefore neither the screening tool nor treatment intervention). The dentist and hygiene staff in Glynneath Dental Centre will be trained how to deliver the treatment intervention in collaboration with Public Health Wales and the Knowledge Transfer Partnership that is currently implementing MIs in maxillofacial clinics across Wales. To ensure competency in delivering the intervention the dentists and hygienist will be audio taped and assessed prior to the start of the trial. However, if a participant

does express concern over their drinking that the dentist or hygienist feel they are unable to deal with then the professional will be trained by Public Health Wales on what to do (e.g. if a patient shows signs of dependence rather than misuse the professional will be trained on who to refer the patient to). All staff members at the practice will also be given information on how to contact the project supervisors should they feel concerned over their own drinking habits.

All the data collected will be confidential and will be held separately from participant contact information. Participant contact information will be held in a secure filing cabinet in Cardiff School of Dentistry and kept for no longer than 3 months after the end of the study. The data collected will be anonymous with codes allocated to participants that only the researchers know. All data will be stored in a locked cupboard in Cardiff School of Dentistry. All participant codes will also be kept separate to participant contact information in secure cabinets. Data will be analysed and stored on a Cardiff School of Dentistry computer with a secure password. All data and documents relating to the study will be encrypted. The Trial Master File will be kept in a separate locked cupboard in Dr Moore's office throughout the study separate from participant contact information. After the study has finished all computer files will be stored and encrypted on Dr Moore's password locked, University computer and kept for 15 years. All data will also be stored and archived in a secure cupboard in Dr Moore's office and kept for 15 years. The Trial Master File will also be kept for 15 years in a secure locked cupboard in Dr Moore's office.

Experience of the research student

The research student (Zairah Roked) has some experience in carrying out randomised controlled trials, although this is limited. The student will therefore undergo courses on the design and analysis of randomised controlled trials in the clinical setting e.g. at Bristol University. The student will also undergo GCP training (Z Roked has already applied to go on a session held at University Hospital of Wales Clinical Research Facility). Advice and guidance has been sought from staff within Cardiff School of Dentistry (e.g. Dr Paul Jordan, KTP associate for the implementation of brief alcohol interventions in NHS services and Dr Rebecca Playle, senior lecturer in medical statistics at the School of Dentistry). Further advice will be sought from the project supervisors Dr Simon Moore and Professor Jonathan Shepherd who have a strong track record in randomised controlled trials (RCTs) in community and clinical settings. These include RCTs to determine the effectiveness of brief alcohol interventions in maxillofacial clinics and in magistrates' courts. Advice will also be sought from the South Wales Clinical Trials Unit and from DECIPHer.

Start and duration

It is anticipated that the research will begin as soon as ethical approval is granted. The research should take approximately five to six months to train professionals, recruit patients, to collect data and follow-up both patients and the professionals for feedback and assessment of the outcome measures.

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Appendix 9b

Study pack materials

Violence and Society Research Group
Director, Vice Dean and Professor of Oral and Maxillofacial Surgery
Jonathan Shepherd CBE FMedSci
Gŕŷp Ymchwil Trais a Chymdeithas
Cyfarwyddwr, Is Deon Ac Athro Llawfeddygaeth Eneuol a Genol-wynebol
Jonathan Shepherd CBE FMedSci

INVITE LETTER TO PATIENTS

Feasibility of alcohol screening and treatment in dental settings v4
DATE 16/05/13 version 4.0



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Dear Patient,

Research study:

A feasibility study to explore alcohol misuse screening and treatment in a general dental practice

I am writing to invite you to take part in the above named research study that will be carried out in the dental practice that you are attending (Glynneath Dental Centre) during the next two months. The study aims to establish whether it would be possible to introduce alcohol screening and treatment in a general dental practice setting.

Please take the time to read the information sheet attached.

You are under no obligation to take part in this study. Refusal will not affect your rights to dental care or treatment.

If you would like further information, please contact me on 07515 393112 or at rokedz@cf.ac.uk. We will send you feedback on the overall findings at the end of the study should you wish.

Yours faithfully,

Zairah Roked BSc, BDS (Hons) Wales, MJDF RCS(Eng)
Academic Clinical Fellow, PhD candidate Cardiff School of Dentistry

Research supervisors:

Dr Simon Moore
Professor Jonathan Shepherd

Lead Investigator, Reader, Applied Clinical Research & Public Health.
Professor of Oral and Maxillofacial Surgery, Director VSRG.

This research is sponsored by Cardiff University, affiliated with DFCI Her, NHS REC and R&D approval, funded by an FDS research training fellowship from the Royal College of Surgeons in England.

Participant information sheet

You are being invited to participate in a research study. Before you decide, you need to understand why the research is being done and what it would involve for you.

Please take time to read the following information carefully. If there is anything that is not clear or you would like further information, please contact us using the details provided on the next page. Take time to decide whether or not you wish to take part.

What is the purpose of the study?

This research seeks to understand whether it is possible to carry out alcohol misuse screening and treatment in a general dental practice setting.

Why have I been invited?

The only reason you have been chosen is because you are a patient aged 18-65 years old, male or female that will be attending Glynnneath Dental Centre during the next two months for dental care or treatment from either a dentist or hygienist.

Do I have to take part?

It is up to you to decide whether or not to take part. Refusal to take part will not affect your rights to dental care or treatment or your legal rights. If you decide to take part you will be given this information sheet to keep safe. If you decide to take part you are still free to withdraw at any time and without giving a reason (again neither of which will affect your dental care or treatment).

What is required of me?

If you are happy to take part, when you attend Glynnneath Dental Centre for your appointment, you will be given a pack by the reception staff to read and fill out while you are seated in the waiting room. Inside is 1) a consent form for you to sign to demonstrate you are happy to take part in the study, 2) an alcohol screening questionnaire and 3) a sheet to give your contact details.

Once you have completed the pack please hand it back to the dentist or hygienist that you are seeing. Your dentist or hygienist will have a look at the information and explain more about it as they feel appropriate. The aim of the study is to see if an alcohol intervention can be delivered within a general dental practice setting and so as a participant you would have an equal chance of receiving the intervention or not.

I would then like to contact you in three months time for feedback on this process. Your personal contact details will therefore be required.

Risks to participants

There are no risks associated with the completion of this study.

Who has reviewed the study?

This study has been reviewed by the NHS Research Ethics Committee.

Who is funding the research?

The research is funded by an FDS research training fellowship from the Royal College of Surgeons of England.

Will my participation in the study be confidential?

Yes, all information provided by you will be kept strictly confidential and only used by the research team. You will never be identified by name and your name will never be referred to in public e.g. presentations or publications. When the information gained is presented in project reports or publications any identifiers will be removed to ensure you remain anonymous.

The recorded information obtained during the study will be stored in locked research cabinets in the School of Dentistry in Cardiff and will be stored separately to your contact details, which will also be securely locked. The information will be written-up and stored on a password-locked University computer in the School of Dentistry.

The only time confidentiality will not be maintained is in the event of malpractice or misconduct being revealed.

What if I change my mind about taking part?

You are free to leave this study at any time without any explanation or obligation. If you wish to withdraw from the study at any point you can contact the project supervisors Dr Simon Moore or Professor Jonathan Shepherd by email on moore2@cardiff.ac.uk or shepherdjp@cardiff.ac.uk and your data will not be used in the study. Otherwise non-identifiable data will still be used.

Remember you may withdraw from this study at any time.

What happens after I have taken part?

The results from this study will be written up in a project thesis. Data may be used in formal presentations and may be sent for publication. The findings could also potentially be used to help inform practice and develop national and local policies.

You can send a contact email to the project supervisors (Dr Simon Moore and Professor Jonathan Shepherd) so that they can send you a summary of the findings when the information is analyzed and a report produced. You can request this, even if you withdraw from the study, by emailing moore2@cardiff.ac.uk or shepherdjp@cardiff.ac.uk.

What shall I do if I have any concerns or questions about or during the study?

If there are any further questions you would like answered please ~~please~~ telephone or email Dr Simon Moore or Professor Jonathan Shepherd using the contact details below. You can also ask the staff within ~~Glyneath~~ Dental Centre for further information.

Contact details

The research will be carried out by Zairah Roked an Academic Clinical Fellow in Cardiff School of Dentistry and PhD candidate, who can be contacted via email RokedZ@cardiff.ac.uk.

The project supervisors are Dr Simon Moore (lead/chief investigator) and Professor Jonathan Shepherd from Cardiff School of Dentistry. They can be contacted via email: moore2@cf.ac.uk or shepherdjp@cf.ac.uk or telephone 029 2074 4246 (Dr Moore) 02920 744215 (Professor Shepherd).

THIS SHEET IS FOR YOU TO KEEP

Consent Form

A Feasibility Study to Explore Alcohol Misuse Screening and Treatment in a General Dental Practice

Please initial box

1. I confirm that I have read and understand the information sheet dated 16/05/13 (version 4.0) for the above study.

2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason and without my dental care or legal rights being affected.

3. I agree to give details of my personal contact information which the researchers can use to contact me in three months' time.

4. I understand that data collected during the study, may be looked at by individuals from Cardiff University, from regulatory authorities or from the NHS Trust, where it is relevant to my taking part in this research. I give permission for these individuals to have access to my records

5. I understand in the event of misconduct or malpractice being revealed, confidentiality will not be maintained.

6. I agree to take part in the above study.

_____/ / _____
Name of Participant Date Signature

_____/ / _____
Name of dentist or hygienist Date Signature
(signing on behalf of researchers)

One copy for patient, one for researchers and trial master file, one for staff at practice to put in patient's notes

PERSONAL DETAILS FORM

Name: _____

Age: _____

Gender (circle): Male Female

Address: _____

Postcode _____

Contact telephone number: _____ (home) _____ (mobile)

Email address: _____

Reason for attendance today:

Appointment today is with (circle): dentist hygienist

Modified-Single Answer Screening Question (M-SASQ)

MEN: How often do you have 8 or more drinks on one occasion?

WOMEN: How often do you have 6 or more drinks on one occasion?

~~never~~

less than monthly

monthly

weekly

daily/almost daily

Participants who score “monthly”, “weekly” and “daily/almost daily” are classed as risky drinkers.

Appendix 9c

Follow-up materials

Violence and Society Research Group
Director, Vice Dean and Professor of Oral and Maxillofacial Surgery
Jonathan Shepherd CBE FMedSci
Grŵp Ymchwil Trais a Chymdeithas
Cyfarwyddwr, Is Deon Ac Athro Llawfeddygaeth Eneuo! a Genol-wynebol
Jonathan Shepherd CBE FMedSci

Feasibility of alcohol screening and treatment in dental settings v4
DATE 16/05/13 version 4.0
FOLLOW-UP LETTER TO PATIENTS



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Mynydd Bychan
Caerdydd CF14 4XY

Dear Patient,

Research study: A feasibility study to explore alcohol misuse screening and treatment in a general dental practice

I am writing to receive your feedback on the above named study that you took part in at Glynneath Dental Centre.

The study aims to establish whether it would be possible to introduce alcohol screening and treatment in a general dental practice setting. The findings of this study will be publicised and could potentially help to inform practice and develop national and local policies.

I would therefore like you to complete the documents enclosed. These are **1) the alcohol screening questionnaire, 2) a questionnaire to determine your health status** and **3) a questionnaire to gain information on what you remember about and your opinions on the study process**. Please return these in the pre-paid and labelled envelope within this pack.

If you would like further information, please contact me on 07515 393112 or at rokedz@cf.ac.uk. We will send you feedback on the overall findings at the end of the study should you wish.

Many thanks for your cooperation,

Zairah Roked BSc, BDS (Hons) Wales, MJDF RCS(Eng)
Academic Clinical Fellow, PhD candidate Cardiff School of Dentistry

Research supervisors:
Dr Simon Moore Lead Investigator, Reader, Applied Clinical Research & Public Health.
Professor Jonathan Shepherd Professor of Oral and Maxillofacial Surgery, Director VSRG.

This research is sponsored by Cardiff University, affiliated with DFCEP/Her, NHS REC and R&D approval, funded by an FDS research training fellowship from the Royal College of Surgeons in England.

FOLLOW-UP QUESTIONS (patients)Follow-up questions for patients:

These questions require yes/no answers:

- 1) Do you remember having to complete a pack? Y / N
- 2) Was there enough time for you to read the pack? Y / N
- 3) Were you given enough information before you agreed to take part?
Y / N
- 4) Were you happy with the amount of information you were given before you signed the consent form?
Y / N
- 5) Were you happy with the amount of time given for you to give consent and agree to take part?
Y / N
- 6) Was there enough time for you to complete the pack? Y / N
- 7) Do you remember receiving information from your dental healthcare professional about your drinking habits? Y / N

Any additional comments to give further details about the above questions:

The next few questions require you to give a little bit more detail:

- 8) What information did you receive?

- 9) How did you feel receiving this information?

10) Do you think the information was appropriate?

11) Any suggestions for improvement?

FOLLOW-UP QUESTIONS (staff)

Follow-up questions for staff at [Glynneath Dental Centre](#):

The following questions require details:

1) Was there enough time for elements in the study (e.g. packs being completed, delivering intervention to patients)?

2) How do you feel the screening and treatment intervention fit within the daily running of your practice?

3) Any suggestions for improvement?

EQ-5D-Y

Describing your health TODAY

Under each heading, please tick the ONE box that best describes your health TODAY

Mobility (*walking about*)

- I have no problems walking about
- I have some problems walking about
- I have a lot of problems walking about

Looking after myself

- I have no problems washing or dressing myself
- I have some problems washing or dressing myself
- I have a lot of problems washing or dressing myself

Doing usual activities (*for example, going to school, hobbies, sports, playing, doing things with family or friends*)

- I have no problems doing my usual activities
- I have some problems doing my usual activities
- I have a lot of problems doing my usual activities

Having pain or discomfort

- I have no pain or discomfort
- I have some pain or discomfort
- I have a lot of pain or discomfort

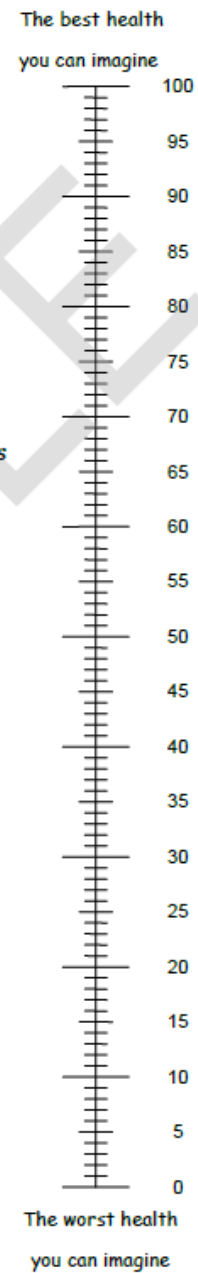
Feeling worried, sad or unhappy

- I am not worried, sad or unhappy
- I am a bit worried, sad or unhappy
- I am very worried, sad or unhappy

UK (English) © 2008 EuroQol Group. EQ-5D™ is a trade mark of the EuroQol Group

How good is your health TODAY

- We would like to know how good or bad your health is TODAY.
- This line is numbered from 0 to 100.
- 100 means the best health you can imagine.
0 means the worst health you can imagine.
- Please mark an X on the line that shows how good or bad your health is TODAY.



Appendix 10

Ethical approval for the exploratory trial

Part of the research infrastructure for Wales funded by the National Institute for Social Care and Health Research, Welsh Government.
Yr rhan o sefyllfaeth ymchwil Cymru a ariannir gan y Sefyllfaeth Cenedlaethol ac gyfwr Ymchwil Gofal Cymdeithasol ac Iechyd, Llywodraeth Cymru



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Website : www.nres.nhs.uk

06 September 2013

Miss Zairah Y Roked
Academic Clinical Fellow, part-time PhD student
Flat 174 Altolusso
Bute Terrace
Cardiff
CF10 2FG

Dear Miss Roked

Study title: A study to explore the feasibility of alcohol misuse screening and treatment interventions in a general dental practice.
REC reference: 13/WA/0237
Protocol number: SPON 1225-13
IRAS project ID: 129924

Thank you for your letter of 06 September 2013, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Chairman.

We plan to publish your research summary wording for the above study on the NRES website, together with your contact details, unless you expressly withhold permission to do so. Publication will be no earlier than three months from the date of this favourable opinion letter. Should you wish to provide a substitute contact point, require further information, or wish to withhold permission to publish, please contact the Co-ordinator Ms Penny Beresford, penny.beresford@wales.nhs.uk.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.



Cyhoirir Cychwynnodol Gwyddor Iechyd Academaidd y Sefyllfaeth Cenedlaethol ac gyfwr Ymchwil Gofal Cymdeithasol ac Iechyd gan Fwrdd Addysgu Iechyd Pwys
The National Institute for Social Care and Health Research Academic Health Science
Collaboration is hosted by Pwys Teaching Health Board



Ethical review of research sites

NHS sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see 'Conditions of the favourable opinion' below).

Conditions of the favourable opinion

The favourable opinion is subject to the following conditions being met prior to the start of the study.

Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.

Management permission ("R&D approval") should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements.

Guidance on applying for NHS permission for research is available in the Integrated Research Application System or at <http://www.rdforum.nhs.uk>.

Where a NHS organisation's role in the study is limited to identifying and referring potential participants to research sites ("participant identification centre"), guidance should be sought from the R&D office on the information it requires to give permission for this activity.

For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.

Sponsors are not required to notify the Committee of approvals from host organisations

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document	Version	Date
Evidence of insurance or indemnity		20 June 2013
Investigator CV	8	04 July 2013
Letter from Sponsor		20 June 2013
Letter of invitation to participant	8	04 July 2013
Other: CV - Simon Moore		03 October 2011
Other: CV - Prof J Shepherd		04 July 2013
Other: Practice agreement	8	04 July 2013
Other: PHW agreement	8	04 July 2013
Other: R&D school agreement	8	04 July 2013

Other: M-SASQ	8	04 July 2013
Other: personal details form	8	04 July 2013
Other: follow-up letter to patients	8	04 July 2013
Other: Sample EQ-5D-Y	8	04 July 2013
Other: follow-up questions	8	04 July 2013
Other: information on grant and breakdown of costs		
Participant Consent Form	9.0	02 September 2013
Participant Information Sheet	9.0	02 September 2013
Protocol	8	04 July 2013
REC application	8	04 July 2013
Referees or other scientific critique report	8	04 July 2013
Response to Request for Further Information		06 September 2013

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Reporting requirements

The attached document *"After ethical review – guidance for researchers"* gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Notification of serious breaches of the protocol
- Progress and safety reports
- Notifying the end of the study

The NRES website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

Feedback

You are invited to give your view of the service that you have received from the National Research Ethics Service and the application procedure. If you wish to make your views known please use the feedback form available on the website.

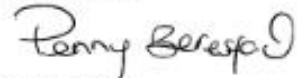
Further information is available at National Research Ethics Service website > After Review

13/WA/0237	Please quote this number on all correspondence
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We are pleased to welcome researchers and R & D staff at our NRES committee members' training days – see details at <http://www.hra.nhs.uk/hra-training/>

With the Committee's best wishes for the success of this project.

Yours sincerely



Roy L. Evans
Chairman

RP

Enclosures: "After ethical review – guidance for researchers" [SL-AR2]

Copy to: Helen Falconer, Cardiff University (Research Governance)
Miss Jemma Hughes, Abertawe Bro Morgannwg University Health Board

Appendix 11

Published journal article

OPINION
Zairah Roked, Simon Moore and Jonathan Shepherd
DOI 10.1308/204268512X13312096186325

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Alcohol misuse: screening and treatment in primary dental care by Zairah Roked, Simon Moore and Jonathan Shepherd

Unlike primary medical care, primary dental care services are used by patients on a regular, prevention-orientated basis. This provides the primary dental healthcare team with unique opportunities to intervene, particularly as asking patients about their levels of alcohol consumption is a routine component of medical history taking. Effective treatment options include motivational advice, information leaflets and, when necessary, referral to specialist mental health professionals in consultation with the patient's medical practitioner.

*Authors: Zairah Roked, * Walport Academic Clinical Fellow; Dr Simon Moore, Reader, Applied Clinical Research and Public Health, Violence and Society Research Group; Professor Jonathan Shepherd, Professor of Oral and Maxillofacial Surgery, Director Violence and Society Research Group; School of Dentistry, University of Cardiff, Cardiff.*
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E: rokedz@cf.ac.uk*

Keywords: alcohol, dental, primary care, screening, treatment

FACULTY DENTAL JOURNAL April 2012 • Volume 3 • Issue 2

The number of alcohol consumers has increased substantially across the 20th and early 21st centuries.¹ It is now estimated that around 40 million British adults regularly consume alcoholic drinks and while many do so moderately, about 25% exceed Department of Health guidelines.² A prominent feature of risky alcohol consumption is 'binge drinking', varying defined as drinking to get drunk or consuming more than twice the recommended daily allowance of alcohol in one session.² It is estimated that in the UK approximately 1-in-3 men and 1-in-5 women binge drink, with statistics suggesting that 8% of men and 2% of women drink more than 50 and 35 units a week respectively.³ Binge drinking has become normalised, with many consumers believing that they are immune from the risks associated with misuse.

Severe intoxication and alcohol dependence affect all of the body's systems: prolonged exposure causes liver cirrhosis, hypertension, various cancers, stroke, cardiovascular damage and results in premature death. Alcohol misuse also affects the central nervous system resulting in delayed responses, impaired coordination and attention, as well as contributing to the development of psychological conditions such as depression and anxiety. Furthermore, misuse can have indirect effects on the health and well-being of people in the wider community through alcohol-related crime and social problems such as unemployment. The annual cost of alcohol misuse to the UK economy is an estimated £25 billion.² Therefore, promoting moderation would decrease the considerable economic, social and health burdens associated with alcohol consumption.⁴

The importance of alcohol misuse to primary dental care
Healthcare settings are appropriate locations in which drinkers can be educated about the importance of moderation.⁵ In 2010, The Royal College of Surgeons of England published a position statement calling for dental surgeons, surgeons and emergency medicine specialists in

secondary care settings to help curb the epidemic of alcohol misuse.⁶ Research into screening and the incorporation of brief, structured, motivational advice into the standard care of patients treated in maxillofacial and trauma services for alcohol-related injuries, has shown that this hazardous alcohol consumption can be curbed.^{7,8} While maxillofacial and trauma departments are an ideal place to identify and intervene,⁹ the primary dental care setting might provide another widely available opportunity for such interventions. However, this setting has yet to be systematically examined for this purpose.

Alcohol misuse can impact on the oral health of patients attending primary care services in numerous ways. Excessive alcohol consumption is not only a risk factor for sustaining orofacial injury (either through falls, road traffic accidents or interpersonal violence) but also implicated in the aetiology of potentially fatal oral disease, including cancers of the mouth, larynx, pharynx and oesophagus.¹⁰ Alcohol can have detrimental effects on the dentition. Many people who drink hazardously may suffer from non-carious tooth-surface loss such as dental erosion and alcoholic beverages high in sugar may contribute to the development of dental caries. Tackling alcohol misuse is therefore of significance for primary care dental professionals from a purely dental perspective. Since those working in primary care see patients regularly, they are often the first to notice abnormalities of the oral mucosa characteristic of dysplasia and malignancy. Dental professionals in primary care may also treat patients with alcohol-related facial and dental trauma. Moreover, comparisons between light and heavy drinkers identified in general dental practice have found that heavy drinkers are more likely to suffer from dental pathology, such as periodontal disease,¹¹ possibly due to clustering of harmful behaviours (smoking, alcohol misuse and oral hygiene neglect). Incorporating alcohol misuse treatment into interventions targeting other harmful behaviours within the primary dental setting could therefore help dental

professionals broaden their strategy in oral disease prevention. Furthermore, since alcohol misuse affects patients' general health, addressing this within primary dental care settings also enables dental professionals to meet their wider health promotion responsibilities.

Recommendations for tackling alcohol misuse within primary dental care

Addressing alcohol misuse within dental settings is relevant to the UK government's health priorities; the new primary care dental contract reflect its aim to focus the attention of dental healthcare professionals on quality, treatment outcomes and how well their patients are looked after, rather than what treatments are delivered.¹² There is now more emphasis on health promotion; tackling risky behaviours, including alcohol misuse, especially within primary care settings, will help professionals improve quality of service, improve patients' treatment outcomes and promote general health. Furthermore, *The First Five Years* guidance from the GDC on the education of dentists recommends that all dental healthcare professionals should be committed to 'promoting the health and well-being of the public'.¹³ The dental profession in the UK therefore has a responsibility to promote health. There are other calls from within the dental profession, including the British Dental Association (BDA), and from the National Institute for Health and Clinical Excellence (NICE), for health professionals, especially those in primary care, to manage alcohol misuse.¹⁴⁻¹⁶ This is supported internationally where, across Europe, Australia and the United States for example, the dental profession is seen to have an important role in health promotion.¹⁷ Primary care dental professionals should therefore be willing to screen patients for alcohol misuse and educate them to reduce their exposure to risk.

The screening and treatment of misuse in primary medical care

The Royal College of General Practitioners and NICE recommend that primary medical practitioners should

dentistry [...] compares favourably with other healthcare professions in nurturing a proactive approach to health in the population



borderline risk is an important area for intervention [...] professionals should use 'a mass strategy' in health promotion, targeting not just those at high risk

screen all patients for hazardous and harmful drinking.^{18,19} Alcohol misuse can be identified in patients attending primary care services through the use of screening questionnaires. There are several screening questionnaires that have been developed such as AUDIT²⁰ (alcohol use disorders identification test) and abbreviated versions including AUDIT-C and the FAST²¹ (fast alcohol screening test). A systematic review of the literature shows that these screening tools provide valid and reliable methods for detecting misuse among patients in primary care.²²

Typically the questionnaires include questions such as:

- How often do you have a drink containing alcohol?
- How many units of alcohol do you think you drink on a typical day when you are drinking?
- How often do you have six or more units of alcohol on one occasion?
- How often during the last year have you failed to do what was normally expected from you because of drinking?
- How often during the last year have you been unable to remember what happened the night before because you had been drinking?
- Has a relative or friend or doctor or other health worker been concerned about your drinking or suggested you cut down?

The questionnaires are accompanied by scoring systems that help professionals to identify risky levels of alcohol consumption. Patients who score highly for misuse are treated with interventions such as structured motivational advice, information leaflets and brief counselling. The aim is to increase patients' knowledge of the risks of drinking too much and help them to set goals to reduce alcohol consumption, with evidence confirming the effectiveness of these interventions.²³ Patients identified as dependent on alcohol are referred to specialist alcohol treatment and mental health services for further care.

Screening for alcohol misuse and treatment within primary dental care

Taking into account the procedures used by primary medical practitioners, similar strategies in screening and treatment could be adopted in primary dental care. An important opportunity arises from questioning patients on their levels of alcohol consumption during medical history taking. Patients attending primary dental services could be asked to fill in screening questionnaires during this point in their consultation, in order to identify hazardous alcohol consumption. Alternatively, the usual alcohol questions asked when taking a history might be substituted with a valid, reliable assessment tool such as the FAST. After screening, the individuals identified as misusing alcohol could then be offered treatment, including brief motivational advice sessions delivered by hygienists or dental nurses. Liaison with the patients' medical practitioner could also result in referral for specialist care should the patient demonstrate alcohol dependence or depression, for example.²

Would alcohol screening and treatment in primary dental care be beneficial?

Research into the use of screening questionnaires and alcohol interventions within primary dental care settings is very limited. There is some evidence, however, that straightforward methods of screening for alcohol misuse in primary general dental practice settings can be useful. A study by Lim *et al* suggested that screening patients for hazardous drinking according to the number of units consumed per week reflects levels of alcohol consumption in the general population.²⁴ Merely asking patients about the units consumed could therefore help to identify high risk habits that could result in the development of alcohol-related diseases. In addition, since patients attending general dental practice may, from the evidence, be representative of the general population in terms of high risk habits, such a setting is likely to be a realistic alternative to population-based screening.

Unfortunately, it has been argued by some that screening for alcohol misuse in primary dental care settings, whatever the method, would be misleading. Netuveli *et al* suggested that since high risk drinkers are unlikely to attend primary care services, screening would be ineffective in measuring misuse and disease prevalence.²⁵

Dentistry, however, compares favourably with other healthcare professions in nurturing a proactive approach to health in the population. While patients do not attend their medical practitioners regularly, only visiting when they have a health problem, national surveys show that most people have regular contact with a dental team. The majority will attend primary care services for a routine check-up irrespective of any oral health problem.²⁶ While evidence suggests that levels of alcohol use appear to be related to levels of service use, with routine dental visits least likely in the heaviest drinkers,²⁷ this does not mean that regular dental attendees should not be identified or treated for alcohol misuse.

Changes in the UK drinking culture suggest that many users of primary dental care services, especially young people, misuse alcohol, and that many patients may be borderline risky drinkers. Borderline risk is an important area for intervention, epitomised in Rose's article as the 'paradox of prevention' where he argues that professionals should use 'a mass strategy' in health promotion, targeting not just those at high risk.²⁸ To generalise alcohol misuse, the risk of harm increases as the level of alcohol consumed increases but, as there may be vastly more moderate than risky drinkers attending primary care services, the number of those experiencing alcohol-related harm will be greater in moderate drinkers due to weight of numbers. As a whole it is likely to be more productive for reducing the burden of alcohol-related harm to intervene with both borderline and high risk drinkers in primary care settings.

Further work

Although appropriate screening tools are available it is still unclear which of these are most effective and efficient in primary dental care. In addition, while interventions such as motivational advice have been found to be effective in primary medical care and secondary dental care settings, further work is required to understand the barriers and facilitators to delivering these interventions, as well as their effectiveness, in primary dental care. The feasibility of screening and treatment also needs investigation to determine how best to deliver this care in this new setting.

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Appendix 12

Published journal article

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RESEARCH

Zairah Roked, Rhys Watson, Simon Moore and Jonathan Shepherd
DOI 10.1308/204268514X14017784506050

Identification of alcohol misuse in dental patients

by Zairah Roked, Rhys Watson, Simon Moore
and Jonathan Shepherd

It's on the medical history form and you may feel like you've asked it thousands of times: 'How many units of alcohol do you consume each week?'. But is this question effective at identifying people with alcohol problems? Our authors provide evidence that a new approach to recording alcohol consumption would lead to more and better advice being given to patients.

Authors: Zairah Roked,* 2013 FDS Research Fellow,¹ Rhys Watson, Final BDS Student,¹ Simon Moore, Professor of Psychology,² and Jonathan Shepherd, Professor of Oral and Maxillofacial Surgery and Director.²

¹ School of Dentistry, Cardiff University, Cardiff, CF14 4XY.

² Violence and Society Research Group, Cardiff University, Cardiff, CF14 4XY.

* Corresponding author:
E: rokedz@cf.ac.uk

Keywords: alcohol screening, medical history, dentistry, audit

The General Dental Council (GDC) states in Standards for the Dental Team that dental professionals must adopt 'a holistic and preventive approach to patient care', acting to promote and protect not only their patients' oral health but also their patients' 'overall health'.¹

Alcohol misuse can impact on both oral and general health of dental patients in numerous ways. For example, drinking regularly in excess is associated with the development of oral, laryngeal, pharyngeal and oesophageal carcinomas, plus oro-facial injury in falls, road accidents and interpersonal violence.² Excessive alcohol intake is also implicated in the development of dental caries, tooth erosion and periodontal disease.^{3,4}

Excessive consumption compromises general health through increasing the risk of more than 60 systemic diseases and conditions, many of which can result in premature death. Promoting safe drinking among dental patients could therefore improve oral and general health consistent with GDC recommendations.

Other bodies also recommend that dental professionals routinely enquire and advise patients about their drinking. These include the World Health Organization (WHO), the British Dental Association (BDA), the Na-



It appears that this units question has not been assessed as a screening instrument in dentistry

tional Institute for Health and Care Excellence (NICE) and The Royal College of Surgeons of England.⁵⁻¹² The Department of Health estimates that 25% of alcohol consumers in the UK do not comply with their guidelines on safe drinking: for men drinking no more than three to four units per day and for women, no more than two to three units per day, with 48 hours alcohol free between each drinking session.¹³ The Royal College of Physicians suggests that men should not drink more than 21 units per week and women no more than 14 units per week.¹⁴ The Faculty of General Dental Practitioners UK (FGDP(UK)) advises in *Clinical Examination and Record Keeping: Good Practice Guidelines* that primary care dental professionals should ask all new patients 'How many units of alcohol do you consume each week?'.¹⁵ However, a Dundee study found that although this question is included in medical history forms used in dentistry, 42% of the dentists sampled did not ask this question.¹⁶ Furthermore, even when this question was asked and the units per week exceeded recommended limits; advice on reducing consumption was not given. It appears that this units question has not been assessed as a screening instrument in dentistry.

This paper describes two clinical audits of completion of the alcohol item in the standard medical history obtained from patients attending the emergency clinic at

the University Dental Hospital, Cardiff. The first audit aimed to assess whether and to what extent the units question, as recommended by the FGDP(UK), was being answered and whether or not the answers recorded were used to advise at-risk patients. Based on the findings of this initial work, a follow-up audit was then completed, taking account of the recommendations for change established in the first audit cycle.

Audit One

Method

Standards for assessing completion rate for the units question were set at 100% because the GDC and FGDP(UK) advise that all patients should be asked about their alcohol consumption.^{1,15} The audit took place over four weeks using a convenience sample of 10 to 15 male and female, new and follow-up patients, aged 18-75 years old, selected by reception staff each day. Completed medical history forms were examined by the authors.

Results

261 patient records were analysed, in which 233 (89%) included responses to the alcohol question. In 54 of these (23%), numbers of units were not recorded.

Instead, responses comprised a phrase or sentence that made it impossible to assess whether the patient was drinking above the recommended limits. Examples included 'occasionally drinks' and 'patient drinks only on weekends'. Notwithstanding this, 18 out of 233 patients (7%) were identified as drinking at dangerous levels, though none of these patients were given information or advice on reducing their consumption.

Discussion and agreed outcomes

This audit demonstrated limited compliance with alcohol units screening, and non-compliance in the provision of advice. In addition, the units question was shown to be unreliable as the levels of consumption for nearly a quarter of patients could not be determined. These findings, together with lack of evidence of the validity of this approach, meant that changes to clinical practice were needed.

Agreed recommendations were:

- The medical history alcohol question should be substituted with a reliable and valid screening instrument.
- Leaflets should be available for clinic staff to distribute to patients where there was evidence of alcohol misuse.

These changes were agreed by the University Health Board Oral Surgery, Medicine and Pathology clinical audit group. Dental emergency clinic staff were notified of the changes to be made.

The Modified-Single Alcohol Screening Question (M-SASQ) is a single item screening instrument. 'How often do you have eight or more standard drinks if male, or six or more standard drinks if female, on one occasion?' (Figure 1).¹⁷ This question is identical to the first item of the Fast Alcohol Screening Test (FAST).¹⁸ The Screening and Intervention Programme for Sensible drinking (SIPS), funded by the Department of Health, demonstrated that the M-SASQ is an effective and reliable screening tool that could be used quickly in busy emergency medical settings such as A&E departments.¹⁹ This screening test was chosen to replace the alcohol units question because of its brevity and extensive evidence of reliability and validity in busy healthcare settings.

Figure 1 The Modified-Single Alcohol Screening Question (M-SASQ) and its scoring system¹⁷

Figure 2 The Department of Health's *Change 4 Life* leaflet²⁰

1

Please place a cross in the relevant box.

MEN: How often do you have EIGHT or more standard drinks on one occasion?					
WOMEN: How often do you have SIX or more standard drinks on one occasion?					
Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Scoring the M-SASQ

If the patient's response is 'Monthly', 'Weekly' or 'Daily or almost daily' the score is M-SASQ positive.

If their response is 'Never' or 'Less than monthly' the score is M-SASQ negative.

The *Change 4 Life* 'Don't let drink sneak up on you' information leaflet, produced by the Department of Health, includes information for patients on safe drinking levels, why they should comply with these and how to reduce drinking (Figure 2).²⁰ These leaflets were chosen for clinic staff to distribute to those patients shown to be drinking above safe limits. Copies were obtained in Welsh and English from the Welsh Assembly Government Health Promotion Library.

Audit Two

The purposes of the second audit were to find out if the new alcohol item (the M-SASQ) was completed more often than the existing alcohol units question and whether patients who were identified through M-SASQ screening as drinking harmfully/hazardously were given the Department of Health *Change 4 Life* alcohol advice leaflet.

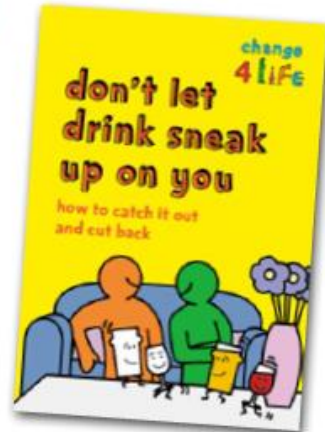
Method

Standards were set at 100%, as before, and the audit was undertaken over 4 weeks. Reception staff selected 10–15 records from the clinic each day, as in Audit One. This time, however, responses to three versions of the medical history form were compared: one with the units question only, one with the M-SASQ only and one with both questions. Medical history forms were then examined to assess the extent to which the alcohol questions were answered. The records were also examined to determine whether leaflets were given to those patients identified as drinking above the M-SASQ threshold.

Results

284 patient records were analysed, of which 74 included a medical history form with the units question only, 81 included both the units question and the M-SASQ and 124 records included the M-SASQ only. Five patient records did not include evidence that a medical history had been recorded.

2



Forms with the medical history units question only

This alcohol units question was answered by 53 of the 74 (72%) patients but just 27 out of these 53 (51%) included unit numbers; 26 forms included a phrase or sentence of no value. Using this screening question, 3 out of 53 (6%) patients were identified as drinking at harmful levels.

Forms with both the M-SASQ and the units question

76 out of 81 (94%) patients who were asked both the M-SASQ and the units question provided information about their drinking. 55 had answered the M-SASQ only and 21 answered both questions. No forms included answers to the units question only. 30 out of 76 (39%) patients were identified as risky drinkers.

Forms with the M-SASQ only

This screening question was completed by 122 out of 124 (98%) patients. Of these, 25% were identified as drinking above the M-SASQ threshold.

Advice given to patients

Of the three patients who were detected as drinking hazardingly/harmfully from answers to the units question, none were given advice leaflets according to the patient records. Out of the 30 patients who were found to be drinking hazardingly/harmfully from the medical history forms with both M-SASQ and units questions, 4 were given advice leaflets, according to the records. Out of the 30 patients who were found to be drinking above the M-SASQ threshold only, three were given advice leaflets.

Conclusions

The results of both audits showed that the units question was not completed either usefully or at all by dental emergency clinic staff in a substantial proportion of cases – 89% and 72% respectively in Audits One and Two. The units question was completed incorrectly in 23% and 49% of cases respectively in the first and second audits and, as a result, the drinking levels of these patients were unknown. The M-SASQ, however, was completed far more often than the units question. Even when both the units question and the M-SASQ were present on the medical history form, the M-SASQ was answered much more often. The M-SASQ also identified more patients who had an alcohol problem and its use led to more patients being given alcohol advice.

Actions as a result of this audit

It was agreed by the University Health Board Oral Surgery, Medicine and Pathology clinical audit group that the alcohol units question should be substituted with the M-SASQ on the medical history form used throughout the Cardiff University Dental Hospital. It was also agreed that the Department of Health's *Change 4 Life* alcohol advice leaflet should be available in all dental hospital clinics and given to patients scoring above the M-SASQ threshold.

Recommendations

From these audit findings, dental clinics should, wherever the units question is used, substitute it in the medical history form with the M-SASQ. This will help dental professionals screen patients effectively and prompt the provision of advice to those drinking harmfully. Alcohol advice leaflets from the Department of Health, or other evidence-based sources, should be made available to clinical staff. These steps are easy to implement.

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Appendix 13

Published abstract

Poster Abstracts

Feasibility of alcohol misuse screening and treatment in the dental setting

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Abstract

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Background Dental specialists treat conditions such as facial trauma and oral cancer that can result from alcohol misuse. Visits to primary dental care professionals are oriented towards prevention. Interventions coordinated by specialist services but delivered strategically in primary care could therefore potentially help to reduce burdens on secondary care services. The aim of this study was to determine the feasibility of screening for alcohol misuse and providing brief intervention in a primary dental care setting.

Methods In this randomised controlled trial, patients aged 18–65 years were recruited from a local general dental practice. Patients were stratified according to appointment (with a dentist or hygienist). Reception staff administered envelope packs containing screening materials (the Modified Single Alcohol Screening Question [M-SASQ]), consent forms, and a short survey collecting contact details to patients who agreed to take part in the study. Packs were randomly pre-allocated to control and intervention groups by strata using block randomisation before the start of the study. Consenting patients scoring positively on the M-SASQ for drinking hazardously and allocated to the intervention group received a motivational intervention to reduce alcohol intake from either the hygienist or dentist. Patients in the control group received usual care. The outcome assessor and patients were masked to allocations. The outcome measure at 3 months was M-SASQ score. This trial is registered with the ISRCTN registry, number ISRCTN18745862.

Findings One hygiene patient and 106 dental patients were recruited. The hygiene patient did not score positively on the M-SASQ for alcohol misuse. Of the 106 dental patients, 46 (43%) scored positively, with 26 allocated to the intervention group and 20 to the control group. Follow-up data were available for 22 (48%) of the 46 patients (12 intervention, 10 control). M-SASQ scores changed from positive to negative for two patients in the intervention and five in the control group.

Interpretation Alcohol misuse screening and treatment was feasible in a primary dental care setting; this suggests a new approach involving the general dental team, which could potentially reduce burdens on specialist dental services. Overall, in this practice, the dentist was best placed to deliver the intervention rather than the hygienist since these health-care professionals saw most of the patients recruited into the trial. Contamination might have been a problem because more patients in the control group changed M-SASQ score. Building on these findings, a multicentre, cluster randomised controlled trial is planned.

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Contributors

This work will form part of the PhD thesis for ZR. SM and JS are supervisors for the project. ZR wrote the abstract with approval of the final draft from SM. Design of the study was by ZR with guidance from SM and JS. Data were collected and analysed by ZR with advice from SM and JS.

Declaration of interests

We declare no competing interests.

