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# THE ORAL HEALTH AND PSYCHOSOCIAL NEEDS OF SCOTTISH PRISONERS AND YOUNG OFFENDERS

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## THE ORAL HEALTH AND PSYCHOSOCIAL NEEDS OF SCOTTISH PRISONERS AND YOUNG OFFENDERS

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Foreword by **Derek Richards**

National Lead for Oral Health Improvement for Scottish Prisons

Director for the Centre of Evidence-based Dentistry, University of Dundee



# Foreword



With the publication of *Better Health, Better Lives for Prisoners* (ScotPHN, 2012) and the transfer of responsibility of the provision of dental health care to the NHS, the publication of this report on the Oral Health and Psychosocial Needs of Scottish Prisoners and Young Offenders report is both timely and appropriate.

This is the second Scottish Report on Oral Health in Prisons, and while there have been improvements since the previous report in 2002 there is still much work to be done to ensure that prisoners have the opportunity to have good oral health, know how to look after their mouths, and are able to access appropriate dental preventive and treatment services.

Providing the most appropriate balance of oral health improvement and treatment activity in the prison environment requires good team-working between the Health and Prison authorities to develop services to meet these requirements. This detailed report provides the planners of those Health Boards who deliver health services in prisons with a good source of information on which to shape the future provision of dental services in this challenging environment.

I recommend this report to all those working with prisoners to help ensure that they are able to maintain and improve their oral and dental health.

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# Acknowledgements

The Steering Group would like to thank the contributions made to this oral health and health needs assessment by the Scottish Government Health Department and all the NHS Boards whose support facilitated the collection of the data (award number: 121.804485).

We would like to acknowledge all those who participated in the Scottish Oral Health Improvement Prison Programme (SOHIPP) survey and the qualitative exploration of prisoners' oral health. We would like to thank professor Gail Douglas, University of Leeds, for her assistance with calibration of the dental examiners and analysis of the ICDAS data; NHS Forth Valley dentists Paul Cushley and Rajneet Viridi nee Minhas and dental nurses Angela Gilles and Linda Anne Smith who acted as dental examiners and who collected the oral health data; Tahira Akbar and Markus Themessl-Huber for their assistance with quantitative and qualitative data collection and who together with Donald Falconer conducted the preliminary analysis of the data. We would also like to thank Dr. A. Richards for proofreading the draft of the report.

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# Executive Summary

## 1.1 Background

In March 2005 the Scottish Executive Health Department published the ‘Action Plan for Improving Oral Health and Modernising NHS Dental Services in Scotland’ (Scottish Executive, 2005), setting out the response of the Scottish Executive to the two consultation documents, ‘Towards Better Oral Health in Children’ (Scottish Executive, 2002) and ‘Modernising NHS Dental Services in Scotland’ (Scottish Executive, 2003). Two of the main themes of the Dental Action Plan were to improve the oral health of the Scottish population and to identify specific priority groups of patients within the general population who would need additional support to maintain their oral health. Of the several population groups identified prisoners were highlighted as a group of individuals who required additional support to achieve and maintain their oral health.

In 2007 the Prison Healthcare Advisory Board (Prison Healthcare Advisory Board, 2007) suggested that the responsibility for oral health care, including oral health promotion should change from the Scottish Prison Service to the NHS Boards in which the prisons were located. In October 2011 a memorandum of understanding between the Scottish Ministers, the Scottish Prison Service and NHS Boards (NHS Scotland, 2011) ensured that the responsibilities for dental services changed from the Scottish Prison Service to NHS Boards. The statement of common purpose set out the parameters for NHS Boards to: “improve prisoners’ access to an appropriate range and quality of NHS health care services according to their needs.” In addition, the NHS services would be required to be equitable, accessible, appropriate, affordable and acceptable within the confines of the prison establishment and across the prison estate. The need for partnership working was recognised together with continuing professional education for all those working within the prison sector. Therefore equitable distribution of dental care firmly based within a quality agenda was recognised as being of central importance as the responsibility for oral health care transferred to NHS Boards.

The overall aim of the Scottish Oral Health Improvement Prison Programme (SO-HIPP) was to facilitate and coordinate the development, implementation and evaluation of evidence-based oral health care and preventive programmes for prisoners and young offenders across Scotland.

With the publication of Better Health Better Lives for Prisoners (ScotPHN, 2012) and the incorporation of oral health within its health promotion programme, the publication of the report on the Oral Health and Psychosocial Needs of Scottish Prisoners and Young Offenders is both timely and appropriate. With the transfer of responsibility for the provision of dental health care (including dental treatment and oral health promotion) this report will serve as a benchmark from which future assessments of the quality, appropriateness and accessibility of dental health care within the prison estate may be made.

## **1.2 An oral health and psychosocial needs assessment of Scottish prisoners and young offenders**

### **Aims and objectives**

The aim of the survey was to conduct an oral health and general health needs assessment of prisoners and young offenders in three Scottish prisons and to use this information to provide recommendations to inform the development of an oral health promotion intervention for prisoners and young offenders in Scotland. The specific objectives were to assess the prisoners' and young offenders':

1. Demographic profile.
2. Prison profile.
3. Health and health behaviours.
4. Oral health and oral health behaviours.
5. Dental health care and previous dental treatment experiences.
6. Psychosocial health: dental anxiety, oral health-related quality of life and depression.

### **Main findings**

A total of 342 prisoners took part in the survey, which was conducted in HMP&YOI Cornton Vale (99), HMP Shotts (110) and HMYOI Polmont (133).

#### **Demographic profile**

**Age, ethnicity and employment status** The mean age of the prisoners was 28.35 years. Their age ranged from 17 to 67 years. Ninety-three percent were Caucasian and the remainder of prisoners stated they were Asian (8), mixed race (4), Black (2), Chinese or East African (2). Sixty-seven percent were unemployed prior to their current imprisonment. Of those who had been employed, their work experience included apprenticeships (3%), skilled work (30%) and working in the professions (1%). Only 2% had been in full-time education.

**Marital status and living experiences** Eighty-two percent of the prisoners were single. Forty-eight percent of prisoners had children and 17% of the prisoners stated that they were living as a family prior to their current imprisonment. Thirty-five percent of the sample had been in local authority care as children. Thirteen percent had been in foster care, with 10% of the prisoners having had experience of both children's institutions and foster care. Forty-three percent had at some time experienced being homeless. Thirty-nine percent of those who had experienced homelessness had been homeless for less than six months; 12% had been homeless for over 24 months.

### **Profile of prison experience**

At the time of survey, the participants had spent on average 2.27 years (95% CI: 1.78, 2.76) of their lives in prison. One hundred and forty-seven prisoners had been on remand at least twice. The mean number of prison remands was 4.65 (95% CI: 3.79, 5.51) with the range being between one and 57. One hundred and twenty-two prisoners (36%) had had at least one previous sentence, with the number of sentences experienced ranging from one to 40. The mean number of imprisonments was 3.16 (95% CI: 2.47, 3.86).

### **Health and health behaviours**

**Health status** The vast majority (99%) of the prisoners answered the medical history questions. Forty-five percent of prisoners stated that they were ill and suffered from a number of illnesses ranging from cardiovascular disease to allergies. Equivalent percentages of prisoners in this current sample compared with the findings of the Health in Scottish Prison Report (Graham, 2007) stated that they suffered from diabetes (3%) and epilepsy (2%).

Male prisoners in HMP Shotts, for example, had a higher experience of cardiovascular disease compared with those in HMP&YOI Cornton Vale and HMYOI Polmont. However, in general, the women prisoners reported greater ill-health than the male prisoners. This difference was particularly of note in the increased reporting of Hepatitis C/HIV infection in the women compared with the male prisoners. The women's reporting of their Hepatitis C/HIV reflects findings from national prison surveys which have shown that women prisoners compared with male prisoners, in prisons across Britain and in Scotland have a higher prevalence of Hepatitis C and HIV. In Scottish prisons the prevalence of HIV was 0.3% amongst adult male prisoners and 0.6% for women prisoners and the prevalence of Hepatitis C was 8% in male prisoners and 15% in women prisoners (SPS, 2003b).

**Prescribed medication** One hundred and fifty-four prisoners (45%) reported that they had been prescribed medication, with 152 providing details of the medication prescribed. For those prisoners who provided details of their medication 28% had been prescribed analgesics, 25% anti-depressants and 16% methadone.

Thirteen percent of the entire sample of the prisoners stated they had been prescribed anti-depressants. The prevalence of depression in the general UK population is 2.6% which rises to 11% for mixed anxiety-depressive states (Singleton et al., 2003). The types

of psychotropic medication prescribed to the prisoners (e.g. mirtazapine, fluoxetine) are those recommended for major depression combined with anxiety (National Collaborating Centre for Mental Health, 2004). This observation allows the suggestion to be made that the prevalence of mixed anxiety-depressive states, for this prison population, was commensurate with UK norms.

**Health behaviours** Three quarters of the sample stated that they were tobacco smokers. One hundred and twenty-one of the prisoners stated that they smoked between 11–20 cigarettes daily. The mean number of cigarettes smoked daily was 17.09 (95% CI: 16.07, 18.10). The mean number of cigarettes smoked daily did not vary by prison experience.

Seventy-nine percent (268) of respondents stated that they had used drugs. Twenty-three percent (80) reported having used intravenous drugs. Previous and injecting drug use varied by prison establishment. Ninety percent of young offenders admitted to having previously used drugs compared with 76% of prisoners in HMP Shotts and 67% in HMP&YOI Cornton Vale. However, larger proportions of women prisoners (37%) compared with HMP Shotts (25%) and HMYOI Polmont (14%) had injected drugs. This finding is supported by research (WHO, 2007) which showed that women prisoners had an increased prevalence of injecting drug use compared with male prisoners. Drug taking behaviour also varied by prison experience with prisoners with greater experience of prison remand stating that they had previously used drugs and injected drugs at some time. Larger proportions of prisoners with greater prison experience stated that they had injected drugs; prisoners with current shorter sentences stated that they had used drugs. Sixty-three prisoners had taken part in drug rehabilitation programmes. Seven percent of the entire prisoner sample had been prescribed methadone, suggesting that they were on a maintenance programme. Participation in rehabilitation varied in accordance with prison establishment and prison experience. Larger proportions of women prisoners compared with male prisoners and male young offenders had experience of drug rehabilitation programmes. This tendency for more women prisoners to have had drug rehabilitation is reflected in the findings of the thematic review of mental health needs of prisoners undertaken by HM Inspectorate of Prisons (2007) which found that 33% of women compared with 6% of men had experience of drug maintenance programmes.

### **Oral health and oral health behaviours**

**Obvious decay experience** Two hundred and ninety-eight prisoners had an oral health examination. The mean  $D_{3cv}MFT$  was 12.37 (95%CI: 11.39, 13.34): the mean number of decayed teeth ( $D_{3cv}$ ) was 1.51 (95%CI: 1.26, 1.76): the mean number of missing teeth (MT) was 6.95 (95%CI: 6.03, 7.96) and the mean number of filled teeth (FT) was 3.87 (95%CI: 3.44, 4.30). The care index was 31%. Despite a fall in the mean obvious decay experience from 2002 ( $D_{3cv}MFT$  was 15.32) to 2011 ( $D_{3cv}MFT$  was 12.37) the care index remained almost the same – 30% in 2002 and 31% in 2011.

Differences in obvious decay experience varied with prison establishment and experience of remand, prison sentences and length of current imprisonment. Those prisoners in HMP Shotts had greater mean obvious decay experience and missing teeth due to

tooth decay compared with prisoners in HMP&YOI Cornton Vale and HMYOI Polmont. However, male young offenders had greater numbers of decayed teeth and fewer numbers of filled teeth compared with women and older male prisoners. Prisoners with greater experience of remand had increased obvious decay experience and greater numbers of missing teeth due to tooth decay and those with greater experience of prison had more missing teeth due to caries. Those with longer current imprisonment had greater obvious decay experience, greater number of missing teeth, fewer decayed teeth and fewer filled teeth.

Differences in obvious decay experience were noted in the prisoners with regard to prescribed medication and previous drug use. Those prisoners taking prescribed medication at the time of the survey had greater obvious decay experience and greater numbers of missing teeth due to decay. A similar pattern was noted for those who had injected drugs and those who had had periods in rehabilitation units. Prisoners with any history of previous drug use had greater numbers of decayed teeth compared to those with no previous history of drug use.

**Plaque** The participants' oral hygiene was surprisingly good, with plaque generally covering less than a third of the tooth surfaces examined. The amount of plaque present on the prisoners' teeth was related to the frequency of their reported toothbrushing and the length of their current imprisonment. This suggested that the routine of prison life provided a supportive environment for the adoption and maintenance of this oral health behaviour.

**Functional dentition and dentures** Eighty-three percent of the prisoners had at least 20 standing teeth and were considered to have a shortened dental arch and a functioning dentition. Larger proportions of prisoners residing in HMYOI Polmont (98%) had 20 or more standing teeth compared with those in HMP Shotts (75%) or those in HMP&YOI Cornton Vale (78%). Lower proportions of prisoners with greater experience of remand, greater experience of prison and longer current prison sentences had 20 or more standing teeth. Thirteen prisoners were edentulous (had no natural teeth). Only 45 prisoners out of 342 were wearing complete and/or partial dentures at the time of the oral health examination. All of the dentures were acrylic and tissue borne. Four upper dentures and one lower denture were in need of repair. Care of dentures, with respect to denture hygiene, was greater in those with longer lengths of current imprisonment. This again suggested that the routine of prison life provided a supportive environment for the adoption and maintenance of oral health behaviours.

**Dental attendance and dental treatment experiences** Of the total sample 45% stated that they had attended a dental practice within the previous year and 43% stated that they had accessed dental services between two and five years ago. Reasons for their dental attendance included pain, discomfort or trouble with their teeth or gums (59%). Twenty-two percent stated that they attended for routine dental examinations. Just under half (47%) had accessed the dental services in the prison but experienced barriers to attending.

Barriers included: difficulty in accessing the prison dental service (58%); the infrequency of the dental treatment schedules (47%); difficulties completing the treatment request form (13%); difficulties in obtaining a dental treatment request form (11%) and disliking the prison dental service (9%).

With regard to their experience of dental treatment the most cited dental treatments experienced were fillings and local anaesthetic injections. This pattern was repeated across the three prison establishments; larger proportions of prisoners in HMP Shotts had experienced tooth extractions compared with the other prisons. Interestingly, only 30% of prisoners stated they had had fluoride preventive treatment and fissure sealants. Lower proportions of young offenders stated that they had received preventive dental treatments compared with other prisoner groups.

### **Psychosocial health**

**Dental anxiety** This population of prisoners represents a group who have equivalent levels of dental anxiety compared with the general population in the United Kingdom (Hill et al., 2013). Over 12% of the sample were characterised as dentally phobic according to the Modified Dental Anxiety Scale (MDAS) measure. The most feared items of dental treatment were the local anaesthetic injection and the drill. Women prisoners, compared with male prisoners and young offenders, were more anxious of all aspects of dental treatment. Prisoners with shorter rather than longer prison sentences were more anxious about treatment with the drill and receiving local anaesthetic injections.

**Oral health-related quality of life** The impacts upon oral health-related quality of life were equivalent to those experienced by a population of homeless people in Scotland (Coles et al., 2011), but greater when compared with the Scottish population in the 1998 Adult Dental Health Survey (Kelly et al., 2000). As expected, painful aching mouths and teeth were highlighted as an impact experienced occasionally by all prisoners. Impacts of psychological discomfort (feeling self-conscious about the appearance of teeth) and psychological disability (feeling embarrassed about the appearance of teeth) were experienced very often by 27% and 28% of the sample respectively. Women prisoners compared with male prisoners and male young offenders felt self-conscious about the appearance of their teeth. The other discriminating oral health impact was ‘unsatisfactory diet’ which was experienced by prisoners in HMP&YOI Cornton Vale and HMP Shotts. Prisoners who were serving shorter prison sentences experienced the oral health impact of painful aching mouths and teeth to a lesser extent in comparison to prisoners serving longer sentences.

**Depression** This population represents a sample of people who have an increased experience of depressive symptoms, with 35% of the sample according to the measure (CES-D) being characterised as depressed. Women, compared to men, were more likely to experience depressive symptoms such as ‘feeling bothered by things’, ‘feeling sad’, ‘crying spells’ and ‘feeling that people disliked them’. Prisoners with shorter prison sentences experienced depressive symptoms such as, ‘feeling bothered by things’, ‘feeling sad’, ‘cry-

ing spells' and 'feeling life is a failure'. These findings support research elsewhere which showed that women prisoners had an increased prevalence of mental ill-health compared with male prisoners (Bastick, 2008; WHO, 2009). Moreover, research has shown that women's mental health deteriorates with imprisonment and it is suggested here that, since gender predicted increased scores in depression, it is the state of being a prisoner that acted as a determinant of increased experience of depression rather than the length of current imprisonment (WHO, 2009).

## Conclusions

This survey examined the health, oral health and psychosocial health of three groups of prisoners across Scotland, with the aim of being able to use the information gleaned to provide recommendations to inform the development of an oral health promotion intervention for prisoners in Scotland.

The results of the current survey support earlier work on the health and oral health experiences of prisoners (Jones et al., 2002). The prevalence of reported illnesses (e.g. diabetes, epilepsy) was equivalent to that found by Graham (2007) whereas the prevalence of hypertension for the various age groups of male and female prisoners was lower than that reported for the Scottish population (ScotPHO, 2010/2011). Careful examination of the data showed that, as reported elsewhere, the women prisoners had an increased experience of Hepatitis C/HIV and injecting drug use compared with male prisoners (SPS, 2003b; WHO, 2007; Scottish Executive, 2006). The data also showed that a minority of prisoners had participated in drug rehabilitation programmes with only 7% of the prison sample currently prescribed methadone, suggesting that they were on a maintenance programme. More women in the sample reported to have had drug rehabilitation. The tendency for more women prisoners to have had drug rehabilitation is reflected in the findings of the thematic review of mental health needs of prisoners undertaken by HM Inspectorate of Prisons (2007) which found that 33% of women compared with 6% of men had experience of drug maintenance programmes.

As found in the Scottish Prisons' Dental Health Survey (Jones et al., 2002), the oral health of prisoners was characterised by a pattern of increased numbers of missing teeth and fewer filled or restored teeth. This pattern of oral health care seemed to reflect a pattern of irregular dental attendance associated with pain and discomfort which in some instances seemed to be related to previous drug use. The relationship between the extraction of teeth and prison experience would suggest that the pattern of tooth loss may also be related to the type of dental treatment regime provided within the prison establishment. Some evidence for this may be gleaned from the Care Index which was 31% in 2011 compared with 30% in 2002, as well as the prisoners' experiences of various types of dental treatment. For instance, with regard to preventive dental treatments only a minority reported to have had their teeth scaled and polished or to have had fluoride treatment. While this may represent a difficulty with regard to the maintenance of a functioning dentition, being in prison, nonetheless, provided a routine and a supportive environment for the adoption and maintenance of toothbrushing and denture hygiene practices. It is suggested that, in order for prisoners to access

appropriate dental treatment and maintain their oral health self-care practices, there is the requirement for prisoners to be empowered with basic life skills and the knowledge of how to access dental health services. This should be an integral part of pre-release preparations.

It seemed that the mental health and well-being of this sample of prisoners was equivalent with population norms. For instance 13% of prisoners were characterised as having mixed depressive and anxiety states (as suggested by their prescribed medication) which according to Singleton et al. (2003) is the population norm for this mental health condition. Twelve percent of the prisoners were classified as being dentally phobic (as measured by the MDAS) which is the population norm for dental phobia within the UK population (Hill et al., 2013). However, careful examination of the data showed that 35% of all prisoners according to the CES-D cut-off were suffering from symptoms of depression, and that differences existed by prison establishment and gender. Similarly, the prevalence of dental anxiety also varied in accordance with prison establishment and gender. Women prisoners, in addition to their increased prevalence of Hepatitis C/HIV and injecting drug use, had greater dental anxiety, poorer quality of life and increased depressive symptoms compared with male prisoners and male young offenders. This suggested there was a need for gender-specific interventions tailored to the psychological and emotional needs of women prisoners.

### **1.3 A qualitative exploration of Scottish prisoners' thoughts, opinions and views of their oral health experiences**

#### **Aims and objectives**

The overall aim was to explore qualitatively, prisoners' thoughts, views and opinions of their oral health experiences and to use this information to provide recommendations to inform the development of an oral health promotion intervention for prisoners in Scotland. The specific objectives were:

1. To explore the prisoners' concerns about their oral health.
2. To explore the means by which the prisoners resolved their oral health concerns.
3. To explore barriers to the successful resolution of their oral health concerns inside prison.
4. To explore barriers to the successful resolution of their oral health concerns outside prison.
5. To provide recommendations to inform the development of an oral health promotion intervention for prisoners in Scotland.

## **Main findings**

This qualitative exploration allowed the prisoners' oral health concerns to emerge as the impact of their oral health status on their quality of life, and their solutions to emerge as strategies they used to access dental treatment and maintain their oral health.

A careful examination of the qualitative data allowed a link to be made between oral ill-health and quality of life, suggesting that the prisoners' main concerns were linked to their quality of life which in turn was negatively impacted upon by their oral health. Painful teeth, teeth that were discoloured, broken or badly worn impacted upon the prisoners' self-esteem and confidence. Pain on eating, difficulty in pronouncing words, embarrassment when smiling or laughing meant that their oral health status impacted upon their psychosocial well-being.

### **Strategies for solving oral health concerns: accessing dental services**

Barriers existed for prisoners when accessing dental services either inside or outside the prison estate, and while these were similar, a difference occurred in the quality of the accessibility barrier experienced. For instance, within the prison, patient factors (e.g. costs of dental treatment) were of secondary importance compared with the considerable strength of dental professional factors (e.g. inequitable distribution of services) acting to reduce access to prison dentistry. However in comparison, outside of prison, patient factors (e.g. fears of being judged, dental anxiety) gained primary importance with dental professional factors (e.g. hurried dental appointments) being of less significance. In essence, it would seem reasonable to suggest that the role of environment had an effect to inhibit or reduce the prisoners' ability to access dental health care and resolve their oral health concerns.

It would seem that dental services were more accessible to prisoners within than outside the prison setting. It is proposed that this may be due to a number of the barriers to treatment, (such as feeling like an outsider, being judged, cost of treatment, confidence issues to make appointments, costs of being a drug addict/alcoholic and having no address for registration), while removed inside prison, remain salient barriers on release. The prison, therefore, acted like a safe haven for prisoners to seek out dental treatment. However, the quality of service with regard to shorter waiting times and appropriate and negotiated treatment plans still needs to be addressed to meet prisoner demands. Within the confines of the prison system it is suggested that accessible dental services should assist prisoners shift from pain-only attendance to asymptomatic attendance with an appropriate recall interval. In addition, it is suggested that a trajectory of dental services be made available from prison-based services to those on release to enable ex-offenders to maintain their dental treatment attendance patterns. Thinking in this way has some merit since it allows for a continuity in service delivery within and outside the prison. With improved dental treatment services within the prison estate, a continuum from within to outside prison may be envisaged in terms of 'through-care' which may act to reduce the potency of patient factors (e.g. little knowledge of how to access dental treatment) as barriers to access dental services for ex-offenders. In addition, as 30% of

prisoners are re-convicted (The Scottish Government, 2012b), improved access to dental treatment outside may result in reduced future demand within the prison estate overall.

### **Strategies for solving oral health concerns: adopting oral health self-care**

Differences also emerged with regard to how the inside and outside prison environment affected the adoption and maintenance of prisoner oral health self-care. These differences in the effect of environment as a factor in oral behaviour modification allowed the prison establishment with its structures and systems to be conceptualised as having the potential to act as an enabling oral health promoting environment. However, during such times as 'lock down' (being confined to cells) there was the potential to reinforce health behaviours (e.g. smoking) detrimental to oral health. The prison, therefore, with its rules and regulations could act as an enabler or as an inhibitor to the consolidation of oral health behaviours. Outside of prison, the tendency to return to risk-taking behaviours, where self-care became secondary to other more pressing needs, ensured that on release, without appropriate support, the prisoners were unable to maintain their oral health self-care regimes.

It may be postulated that the maintenance of oral health whether inside or outside of the prison setting is a complex interplay of factors associated with routine, affordability and availability of oral health resources. In the prison setting, routines act to promote the use of fluoride toothpaste and removal of plaque but they also inhibited choices with regard to healthy eating regimes. Outside the prison setting, as an apparently more chaotic lifestyle replaced prison routine, the prisoners' concerns were of how to maintain their oral health in an environment where drugs and alcohol were readily available and the perceived costs of oral health resources high. Therefore it is suggested that a trajectory of oral health promotion be made available from prison-based services to those on release to enable ex-offenders to maintain their oral health in the face of considerable difficulties.

### **Conclusions**

This qualitative exploration of prisoners' thoughts, views and opinions of their oral health experiences allowed the prisoners' oral health concerns to emerge as the impact of their oral health upon their quality of life, and their solutions, as the means by which they aimed to access dental care and maintain their oral health. This allowed a discordant model to be conceived in which the prisoners' quality of life was a consequence of their oral health status which was at the mercy of the prisoners' awareness and ability to access dental services while adopting self-care dental health practices. In this model the potency of the various accessibility factors emerged as either barriers or enablers with regard to accessing dental treatment and self-care. However, the degree to which an accessibility factor acted as barrier or enabler was associated with the prisoners' environmental status and whether they were living within the prison estate or were released.

The overall findings from this qualitative exploration suggested that significant barriers exist for prisoners when accessing dental services either inside or outside the prison estate. While similar barriers to accessing dental care existed, a difference occurred in the quality of the accessibility barrier experienced. For instance, within the prison, patient

factors (e.g. costs of dental treatment) were of secondary importance compared with the considerable strength of dental professional factors (e.g. inequitable distribution of services) acting to reduce access to prison dentistry. However in comparison, outside of prison, patient factors (e.g. fears of being judged, dental anxiety) gain primary importance with dental professional factors (e.g. hurried dental appointments) being of less significance.

It is recommended that a trajectory of oral health services be made available from prison-based services to those on release to enable ex-offenders to maintain their dental treatment attendance patterns and oral health status. Thinking in this way has some merit since it allows for a modification in service delivery within and outside the prison. With improved dental treatment services within the prison estate, a continuum from within to outside prison may be envisaged in terms of 'through-care' which may act to reduce the potency of patient factors (e.g. little knowledge of how to access dental treatment) as barriers to access dental treatment services for ex-offenders.

## **1.4 Recommendations**

### **General recommendations**

- Gender-specific interventions tailored to the needs of the female prisoner, male prisoner and young offender.
- Prisoners to be provided with basic life skills for maintenance of health, oral health and mental health and well-being.
- Access to health care and health promotion to be part of pre-release preparations.
- Dental health care and oral health promotion protocols to be nested in the policy document Better Health, Better Lives for Prisoners.

### **Dental health care recommendations**

- Dental health services and oral health promotion to be part of a multidisciplinary and multi-sectoral approach within and across the prison estate. There is an equitable distribution of dental treatment services within the prison estate as provided by NHS Boards.
- There is an equitable distribution of treatment provision protocols within the prison estate as provided by NHS Boards.
- Prisoners to be provided with the skills to access dental health services within and outwith prison estate.
- There is equitable distribution of oral health promotion initiatives across the prison estate e.g. the provision of healthier and affordable food and drink options on the canteen list, provision of suitable toothbrushes and fluoride toothpaste.
- The provision of dental through-care and oral health promotion from within the prison to the outside world.
- Access to oral health promotion services to be an integral part of pre-release preparations.
- Access to dental health services to be an integral part of pre-release preparations.

### **Training and continuing professional development recommendations**

- The training of dental health professionals regarding effective communication with prisoners inside and ex-offenders outside the prison estate.
- The training of all those working within the prison sector to provide tailored oral health promotion interventions to prisoners.
- The training of all those working within the criminal justice sector to provide tailored oral health promotion interventions to ex-offenders.

# The Scottish Oral Health Improvement Prison Programme Report

## 2.1 Background

In March 2005 the Scottish Executive Health Department published the ‘Action Plan for Improving Oral Health and Modernising NHS Dental Services in Scotland’ (Scottish Executive, 2005), setting out the response of the Scottish Executive to the two consultation documents, ‘Towards Better Oral Health in Children’ (Scottish Executive, 2002) and ‘Modernising NHS Dental Services in Scotland’ (Scottish Executive, 2003). Two of the main themes of the Dental Action Plan were to improve the oral health of the Scottish population and to identify specific priority groups of patients within the general population who would need additional support to maintain their oral health. Of the several population groups identified prisoners were highlighted as a group of individuals who required additional support to achieve and maintain their oral health.

In 2007 the Prison Healthcare Advisory Board (Prison Healthcare Advisory Board, 2007) suggested that the responsibility for oral health care, including oral health promotion should change from the Scottish Prison Service to the NHS Boards in which the prisons were located. In October 2011 a memorandum of understanding between the Scottish Ministers, the Scottish Prison Service and NHS Boards (NHS Scotland, 2011) ensured that the responsibilities for dental services changed from the Scottish Prison Service to NHS Boards. The statement of common purpose set out the parameters for NHS Boards to: “improve prisoners’ access to an appropriate range and quality of NHS health care services according to their needs.” In addition, the NHS services would be required to be equitable, accessible, appropriate, affordable and acceptable within the confines of the prison establishment and across the prison estate. The need for partnership working was recognised together with continuing professional education for all those working within the prison sector. Therefore equitable distribution of dental care firmly based within a quality agenda was recognised as being of central importance as the responsibility for oral health care transferred to NHS Boards.

With the publication of Better Health Better Lives for Prisoners (ScotPHN, 2012) and the incorporation of oral health within its health promotion programme, the publication

of the report on the Oral Health and Psychosocial Needs of Scottish Prisoners and Young Offenders is both timely and appropriate. With the transfer of responsibility for the provision of dental health care (including dental treatment and oral health promotion) this report will serve as a benchmark from which future assessments of the quality, appropriateness and accessibility of oral health care within the prison estate may be made.

The adoption of a common risk factor approach (Sheiham & Watt, 2000) within 'Better Health Better Lives for Prisoners' (ScotPHN, 2012) is of particular relevance since prisoners and ex-offenders are known to experience an increased prevalence of physical, mental and oral ill-health.

## **2.2 Physical and mental health risks of prisoners**

Prisoners are more likely to have come from a poor socio-economic background with impoverished economical, family and social environments (de Viggiani, 2007). The prevalence of general health problems in prison population is higher than in the general population, with prisoners being at a greater health risk from unhealthy lifestyle choices such as smoking, substance abuse, unsafe sex, unhealthy diet and poor dental hygiene (ScotPHN, 2012). A health care needs assessment in Scottish prisons (Graham, 2007) reported that 41% of male and 36% of female prisoners are likely to abuse alcohol (13% and 7% in the general population respectively). Seventy six percent of prisoners identify themselves as smokers (SPS, 2011) as opposed to the general population's rate of 23% (The Scottish Government, 2013). Rates of drug use and dependence are higher than in the general population: 67% prisoners reported having used illegal drugs 12 months prior to their imprisonment while reported illegal drug use was 8% in the general population.

Previous research has shown that the prevalence of mental health problems and suicide is also higher in prison than in the general population. It is reported that up to 66% of prisoners have personality disorders, up to 70% have a mental health condition that requires clinical attention and 25% of prisoners have a learning disability (The Scottish Government, 2008).

## **2.3 Oral health in prison populations**

A number of recent studies have shown that the oral health and general health of the prison population is poor, with prisoners exhibiting more decay and fewer filled teeth than the non-prison population, in addition to higher levels of dental anxiety and more frequent use of emergency dental services (Jones et al., 2002; Heidari et al., 2008; Walsh et al., 2008). The poor dental health of prisoners is also linked to lifestyle issues, such as smoking, substance use and frequent consumption of food and drinks containing sugar (Jones et al., 2002; Pulford et al., 2007), along with long-standing oral health neglect.

The Scottish Prisons' Dental Health Survey highlighted considerable unmet need for dental treatment services in Scotland's prison populations (Jones et al., 2002). Findings from the 2008 Prisoner Survey (SPS, 2008), conducted by the Scottish Prison Service, show that only one third of respondents reported attending the dentist, a fall of 3% on

the previous year. Almost two-thirds of Scottish prisoners surveyed in 2003 described dental care as either 'hard' or 'very hard' to access (SPS, 2003a). Overall, the available research indicates that prisons are failing with regard to the provision of oral health care (in terms of both treatment and oral health promotion activity), given the high levels of unmet needs that exist within the prison population, the implication of an increasing burden on dental services, and the corresponding challenge in providing effective and consistent care within constraints such as security restrictions and resource availability (Walsh et al., 2008)

## **2.4 The aim and objectives**

The overall aim of the Scottish Oral Health Improvement Prisons Programme (SO-HIPP) is to facilitate and coordinate the development, implementation and evaluation of evidence-based oral health preventive programmes for prisoners and young offenders across Scotland.

### **The oral health survey of Scottish prisoners**

The aim of the survey was to conduct an oral health and general health needs assessment of prisoners in three Scottish prisons and to use this information to provide recommendations to inform the development of an oral health promotion intervention for prisoners in Scotland. The specific objectives were to assess the prisoners' and young offenders':

1. Demographic profile.
2. Prison profile.
3. Health and health behaviours.
4. Oral health and oral health behaviours.
5. Dental health care and previous dental treatment experiences.
6. Psychosocial health: dental anxiety, oral health-related quality of life and depression.

### **A qualitative exploration of Scottish prisoners' oral health-related quality of life and depression**

The aim was to explore qualitatively prisoners' thoughts, views and opinions of their oral health experiences and to use this information to provide recommendations to inform the development of an oral health promotion intervention for prisoners in Scotland. The specific objectives were to explore:

1. The prisoners' concerns about their oral health.
2. The means by which the prisoners resolved their oral health concerns.

3. Barriers to the successful resolution of their oral health concerns inside prison.
4. Barriers to the successful resolution of their oral health concerns outside prison.
5. Provide recommendations to inform the development of an oral health promotion intervention for prisoners in Scotland.

## 3

# An oral health and psychosocial needs assessment of Scottish prisoners and young offenders

## 3.1 Method

### Sample

A convenience sample of prisoners from three prison establishments (Figure 3.1) was selected - male prisoners from adult male prison HMP Shotts, female prisoners from female only prison HMP&YOI Corton Vale and prisoners from young offender institution HMYOI Polmont. Prisoners who, in the opinion of the prison staff, posed a risk and prisoners who did not understand English, were excluded from the survey.

### Training day: standardisation of dental examiners

Prior to the start of the survey, participating dentists and dental nurses who were involved in the data collection and examination of prisoners, took part in a training day. The training day (see Appendix 4 for details) was divided into two parts:

#### 1. Gaining consent and collecting data in the prison setting

- Protocols; participant information sheets; gaining consent
- Operational protocols within the prison environment
- Site visits prior to oral health surveys
- Breakaway training of dental staff prior to oral health surveys
- Continuous communication between all dental staff
- Enhanced Disclosure for all dental staff.

#### 2. Conduct of the oral health needs assessment

- Quantitative data collection:

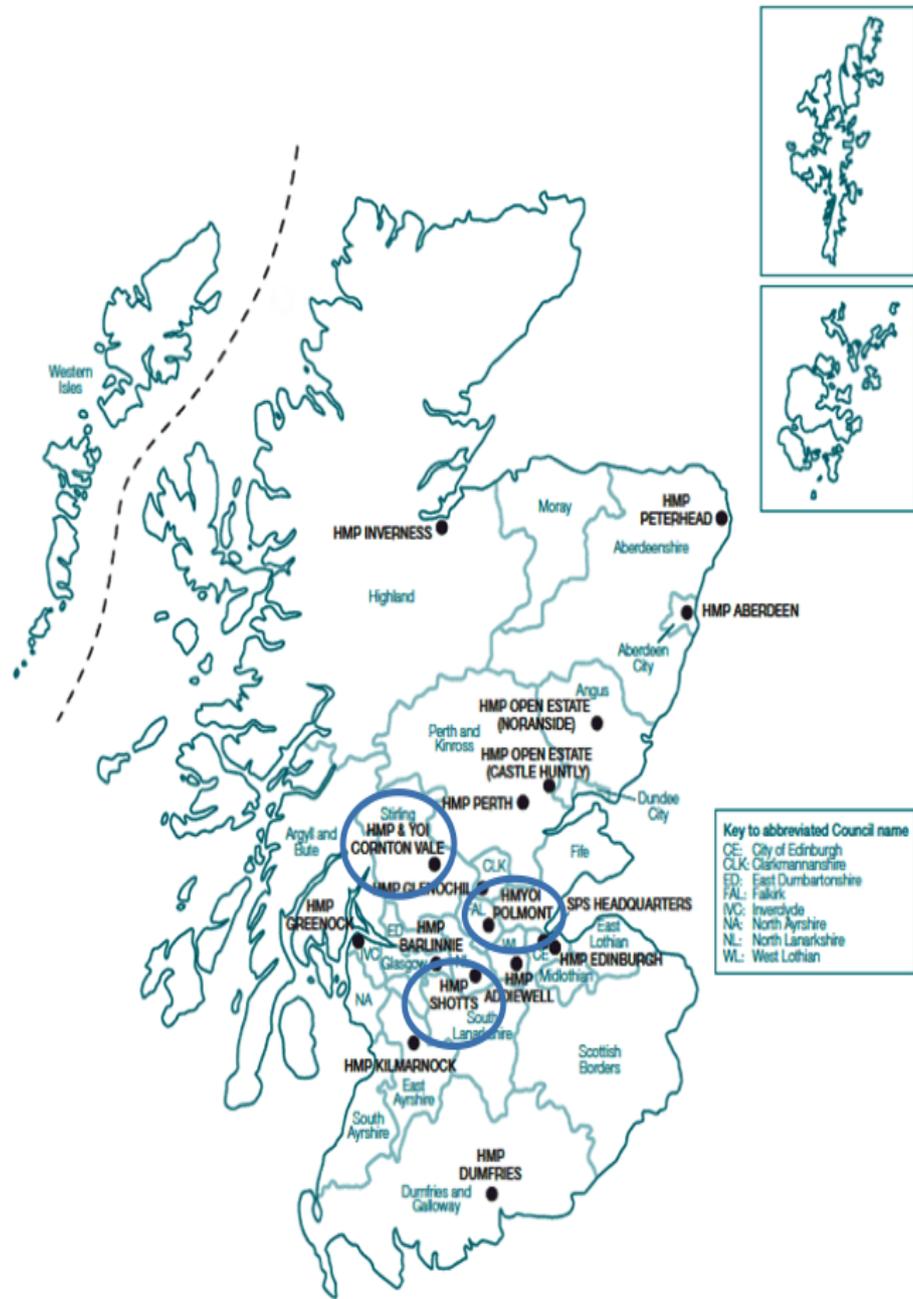


Figure 3.1: Locations of participating prisons

- oral health examination
- calibration: International Caries Detection Assessment System (ICDAS) training
- questionnaires.

## **Procedure**

The dental staff who had attended the training day and had breakaway training visited HMP Shotts by way of a feasibility study. Protocols agreed with the Prison Governor were put in place in each of the prison establishments which included having a prison officer to bring the prisoner to and from the prison dental surgery: leaving posters for prisoners to be informed of the study as well as detailed information sheets and consent forms. The prisoners were requested to complete the consent form prior to participation and to complete the questionnaire prior to their oral health examination.

## **Questionnaires and administration**

The questionnaire (see Appendix 2 for details) was in six parts and consisted of:

### **1. Demographic profile of the participants**

The first part of the questionnaire asked about the participants' demographic profile. This included age and gender, current and past living status, family status, reason for homelessness, employment and previous occupation. Where participants had provided details regarding their job titles, the responses were reclassified in accordance with the major groups of the Standard Occupational Classification system (2010) which identifies occupations in relation to required 'qualifications, training, skills and experience'. Two additional sub-categories were included to describe those unable to work.

### **2. Health and health behaviours**

This section examined the participants' medical history including prescribed medication and health behaviours such as alcohol, tobacco and drug use.

### **3. The Modified Dental Anxiety Scale (MDAS)**

Dental anxiety was assessed using the Modified Dental Anxiety Scale (MDAS). MDAS consists of five questions. It asks the participants how anxious they feel in relation to waiting for dental treatment, drilling, scale and polish and local anaesthesia. Respondents rate their dental anxiety on a five-point scale, which ranges from not anxious (1) to extremely anxious (5). Possible scores range from five to 25, with scores over 19 indicating dental phobia. The normative value for a general practice patient population is 10.39 and the normative value for a UK general public population is 11.6. (Humphris et al., 1995; Humphris et al., 2009; Humphris et al., 2013).

#### **4. The Oral Health Impact Scale–14 (OHIP–14)**

The OHIP–14 is a 14-item inventory which assesses oral health-related quality of life. It is based on a hierarchy of impacts arising from oral disease, ranging in severity, and includes questions on functional limitation (e.g. pronouncing words), physical pain (e.g. painful aching mouth), psychological discomfort (e.g. feeling self-conscious), physical disability (e.g. interrupted meals), psychological disability (e.g. feeling embarrassed), social disability (e.g. irritable with others) and handicap (e.g. life less satisfying). Respondents were asked how frequently they had experienced each of the 14 impacts, such as ‘Have you had painful aching in your mouth’ in the previous 12 months. Responses are made on a five-point Likert scale, with scores ranging from 0 (never) to 4 (very often). Individual item scores are presented together with an overall mean total impact score across all 14 items (Locker, 1988; Slade, 1997).

#### **5. The Centre for Epidemiological Studies Depression Scale (CES-D)**

Depression was measured using the valid and reliable CES-D. The CES-D is a self-reported scale consisting of twenty items reflecting dimensions of depression, such as depressed mood, feelings of hopelessness and interactions with others. The questions are answered on a four-point Likert scale and the respondents are asked to rate their experience of each item in the previous week, the responses ranging from rarely or none of the time (scoring 0) to most or all of the time (scoring 3). Four of the twenty items (e.g. I feel happy) are scored positively i.e. the responses ranged from 3 (rarely or none of the time) to 0 (most or all of the time). Total scores range from 0 to 60, with scores of 16 or over indicating depressed mood (Radloff, 1977). In a survey of people residing in north London the prevalence of depression as assessed by the CES-D was 38.9% (Weich et al., 2002).

#### **6. Dental Experiences and Dental Health Attitudes**

The final part of the questionnaire recorded the reason for last attending the dentist (e.g. check-up or trouble with teeth) and previous dental treatment experiences (e.g. fillings and extractions). Opinions about going to the dentist were also assessed in this section, using measures from the Adult Dental Health Survey (Kelly et al., 2000), where responses to nine statements related to going to the dentist are made on a four-point scale, ranging from ‘definitely feel like that’ to ‘don’t feel like that’.

Following piloting, prisoners were asked to complete the questionnaire prior to the oral examination. Many of those surveyed required help with completing the questionnaire due to poor eyesight and/or poor literacy skills.

## Oral health examination

### 1. Obvious Decay Experience Assessment

Obvious decay experience was assessed using the International Caries Detection and Assessment System (ICDAS). ICDAS is a clinical visual scoring system for obvious decay experience that is based on systematic reviews of caries detection and assessment methods developed during the past fifty years and consensus development during the past six years. In the ICDAS nomenclature decay experience is described as D<sub>1</sub>MFT and includes all white spot, brown spot, enamel and dentine cavitated lesions; D<sub>2</sub>MFT includes all enamel and dentine cavitated lesions and D<sub>3</sub>MFT includes only dentine cavitated lesions (Table 3.1). More information on ICDAS can be found at <http://www.icdas.org>.

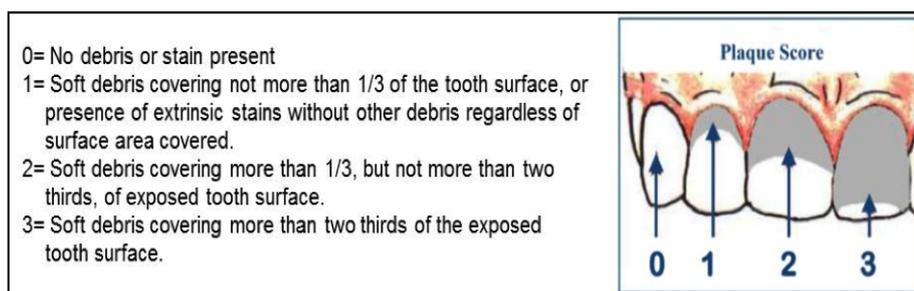
For the purposes of this report the ICDAS codes for all dentate participants who agreed to be examined are presented as D<sub>3cv</sub>MFT and the decayed. ICDAS has been converted to D<sub>3cv</sub>MFT using ICDAS codes. Table 3.1 shows the conversion of ICDAS caries codes to DMFT at the D<sub>1</sub>, D<sub>2</sub> and D<sub>3</sub> levels.

ICDAS	1, 2	3	4, 5, 6
DMFT	D <sub>1</sub> (enamel lesions)	D <sub>2</sub> (cavitated enamel lesions)	D <sub>3</sub> (cavitated dentinal lesions)

**Table 3.1:** Conversion of ICDAS caries codes to DMFT Decay (D) codes

### 2. Periodontal Health Assessment: Simplified Oral Hygiene Index

Plaque scores were assessed on six teeth, if present. A score per index tooth was allocated according to the Simplified Oral Hygiene Index (OHI-S) scale of debris present (Figure 3.2). The plaque index score for an individual is obtained by adding the plaque scores per tooth and dividing by the number of teeth examined (Löe, 1967; Crippen et al., 2003; Reddy, 2008).



**Figure 3.2:** The Simplified Oral Hygiene Index

### **3. Oral Mucosa**

Oral mucosa is the primary protective mucous membrane that lines the cavity of the mouth, including the gums. Six areas of oral cavity were examined: lips, buccal mucosa (cheeks), tongue, floor of the mouth, palate and fauces (throat). A score was allocated per intra-oral mucosal site recording: lesion absent, lesion present (monitor) or lesion present (refer).

### **4. Denture Assessment**

The presence of complete (upper and lower) and partial (upper and lower) dentures was recorded. All dentures were examined for stability, retention and occlusion to provide an assessment of overall clinical satisfaction.

### **Statistical analysis**

The data were coded and entered into a computer using the statistical package SPSS v17 (SPSS Inc., Chicago IL). The data were subjected to frequency distributions, Chi-squared analysis, t-tests and Analysis of Variance (ANOVA). The post hoc Scheffe test was used to determine statistical differences between groups.

### **Ethical issues, confidentiality and data security**

Ethical approval was obtained from The National Research Ethics Service (Reference Number NRES 10/S0501/10) and the Scottish Prison Service Ethics Committee (Appendix 1). All data files were held securely on encrypted University computers and the transcriptions stored in a secure location. A coding system was used to anonymise the prisoners' data.

## **3.2 Results**

### **Sample**

A total of 342 participants consented to participate in the survey (Table 3.2). Forty-four of the 342 prisoners did not participate in the oral examination. Of those 44 who did not participate in the oral examination, reasons for non-participation included: refusal to be examined (25%), attendance at court (25%), discharged/preparing for discharge from prison (11%), at work/education (14%), moved to another prison (9%) and agency visit (5%).

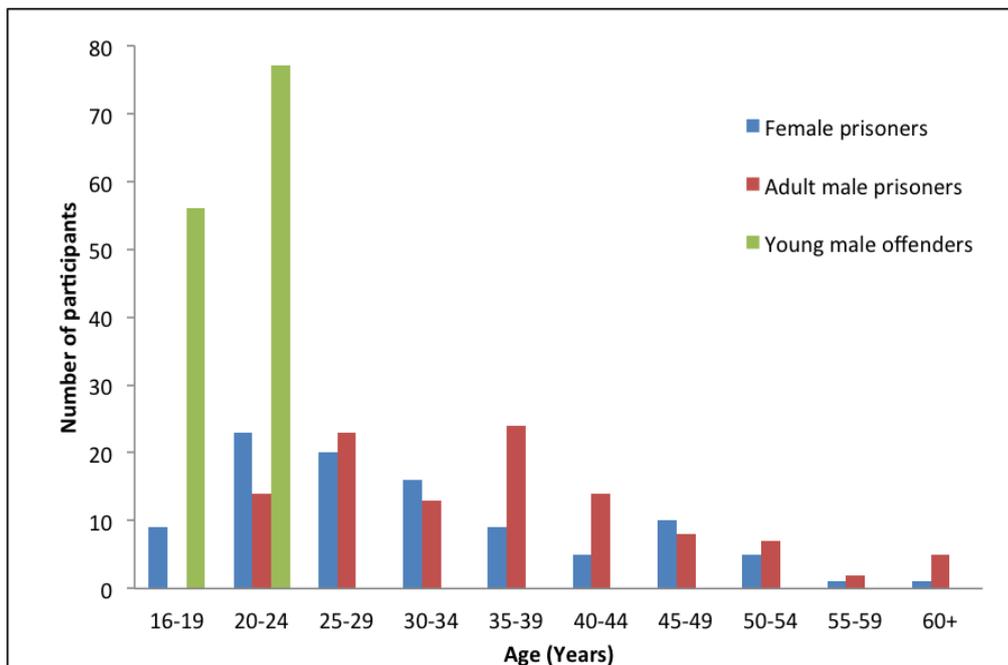
### **Age**

The mean age of the total sample was 28.35 years (95% CI: 27.18, 29.52) ranging from 17 to 67 years with the median age being 24 years. Fifty-two percent (179) were aged 16–24 years of age, 21% (72) were aged 25–34 and 15% (52) were aged 35–44. The remainder of the sample (11%) were 45 years and over.

Prison	Survey & Oral Examination	Survey only	Total
HMP Shotts (Adult male prisoners)	109	1	110
HMYOI Polmont (Young male offenders)	99	34	133
HMP&YOI Cornton Vale (Female prisoners)	90	9	99
<b>Total</b>	<b>298</b>	<b>44</b>	<b>342</b>

**Table 3.2:** Participants in the survey and oral examination and survey only by prison establishment

The mean age of all female prisoners was 31.28 years (95% CI: 29.13, 33.43) and for all male prisoners was 27.16 years (95% CI: 25.77, 28.54). Prisoners from HMP Shotts had a mean of 36.20 years (95% CI: 34.18, 38.22), and those from HMYOI Polmont had a mean age of 19.68 years (95% CI: 19.53, 19.82) (Figure 3.3).



**Figure 3.3:** Demographic profile: age by prison populations

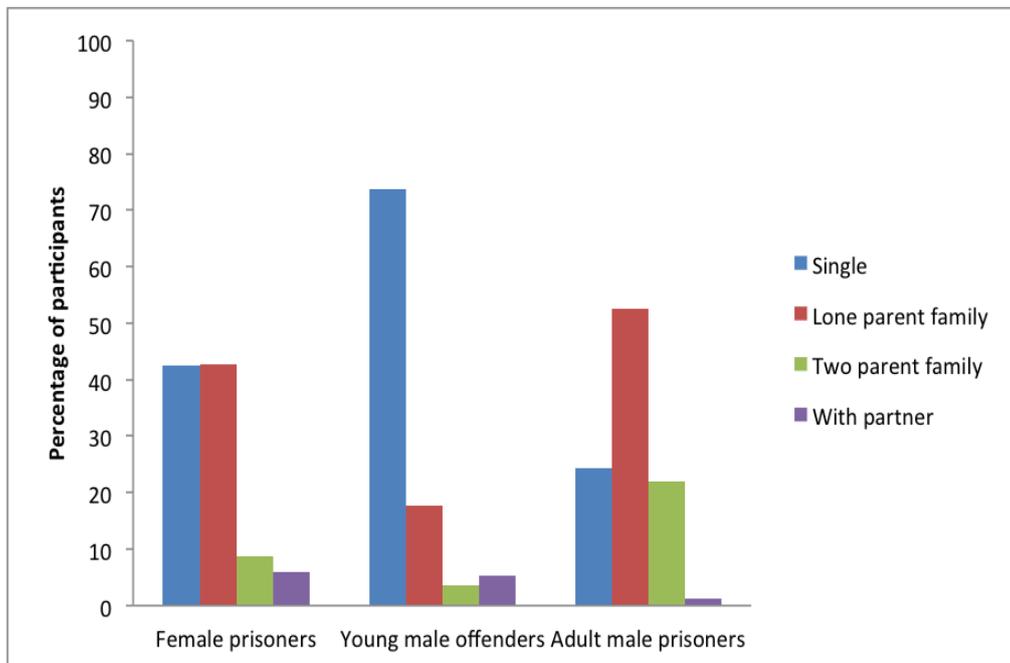
### Marital and family status

Eighty-two percent (265) of the sample stated that they were single. A further 13% (41) of the sample stated that they were living with a partner and 6% (19) were widowed, separated or divorced (Table 3.3). Significantly larger proportions of young male offenders were single compared with female prisoners or adult male prisoners ( $X^2_{[4]} = 15.75, p = 0.003$ ).

	Single	Married/ cohabiting	Separated/ divorced/ widowed
	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)
Female prisoners	74 (80)	10 (11)	9 (8)
Adult male prisoners	75 (73)	19 (18)	9 (9)
Young male offenders	116 (90)	12 (9)	1 (1)

**Table 3.3:** Marital status of prisoners

One hundred and thirty-three participants (48%) stated they had children. Fifty-seven prisoners had one child, 35 had two children, 17 had three children and 10 had four or more children. Significantly greater proportions of adult male prisoners reported having at least one child when compared with female prisoners and young male offenders ( $X^2_{[2]} = 59.10, p < 0.001$ ) (Figure 3.4).



**Figure 3.4:** Family status of prisoners

Sixty-seven of the prisoners who had children were living as a family prior to their current imprisonment. Equivalent proportions of male (48%) and female (56%) prisoners lived as a family with their children prior to their current imprisonment ( $X^2_{[1]} = 0.93, p = 0.34$ ). Similarly, equivalent proportions of prisoners of different age groups lived with their children prior to current imprisonment ( $X^2_{[3]} = 5.63, p = 0.13$ ).

### Living arrangements

A total of 335 people (98%) gave information on their living arrangements prior to current imprisonment. The largest proportion of participants reported they resided with parents or family (38%), in rented accommodation (30%), or in their own property (16%) (Table 3.4).

	Number ( <i>n</i> )	Percentage (%)
With parents or family	128	38%
Rented (tied) accommodation	101	30%
Own property	53	16%
Homeless	9	3%
Bed and breakfast accommodation	3	1%
Children's institution or home	3	1%
Foster care	1	0.3%
<b>Temporary accommodation:</b>		
With friends (e.g. sofa surfer)	19	6%
Hostel	10	3%
Half-way house	8	2%

**Table 3.4:** Living arrangements prior to imprisonment

When asked about living arrangements as a child or teenager 35% (110) of the prisoners stated that they had been 'in care'. Thirteen percent (39) stated that they had been in foster care. Thirty-four prisoners stated that they had had experience of both children's institutions and foster care. Forty percent of young male offenders had lived in children's institutions compared with 28% of adult male and 35% of female prisoners. Sixteen percent of young male offenders reported having been in foster care compared with 13% of female and 9% of adult male prisoners.

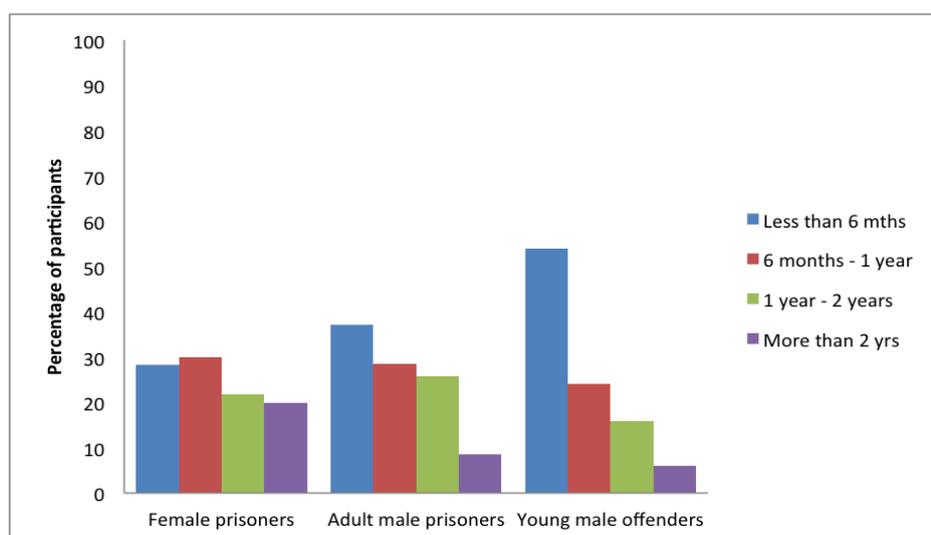
Forty-three percent or 145 prisoners stated they had experienced homelessness at some time. Female prisoners accounted for 41% (60) of those who had been homeless, adult male prisoners represented 24% (35), and 35% (50) of those experiencing homelessness were young male offenders. The length of homelessness ranged from less than six months to more than 24 months (Figure 3.5).

### Occupation

Three hundred and thirty seven (98%) participants provided information about their occupation or education just prior to imprisonment (Table 3.5).

### Ethnicity

Ninety-three percent (318) of participants stated they were Caucasian. The remainder stated they were Asian (8), mixed race (4) Black (2) and Chinese and East African (2). Ninety-seven percent (333) stated that English was their first language. Other first languages included Cantonese (2), Mandarin (2), Polish (1), Punjabi (1), Romanian (1), Somali (1), and Vietnamese (1). The majority of those who spoke other languages (8) were female prisoners.



**Figure 3.5:** Length of homelessness of prisoners

	Female <i>n</i> (%)	Adult Male <i>n</i> (%)	Young male offenders <i>n</i> (%)	Total <i>n</i> (%)
<b>Unemployed</b>	<b>71 (74)</b>	<b>64 (59)</b>	<b>91 (68)</b>	<b>226 (67)</b>
<b>Employed</b>	<b>19 (20)</b>	<b>37 (34)</b>	<b>21 (16)</b>	<b>77 (23)</b>
Managers, Directors and Senior Officials	2			2
Professional Occupations	1			1
Associate Professional and Technical		1		1
Administrative and Secretarial	1		1	2
Skilled Trades		13	6	19
Caring, Leisure and Other Services	7		3	10
Sales and Customer Service	4	2	3	9
Process, Plant and Machine Operatives		9	3	12
Elementary Occupations	3	3	4	10
<b>Training (apprentice/trainee)</b>	<b>1 (1)</b>	<b>1 (1)</b>	<b>9 (7)</b>	<b>11 (3)</b>
Associate Professional and Technical			1	1
Administrative and Secretarial			1	1
Skilled Trades			2	2
Caring, Leisure and Other Services	1			1
<b>In formal education</b>	<b>1 (1)</b>	<b>2 (2)</b>	<b>4 (3)</b>	<b>7 (2)</b>
<b>Casual work</b>	<b>2 (2)</b>	<b>2 (2)</b>	<b>7 (5)</b>	<b>11 (3)</b>
Skilled Trades			2	2
Process, Plant and Machine Operatives			2	2
Elementary Occupations	2		1	3
<b>Unable to work</b>	<b>2 (2)</b>	<b>2 (2)</b>	<b>1 (1)</b>	<b>5 (2)</b>
Sickness/Disability	1	2		3
In care/carer	1		1	2

**Table 3.5:** Occupational status prior to imprisonment

### Prison experience

At the time of the survey, participants had spent on average 2.27 years (95% CI: 1.78, 2.76) of their lives in prison. Respondents were asked about the number of prison remands, number of imprisonments and the length of time (in years) of their current imprisonment. The number of prison remands ranged from one to 57 with a median of two remands. One hundred and forty-seven prisoners (43%) had been on remand at least twice. The number of sentences ranged from one to 40 with a median of one. One hundred and twenty-two prisoners (36%) had had at least one previous sentence. Table 3.6 shows the number and percentage of male and female prisoners' experience of prison remands and imprisonment. The mean number of prison remands was 4.65 (95% CI: 3.79, 5.51) and the mean number of imprisonments was 3.16 (95% CI: 2.47, 3.86).

		Never	1-5	6-10	11-15	16-20	21+
		<i>n</i> (%)					
<b>Remand</b>	Females	11 (15)	53 (74)	5 (7)	3 (4)		
	Adult males	5 (6)	50 (60)	17 (21)	3 (4)	3 (4)	5 (6)
	Young offenders	7 (6)	86 (72)	16 (13)	8 (7)	2 (2)	1 (1)
	All	23 (8)	189 (69)	38 (14)	14 (5)	5 (2)	6 (2)
<b>Imprisonment</b>	Females	9 (15)	46 (77)	4 (7)		1 (2)	
	Adult males	7 (8)	61 (69)	12 (14)	3 (3)	1 (1)	5 (6)
	Young offenders	9 (10)	76 (81)	9 (9)			
	All	25 (10)	183 (75)	25 (10)	3 (1)	2 (1)	5 (2)

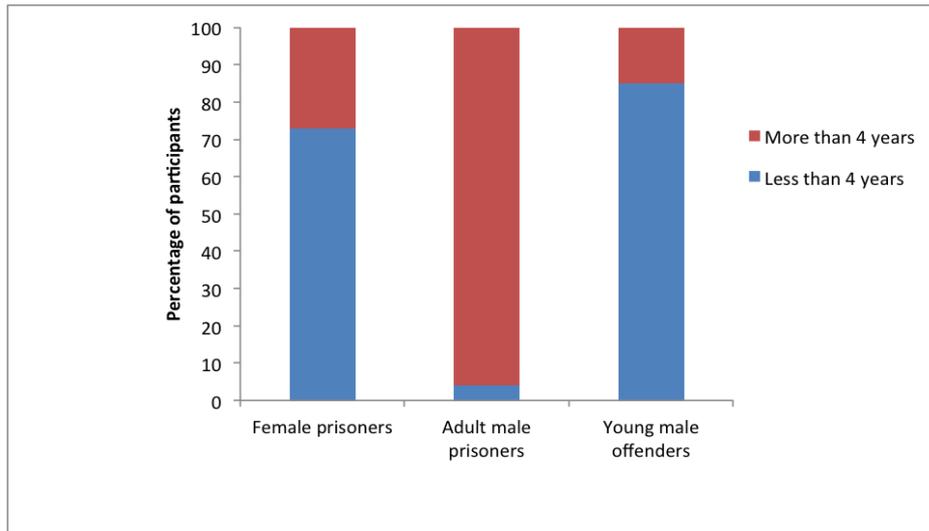
**Table 3.6:** Relationship of demography with number of prison remands and imprisonments

Figure 3.6 shows the differences in the length of time in years of total imprisonment between genders as an indicator of prison establishment. Fifty-four per cent of the sample (170) indicated their current imprisonment was for a short-term period (less than four years); 46% (143) were serving longer-term sentences of more than four years.

Table 3.7 shows the relationship of age group and gender with the length of time of current imprisonment. The age group significantly explained differences in mean total length of time of imprisonment. Younger prisoners had significantly lower mean number of years in prison compared with those in the older age groups. Young offenders in HMYOI Polmont had significantly shorter sentences than those in HMP&YOI Cornton Vale and HMP Shotts. Male prisoners in HMP Shotts had significantly longer sentences.

Table 3.8 shows the relationship of demography (age group and gender) with the number of prison remands. The interaction of age group with gender significantly explained differences in mean number of prison remands. Older male prisoners aged between 34–35 years and 45 years and older had significantly greater mean numbers of prison remands than others.

Table 3.9 shows that the interaction of age group with gender significantly explained differences in mean number of prison imprisonments. Older male prisoners of 45 years and older had significantly greater mean numbers of imprisonments compared with male and female prisoners aged between 16–24 years.



**Figure 3.6:** Time in prison by prison establishment

	Time in prison (years) mean (95% CI)	<i>F(df)</i>	<i>p</i>
<b>Age group</b>			
16-24 years ( <i>n</i> = 179)	0.78 (0.00, 1.59) <sup>1*</sup>	11.91[3, 341]	<0.001
25-34 years ( <i>n</i> = 72)	2.98 (1.99, 3.96) <sup>2</sup>		
35-44 years ( <i>n</i> = 52)	4.40 (3.10, 5.70) <sup>2</sup>		
45 + years ( <i>n</i> = 39)	4.57 (3.22, 5.91) <sup>2</sup>		
<b>Prison Establishment</b>			
HMP&YOI Cornton Vale ( <i>n</i> = 99)	2.26 (1.84, 3.35) <sup>2</sup>	25.41 [2, 339]	<0.001
HMP Shotts ( <i>n</i> = 110)	4.42 (3.41, 5.43) <sup>2</sup>		
HMYOI Polmont ( <i>n</i> = 133)	0.49 (0.26, 0.73) <sup>1</sup>		

\* The suffixes show the significant difference in mean between groups with non-identical numeric characters.

**Table 3.7:** Age, gender and length of time in prison

Age group	Gender (n)	Remands Mean (95% CI)	<i>F(df)</i>	<i>p</i>
16-24	Male (132)	4.21 (3.17, 5.24) <sup>1*</sup>	3.77 [3, 274]	<0.001
	Female (26)	2.46 (0.13, 4.80) <sup>1</sup>		
25-34	Male (29)	4.69 (3.17, 5.24) <sup>1</sup>		
	Female (27)	3.59 (2.48, 6.90) <sup>1</sup>		
35-44	Male (29)	7.17 (4.96, 9.38) <sup>2</sup>		
	Female (8)	1.25 (0.00, 5.46) <sup>1</sup>		
45+	Male (13)	11.08 (7.77, 14.38) <sup>2</sup>		
	Female (11)	1.27 (0.00, 4.86) <sup>1</sup>		

\* The suffixes show the significant difference in mean length of imprisonment between age groups with non-identical numeric characters.

**Table 3.8:** Demographic profile: relationship of age and gender with number of prison remands

Age group	Gender (n)	Number of sentences Mean (95% CI)	<i>F(df)</i>	<i>p</i>
16-24	Male (107)	2.51 (1.41, 3.62)	3.01 [3, 242]	< 0.001
	Female (17)	1.29 (0.00, 4.07)		
25-34	Male (32)	2.88 (0.86, 4.89)		
	Female (23)	2.70 (0.31, 5.08)		
35-44	Male (29)	6.14 (4.02, 8.26)		
	Female (7)	0.86 (0.00, 5.18)		
45+	Male (15)	9.27 (6.32, 12.22)		
	Female (13)	1.92 (0.00, 5.09)		

**Table 3.9:** Age, gender and number of imprisonments

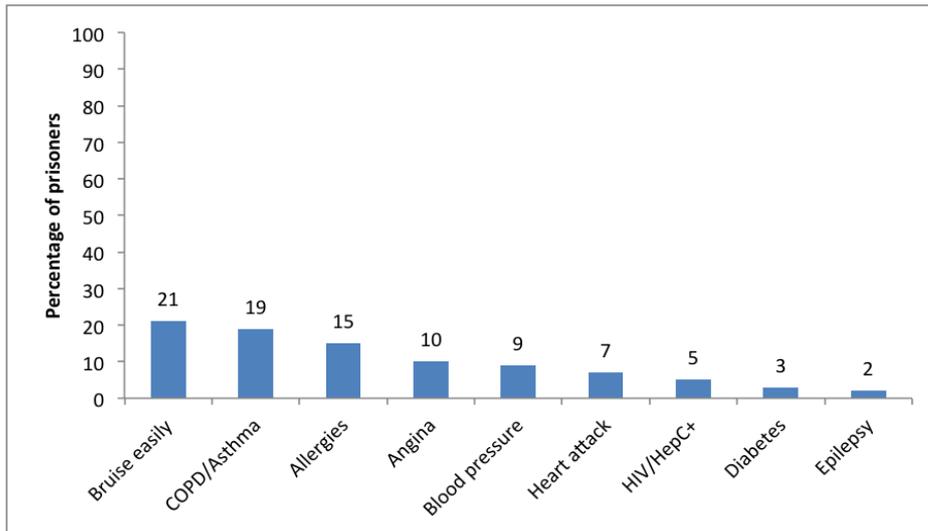
## Health and health behaviours

### Physical health

Three hundred and forty prisoners answered the medical history questions. One hundred and fifty-three (45%) stated that they suffered from at least one of the illnesses on the medical history questionnaire. With regard to cardiovascular disease 3% (10) had angina; 2% (7) myocardial infarction and 9% (31) had hypertension. Nineteen percent (63) had respiratory disease (including asthma). Other illness reported by the prisoners included bruising/bleeding easily (21%); allergies to medicines/foods (15%); diabetes (3%) and epilepsy (2%). Two of the female prisoners were pregnant (Figure 3.7).

Comparisons between male and female prisoners regarding their reported health conditions are shown in Table 3.10. When all male and all female prisoners were compared, significantly larger proportions of women (11%), compared with all male prisoners (3%), stated that they were HIV/Hepatitis C positive ( $X^2_{[1]} = 7.89, p = 0.005$ ). Similarly, significantly larger proportions of women (35%) compared with adult male prisoners (15%) stated that they bled and bruised easily ( $X^2_{[1]} = 16.82, p < 0.001$ ).

Forty-five percent of the sample (154 prisoners) stated that they were taking prescribed medication, however, only 152 provided details of the type of medication they



**Figure 3.7:** Prevalence of reported physical illnesses

	Female <i>n</i> (%)	Adult male <i>n</i> (%)	Young male offenders <i>n</i> (%)
Bleed/Bruise Easily	35 (35)	16 (15)	21 (16)
Chest Disease	23 (23)	21 (19)	19 (14)
Allergies	18 (18)	15 (14)	16 (12)
Blood pressure	12 (12)	17 (16)	2 (2)
Hepatitis C/HIV	11 (11)	5 (5)	2 (2)
Epilepsy	3 (3)	3 (3)	1 (0.8)
Diabetes	3 (3)	6 (6)	1 (0.8)
Heart Disease (angina and MI)	1 (1)	10 (9)	2 (1)

**Table 3.10:** Frequency of reported medical conditions by prisoner group

were currently taking as shown in Table 3.11. Of those who provided details of the medication taken, the largest proportions of prescribed medication were reported by the participants to be analgesics (28%), antidepressants (25%), methadone (16%) and treatment for chronic obstructive pulmonary disease and asthma (16%). In addition, smaller percentages of prisoners had been prescribed anxiolytics (10%) and anti-psychotic medication (7%). Significantly lower proportions of young male offenders (18%) compared with female (42%) and adult male prisoners (39%) stated that they were taking prescribed medication at the time of the survey ( $X^2_{[2]} = 29.71, p < 0.001$ ).

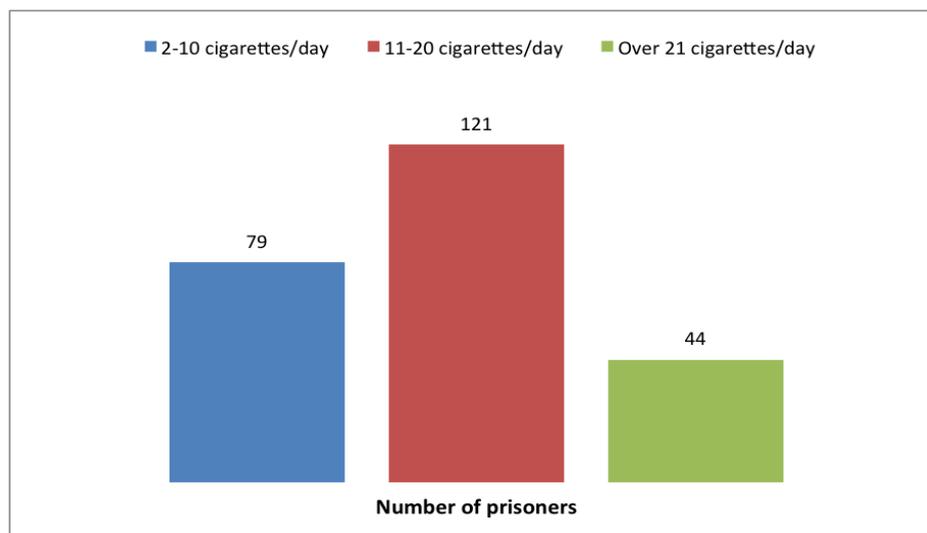
Of the 330 participants who provided information regarding attendance for medical appointments, 33% (109) reported that they attended primary and/or secondary level services. Significantly lower proportions of young male offenders (21%) compared with female (38%) and adult male prisoners (40%) stated that they had accessed primary or secondary level medical care ( $X^2_{[2]} = 36.16, p < 0.001$ ).

	Number of prisoners	% of total sample ( <i>n</i> = 298)
No medication	50	17%
Analgesics	42	14%
Anti-depressants	38	13%
Methadone	25	8%
COPD/Asthma medication	25	8%
Anxiolytics	15	5%
Gastro-intestinal medication	15	5%
Skin creams	16	5%
Antibiotics	12	4%
Cardiovascular medication	11	4%
Anti-psychotics	10	3%
Anti-epileptics	8	3%
Anti-histamines	6	2%
Anti-viral medication	5	2%
Lipid regulating drugs	5	2%
Vitamins and supplements	5	2%
Anti-fungal medication	4	1%
Metabolic diseases	4	1%
Other medications	2	1%

**Table 3.11:** Prescribed medications taken by prisoners

## Smoking

**Smoking: frequency and demography** Three quarters of the sample (75%) reported that they were tobacco smokers. The mean number of cigarettes smoked daily was 17.09 (95% CI: 16.07, 18.10). The number of cigarettes smoked ranged from two to 50 per day. One hundred and twenty-one of the prisoners stated they smoked between 11–20 cigarettes daily. The median number of tobacco cigarettes smoked daily was 15 (Figure 3.8).



**Figure 3.8:** Frequency of prisoners who smoke between two and over 30 cigarettes/day

Equivalent proportions of male (77%) and female (72%) prisoners smoked cigarettes ( $X^2_{[1]} = 0.55, p = 0.46$ ). There was no significant difference in the proportions of prisoners who smoked by age group ( $X^2_{[3]} = 2.29, p = 0.52$ ).

Marital status and ethnicity were associated with smoking behaviours. Significantly lower proportions of prisoners who had been employed and who were married/cohabiting stated that they smoked cigarettes compared with those who were unemployed, in education and who were single. Significantly larger proportions of prisoners who classified themselves as Caucasian compared with other ethnic groups stated they were smokers (Table 3.12).

	Smoker <i>n</i> (%)	$X^2$	<i>p</i>
<b>Employment</b>			
Unemployed	185 (80)	8.44	0.02
Employed	57 (65)		
Education/training	12 (71)		
<b>Marital status</b>			
Single	208 (79)	7.4	0.03
Cohabiting/married	24 (60)		
Separated/divorced/widowed	15 (79)		
<b>Homelessness</b>			
No	145 (76)	0.00	0.98
Yes	109 (76)		
<b>Ethnicity</b>			
Caucasian	244 (78)	7.64	0.002
Asian, Afro-Caribbean, European, African	7 (44)		

**Table 3.12:** Number of prisoners smoking cigarettes by different demographic factors

Male prisoners reported that they smoked a mean of 17.23 (95%CI 16.07, 18.10) cigarettes per day and female prisoners stated they smoked 16.72 (95%CI 14.93, 18.51). There was no significant difference between male and female prisoners regarding the mean number of cigarettes reported to be smoked each day ( $t = 0.47, p = 0.64$ ).

The number of cigarettes smoked daily was examined by age group. The age group did not explain differences in smoking behaviour in the participants (Table 3.13).

Age group	Cigarettes/day Mean (95% CI)	$F(df)$	<i>p</i>
16-24	16.31 (14.96, 17.66)	1.48 (3, 263)	0.22
25-34	17.18 (14.91, 19.45)		
35-44	17.88 (15.09, 20.68)		
45+	19.80 (16.41, 23.21)		

**Table 3.13:** Mean number of cigarettes smoked a day by age group of prisoners

The grouping variable employment status explained the mean number of reported cigarettes smoked daily by the prisoners. Prisoners who were in education or training reported that they smoked significantly lower mean numbers of cigarettes/day compared

<b>Demographic factors</b>	<b>Cigarettes/day Mean (CI 95%)</b>	<i>F(df)</i>	<i>p</i>
<b>Employment</b>			
Unemployed	17.62 (16.39, 18.85) <sup>2*</sup>	4.63 (2.257)	0.01
Employed	16.15 (14.42, 17.87) <sup>2</sup>		
Education/training	10.88 (7.30, 14.44) <sup>1</sup>		
<b>Marital status</b>			
Single	17.05 (15.90, 18.22)	4.45 (2.250)	0.94
Cohabiting/married	17.69 (14.16, 21.21)		
Separated/divorced/widowed	17.20 (13.39, 21)		
		<i>t</i>	<i>p</i>
<b>Homelessness</b>			
No	16.12 (14.79, 17.44)	2.09	0..04
Yes	18.28 (16.69, 19.88)		
<b>Ethnicity</b>			
Caucasian	17.16 (16.11, 18.20)	4.15	0.003
Asian, Afro-Caribbean, European, African	10.85 (7.37, 14.33)		

\* The suffixes show the significant difference in mean between groups with non-identical numeric characters.

**Table 3.14:** Mean number of cigarettes smoked a day by prisoners by different demographic factors

with those who were unemployed or employed. Prisoners who had experienced homelessness and who classified themselves as Caucasian reported to smoke greater mean numbers of cigarettes compared with those who had never been homeless and were from other ethnic groups, respectively (Table 3.14).

**Smoking: prison experience** The number of previous prison remands ranged from one to 57 with a median number of two prison remands. A median split of the number of prison remands was conducted. Those prisoners with up to two prison remands were classified as ‘less experience of prison remands’ (43%) and those with between three and 57 prison remands (57%) were classified as ‘greater experience of prison remands’.

The number of prison sentences ranged from one to 58 with the median number of sentences being one. A median split of the number of prison sentences was conducted. Those prisoners with between one and two prison sentences were classified as ‘less experience of prison’ (36%) and those with between three and 58 prison sentences (64%) were classified as ‘greater experience of prison’.

When reported smoking status was compared by experience of prison remands, similar proportions of prisoners classified as having less (41%) and greater (59%) experience of prison remands reported that they smoked cigarettes ( $X^2_{[1]} = 1.62, p = 0.20$ ). When reported smoking status was compared by experience of prison, significantly larger proportions of prisoners classified as having greater experience of prison (68%) compared with those classified as having less experience of prison (32%) reported that they smoked cigarettes ( $X^2_{[1]} = 5.60, p = 0.02$ ). Finally, when reported smoking status was compared by length of current prison sentence, significantly smaller proportions of those currently serving longer (34%) than shorter (58%) prison sentences stated they smoked cigarettes

( $X^2_{[1]} = 5.45, p = 0.02$ ).

There were no significant differences in the reported mean number of cigarettes smoked each day for those with less (17.67 [10.69]) and greater (16.68 [8.27]) experience of prison remand ( $t = 0.94, p = 0.35$ ). Prisoners with greater experience of prison reported smoking similar mean numbers of cigarettes (17.49 [8.61]) as those with less (16.22 [7.81]) experience of prison ( $t = 1.19, p = 0.23$ ). Prisoners with current longer prison sentences of five years or more (17.57 [8.50]) and those with current shorter prison sentences of four years or less (17.21 [8.30]) reportedly smoked similar mean numbers of cigarettes daily ( $t = 0.34, p = 0.73$ ).

### Drug taking

**Drug taking: demography** Seventy-nine percent (268) of respondents stated that they had used drugs, with 23% (80) reporting that they had used intravenous drugs. In comparison, 23.7% of adults from the general population in Scotland reported illicit drug use at some point in their lives and 6.6% reported having used illicit drugs within the past year (The Scottish Government, 2012a).

Table 3.15 shows the comparisons between male and female prisoners with regard to drug taking behaviour. Significantly larger proportions of male prisoners compared with female prisoners reported to have used drugs at some time, whereas significantly larger proportions of female compared with male prisoners stated that they had been an injecting drug user.

	Male prisoners <i>n</i> (%)	Female prisoners <i>n</i> (%)	$X^2$	<i>p</i>
Previous drug use	203 (87)	66 (66)	11.93	< 0.001
Injecting drug use	45 (18)	37 (37)	15.20	< 0.001

**Table 3.15:** Drug taking behaviour: comparisons by gender

Table 3.16 shows the comparisons of drug taking behaviour by age group. Significantly larger proportions of younger age groups admitted to having used drugs at some time and to have been an injecting drug user compared with other age groups.

Age group	16-24 <i>n</i> (%)	25-34 <i>n</i> (%)	35-44 <i>n</i> (%)	45+ <i>n</i> (%)	$X^2$	<i>p</i>
Previous drug use	152 (56)	59 (22)	43 (16)	15 (6)	42.68	< 0.001
Injecting drug use	30 (37)	23 (29)	20 (25)	7 (9)	14.57	0.002

**Table 3.16:** Drug taking behaviour: comparisons by prisoner age group

Table 3.17 shows the comparisons of drug taking behaviour by prison establishment. Significantly larger proportions of young offenders admitted to having used drugs at some time compared with other prison groups. Significantly larger proportions of women compared with other prison groups stated that they had injected drugs at some time.

	HMP&YOI Corton Vale <i>n</i> (%)	HMP Shotts <i>n</i> (%)	HMYOI Polmont <i>n</i> (%)	$X^2$	<i>p</i>
Previous drug use	66 (66)	83 (76)	120 (90)	19.75	< 0.001
Injecting drug use	37 (37)	25 (23)	18 (34)	18.14	< 0.001

**Table 3.17:** Drug taking behaviour: comparisons by prisoner establishment

Marital status, ethnicity and experience of homelessness were associated with drug-taking behaviour. Significantly larger proportions of prisoners who reported their marital status as single compared with those who were married, separated, divorced or widowed stated that they had used drugs. Similarly those prisoners who stated they were Caucasian compared with other ethnic groups stated that they had previously used drugs. Significantly larger proportions of prisoners who had ever experienced homelessness had injected drugs compared with those who had never experienced homelessness (Table 3.18).

	Previous drug use <i>n</i> (%)	$X^2$	<i>p</i>	Injecting drug use <i>n</i> (%)	$X^2$	<i>p</i>
<b>Employment</b>						
Unemployed	190 (82)			57 (25)		
Employed	63 (72)	4.42	0.11	18 (21)	0.65	0.72
Education/training	14 (79)			20 (22)		
<b>Marital status</b>						
Single	222 (83)			58 (22)		
Cohabiting/married	27 (66)	16.17	< 0.001	14 (34)	3.04	0.22
Separated/divorced/widowed	10 (53)			4 (21)		
<b>Homelessness</b>						
No	148 (56)			23 (29)		
Yes	116 (44)	0.41	0.52	56 (71)	32.67	< 0.001
<b>Ethnicity</b>						
Caucasian	258 (81)			78 (25)		
Asian, Afro-Caribbean		9.10	< 0.001	2 (13)	1.21	0.27
European, African	8 (19)					

**Table 3.18:** Drug taking behaviour: comparisons by other demographic factors of prisoners

**Drug taking: prison experience** When drug taking behaviour was compared with greater prison experience as defined by increased number of remands and sentences, an association was demonstrated with drug taking behaviour. Significantly greater proportions of those prisoners classified as having greater experience of prison remand stated that they had previously used drugs at some time compared with those classified as having less experience of prison remand. Significantly larger proportions of prisoners classified as having greater rather than lesser experience of prison stated that they had previously injected drugs and those with current shorter than longer sentences stated that they had used drugs at some time. No other significant differences were found (Table 3.19).

Prison experience	Previous drug use n(%)	$X^2$	$p$	Injecting drug use n(%)	$X^2$	$p$
<b>Number of prison remands</b>						
$\leq 2$	107 (73)	5.28	0.02	21 (14)	11.95	0.06
$\geq 3$	162 (83)			59 (30)		
<b>Number of prison sentences</b>						
$\leq 1$	89 (73)	3.67	0.06	21 (14)	4.04	0.04
$\geq 2$	180 (82)			59 (30)		
<b>Current prison sentence</b>						
$\leq 4$ years	144 (85)	7.50	0.006	42 (25)	1.18	0.28
$\geq 5$ years	103 (72)			28 (20)		

**Table 3.19:** Drug taking behaviour: comparisons by prison experience

**Rehabilitation and demography** Sixty-three prisoners (18%) stated that they had taken part in a drug rehabilitation programme. Significantly greater proportions of females (29%) compared with males (14%) had taken part in a drug rehabilitation programme ( $X^2_{[1]} = 10.96, p < 0.001$ ). Tables 3.20 - 3.21 show the relationship between demography and prison experience with drug rehabilitation.

With regard to age group, significantly lower proportions of younger prisoners had taken part in a drug rehabilitation programme compared with older age groups (Table 3.20).

Age group	Prisoners with rehabilitation experience n(%)	$X^2$	$p$
16-24 yrs	16 (9)	25.24	< 0.001
25-34 yrs	24 (33)		
35-44 yrs	15 (29)		
45+ yrs	8 (20)		

**Table 3.20:** Drug rehabilitation: comparison by age group

Significantly lower proportions of young male offenders (8%) compared with adult male prisoners (22%) and female prisoners (29%) had taken part in a drug rehabilitation programme ( $X^2_{[2]} = 19.15, p < 0.001$ ) and significantly greater proportions of female (29%) compared with male (14%) prisoners had taken part in drug rehabilitation programmes ( $X^2_{[1]} = 10.94, p < 0.001$ )

With regard to other demographic factors, significantly greater proportions of prisoners who had been homeless compared with those who had not been homeless had taken part in a drug rehabilitation programme. No other significant differences were shown (Table 3.21).

**Rehabilitation and prison experience** Significantly greater proportions of prisoners with greater experience of prison remand than those with less experience of prison remand had taken part in drug rehabilitation. No other significant differences were shown with

	Drug rehabilitation <i>n</i> (%)	$X^2$	<i>p</i>
<b>Employment</b>			
Unemployed	40 (6)		
Employed	17 (19)	0.39	0.82
<b>Education/training</b>			
	4 (22)		
<b>Marital status</b>			
Single	54 (20)		
Cohabiting/married	6 (15)	1.71	0.42
Separated/divorced/widowed	2 (11)		
<b>Homelessness</b>			
No	23 (12)		
Yes	39 (27)	12.25	< 0.001
<b>Ethnicity</b>			
Caucasian	61 (19)		
Asian, Afro-Caribbean, European, African	1 (6)	1.68	0.19

**Table 3.21:** Number of prisoners smoking cigarettes by different demographic factors

regard to experience status of prison or the length of time of current prison sentence (Table 3.22).

Prison experience	Drug rehabilitation <i>n</i> (%)	$X^2$	<i>p</i>
<b>Number of prison remands</b>			
$\leq 2$	14 (9)		
$\geq 3$	49 (25)	13.58	< 0.001
<b>Number of prison sentences</b>			
$\leq 1$	16 (13)		
$\geq 2$	47 (21)	3.55	0.06
<b>Current prison sentence</b>			
$\leq 4$ years	30 (18)		
$\geq 5$ years	30 (21)	0.56	0.46

**Table 3.22:** Number of prisoners with drug rehabilitation experience: comparisons by prison experience

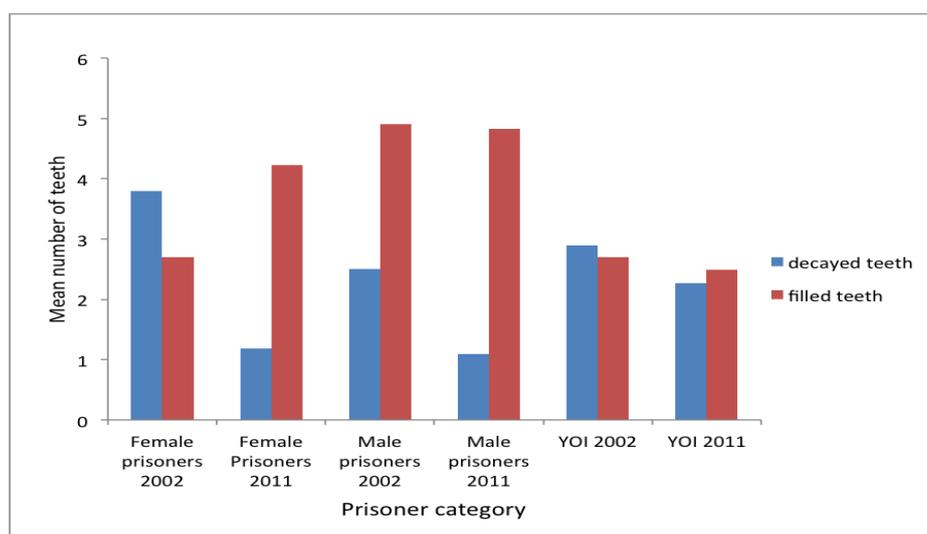
## Oral health and oral health behaviours

### Obvious decay experience

**Comparisons between 2002 and 2011 surveys** Two hundred and ninety-eight prisoners had an oral health examination. Table 3.23 and Figure 3.9 show the decay experience as the mean number of teeth affected at the  $D_{3cv}$  (dentine cavitation) level and illustrates the comparison between the 2011 and 2002 oral health surveys of prisons in Scotland. The data suggest that there was an improvement in dental health with overall reductions in the mean number of decayed, missing and filled teeth. Despite the reduction in the mean obvious decay experience and the decreased number of filled teeth there was little difference in the care index between 2002 and 2011.

Oral Health Survey	No obvious decay	Mean obvious decay (D <sub>3cv</sub> MFT)	Mean <i>n</i> of decayed teeth (D <sub>3cv</sub> T)	Mean missing teeth	Mean filled teeth	Care Index (% carious teeth restored)
<b>2002</b>	4%	15.32	2.56	8.21	4.55	30%
<b>2011</b>	4%	12.33	1.51	6.95	3.87	31%
<b>2011:</b>						
HMP&YOI Cornton Vale	3%	14.20	1.19	8.78	4.23	30%
HMP Shotts	4%	15.75	1.09	9.83	4.83	31%
HMYOI Polmont	4%	7.01	2.27	2.24	2.49	36%

**Table 3.23:** Obvious decay experience, missing and filled teeth for prisoners as reported by Oral Health Surveys in 2002 and 2011, and for each prison in 2011



**Figure 3.9:** Mean number of decayed (D<sub>3cv</sub>T) and filled teeth by year of survey and prisoner category

When a comparison of the prisoners' obvious decay experience (D<sub>3cv</sub>MFT) was conducted between the three prisons, the grouping variable prison establishment significantly explained differences in mean obvious decay experience, decayed (D<sub>3cv</sub>) teeth, missing and filled teeth. A multiple comparison test showed that prisoners in the HMYOI Polmont had lower mean D<sub>3cv</sub>MFT, missing and filled teeth but greater mean numbers of decayed teeth compared with those prisoners in HMP&YOI Corton Vale or HMP Shotts (Table 3.24).

**Comparisons by prison experience** Obvious decay experience was associated with prison experience. Those prisoners with greater numbers of remands had significantly greater mean D<sub>3cv</sub>MFT and significantly greater mean numbers of missing teeth. Prisoners who had greater numbers of prison sentences had significantly greater numbers of missing teeth, whereas those with longer rather than shorter lengths of current imprisonment had significantly greater mean D<sub>3cv</sub>MFT and significantly greater mean numbers

	Prison	Mean number of teeth	95% CI		$F(df)$	$p$	$n$
Obvious decay experience ( $D_{3cv}MFT$ )	HMP&YOI Corton Vale	14.20 <sup>2*</sup>	12.34	16.05	37.15 (2,295)	<0.001	90
	HMP Shotts	15.75 <sup>2</sup>	14.09	17.35			109
	HMYOI Polmont	7.01 <sup>1</sup>	6.02	8.00			99
Decayed teeth ( $D_{3cv}T$ )	HMP&YOI Corton Vale	1.19 <sup>1</sup>	0.80	1.58	9.41 (2,295)	<0.001	90
	HMP Shotts	1.09 <sup>1</sup>	0.74	1.45			109
	HMYOI Polmont	2.27 <sup>2</sup>	1.75	2.79			99
Missing teeth due to caries (MT)	HMP&YOI Corton Vale	8.78 <sup>2</sup>	6.88	10.67	27.95 (2,295)	<0.001	90
	HMP Shotts	9.83 <sup>2</sup>	8.06	11.61			109
	HMYOI Polmont	2.24 <sup>1</sup>	1.55	2.94			99
Filled teeth (FT)	HMP&YOI Corton Vale	4.23 <sup>2</sup>	3.37	5.09	11.25 (2,295)	<0.001	90
	HMP Shotts	4.83 <sup>2</sup>	4.12	5.54			109
	HMYOI Polmont	2.49 <sup>1</sup>	1.89	3.10			99

\* The suffixes show the significant difference in mean between groups with non-identical numeric characters.

**Table 3.24:** Obvious decay experience: comparisons between prison establishments

of missing teeth and filled teeth but significantly lower mean numbers of decayed teeth (Table 3.25).

**Comparisons by drug taking behaviours** Obvious decay experience was compared across a range of drug taking behaviours including prescribed medication, previous drug use, injecting drug use and experience of drug rehabilitation. Prisoners who had been prescribed medication, compared with those who had not, had significantly greater mean  $D_{3cv}MFT$  and significantly greater mean numbers of extracted teeth. Prisoners who reported that they had previously used drugs had significantly greater mean numbers of decayed teeth than those who stated they had never used drugs whereas those who said that they had been injecting drug users and/or who had been in rehabilitation compared with those who had not, had significantly greater  $D_{3cv}MFT$  and significantly greater mean numbers of missing teeth (Table 3.26).

**Comparisons by oral health behaviours** Eight percent (28) of prisoners reported that they only brushed their teeth with fluoride toothpaste when at home, compared with 22% who stated they only brushed their teeth in prison and 69% who stated they brushed their teeth both at home and when in prison. The mean  $D_{3cv}MFT$  was explained by the interaction of prison establishment and the routine of brushing teeth with fluoride toothpaste when at home ( $F_{[2,292]} = 3.12, p = 0.046, R^2 = 0.24$ ). The reported routine

	Number of remands	Mean number of teeth	(SD)	t	p
Obvious decay experience (D <sub>3cv</sub> MFT)	≤ 2 (n = 136)	10.53	(7.44)	3.44	<0.001
	≥ 3 (n = 166)	13.83	(9.09)		
Decayed teeth (D <sub>3cv</sub> T)	≤ 2 (n = 136)	1.52	(2.26)	0.01	0.99
	≥ 3 (n = 166)	1.51	(2.15)		
Missing teeth due to caries (MT)	≤ 2 (n = 136)	4.93	(6.04)	4.03	<0.001
	≥ 3 (n = 166)	8.63	(9.71)		
Filled teeth (FT)	≤ 2 (n = 136)	4.08	(3.91)	0.86	0.39
	≥ 3 (n = 166)	3.70	(3.65)		
	Number of sentences	Mean number of teeth	(SD)	t	p
Obvious decay experience (D <sub>3cv</sub> MFT)	≤ 1 (n = 109)	11.45	(7.65)	1.46	0.16
	≥ 2 (n = 189)	12.89	(9.00)		
Decayed teeth (D <sub>3cv</sub> T)	≤ 1 (n = 109)	1.64	(2.39)	1.22	0.22
	≥ 2 (n = 189)	1.44	(2.07)		
Missing teeth due to caries (MT)	≤ 1 (n = 109)	5.59	(6.58)	2.35	0.01
	≥ 2 (n = 189)	7.80	(9.32)		
Filled teeth (FT)	≤ 1 (n = 109)	4.23	(3.95)	0.73	0.46
	≥ 2 (n = 189)	3.67	(3.65)		
	Current imprisonment (years)	Mean number of teeth	(SD)	t	p
Obvious decay experience (D <sub>3cv</sub> MFT)	≤ 4 (n = 140)	10.05	(7.80)	4.83	<0.001
	≥ 5 (n = 136)	14.77	(8.43)		
Decayed teeth (D <sub>3cv</sub> T)	≤ 4 (n = 140)	1.91	(2.25)	3.00	0.003
	≥ 5 (n = 136)	1.13	(2.06)		
Missing teeth due to caries (MT)	≤ 4 (n = 140)	4.94	(7.17)	4.28	<0.001
	≥ 5 (n = 136)	9.09	(8.81)		
Filled teeth (FT)	≤ 4 (n = 140)	3.20	(3.61)	3.12	0.002
	≥ 5 (n = 136)	4.59	(3.76)		

**Table 3.25:** Obvious decay experience: comparisons by prison experience

of brushing teeth with fluoride toothpaste when in prison did not explain differences in mean D<sub>3cv</sub>MFT between prisoner groups ( $F_{[2,292]} = 1.20, p = 0.30$ ).

Thirty-two percent of prisoners stated that they avoided snacking on sugary foods and drinks at home and 38% stated that they avoided sugary foods and drinks when in prison. The interaction of prison establishment with reported avoidance of in-between meal snacking at home ( $F_{[2,292]} = 1.95, p = 0.14$ ) or in prison ( $F_{[2,292]} = 0.41, p = 0.67$ ) did not explain mean D<sub>3cv</sub>MFT.

	Prescribed medication	Mean number of teeth	(SD)	t	p
Obvious decay experience (D <sub>3cv</sub> MFT)	Yes (n = 132)	15.19	(9.11)	5.18	<0.001
	No (n = 166)	10.13	(7.37)		
Decayed teeth (D <sub>3cv</sub> T)	Yes (n = 132)	1.48	(2.21)	0.20	0.84
	No (n = 166)	1.54	(2.19)		
Missing teeth due to caries (MT)	Yes (n = 132)	9.98	(9.62)	5.46	<0.001
	No (n = 166)	4.62	(6.56)		
Filled teeth (FT)	Yes (n = 132)	3.75	(3.58)	0.51	0.61
	No (n = 166)	3.97	(3.92)		
	Previous drug use		(SD)	t	p
Obvious decay experience (D <sub>3cv</sub> MFT)	Yes (n = 231)	12.41	(8.39)	0.15	0.88
	No (n = 67)	12.22	(9.13)		
Decayed teeth (D <sub>3cv</sub> T)	Yes (n = 231)	1.71	(2.31)	3.43	<0.001
	No (n = 67)	0.85	(1.62)		
Missing teeth due to caries (MT)	Yes (n = 231)	6.76	(8.23)	0.82	0.42
	No (n = 67)	7.79	(9.31)		
Filled teeth (FT)	Yes (n = 231)	3.96	(3.84)	0.75	0.45
	No (n = 67)	3.58	(3.52)		
	Injecting drug use		(SD)	t	p
Obvious decay experience (D <sub>3cv</sub> MFT)	Yes (n = 64)	17.79	(10.12)	5.10	<0.001
	No (n = 234)	10.88	(7.43)		
Decayed teeth (D <sub>3cv</sub> T)	Yes (n = 64)	1.66	(2.14)	0.59	0.55
	No (n = 234)	1.47	(2.21)		
Missing teeth due to caries (MT)	Yes (n = 64)	12.91	(11.36)	5.07	<0.001
	No (n = 234)	5.38	(6.67)		
Filled teeth (FT)	Yes (n = 64)	3.28	(3.71)	1.44	0.15
	No (n = 234)	4.03	(3.78)		
	Drug rehabilitation		(SD)	t	p
Obvious decay experience (D <sub>3cv</sub> MFT)	Yes (n = 57)	10.05	(7.80)	4.83	<0.001
	No (n = 241)	14.77	(8.43)		
Decayed teeth (D <sub>3cv</sub> T)	Yes (n = 57)	2.02	(2.64)	1.67	0.10
	No (n = 241)	1.39	(2.07)		
Missing teeth due to caries (MT)	Yes (n = 57)	11.58	(10.99)	3.70	<0.001
	No (n = 241)	5.91	(7.39)		
Filled teeth (FT)	Yes (n = 57)	3.81	(3.67)	0.15	0.88
	No (n = 241)	3.89	(3.78)		

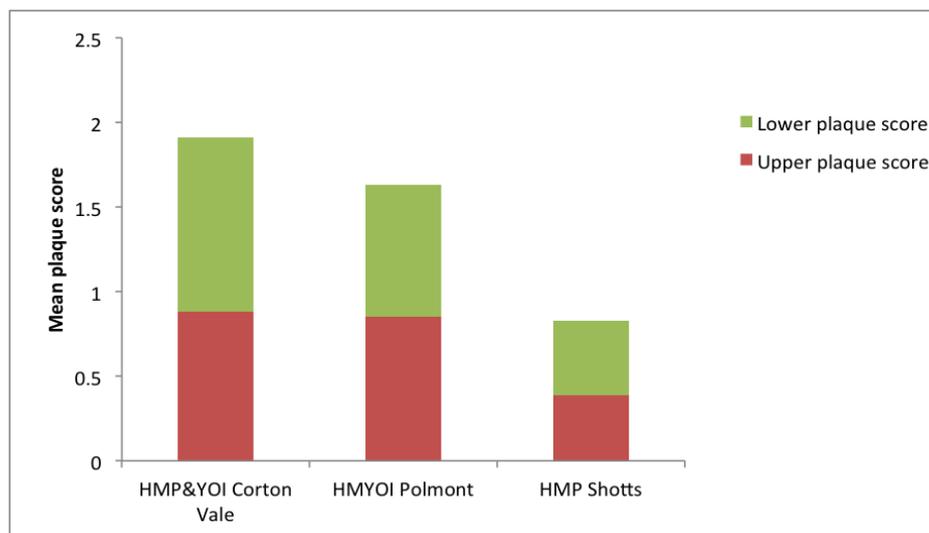
**Table 3.26:** Obvious decay experience: comparisons by drug taking behaviours

### Plaque scores

The total plaque index score ranged from zero to three and was calculated for all participants. Eighty-seven percent (259) of prisoners examined had one or more of the six index teeth affected by plaque. The total mean plaque score for this sample population was 0.77 (95% CI: 0.67, 0.86). The mean plaque score for the upper teeth was 0.71 (95% CI: 0.61, 0.81) and for the lower teeth was 0.75 (95% CI: 0.65, 0.86). This suggests that

plaque coverage averaged no more than one third of the tooth surfaces examined.

**Comparisons by prison establishment and gender** Female prisoners had significantly higher upper ( $0.87 \pm 0.85$ ) plaque scores compared with male prisoners ( $0.64 \pm 0.80$ ) ( $t = 2.09, p = 0.04$ ). Female prisoners also had significantly higher lower ( $1.03 \pm 0.85$ ) plaque scores compared with male prisoners ( $0.68 \pm 0.82$ ) ( $t = 2.88, p = 0.005$ ).



**Figure 3.10:** Comparison of plaque scores by prison establishment

**Comparisons by prison experience** Those prisoners with longer current sentences had significantly less total mean, upper mean and lower mean plaque scores compared with those with shorter sentences. No other significant differences in mean plaque scores were shown by prison experience (Table 3.27).

**Comparisons by oral health behaviours** Prisoners who reported that they brushed their teeth while in prison with fluoride toothpaste had lower total mean and lower mean plaque scores compared with those who did not (Table 3.28).

### Oral mucosa

Six areas of the mouth and throat were examined. These were the lips, buccal mucosa (cheeks), tongue and under the tongue (floor of mouth), palate and the throat (oropharynx). No potentially malignant lesions were noted in the prisoners examined.

### Functioning dentition

The shortened dental arch is defined as: ‘functional aesthetic, natural dentition of not less than 20 teeth ... should be the treatment goal for oral health’ (WHO, 1992). It

Plaque	Number of remands	Mean score	(SD)	t	p
Upper	≤ 2 (n = 130)	0.74	(0.84)	0.57	0.57
	≥ 3 (n = 150)	0.68	(0.82)		
Lower	≤ 2 (n = 130)	0.82	(0.88)	0.79	0.43
	≥ 3 (n = 150)	0.74	(0.87)		
Total	≤ 2 (n = 130)	0.80	(0.82)	0.68	0.49
	≥ 3 (n = 150)	0.73	(0.81)		
	Number of sentences	Mean score	(SD)	t	p
Upper	≤ 1 (n = 107)	0.71	(0.84)	-0.11	0.91
	≥ 2 (n = 173)	0.72	(0.82)		
Lower	≤ 1 (n = 107)	0.77	(0.83)	-0.19	0.85
	≥ 2 (n = 173)	0.79	(0.90)		
Total	≤ 1 (n = 107)	0.75	(0.79)	-0.22	0.82
	≥ 2 (n = 173)	0.77	(0.82)		
	Current imprisonment (years)	Mean score	(SD)	t	p
Upper	≤ 4 (n = 136)	0.92	(0.85)	5.05	< 0.001
	≥ 5 (n = 125)	0.43	(0.69)		
Lower	≤ 4 (n = 136)	1.02	(0.89)	5.26	< 0.001
	≥ 5 (n = 125)	0.48	(0.77)		
Total	≤ 4 (n = 136)	0.99	(0.82)	5.17	< 0.001
	≥ 5 (n = 125)	0.50	(0.71)		

**Table 3.27:** Mean plaque scores: comparisons by prison experience

Plaque	Brushing routine at prison	Mean score	(SD)	t	p
Upper	Yes (n = 254)	0.68	(0.80)	1.41	0.17
	No (n = 24)	0.97	(0.96)		
Lower	Yes (n = 254)	0.76	(0.86)	0.93	0.36
	No (n = 24)	0.96	(1.00)		
Total	Yes (n = 254)	0.74	(0.79)	1.15	0.26
	No (n = 24)	0.96	(0.96)		

**Table 3.28:** Mean plaque scores: comparisons by reported toothbrushing experience at prison

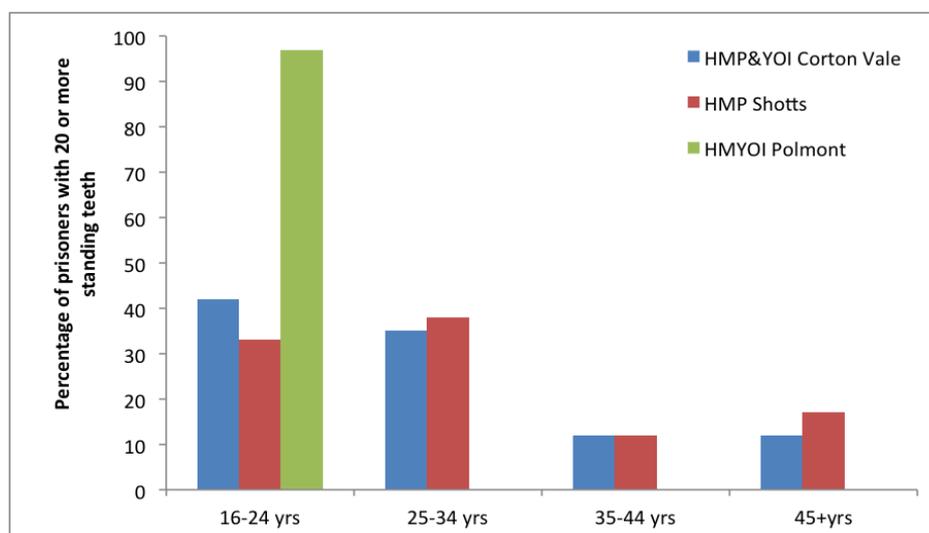
has been shown that having at least 20 teeth is associated with improved masticatory function and oral hygiene status. For the purposes of this report all those with 20 or more standing teeth were considered to have a functioning dentition. Eighty-three percent of the prisoners had at least 20 standing teeth and were considered to have a shortened

dental arch and a functioning dentition. The remainder of the sample who had less than 19 standing teeth were considered not to have a functioning dentition. Thirteen prisoners were edentulous.

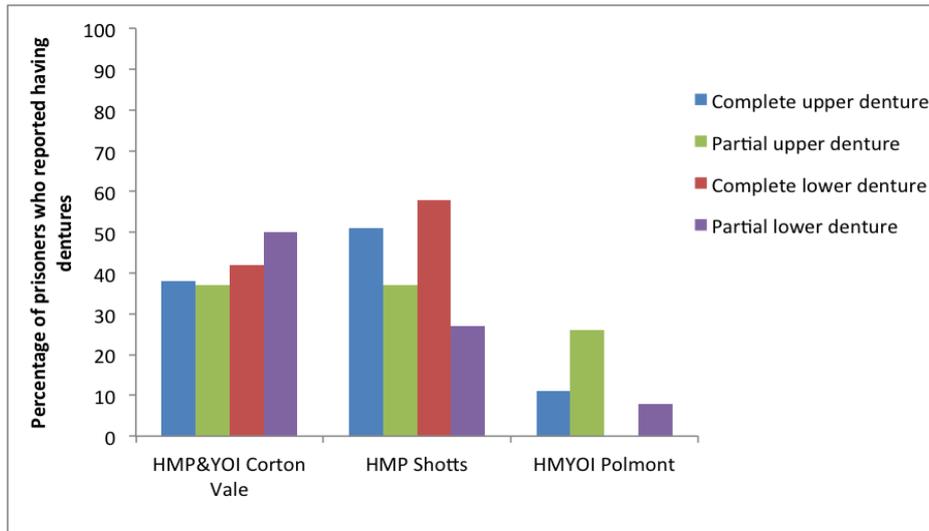
**Comparisons by prison establishment** The proportion of prisoners with 20 or more standing teeth varied in accordance with age and prison establishment (Figure 3.11). Significantly greater proportions of prisoners residing in HMYOI Polmont (98%) had 20 or more standing teeth compared with those in HMP Shotts (75%) or those in HMP&YOI Corton Vale (78%) ( $X^2_{[2]} = 23.19, p < 0.001$ ). Significantly lower proportions of prisoners with greater experience of remand, of prison and longer current prison sentences had 20 or more standing teeth (Table 3.29).

Prison experience	19 or fewer teeth <i>n</i> (%)	20 or more teeth <i>n</i> (%)	$X^2$	<i>p</i>
<b>Number of remands</b>				
$\leq 2$	13 (10)	119 (90)	8.15	0.004
$\geq 3$	37 (22)	129 (78)		
<b>Number of sentences</b>				
$\leq 1$	10 (9)	99 (91)	7.11	0.008
$\geq 2$	40 (21)	149 (79)		
<b>Current sentence</b>				
$\leq 4$ years	16 (11)	124 (87)	5.61	0.02
$\geq 5$ years	30 (22)	106 (78)		

**Table 3.29:** Number of prisoners having functioning dentition (i.e. standing teeth)



**Figure 3.11:** Functioning dentition: comparisons by age and prison establishment



**Figure 3.12:** Reported denture provision: comparison by prison establishment

## Dentures

**Reported denture provision** On questioning, 73 prisoners reported that they had been provided with some type of denture at some time. Of those who said they had been given a denture, 53% stated they had been given a complete upper denture; 22% a complete lower denture; 51% a partial upper denture and 42% a partial lower denture. Significantly greater proportions of prisoners from HMP Shotts reported to have been given a complete upper denture ( $X^2_{[2]} = 13.36, p < 0.001$ ) and a complete lower denture ( $X^2_{[2]} = 8.83, p = 0.01$ ) compared with those from HMP&YOI Cornton Vale and HMYOI Polmont (Figure 3.12). Figure 3.13 shows the number of prisoners who stated that they wore their dentures.

**Dentures present at oral health examination** The oral health examination revealed that only 45 prisoners were wearing their dentures. Of the prisoners wearing their dentures at the time of the examination, eight wore complete upper and lower dentures; 17 wore upper complete dentures; 23 wore partial upper dentures and one prisoner wore a lower partial denture. All of the dentures were acrylic and tissue borne. Four upper dentures and one lower denture were in need of repair. Figure 3.14 shows the variation in dentures present at the oral health examination by prison establishment.

**Reported denture care and hygiene** Of the 45 prisoners who were wearing dentures at the time of the oral health examination, more prisoners reported that they cleaned their dentures inside compared with outside prison and more prisoners left their dentures out at night inside prison than when outside prison (Figure 3.15).

When denture care and hygiene were compared across prison establishments, more prisoners in HMP&YOI Cornton Vale and HMP Shotts cleaned their dentures while in

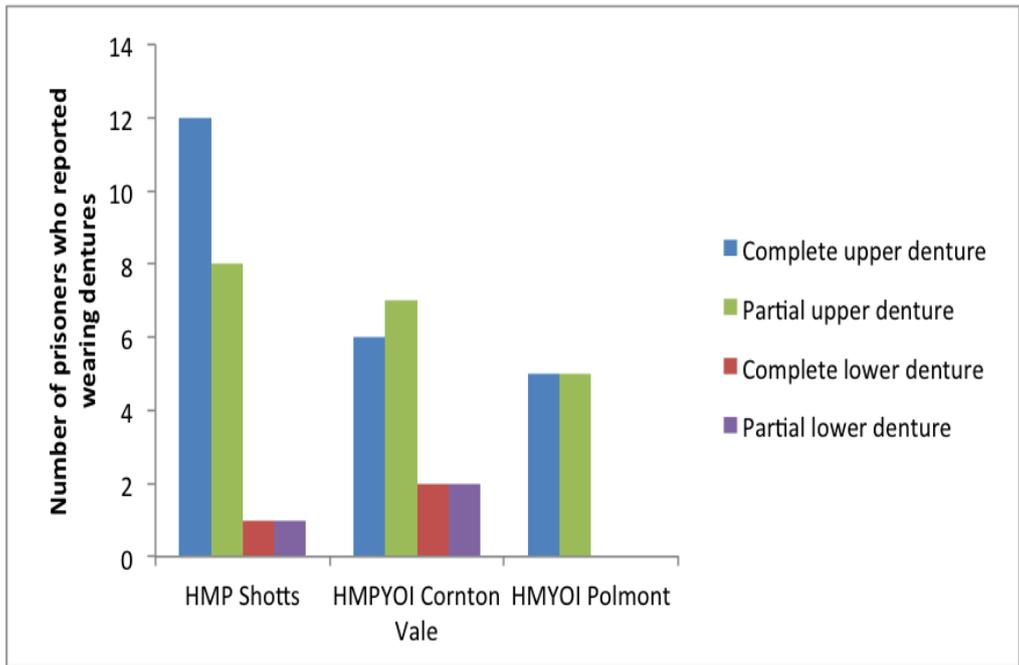


Figure 3.13: Reported denture wearing: comparison by prison establishment

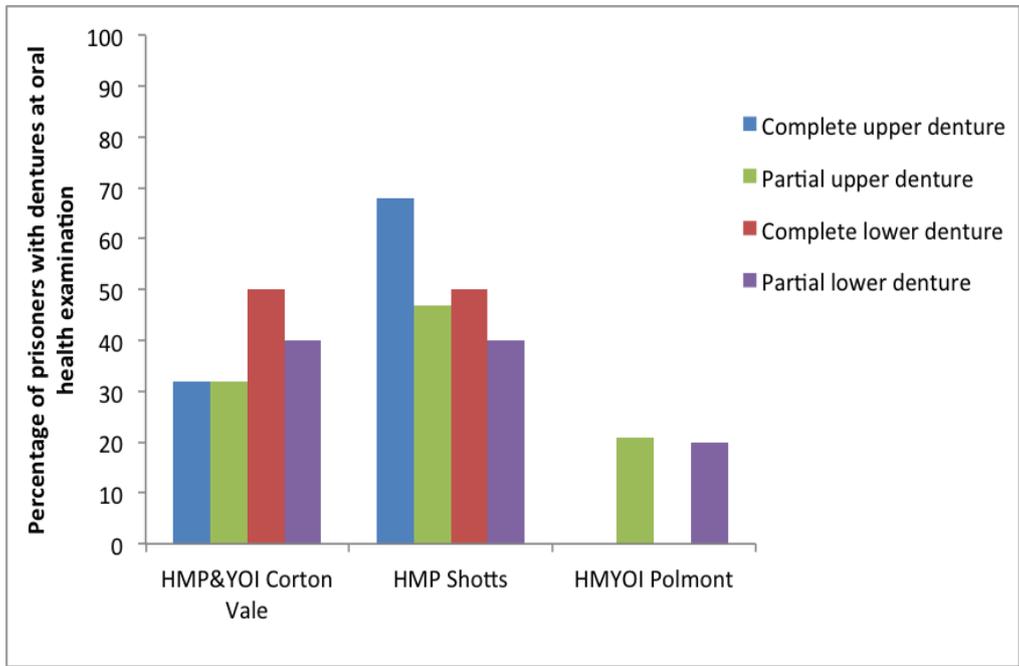
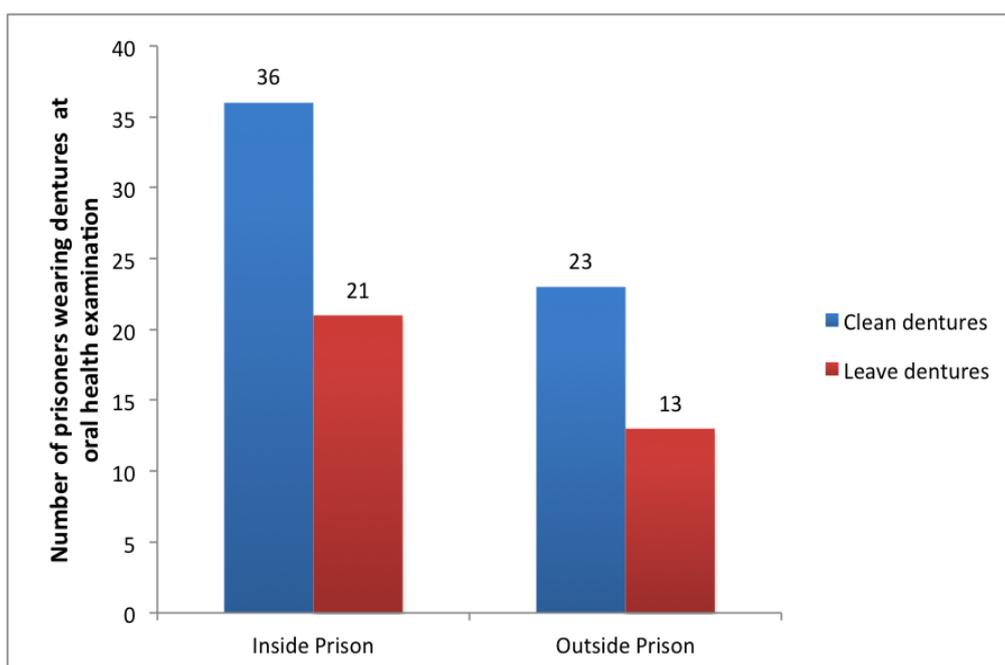


Figure 3.14: Dentures present at oral health examination: comparison by prison establishment



**Figure 3.15:** Reported denture care and hygiene by prisoners who reported to have dentures

prison compared with outside of prison. More of the prisoners residing in HMP Shotts reported that they left their dentures out at night compared with when outside prison (Figure 3.16).

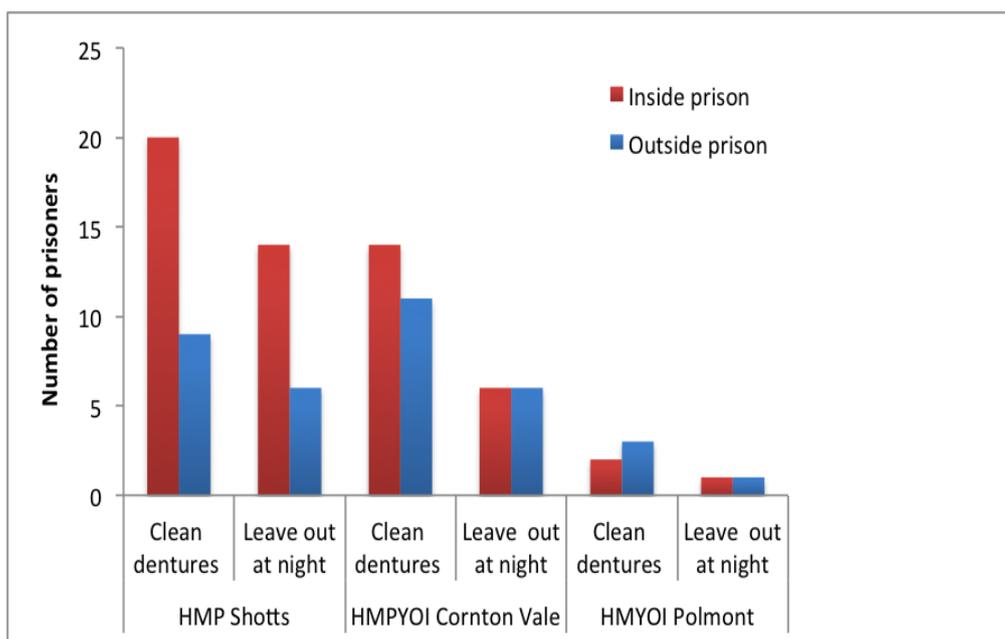
### Attitudes to dental treatment

A series of attitudes to dental treatment were assessed on a 4-point Likert scale. The mean scores and 95% confidence intervals are presented in Table 3.30. The highest scores were for Attitude 4, 'I'd like to know more about what the dentist is going to do and why?'

		Mean (95% CI)
<b>Attitude 1</b>	If I had toothache I'd rather take painkillers than go to the dentist	2.33 (2.19, 2.46)
<b>Attitude 2</b>	The worst part of going to the dentist is the waiting	2.39 (2.25, 2.52)
<b>Attitude 3</b>	Going to the dentist is like being processed on a conveyor belt	1.94 (1.81, 2.07)
<b>Attitude 4</b>	I'd like to know more about what the dentist is going to do and why	2.69 (2.55, 2.82)
<b>Attitude 5</b>	I don't want fancy dental treatment	1.98 (1.86, 2.10)
<b>Attitude 6</b>	I don't like lying flat in the dental chair	1.71 (1.59, 1.83)
<b>Attitude 7</b>	I find NHS dental treatment difficult to find outside of prison	2.06 (1.93, 2.19)

**Table 3.30:** Reported dental treatments by the length of prison sentence

**Comparisons by prison establishment** The grouping variable prison establishment significantly explained differences in mean Attitude scores for Attitude 1 ('If I had toothache



**Figure 3.16:** Reported denture care and hygiene: comparison by prison establishment

	HMP&YOI Cornton Vale Mean (95% CI)	HMP Shotts Mean (95% CI)	HMYOI Polmont Mean (95% CI)	$X^2$	$p$
Attitude 1	2.65 <sup>2*</sup> (2.40, 2.90)	1.92 <sup>1</sup> (1.71, 2.13)	2.50 <sup>2</sup> (2.29, 2.70)	11.32	<0.001
Attitude 2	2.47 (2.23, 2.71)	2.52 (2.28, 2.75)	2.65 (2.05, 2.47)	1.49	0.23
Attitude 3	2.05 (1.83, 2.28)	2.06 (1.84, 2.29)	1.89 (1.70, 2.07)	0.89	0.41
Attitude 4	2.89 (2.64, 3.14)	2.71 (2.48, 2.94)	2.6 (2.40, 2.80)	1.57	0.21
Attitude 5	2.24 <sup>2</sup> (2.01, 2.47)	2.06 <sup>1,2</sup> (1.86, 2.27)	1.83 <sup>1</sup> (1.65, 2.01)	4.19	0.02
Attitude 6	1.96 <sup>2</sup> (1.73, 2.18)	1.77 <sup>1,2</sup> (1.56, 1.97)	1.53 <sup>1</sup> (1.36, 1.72)	4.55	0.01
Attitude 7	2.31 <sup>2</sup> (2.06, 2.56)	2.1 <sup>1,2</sup> (1.89, 2.33)	1.89 <sup>1</sup> (1.79, 2.09)	3.52	0.03

\* The suffixes show the significant difference in mean between groups with non-identical numeric characters.

**Table 3.31:** Attitudes to dental treatment by prison establishment

I'd rather take painkillers than go to the dentist'); Attitude 5 ('I don't want fancy dental treatment'); Attitude 6 ('I don't like lying flat in the dental chair') and Attitude 7 ('I find NHS dental treatment difficult to find outside of prison'). Prisoners in HMP&YOI Cornton Vale had significantly higher mean scores for Attitudes 5, 6 and 7 compared with the young offenders in HMYOI Polmont (Table 3.31).

**Comparisons by prison experience** Prisoners who had greater experience of remand had significantly higher mean scores for Attitude 2 ('the worst part of going to the dentist is the waiting') and for Attitude 7 ('I find NHS dental treatment difficult to find outside of prison') compared with those with less experience of remand (Table 3.32). Prisoners with shorter current sentences had significantly greater mean scores for Attitude 1 ('If I had toothache I'd rather take painkillers than go to the dentist') compared to those with longer current sentences (Table 3.33). No other significant differences were shown (Tables 3.32 - 3.34).

	Number of remands	Mean (SD)	<i>t</i>	<i>p</i>
Attitude 1	≤ 2	2.36 (1.23)	0.003	0.99
	≥ 3	2.36 (1.23)		
Attitude 2	≤ 2	2.19 (1.19)	2.81	0.005
	≥ 3	2.57 (1.21)		
Attitude 3	≤ 2	1.85 (1.07)	1.91	0.06
	≥ 3	2.09 (1.15)		
Attitude 4	≤ 2	2.65 (1.23)	0.92	0.35
	≥ 3	2.77 (1.18)		
Attitude 5	≤ 2	1.95 (1.06)	1.07	0.28
	≥ 3	2.08 (1.09)		
Attitude 6	≤ 2	1.69 (1.03)	0.65	0.52
	≥ 3	1.76 (1.09)		
Attitude 7	≤ 2	1.90 (1.13)	0.24	0.02
	≥ 3	2.22 (1.19)		

**Table 3.32:** Attitudes to dental treatment by experience of remand

### Dental attendance

Of the total sample 45% (154) stated that they had attended a dental practice (either inside or outside prison) within the previous one year and 43% stated that they had accessed dental services between two year and five years ago. Smaller proportions of prisoners reported that they had never visited the dentist (11%). Reasons for their dental attendance included pain, discomfort or trouble with their teeth or gums (59%) with only 22% stating that they attended for routine dental examinations.

Forty-seven percent of the prisoners (160) stated that they had accessed dental services in the prison. Barriers to accessing dental care in the prison included: difficulty in accessing the service (58%); the infrequent nature of the dentists' treatment schedules

	<b>Number of sentences</b>	<b>Mean (SD)</b>	<i>t</i>	<i>p</i>
Attitude 1	At least once	2.32 (1.20)	0.37	0.71
	≥ 2 sentences	2.37 (1.23)		
Attitude 2	At least once	2.26 (1.19)	1.58	0.22
	≥ 2 sentences	2.48 (1.23)		
Attitude 3	At least once	1.92 (1.13)	0.86	0.11
	≥ 2 sentences	2.03 (1.12)		
Attitude 4	At least once	2.69 (1.65)	0.30	0.76
	≥ 2 sentences	2.73 (1.24)		
Attitude 5	At least once	1.97 (1.06)	0.62	0.53
	≥ 2 sentences	2.05 (1.09)		
Attitude 6	At least once	1.67 (1.03)	0.79	0.43
	≥ 2 sentences	1.77 (1.09)		
Attitude 7	At least once	1.97 (1.14)	1.33	0.18
	≥ 2 sentences	2.15 (1.19)		

**Table 3.33:** Attitudes to dental treatment by experience of sentences

	<b>Imprisonment length</b>	<b>Mean (SD)</b>	<i>t</i>	<i>p</i>
Attitude 1	Less than 4 years	2.63 (1.19)	4.44	< 0.001
	More than 5 years	2.03 (1.18)		
Attitude 2	Less than 4 years	2.31 (1.17)	1.45	0.15
	More than 5 years	2.51(1.24)		
Attitude 3	Less than 4 years	1.97 (1.08)	0.23	0.82
	More than 5 years	2.00 (1.17)		
Attitude 4	Less than 4 years	2.76 (1.18)	0.34	0.73
	More than 5 years	2.71 (1.21)		
Attitude 5	Less than 4 years	1.98 (1.05)	0.38	0.7
	More than 5 years	2.03 (1.09)		
Attitude 6	Less than 4 years	1.64 (1.00)	1.09	0.27
	More than 5 years	1.77 (1.07)		
Attitude 7	Less than 4 years	2.12 (1.19)	0.32	0.74
	More than 5 years	2.07 (1.15)		

**Table 3.34:** Attitudes to dental treatment by current imprisonment length

(47%); difficulty experienced when completing the treatment request form (13%); being unable to obtain a treatment request form (11%) and disliking the prison dental service (9%).

### Reported dental treatment experiences

The most cited dental treatments experienced were fillings (87%) and local anaesthetic injections (85%) (Table 3.35). This pattern was repeated across the three prison establishments; however larger proportions of prisoners in HMP Shotts had experienced tooth extractions compared with the other prisons (Table 3.36).

Treatment received <i>n</i> (%)	
Injection in gum	292 (85%)
Fillings	289 (87%)
X-rays	229 (70%)
Extractions	181 (56%)
Scale and polish	149 (50%)
Abscess	132 (45%)
General anaesthetic	109 (38%)
Inhalation sedation	95 (31%)
Fissure sealants	84 (29%)
Crowns	66 (23%)
Fluoride treatments	60 (20%)
Dentures	59 (20%)
IV sedation	49 (17%)
Bridge work	33 (10%)

**Table 3.35:** Reported treatment ever received

Treatment	HMP&YOI Cornton Vale	HMP Shotts	HMYOI Polmont	$X^2$	<i>p</i>
	Treatment received <i>n</i> (%)	Treatment received <i>n</i> (%)	Treatment received <i>n</i> (%)		
<b>Dental</b>					
Fillings	83 (87)	95 (89)	111 (84)	1.59	0.81
Extractions	54 (58)	85 (79)	42 (35)	45.9	<0.001
Dentures	23 (27)	29 (30)	7 (6)	33.44	<0.001
Crowns	19 (23)	29 (31)	18 (16)	15.33	0.004
Bridge work	14 (17)	12 (14)	7 (6)	14.42	0.006
<b>Preventive</b>					
Fluoride treatments	22 (37)	20 (33)	18 (30)	7.21	0.31
Fissure sealants	27 (32)	30 (36)	27 (32)	8.31	0.08
Scale and polish	54 (36)	58 (39)	37 (25)	26.45	<0.001
<b>Dental anxiety</b>					
IV sedation	17 (34)	16 (33)	16 (33)	5.57	0.23
Inhalation sedation	24 (25)	30 (32)	41 (43)	3.64	0.46

**Table 3.36:** Reported dental treatment experience comparisons by prison establishment

The dental treatment experiences were divided into three broad category groups (i) dental treatment (fillings, extractions, dentures, crowns and bridge work); (ii) preventive treatments (fluoride treatments, fissure sealants and scale and polish) and (iii) treatment for dental anxiety (IV sedation, inhalation sedation (RA)).

Dental treatments were compared by prison establishment and by prison experience (Tables 3.36 - 3.39). Significantly larger proportions of prisoners imprisoned in HMP Shotts reported to have experience of extractions compared with those in HMP&YOI Cornton Vale and HMYOI Polmont. Significantly smaller proportions of young offenders imprisoned in HMYOI Polmont reported less experience of dentures, crowns and bridge work (Table 3.36). Significantly larger proportions of prisoners with more prison experience reported to have greater bridge work compared with others (Table 3.38). Prisoners

with current longer terms of imprisonment reported to have greater experience of extractions, denture and crowns compared with others (Table 3.39). No other significant differences were shown.

Preventive treatments were compared by prison establishment and by prison experience (Tables 3.37 - 3.39). Significantly, smaller proportions of young offenders imprisoned in HMYOI Polmont reported less experience of scale and polish compared with those in HMP&YOI Cornton Vale and HMP Shotts (Table 3.38). Prisoners with current longer terms of imprisonment reported to have greater experience of scale and polish compared with others (Table 3.39). No other significant differences were shown.

Treatments related to dental anxiety (IV and inhalation sedation) were compared by prison establishment and by prison experience (Tables 3.37- 3.39). No significant differences were shown by prison establishment or prison experience.

Treatment	< 2 remands	> 3 remands	$X^2$	$p$
	Treatment received $n(\%)$	Treatment received $n(\%)$		
<b>Dental</b>				
Fillings	123 (43)	166 (57)	0.18	0.94
Extractions	77 (43)	104 (57)	0.27	0.87
Dentures	23 (39)	36 (61)	1.07	0.59
Crowns	28 (42)	38 (58)	2.87	0.24
Bridge work	14 (42)	19 (58)	0.81	0.67
<b>Preventive</b>				
Fluoride treatments	25 (42)	35 (58)	3.91	0.14
Fissure sealants	35 (42)	49 (58)	0.27	0.87
Scale and polish	66 (44)	83 (56)	1.51	0.56
<b>Dental anxiety</b>				
IV sedation	17 (20)	16 (17)	0.57	0.75
Inhalation sedation	24 (27)	30 (32)	1.24	0.53

**Table 3.37:** Reported dental treatment experience comparisons by number of remands

### Reported dental treatment preferences

The prisoners were asked about their dental treatment preferences regarding the treatment of a painful front and painful back tooth. Eighty-seven percent (284) stated that they would prefer a front tooth to be crowned rather than extracted and 69% (227) stated that they would prefer a back tooth to be filled than extracted.

Significantly smaller proportions of women prisoners in HMP&YOI Cornton Vale (57%) compared to those in HMP Shotts (73%) and HMYOI Polmont (74%) stated that they would prefer a back tooth restored rather than extracted ( $X^2_{[2]} = 7.98, p = 0.02$ ). Significantly larger proportions of prisoners with less experience of prison (80%) compared to those with greater prison experience (62%) stated that they would prefer a back tooth to be filled than extracted ( $X^2_{[1]} = 11.08, p < 0.001$ ). No other significant differences were noted.

	<b>Less prison experience</b>	<b>Greater prison experience</b>		
<b>Treatment</b>	Treatment received <i>n</i> (%)	Treatment received <i>n</i> (%)	<i>X</i> <sup>2</sup>	<i>p</i>
<b>Dental</b>				
Fillings	107 (37)	182 (63)	1.39	0.50
Extractions	70 (39)	111 (61)	1.03	0.59
Dentures	19 (32)	40 (68)	2.24	0.33
Crowns	25 (38)	41 (62)	2.21	0.33
Bridge work	9 (27)	24 (73)	5.35	0.007
<b>Preventive</b>				
Fluoride treatments	17 (28)	43 (72)	2.79	0.25
Fissure sealants	28 (33)	56 (67)	1.5	0.47
Scale and polish	52 (35)	97 (65)	0.73	0.69
<b>Dental anxiety</b>				
IV sedation	17 (20)	16 (17)	4.49	0.11
Inhalation sedation	24 (27)	30 (32)	2.28	0.32

**Table 3.38:** Reported dental treatments by prison experience

	<b>Less than 4 years</b>	<b>More than 5 years</b>		
<b>Treatment</b>	Treatment received <i>n</i> (%)	Treatment received <i>n</i> (%)	<i>X</i> <sup>2</sup>	<i>p</i>
<b>Dental</b>				
Fillings	147 (53)	127(47)	1.57	0.46
Extractions	66 (39)	103 (61)	34.17	< 0.001
Dentures	21 (40)	32 (60)	10.22	0.006
Crowns	21 (35)	39 (65)	14.11	< 0.001
Bridge work	16 (52)	15 (48)	2.65	0.27
<b>Preventive</b>				
Fluoride treatments	25 (46)	29 (54)	2.99	0.22
Fissure sealants	38 (51)	37 (49)	1.74	0.42
Scale and polish	56 (42)	79 (59)	19.35	< 0.001
<b>Dental anxiety</b>				
IV sedation	21 (47)	24 (53)	1.88	0.39
Inhalation sedation	49 (58)	36 (42)	0.25	0.88

**Table 3.39:** Reported dental treatments by the length of prison sentence

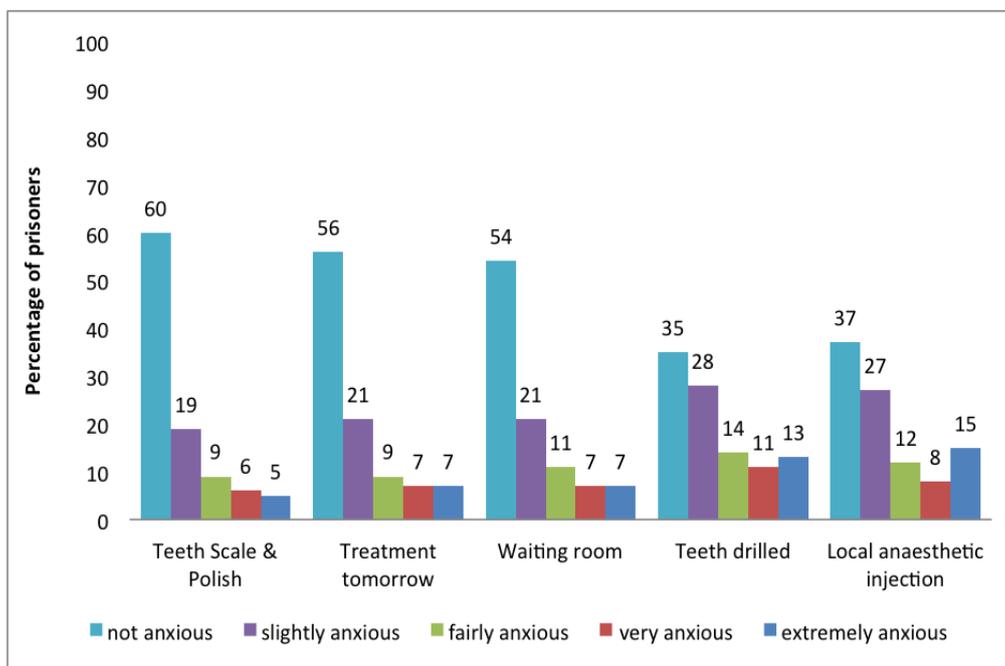
## Psychosocial Health

### Dental anxiety

The mean score for dental anxiety was 10.27 (95% CI: 9.64, 10.90). The cut-off for dental phobia on the MDAS is 19 or over. Twelve percent (42) of the sample scored 19 or over and were categorised as dentally phobic.

Figure 3.17 shows the percentages of prisoners who stated they were dentally anxious. Larger proportions of the prisoners reported that they were extremely anxious about

having their teeth drilled (13%) and having a local anaesthetic (15%). The least feared dental treatment item was a scale and polish with only 5% stating they were extremely anxious.



**Figure 3.17:** Percentage of prisoners who reported dental anxiety by MDAS items

**Comparisons by prison establishment** The grouping variable prison establishment significantly explained differences in total mean dental anxiety scores ( $F_{[2,325]} = 6.83, p < 0.001$ ). Prisoners in HMP&YOI Cornton Vale: 12.34 (95%CI: 10.65, 14.03) had significantly higher mean total MDAS scores compared with the young offenders in HMYOI Polmont: 10.03 (95%CI: 9.04, 11.02) and prisoners in HMP Shotts: 9.66 (95%CI: 8.54, 10.78).

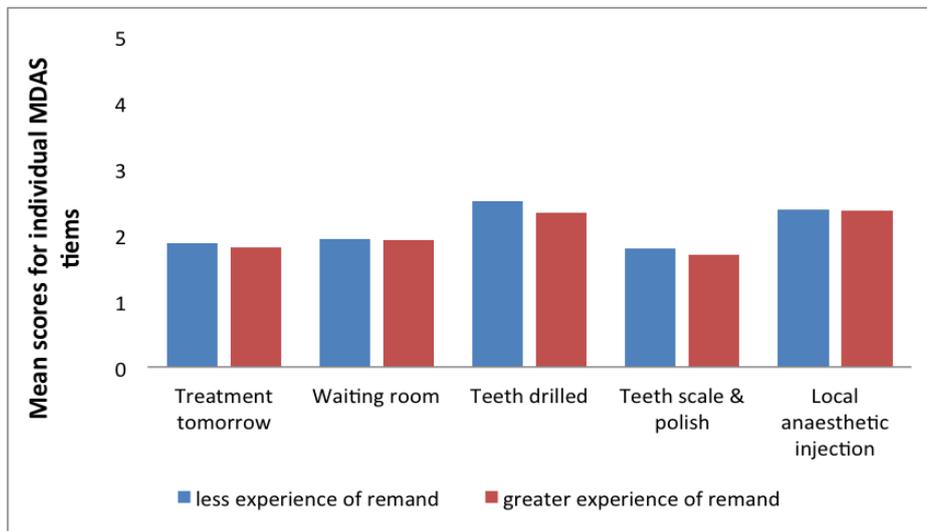
Table 3.40 shows the mean differences in scores for the individual MDAS items by prison establishment. For each of the MDAS items the grouping variable prison establishment significantly explained differences in mean MDAS scores. Prisoners residing in HMP&YOI Cornton Vale had significantly higher mean scores for the individual MDAS items ‘treatment tomorrow’, ‘sitting in the waiting room’ and ‘teeth scaled and polished’ compared with male prisoners and young male offenders. However prisoners in HMP Shotts had significantly lower mean scores for the MDAS items ‘teeth drilled’ and ‘local anaesthetic injection’ compared with women prisoners in HMP&YOI Cornton Vale. For these items there were no differences between those prisoners residing in HMP&YOI Cornton Vale and HMYOI Polmont (Table 3.40).

Dental anxiety	Prison	Mean 95% CI	<i>F</i> ( <i>df</i> )	<i>p</i>
Treatment tomorrow	HMP&YOI Cornton Vale	2.26 <sup>1*</sup> (1.98, 2.55)	6.91 (2,338)	<0.001
	HMP Shotts	1.67 <sup>2</sup> (1.47, 1.87)		
	HMYOI Polmont	1.77 <sup>2</sup> (1.57, 1.98)		
Waiting room	HMP&YOI Cornton Vale	2.31 <sup>1</sup> (2.02, 2.61)	6.88 (2,333)	<0.001
	HMP Shotts	1.71 <sup>2</sup> (1.51, 1.91)		
	HMYOI Polmont	1.82 <sup>2</sup> (1.61, 2.02)		
Teeth drilled	HMP&YOI Cornton Vale	2.83 <sup>1</sup> (2.52, 3.14)	7.48 (2,332)	<0.001
	HMP Shotts	2.08 <sup>1,2</sup> (1.86, 2.31)		
	HMYOI Polmont	2.38 <sup>2</sup> (2.13, 2.62)		
Teeth scaled and polished	HMP&YOI Cornton Vale	2.14 <sup>1</sup> (1.87, 2.42)	9.18 (2,337)	<0.001
	HMP Shotts	1.50 <sup>2</sup> (1.32, 1.67)		
	HMYOI Polmont	1.65 <sup>2</sup> (1.47, 1.84)		
Local anaesthetic injection	HMP&YOI Cornton Vale	2.69 <sup>1</sup> (2.38, 3.01)	6.83 (2,325)	<0.001
	HMP Shotts	2.17 <sup>2</sup> (1.93, 2.41)		
	HMYOI Polmont	2.29 <sup>1,2</sup> (2.05, 2.54)		

\*The suffixes show the significant difference in mean between groups with non-identical numeric characters.

**Table 3.40:** Mean dental anxiety scores: comparison by prison establishment

**Comparisons by prison experience** There were no significant differences in mean scores for the individual MDAS items between prisoners with lesser than or greater experience of remand or prison (Figures 3.18 and 3.19). Prisoners with shorter current sentences, however, had significantly greater mean scores for the individual MDAS items ‘teeth drilled’ ( $t = 2.29, p = 0.02$ ) and ‘teeth scaled and polished’ ( $t = 2.16, p = 0.03$ ) compared with those with longer current prison sentences. No other significant differences were shown (Figure 3.20).



**Figure 3.18:** Mean dental anxiety scores: comparisons by remand experience

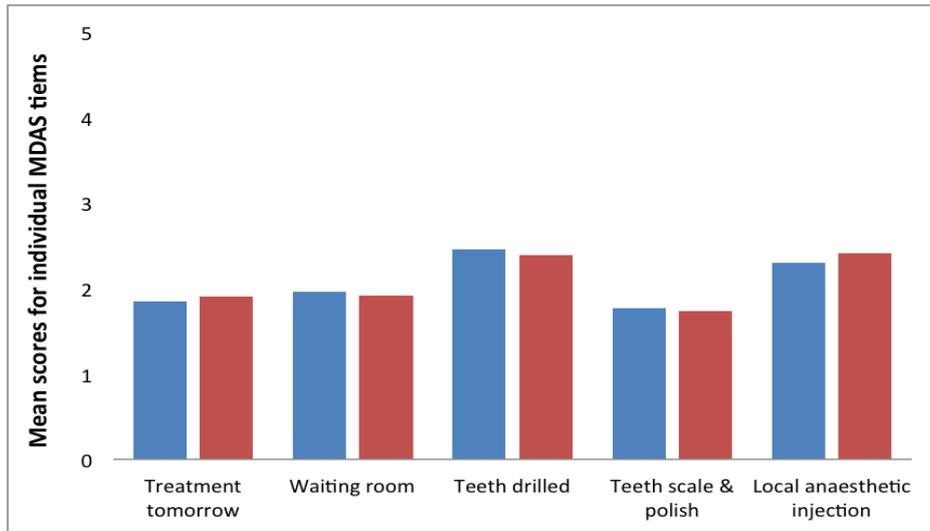


Figure 3.19: Mean dental anxiety scores: comparisons by prison experience

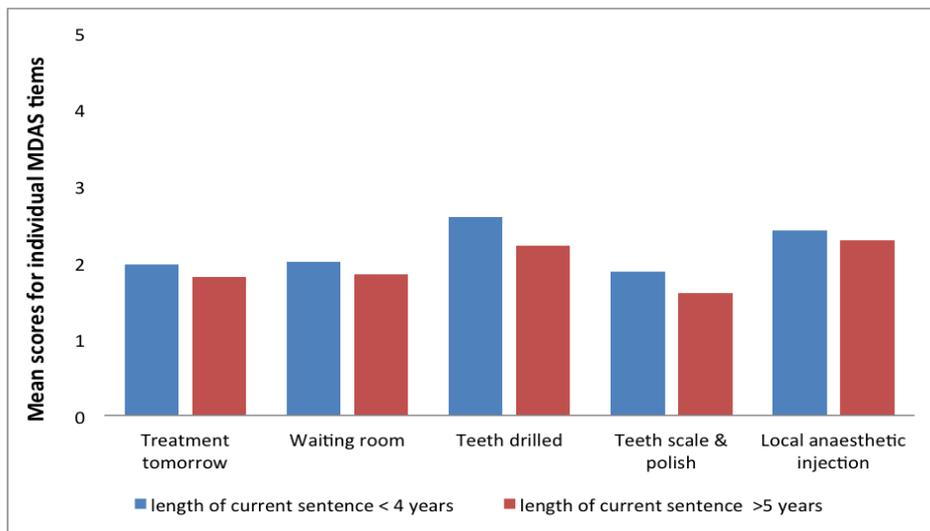


Figure 3.20: Mean dental anxiety scores: comparisons by length of current imprisonment

### Oral health-related quality of life

The mean OHIP-14 total score for 319 participants was 16.94 (95% CI: 15.33, 18.56). Table 3.41 and Figure 3.21 show the frequency of oral health impacts experienced by this sample of prisoners in the last 12 months. Twenty-seven percent of the sample reported feeling self-conscious very often, and 28% reported feeling embarrassed very often about the appearance of their mouth and teeth. In addition, 11% stated that very often they found their lives less satisfying because of problems with their mouth and teeth; 25% of prisoners stated that occasionally they found it difficult to relax and 18% stated that occasionally they found other people irritating. As expected, many respondents occasionally experienced painful aching (36%), discomfort when eating (24%) and interruptions during meals (19%) (Figure 3.21).

Table 3.41 shows that the prisoners' oral health status impacted upon their psychological functioning as reflected in their psychological discomfort and psychological disability. This experience of psychological impacts was similar to people experiencing homelessness in Scotland but dissimilar when compared with the Scottish sample of the UK Adult Dental Health Survey (Kelly et al., 2000). Like homeless people in Scotland, larger proportions of prisoners experienced greater numbers of impacts compared with the Scottish population.

**Comparisons by prison establishment** The grouping variable prison establishment did not explain differences in total mean scores of oral health-related quality of life ( $F_{[2,316]} = 0.99, p = 0.37$ ). However when the individual OHIP-14 items were compared by prison establishment, the grouping variable prison establishment did significantly explain the differences in OHIP-14 items 'feeling self-conscious' ( $F_{[2,337]} = 7.43, p = 0.05$ ) 'unsatisfactory diet' ( $F_{[2,337]} = 8.02, p < 0.001$ ). Women prisoners (1.67 [95%CI: 1.70, 2.36]) had significantly greater mean scores for the oral health impact 'feeling self-conscious' about their teeth compared to male prisoners in HMP Shotts (1.59 [95%CI: 1.79, 2.39]) and HMYOI Polmont (1.56 [95%CI: 1.37, 1.95]). Young offenders in HMYOI Polmont (0.96 [95%CI: 0.36, 0.70]) had significantly lower mean scores of the oral health impact 'unsatisfactory diet' compared to male prisoners in HMP Shotts (1.37 [95%CI: 0.80, 1.32]) and women prisoners in HMP&YOI Cornton Vale (1.32 [95%CI: 0.82, 1.36]).

**Comparisons by prison experience** There was no significant difference when total mean scores for OHIP-14 were compared by experience of remand ( $t = 1.00, p = 0.32$ ), experience of prison ( $t = 0.89, p = 0.38$ ) or by length of time of current imprisonment ( $t = 0.09, p = 0.92$ ). However prisoners with longer ( $1.86 \pm [1.20]$ ) compared with shorter length of current imprisonment ( $1.51 \pm [1.20]$ ) had significantly higher mean scores for the impact 'painful aching' ( $t = 2.37, p = 0.02$ ). Prisoners with greater experience of remand ( $1.29 \pm [1.65]$ ) compared with less experience of remand ( $1.04 \pm [1.45]$ ) had higher mean scores for the oral health impact 'feeling irritable with others' ( $t = 1.67, p = 0.09$ ). Prisoners with greater experience of prison ( $0.95 \pm [1.31]$ ) compared with less experience of prison ( $0.70 \pm [1.13]$ ) had higher mean scores for the oral health impact 'unsatisfactory diet' ( $t = 1.86, p = 0.06$ ).

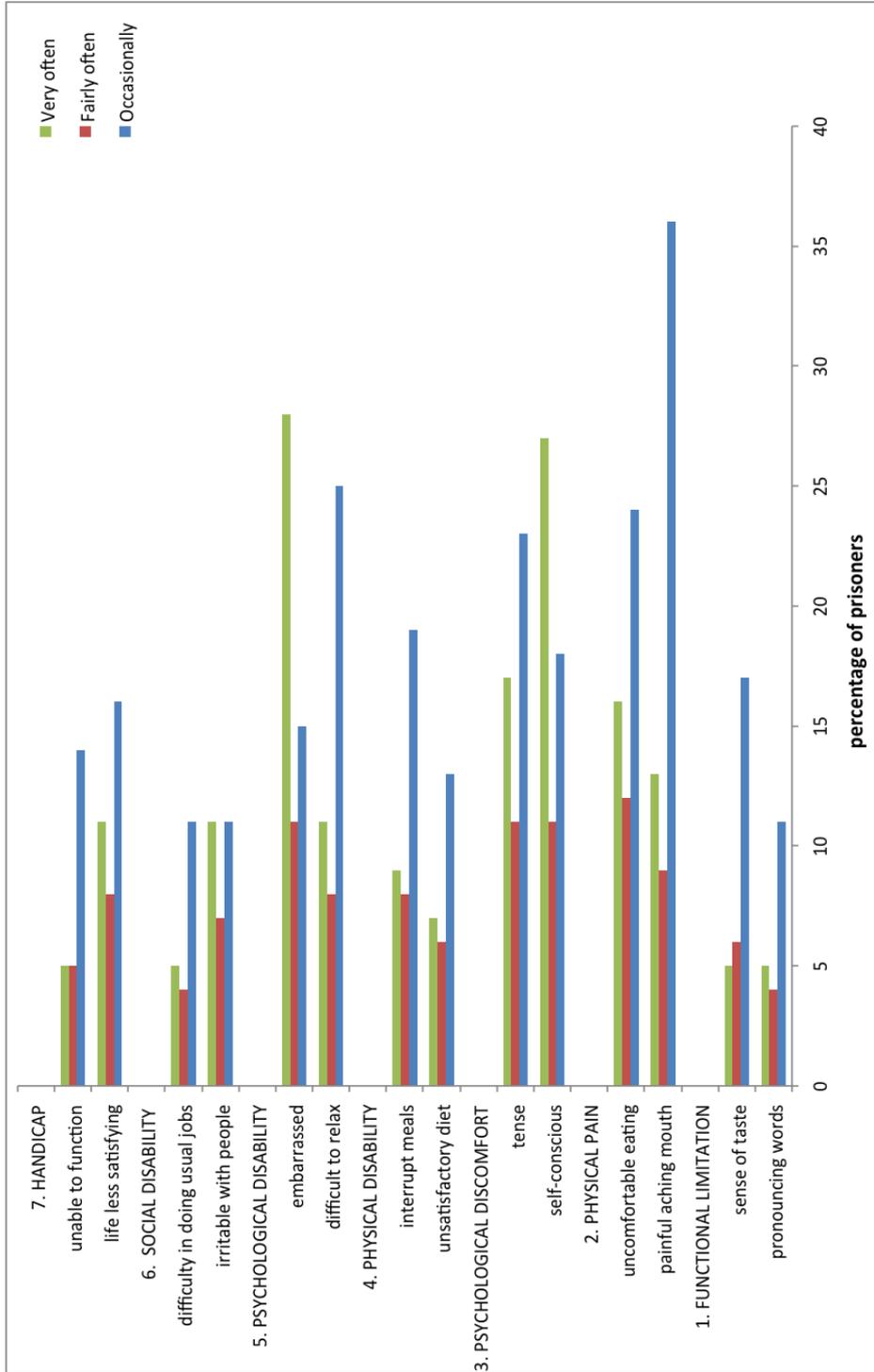


Figure 3.21: Percentage of total sample experiencing oral health impacts

	Occasionally			Fairly often			Very often		
	SOHIPP <sup>1</sup>	smile4life <sup>2</sup>	ADHS <sup>3</sup>	SOHIPP	smile4life	ADHS	SOHIPP	smile4life	ADHS
<b>Functional limitation</b>									
Pronouncing words	11%	17%	3%	4%	4%	1%	5%	4%	0%
Sense of taste worsened	17%	21%	6%	6%	11%	1%	5%	5%	1%
<b>Physical pain</b>									
Painful aching mouth	36%	31%	22%	9%	17%	4%	13%	12%	2%
Uncomfortable to eat	24%	29%	23%	12%	17%	4%	16%	13%	2%
<b>Psychological discomfort</b>									
Felt self-conscious	18%	21%	15%	11%	15%	4%	27%	25%	4%
Felt tense	23%	20%	10%	11%	12%	1%	17%	14%	1%
<b>Physical disability</b>									
Had an unsatisfactory diet	13%	16%	3%	6%	7%	0%	7%	9%	0%
Had to interrupt meals	19%	21%	6%	8%	8%	0%	9%	8%	0%
<b>Psychological disability</b>									
Difficult to relax	25%	22%	8%	8%	9%	1%	11%	9%	1%
Felt embarrassed	15%	23%	10%	11%	11%	2%	28%	23%	2%
<b>Social disability</b>									
Irritable with other people	18%	16%	6%	7%	8%	1%	11%	10%	0%
Difficulty in doing usual jobs	11%	12%	2%	4%	5%	0%	5%	6%	0%
<b>Handicap</b>									
Life less satisfying	16%	14%	5%	8%	8%	1%	11%	13%	1%
Unable to function	14%	11%	1%	5%	5%	0%	5%	5%	0%

<sup>1</sup> SOHIPP: The Scottish Oral Health Prison Improvement Programme survey (2011)

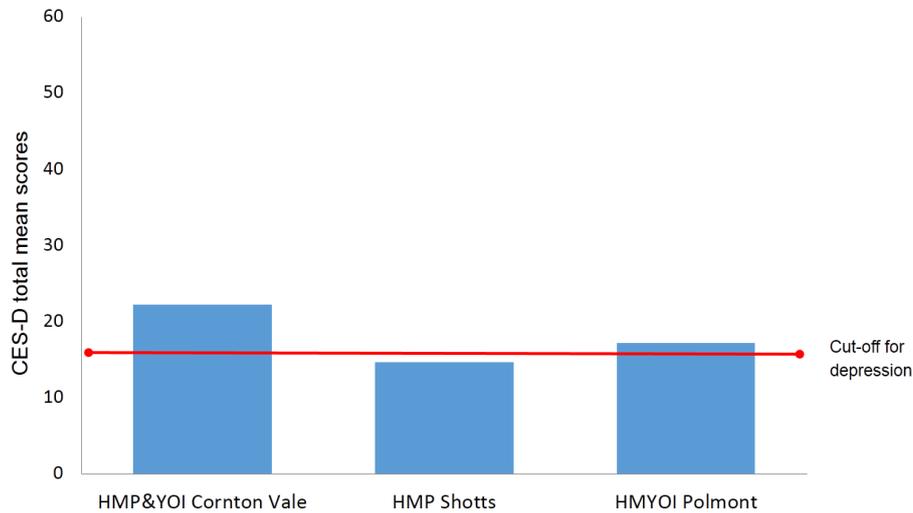
<sup>2</sup> smile4life: the oral health of homeless people across Scotland (2011)

<sup>3</sup> ADHS: the Adult Dental Health Survey for the UK (1998)

**Table 3.41:** Oral health-related quality of life in prisoners compared with the general population and the homeless population

## Depression

One hundred and eighteen respondents (35%) scored 16 or above, suggesting that they were suffering from a depressive illness (Figure 3.22). The mean score for depression among the total sample was 17.69 (95% CI: 16.28, 19.10).



**Figure 3.22:** CES-D total mean scores: comparison by prison establishment

**Comparisons by prison establishment** The grouping variable prison establishment significantly explained differences in a number of CES-D items as shown in Table 3.42. Women prisoners in HMP&YOI Cornton Vale had significantly higher mean scores for being ‘bothered by things’, ‘poor appetite’, ‘couldn’t shake off the blues’, ‘difficulty in keeping my mind on the task’, ‘feeling depressed’, ‘feeling that life is a failure’, ‘talking less than usual’ and ‘feeling lonely’ compared with male prisoners from HMP Shotts. For the remaining items the women had significantly higher mean scores compared with the male prisoners from HMP Shotts and the young offenders from HMYOI Polmont. No other significant differences were demonstrated.

**Comparisons by prison experience** Prisoners with greater experience of remand had significantly lower mean scores for having enjoyed life (1.48 [1.21]) compared to those with less experience of remand (1.76 [1.16]) ( $t = 2.09, p = 0.04$ ). Experience of prison did not significantly explain differences in total CES-D scores or differences in mean scores for individual items.

Prisoners with shorter current sentences compared to those with longer sentences, had significantly higher mean scores for total CES-D as well as a number of individual CES-D items. Prisoners with shorter current sentences had significantly higher mean scores for ‘bothered by things’, ‘feeling depressed’, ‘feeling that life is a failure’, ‘feeling

	Prison	Mean score	95% CI	<i>F</i> ( <i>df</i> )	<i>p</i>
Bothered by things	HMP&YOI Corton Vale	0.95 <sup>1*</sup>	0.65, 1.04	3.81 (2,334)	0.02
	HMP Shotts	0.52 <sup>2</sup>	0.36, 0.69		
	HMYOI Polmont	0.59 <sup>1,2</sup>	0.45, 0.73		
Poor appetite	HMP&YOI Corton Vale	0.80 <sup>1</sup>	0.60, 1.00	5.39 (2,332)	0.005
	HMP Shotts	0.56 <sup>2</sup>	0.40, 0.72		
	HMYOI Polmont	0.42 <sup>1,2</sup>	0.28, 0.56		
Couldn't shake off the blues	HMP&YOI Corton Vale	0.91 <sup>1</sup>	0.69, 1.13	6.77 (2,324)	<0.001
	HMP Shotts	0.46 <sup>2</sup>	0.30, 0.62		
	HMYOI Polmont	0.52 <sup>2</sup>	0.35, 0.69		
Keeping my mind on the task	HMP&YOI Corton Vale	1.01 <sup>1</sup>	0.80, 1.22	3.10 (2,329)	0.05
	HMP Shotts	0.66 <sup>2</sup>	0.49, 0.84		
	HMYOI Polmont	0.90 <sup>1,2</sup>	0.71, 1.09		
Felt depressed	HMP&YOI Corton Vale	1.16 <sup>1</sup>	0.94, 1.38	7.25 (2,325)	<0.001
	HMP Shotts	0.61 <sup>2</sup>	0.44, 0.77		
	HMYOI Polmont	0.89 <sup>1,2</sup>	0.70, 1.08		
Feel that life is a failure	HMP&YOI Corton Vale	1.12 <sup>1</sup>	0.88, 1.35	5.89 (2,324)	0.003
	HMP Shotts	0.61 <sup>2</sup>	0.43, 0.75		
	HMYOI Polmont	0.83 <sup>1,2</sup>	0.63, 1.01		
Feel fearful	HMP&YOI Corton Vale	0.66 <sup>1</sup>	0.46, 0.86	4.83 (2,324)	0.009
	HMP Shotts	0.30 <sup>2</sup>	0.17, 0.42		
	HMYOI Polmont	0.51 <sup>1,2</sup>	0.36, 0.67		
Talk less than usual	HMP&YOI Corton Vale	1.07 <sup>1</sup>	0.87, 1.28	3.23 (2,323)	0.04
	HMP Shotts	0.74 <sup>2</sup>	0.56, 0.92		
	HMYOI Polmont	0.80 <sup>1,2</sup>	0.63, 0.98		
Felt lonely	HMP&YOI Corton Vale	1.07 <sup>1</sup>	0.85, 1.29	6.70 (2,328)	<0.001
	HMP Shotts	0.56 <sup>2</sup>	0.39, 0.74		
	HMYOI Polmont	0.72 <sup>1,2</sup>	0.54, 0.90		
Crying spells	HMP&YOI Corton Vale	1.03 <sup>1</sup>	0.88, 1.24	33.24 (2,327)	<0.001
	HMP Shotts	0.18 <sup>2</sup>	0.07, 0.29		
	HMYOI Polmont	0.33 <sup>1,2</sup>	0.19, 0.48		
Feel sad	HMP&YOI Corton Vale	1.23 <sup>1</sup>	1.01, 1.45	9.91 (2,326)	<0.001
	HMP Shotts	0.60 <sup>2</sup>	0.43, 0.77		
	HMYOI Polmont	0.88 <sup>2</sup>	0.69, 1.06		
People dislike me	HMP&YOI Corton Vale	0.68 <sup>1</sup>	0.49, 0.87	5.37 (2,328)	0.005
	HMP Shotts	0.32 <sup>2</sup>	0.19, 0.45		
	HMYOI Polmont	0.40 <sup>2</sup>	0.26, 0.54		
Could not get going	HMP&YOI Corton Vale	0.94 <sup>1</sup>	0.73, 1.14	9.35 (2,263)	<0.001
	HMP Shotts	0.53 <sup>2</sup>	0.36, 0.69		
	HMYOI Polmont	0.56 <sup>2</sup>	0.40, 0.72		

\* The suffixes show the significant difference in mean between groups with non-identical numeric characters.

**Table 3.42:** CES-D items: comparison by prison establishment

they had not enjoyed life', 'crying spells' and 'feeling sad' compared with prisoners with longer prison sentences (Table 3.43).

When gender and length of current sentence were used to examine total depression scores, the prisoners' gender significantly explained differences in mean scores (Table 3.44).

	<b>Length of time</b>	<b>Mean (SD)</b>	<i>t</i>	<i>p</i>
Bothered by things	Less than 4 years	0.76 (0.88)	2.99	0.003
	Greater than 5 years	0.47 (0.81)		
Felt depressed	Less than 4 years	0.98 (1.06)	2.03	0.04
	Greater than 5 years	0.74 (0.96)		
Feel that life is a failure	Less than 4 years	0.98 (1.11)	2.24	0.03
	Greater than 5 years	0.71 (1.01)		
I enjoyed life	Less than 4 years	1.76 (1.13)	2.24	0.03
	Greater than 5 years	1.45 (1.21)		
Crying spells	Less than 4 years	0.55 (0.87)	1.96	0.05
	Greater than 5 years	0.36 (0.79)		
Felt sad	Less than 4 years	0.99 (1.04)	2.42	0.02
	Greater than 5 years	0.71 (0.95)		
Total CES-D	Less than 4 years	18.96 (11.73)	2.24	0.03
	Greater than 5 years	15.68 (11.12)		

**Table 3.43:** CES-D items: comparison by imprisonment length

<b>Factor</b>	<b>CES-D Mean scores</b>	<b>95% CI</b>	<i>F(df)</i>	<i>p</i>
<b>Imprisonment length</b>				
≤4 years ( <i>n</i> = 132)	19.72	17.72, 21.73	1.53 (1,240)	0.22
≥5 years ( <i>n</i> = 112)	17.57	14.78, 20.35		
<b>Gender</b>				
Female ( <i>n</i> = 67)	21.46	18.46, 24.46	10.42 (1,240)	<0.001
Male ( <i>n</i> = 177)	15.83	14.17, 17.50		
<b>Interaction of length of sentence <i>x</i> gender</b>				
≤ 4 years <i>x</i> female	22.50	19.30, 25.69	0.002 (1,240)	0.95
≤ 4 years <i>x</i> male	16.95	14.53, 19.36		
≥ 5 years <i>x</i> female	20.42	15.34, 25.50		
≥ 5 years <i>x</i> male	14.72	12.42, 17.02		

**Table 3.44:** CES-D items: comparison by imprisonment length and gender

### 3.3 Conclusions

This survey examined the health, oral health and psychosocial health of three groups of prisoners across Scotland. The aim being to use the information gleaned to provide recommendations to inform the development of an oral health promotion intervention for prisoners in Scotland.

The results of the current survey support earlier work on the health and oral health experiences of prisoners. The prevalence of reported illnesses (e.g. diabetes, epilepsy) was equivalent to that found by Graham (2007) whereas the prevalence of hypertension for the various age groups of male and female prisoners was lower than that reported for the Scottish population (ScotPHO, 2010). Careful examination of the data showed, as reported elsewhere, that the women prisoners had an increased experience of Hepatitis C/HIV and injecting drug use compared with male prisoners (SPS, 2003b; Scottish Executive, 2006; WHO, 2007). The data also showed that a minority of prisoners had participated in drug rehabilitation programmes with only 7% of the prison sample currently being prescribed methadone. This suggested that 7% of prisoners stated they were on a maintenance programme. More women in the sample reported to have experienced drug rehabilitation. The tendency for more women prisoners to have had drug rehabilitation is reflected in the findings of the thematic review of mental health needs of prisoners undertaken by HM Inspectorate of Prisons (2007) which found that 33% of women compared with 6% of men had experience of drug maintenance programmes.

As found in the Scottish Prisons' Dental Health Survey (Jones et al., 2002) the oral health of prisoners was characterised by a pattern of increased numbers of missing teeth, fewer filled or restored teeth. This pattern of oral health care seemed to reflect a pattern of irregular dental attendance associated with pain and discomfort which in some instances seemed to be related to previous drug use. The relationship between the extraction of teeth and prison experience suggested that the pattern of tooth loss was also related to the type of dental treatment regime provided within the prison establishment. Some evidence for this may be gleaned from the Care Index which remained in the order of 30% since 2002. For instance, with regard to preventive dental treatments, only a minority reported to have had their teeth scaled and polished or to have had fluoride treatment. While this may represent a difficulty with regard to the maintenance of a functioning dentition, being in prison, nonetheless, provided a routine and a supportive environment for the adoption and maintenance of toothbrushing and denture hygiene practices. It is suggested that in order for prisoners to access appropriate dental treatment and maintain their oral health self-care practices there is the requirement to empower prisoners with basic life skills, and access to dental services should be an integral part of pre-release preparations.

It seemed that the mental health and well-being of this sample of prisoners was equivalent with population norms. For instance 13% of prisoners were characterised as having mixed depressive and anxiety states (as suggested by their prescribed medication) which according to Singleton et al. (2003) is the population norm for this mental health condition. Twelve percent of the prisoners were classified as being dentally phobic (as measured by the MDAS) which is the population norm for dental phobia with the UK population

(Hill et al., 2013). However, careful examination of the data showed that 35% of all prisoners according to the CES-D cut-off were suffering from symptoms of depression and that differences existed by prison establishment and gender. Similarly, the prevalence of dental anxiety also varied in accordance with prison establishment and gender. Women prisoners, in addition to their increased prevalence of Hepatitis C/HIV and injecting drug use, had greater dental anxiety, poorer quality of life and increased depressive symptoms compared with male prisoners and male young offenders. This suggested there was a need for gender-specific interventions tailored to the psychological and emotional needs of the women prisoners, with respect to those of male prisoners and young male offenders.

# A qualitative exploration of Scottish prisoners' thoughts, opinions and views of their oral health experiences

## 4.1 Rationale

Accessing prisoners' thoughts, views and opinions of their oral health experiences was considered to be of central importance in designing a successful intervention to improve prisoners' oral health. Qualitative research methods were chosen (Pope and Mays, 1995) since the goal of qualitative research is the development of concepts which help to understand social phenomena and give emphasis to the meanings, experiences and views of participants. As a result qualitative research methodologies are particularly suited, for example, to understanding the impact of oral health education and how this can be made more relevant and meaningful for recipients (Glaser and Strauss, 1969). Using a semi-structured interview format allows participants to explore topics in their own words without being driven by the researcher's agenda, therefore a broad range and depth of ideas can be captured which might be missed through pre-structured questionnaires. A qualitative approach was, thus, adopted here to explore prisoners' thoughts, views and opinions of their oral health experiences (Charmaz, 2006).

The qualitative research was conducted prior to October 2011 when the responsibilities for dental services changed from the Scottish Prison Service to NHS Boards (Prison Healthcare Advisory Board, 2007). Therefore this qualitative exploration could be considered as a benchmark for NHS Boards with regard to the views and opinions of prisoners in four Scottish prisons, concerning their oral health and delivery of dental services.

## 4.2 Method

### Sample

A purposive sample of prisoners who represented different categories of inmates in Scottish prisons was gathered across four prisons. This provided a broad range of prisoner experiences from which to explore the prisoners' main oral health concerns, their oral

health felt needs, their preventive oral health self-care and expectations of dental services. Therefore women prisoners from HMP&YOI Cornton Vale, young male offenders from HMYOI Polmont, male prisoners from HMP Glenochil and remand/short-term prisoners from HMP Inverness were invited to take part (Figure 4.1).

### **Interview procedure**

A series of in-depth interviews were conducted with the participants as part of the wider Scottish Oral Health Improvement Prison Programme (SOHIPP). After obtaining authorisation and undertaking self-defence training with the Scottish Prison Service College, access to participants was organised and restricted to locations where prison officers were available to monitor research activities and escort participating prisoners.

In order to facilitate meaningful and accurate dialogue, the prisoners were assured that the content of the interviews would be confidential unless there was a suggestion of self-harm or harm to others. The prisoners were encouraged to set the agenda and to speak about any subject they wished to; prisoners were encouraged to refuse to pursue any topics they found disagreeable and to close the interview when they wanted. The interview began with a series of opening questions which allowed participants to explore their own feelings about how they perceived their oral health and psychosocial well-being (see Appendix 3 for interview guide).

A second set of more focused questions examined the prisoners' health, oral health and how they cared for themselves. For instance, how they looked after their teeth, gums and mouth in prison and their oral health regimes when they returned to the community. Moreover, since many general health issues have a bearing on oral health the prisoners were asked about smoking, alcohol, drug use and diet. Finally, the prisoners were invited to raise any issues that had not already been covered. It was anticipated that each interview would last approximately one hour. The interviews were audio taped on a hand held digital recorder and transcribed at a later date.

### **Ethical issues, confidentiality and data security**

Ethical approval was obtained from The National Research Ethics Service (Reference Number NRES 10/S0501/10) and the Scottish Prison Service Ethics Committee. All participants were provided with an information sheet detailing the purpose and conduct of the research. The voluntary nature of participation, the participants' right to withdraw and the confidentiality of the data collection were assured. Written consent was obtained from all participants prior to the start of the study. The digital audio files were held securely on encrypted University computers and the transcriptions stored in a secure location. A coding system was used to anonymise prisoners' data.

### **Data analysis**

The transcripts were analysed using framework analysis (Srivastava and Thomson, 2009). Framework analysis involves several stages which include:

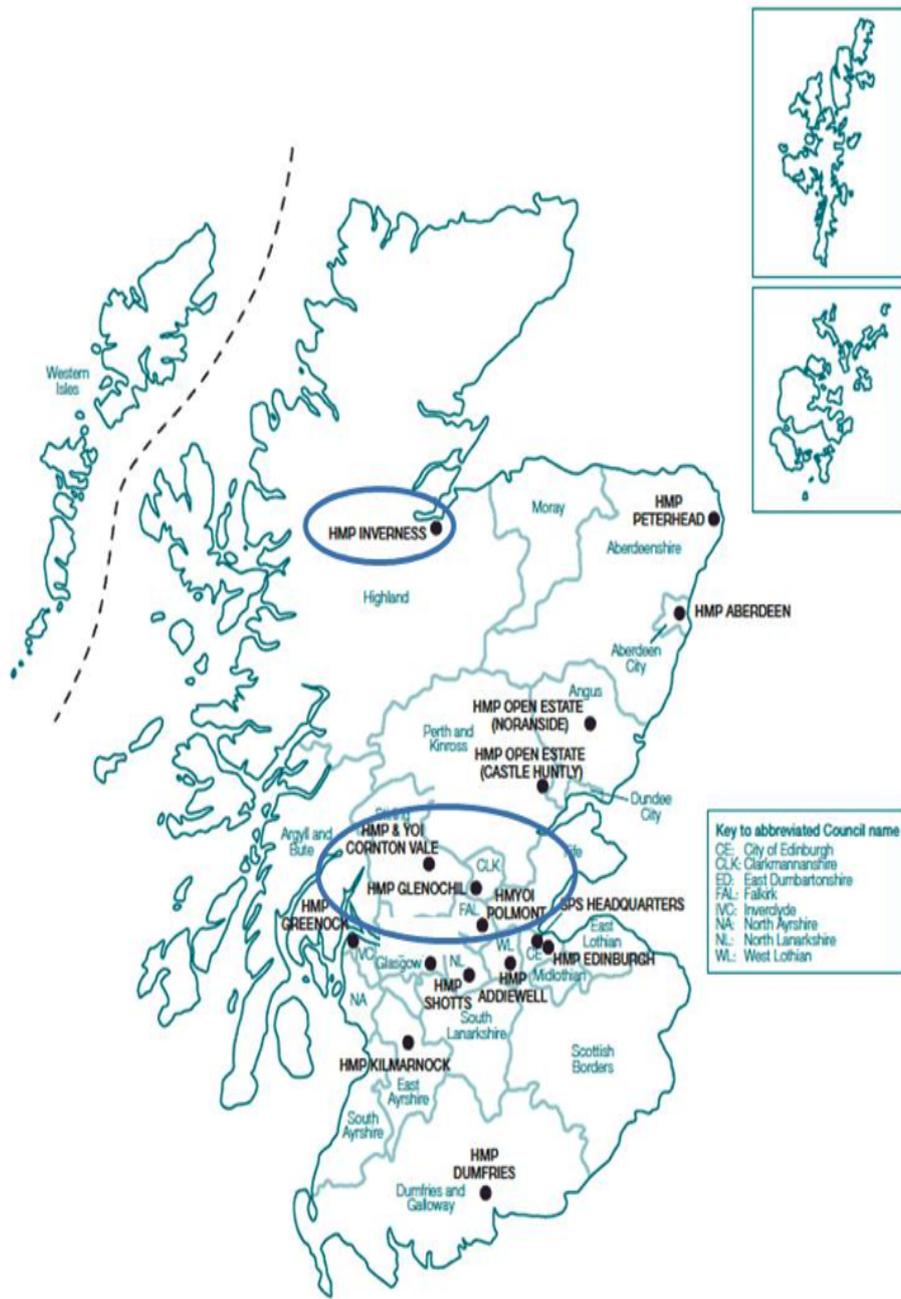


Figure 4.1: Locations of participating prisons

1. Familiarisation - the process where the transcripts are initially broken into parts as notes are taken.
2. A thematic framework is developed to bring out the major themes and key topic areas.
3. The data are indexed: portions of the data are picked out and placed under the particular themes or headings.
4. Thematic charts are constructed with column headings for each topic area and a row for each interviewee to generate new headings and subheadings to facilitate the cross-linking of concepts.
5. Summaries of the relevant sections of transcripts are written into the charts so that each case could be examined across a range of different themes. The charts allow the original data to be revisited to ensure the analysis reflects the uniqueness and diversity of the participants' views.
6. The key characteristics of the data are analysed as laid out in the charts (mapping and interpretation). The analysis provides a schematic diagram of the main barriers prisoners face in accessing dental treatment and maintaining oral health.

The data were examined by researchers and, after they had scrutinised the data independently, they met to discuss the emerging themes. In the instance where a discrepancy occurred, discussions took place to ensure agreement was reached. In this way inter-observational agreement was attained and thus ensured the data analysis was valid and reliable.

### 4.3 An overview of the findings

#### Demographic profile of sample

Forty-two prisoners took part in the qualitative exploration (Table 4.1). The majority of female prisoners were sampled in HMP&YOI Cornton Vale (87%) with a minority sampled in HMP Inverness (13%). The majority of adult male prisoners (37%) were sampled in HMP Inverness and all of the young male offenders were from HMYOI Polmont.

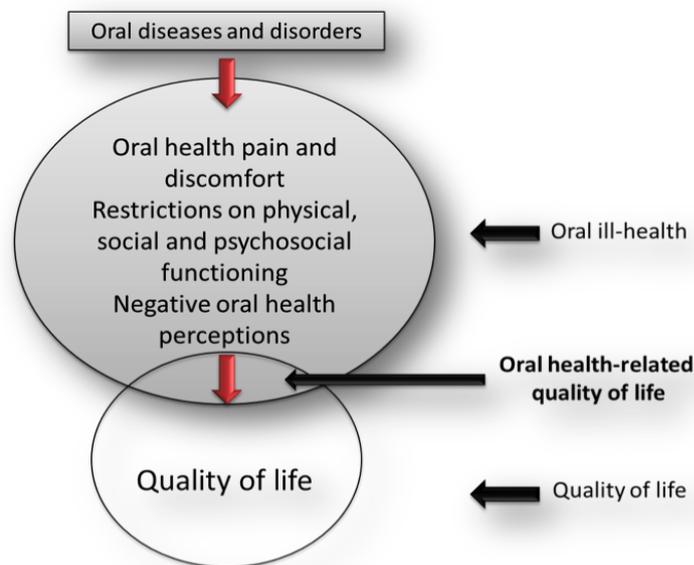
<b>Prison</b>	<b>Male</b>	<b>Female</b>	<b>Total</b>
HMP Inverness	10	2	12
HMP Glenochil	8		8
HMP&YOI Corton Vale		13	13
HMYOI Polmont	9		9
<b>Total</b>	<b>27</b>	<b>15</b>	<b>42</b>

**Table 4.1:** Demographic profile of sample

## Oral health and quality of life: the prisoners' oral health concerns

The analysis of the qualitative data allowed the prisoners' main concerns to emerge as the effect their oral health problems had on their quality of life. For the purposes of this qualitative exploration Wilson and Cleary's (1995) schema of quality of life (Figure 4.2) was adopted. Wilson and Cleary (1995) conceptualise health-related quality of life as an outcome of ill-health in terms of symptoms and the symptoms impact upon the individual's physical, social and psychosocial functioning together with negative health perceptions. Locker and Allen (2007) revisited Wilson and Cleary's (1995) work and defined oral health-related quality of life as:

*'The impact of oral diseases and disorders on aspects of everyday life that a patient or person values, that are of sufficient magnitude in terms of frequency, severity or duration to affect their experience and perception of their life overall.'*



**Figure 4.2:** Oral health-related quality of life (after Wilson and Cleary, 1995)

A careful examination of the qualitative data allowed a link to be made between oral ill-health and quality of life, suggesting that the prisoners' main concerns were linked to their quality of life which in turn was negatively impacted upon by their oral health. Painful teeth, teeth that were discoloured, broken or badly worn impacted upon the prisoners' self-esteem and confidence. Pain on eating, difficulty in pronouncing words, embarrassment when smiling or laughing meant that their oral health status impacted

upon their psychosocial well-being. An exploration of these verbalised oral health problems permitted three distinct oral health impacts to emerge as theorised by Locker (1988). These were physical, social and psychological oral health impacts upon quality of life.

Figure 4.3 shows a detailed schematic of the prisoners' oral health concerns. The prisoners' main oral health concerns were conceptualised within an oral health-related quality of life framework (Wilson and Cleary, 1995) and the individual oral health concerns as physical, social and psychological impacts of oral health upon quality of life.

### **Solving oral health concerns**

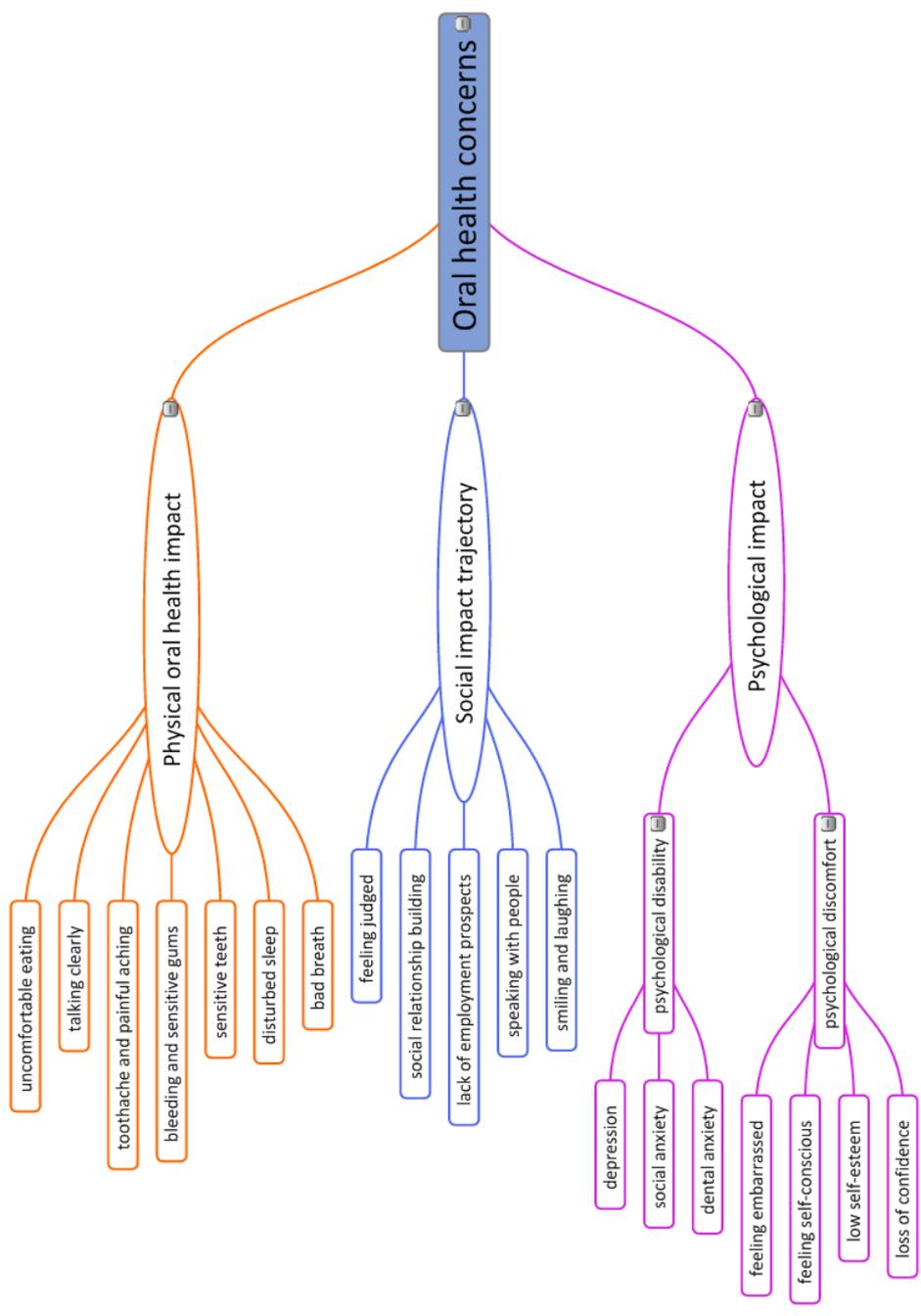
Associated with the impact their oral health had on their quality of life, were the prisoners' attempts at solving their oral health problems. Two main strategies arose from the data. These were first, accessing dental treatment services and secondly, adopting preventive oral health self-care regimes. On closer examination of the qualitative data, it became apparent that the prisoners described a number of difficulties they experienced in accessing dental services, within and outside the prison, as well as problems in maintaining oral health routines to sustain their oral health. Consequently, the strategies to solve their oral health dilemmas were conceptualised as two main themes relating to accessing dental care services and maintaining oral health regimes. The schematics of the barriers and enablers experienced in relation to accessing dental services are shown in Figures 4.4, 4.5, and oral health self-care in Figure 4.6.

### **Balancing impacts and solutions: a discordant model**

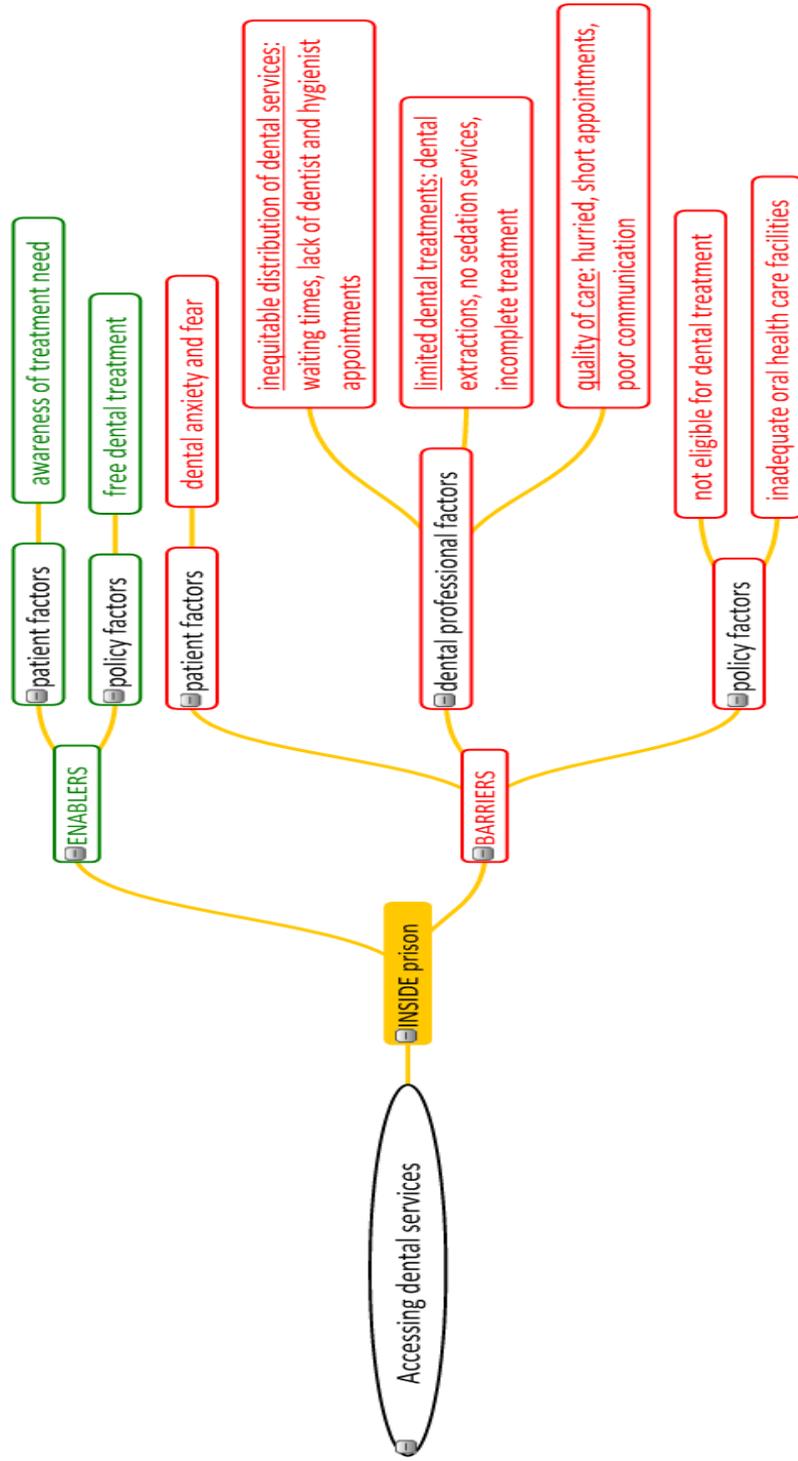
A discordant model is proposed in which the physical, social and psychological impacts of oral health on quality of life are off-set by the attempts to solve oral health problems. It is postulated that failed attempts to access dental services and to maintain oral health act to preserve the prisoners' oral health problems and exacerbate the impacts of oral ill-health upon their quality of life (Figure 4.7).

## **4.4 Findings**

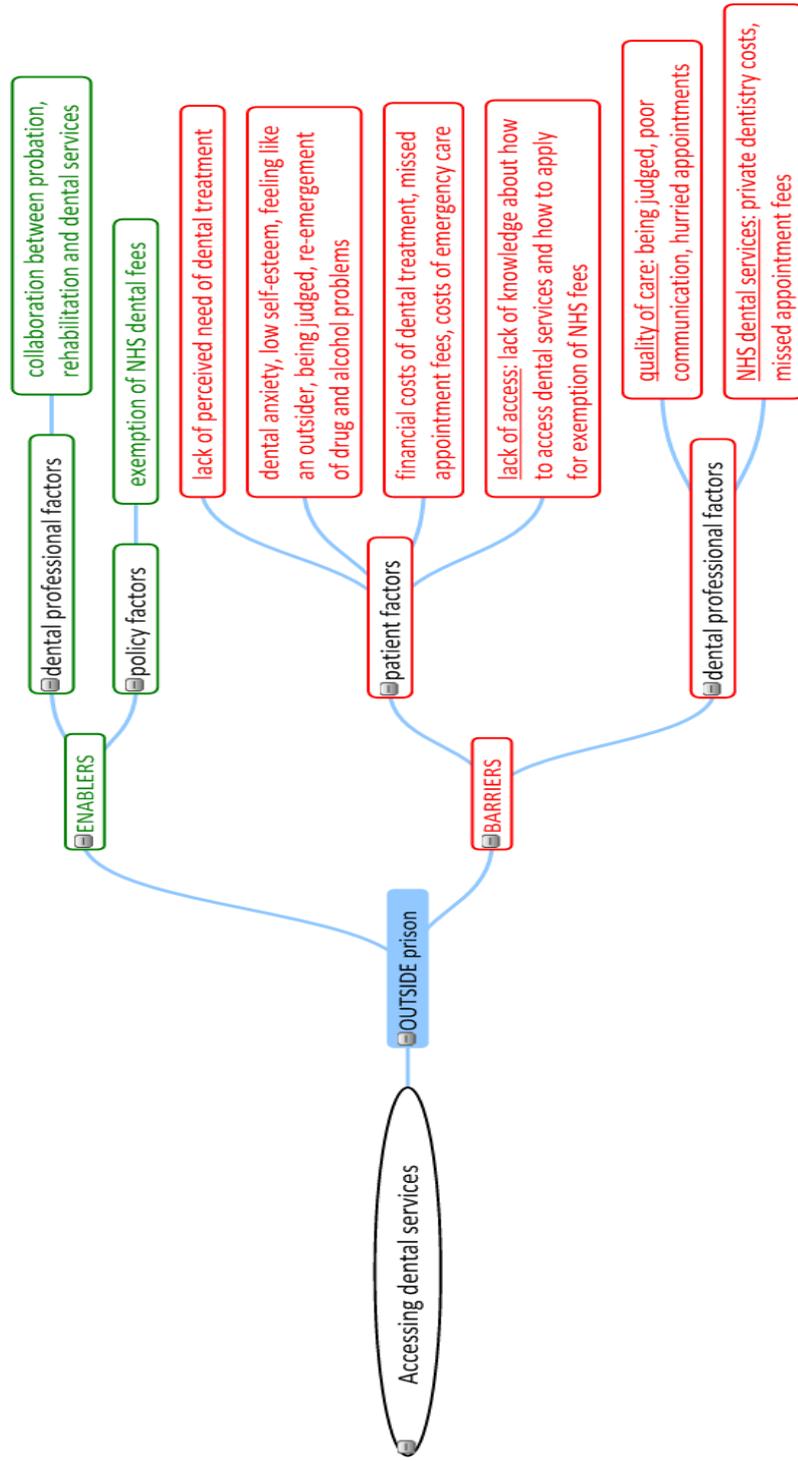
This section will provide a description of the prisons and the demographic profile of the participating prisoners. The following sections will present the oral health themes identified by prisoners. The first section will present an overview of the theoretical basis of oral health impacts upon quality of life (Figure 4.2), the prisoners' main oral health concerns (Figure 4.3) and their attempts at finding a solution (Figures 4.4, 4.5, 4.6). The next section will provide greater detail concerning the prisoners' main oral health concerns, conceptualised as the physical, social and psychological oral health impacts that affect the prisoners' quality of life (Figure 4.3). The final two sections examine how the prisoners solve these oral health concerns.



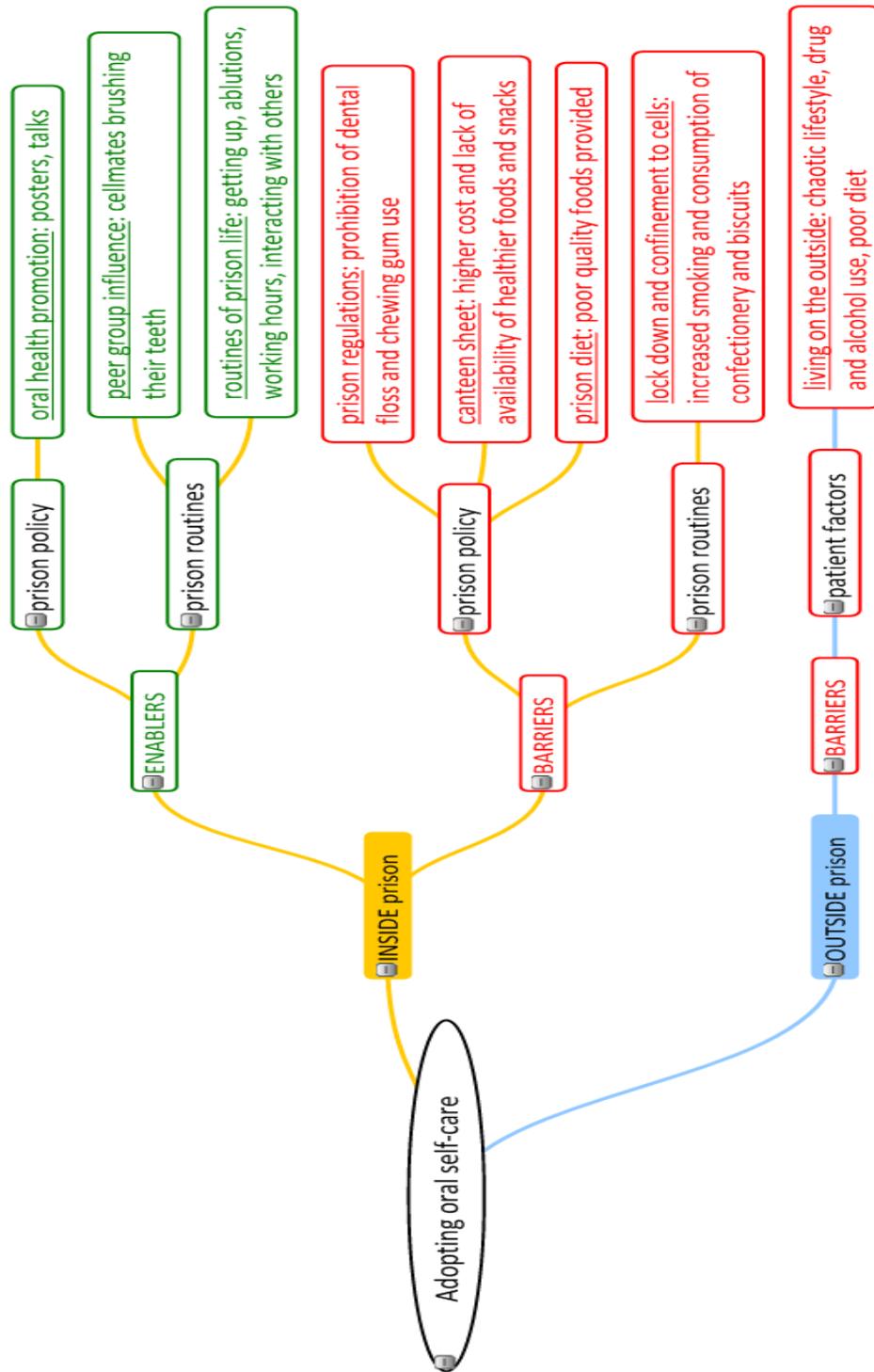
**Figure 4.3:** Schematic of the antecedents of the prisoners' oral health concerns



**Figure 4.4:** Schematic of solving oral health concerns: accessing dental services inside prison



**Figure 4.5:** Schematic of solving oral health concerns: accessing dental services outside prison



**Figure 4.6:** Schematic of solving oral health concerns: adopting oral health self-care

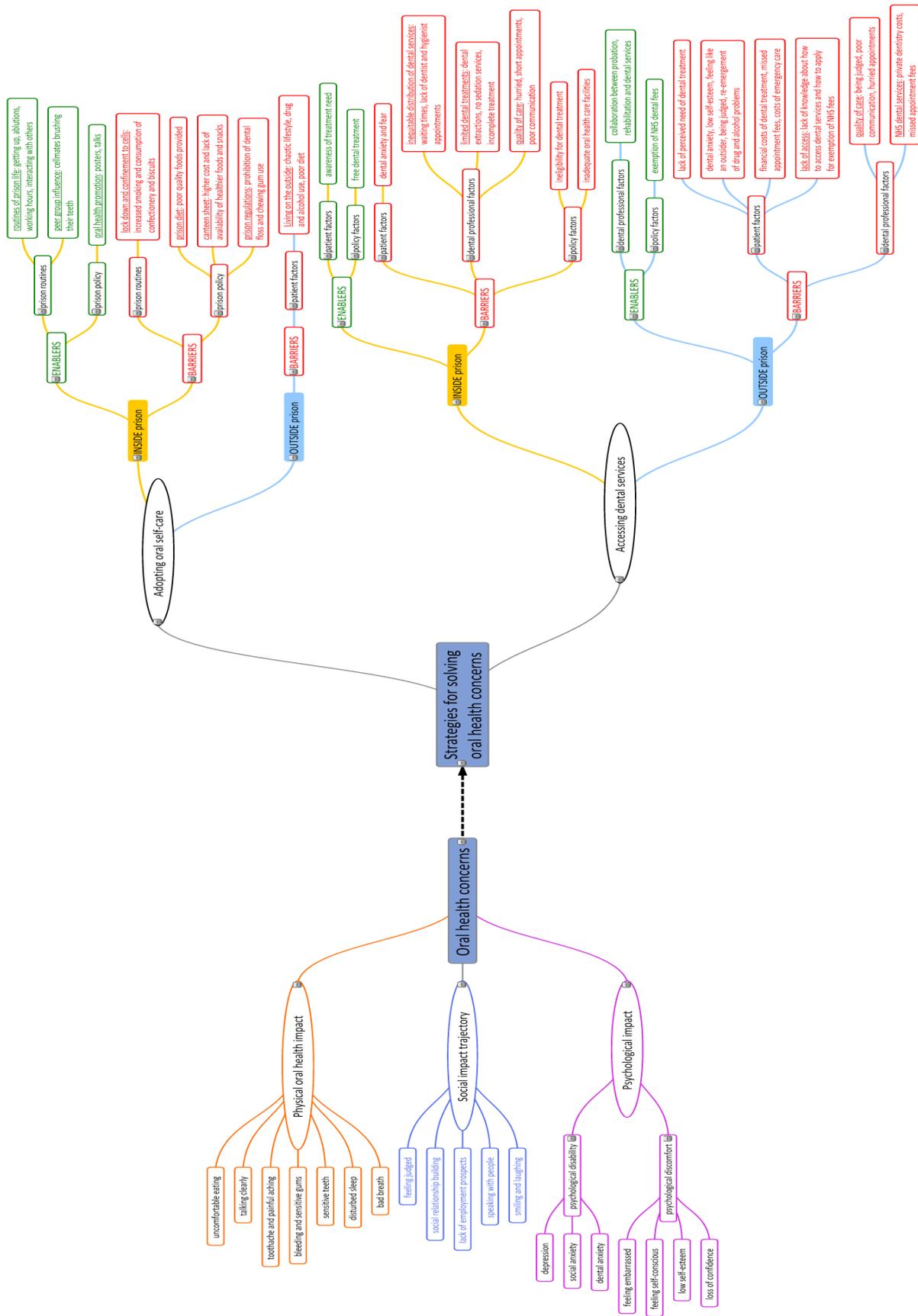


Figure 4.7: Balancing impacts and finding solutions for oral health concerns: a discordant model

## **The prisoners' oral health concerns**

### **The impact of oral ill-health on prisoner quality of life**

The first concern to emerge from the qualitative data was the impact that oral health had on the prisoners' quality of life. Regarding their quality of life, the prisoners spoke of how their dental health affected their ability to interact with others, to function and even to carry out the simplest of oral tasks, such as eating and speaking. Many prisoners, both male and female, highlighted the appearance of their teeth as being of primary importance and how their poor appearance directly impacted upon their lives. In their opinion, others used the appearance of people's teeth as criteria to make instant judgments about people. Therefore comments such as, '*Yer ane teeth are so important for first impressions. . .*' and '*People are judged right away by within a minute*' demonstrated the significance of the oral health concerns the prisoners held about the appearance of their teeth and its effect upon their social interactions with those around them - including health professionals:

*'Sometime I do wonder and worry that if the dentist just sees me as drug addict, prisoner.'* (P26\_CV)

In the prisoners' views, '*broken*', '*damaged*', '*ground down*' or '*rotten*' teeth acted as an indication, to those they came in contact with, of the prisoners' previous drug use ('*I was addicted to crack as well and I find that's when my teeth started to go and look bad*') or current drug use ('*most junkies are the same, they've all got bad teeth*'); their experience of methadone treatment ('*methadone's been the worst for my teeth*'); of their alcohol misuse ('*once I was drunk when I fell headfirst and knocked my teeth out*') and of the violent nature of their existence ('*I was drunk, I was fighting and so I hurt my teeth. . . fighting*'). Consequently, the appearance of their teeth impacted upon their lives and exacerbated their experience of social isolation and, in the case of the dentist, maintained their exclusion from services. Moreover, fears of '*bad breath*', being misunderstood or being unable to enjoy eating were perceived by the prisoners as additional impacts of their poor dental health upon their quality of life.

## **Prisoner quality of life**

### **Physical oral health impact**

Locker (1988) described the impact of *physical pain* as 'painful aching mouths' and 'uncomfortable eating' and *functional limitations* as 'difficulty in pronouncing words' and 'worsening sense of taste'. These two categories emerged from the data as a combined impact and were determined to be the physical oral health impact.

Physical oral health impacts included distress when trying to pronounce words and pain or tenderness when eating or chewing food. Physical oral health impacts, therefore, affected the prisoners' daily lives as a consequence of reduced physical functioning. For instance, large numbers of missing teeth (physical impact) ensured that pronouncing words resulted in being misunderstood causing embarrassment (psychological impact) and reducing the prisoners' pleasure when interacting with family and others (social

impact). The struggle for their words to be understood significantly impacted upon the prisoner's quality of life as illustrated here:

*'And even when I tried to speak. I was starting to speak funny and Mum was sayin' she cannae hear what I'm saying.'* (P3\_I)

Even when painful teeth were extracted the prisoners still experienced pain due to healing gum sockets - *'The pain's away, but I still can't bite down on it, it's very sensitive.'* (P3\_CV). Some spoke of being unable to chew because of large numbers of extracted teeth - *'I've only got one tooth at the back at the bottom there right? I chew most of ma food with that.'* (P8\_G).

Painful and bleeding gums were also cited as a source of dental discomfort by others, which reduced masticatory functioning or ability to eat - *'I'm not really been eating much [due to] gum pain'* (P16\_G). Nevertheless, toothache and painful teeth remained the most widespread and persistent problem which had immediate and delayed impacts upon the prisoners' quality of life. The immediate impact of painful teeth was a reduction of appetite and disturbed sleep. With a disturbed sleep pattern due to painful teeth, the prisoners spoke of being *'in a total state'* with reduced ability to work or function:

*'Toothache, it's really ... it's a 24 hour day of pain ... you don't sleep, properly anyway and it really takes all your initiative away ... an' your work suffers.'* (P18\_G)

With regard to physical oral health impacts, few differences were noted between male and female prisoners, with the majority of participants describing that painful teeth and missing teeth reduced their ability to eat without discomfort, to enjoy their food and to go about their daily routines within the prison environment. This observation may be explained by the primacy of physical ill-health symptoms upon life functioning and quality of life.

### **Social impact trajectory**

Locker (1988) described the social dimension of quality of life as difficulties people experienced when relating to others. As a result of painful, discoloured or perhaps missing teeth, people would experience increased irritability and would find their daily chores increasingly difficult to complete. The consequence was categorised as 'social disability'. In this population of Scottish prisoners, the social dimension of oral health impacts emerged as difficulties in approaching, starting and establishing relationships with others. Therefore the prisoners identified how their oral health impacted upon their social interactions which ranged from experiencing difficulties when *'speaking face-to-face with someone'* to their poor oral health having *'a big impact on relationships with people'*.

It was possible to propose that the impact of their poor oral health could be conceptualised as a social impact trajectory which influenced their ability to approach people for a conversation (approaching), to making appointments for dental treatment (starting),

to establishing social interactions with people (establishing) and maintaining social relationships (maintaining). These nodal points on this social impact trajectory reflected the prisoners' views that their oral health to varying degrees affected their ability to relate to others. The four quotes in Table 4.2 illustrate how the prisoners' oral health impacted upon their social interactions – from approaching people to establishing relationships:

Social impact trajectory		Prisoner quotes	
Approaching	⇒	<i>'I dinna like approachin' people, speakin' an' smiling' an' stuff.'</i>	(P7_G)
Starting	⇒	<i>'I would never want to date a lassie or go out with a girl with my rotten teeth put it that way, ken wot I mean.'</i>	(P2_I)
Establishing	⇒	<i>'You canna go around doors with Scottish Hydro Electric with bad teeth at the front eh? People judge you straight away.'</i>	(P2_I)
Maintaining	⇒	<i>'It's [dental health] had a big impact on my relationships with people and things like that.'</i>	(P29_CV)

**Table 4.2:** Social impact trajectory

The degree to which the prisoners' oral health impacted upon their interactions was apparent when they spoke of their 'disease' when talking to people or making appointments, whether in the prison or once released:

*'Be speakin' to people, be like trying to breathe down the way instead of forward an when you were speakin' ... bad breath, rotten teeth.'* (P6\_I)

For others being unable to eat together along with a lack of sleep resulted in irritation and difficulties when interacting with others:

*'Can't eat, the appetite's totally taken away. It's one thing after another, your toothache's stopping you from eating ... takes your appetite away ... if you're up all night as well, everyone's got it to take...'* (P5\_P)

Fears of *'being judged'* had an immediate impact on their social interacting within and outside prison – increasing a potential for withdrawing and becoming socially isolated. Withdrawing, within the prison environment, was associated with offensive comments, bullying and harassment concerning broken, discoloured or missing teeth. As one prisoner commented, *'those who haven't taken care of their teeth that are really, really, bad ... get victimised.'* (P38\_P) and as another observed, *'verbal bullying, you see it going on all the time because guys haven't taken care of them [teeth].'* (P39\_P).

Another dimension of the fear of *'being judged'* was associated with several prisoners being unable to grasp potential work opportunities, as they arose. For instance, some prisoners believed that there was no point in applying for work: *'If a guy's no comfortable about his teeth – if all his teeth is rotten, who would want to go and put on a nice shirt and tie on him'* (P2\_I). After all, they felt, there was little likelihood of being appointed to a job, when your *'teeth were rotten'*. The prisoners thought that the prison establishment (including dentists) were oblivious to their oral health concerns and work predicaments. As one prisoner stated:

*'I din'nae think they realise that that could be the difference in a guy goin' for a job for an interview, when he gets out of prison.'* (P12\_I)

These observations suggested that prisoners, to varying degrees, experienced difficulties with the development of trusting social interactions with others. A long-term outcome, therefore, was conceptualised as a reduced experience of social capital which reinforced, consolidated, and perpetuated their socially excluded position. It may be suggested that the social impact of poor oral health acted to exacerbate the degree of social exclusion experienced by the prisoners interviewed.

### **Psychological impact**

Returning to the theoretical construct of Oral Health-Related Quality of Life, Locker (1988), conceptualised the psychological impact of oral health as 'psychological discomfort' and 'psychological disability'. Within these two subthemes, 'psychological discomfort' was informed by feelings of self-consciousness and tenseness; 'psychological disability' was informed by difficulties in relaxing and feeling embarrassed. This population of prisoners experienced, to varying levels of intensity, both 'psychological discomfort' and 'psychological disability'. Prisoners described feeling self-conscious and embarrassed regarding their dental health:

*'Self-conscious ... Even jus' now while I'm talking to you I'm talking with my lip down. It's embarassin' cos - see my teeth you know.'* (P1\_I)

They also spoke of how their poor oral health was connected to their psychological well-being, having an impact on their '*self-esteem*' and '*confidence*' or as one prisoner stated about his teeth:

*'I just feel like my teeth all black and hacked and rotten and I don't feel confident.'* (P13\_G)

Linked to psychological disability was the difficulty several prisoners experienced in relaxing. For some being unable to relax was related to their worries of tooth loss and denture wearing whereas for others their oral health status caused lowness of mood and feelings of depression. The following two comments from prisoners are illustrative; in the first, difficulties in relaxing and functioning were associated with tooth loss and in the second, the prisoner spoke of his depression as a consequence of his poor oral health:

*'I can't do that. I'm always conscious of the fact I haven't got the top teeth and everyone's smiling and laughing, I'm always trying to keep my mouth shut, I've got no teeth.'* (P26\_CV)

*'[My teeth], they did really make me depressed.'* (P2\_I)

The effect on confidence levels and their quality of life was emphasised by prisoners who in the past benefited from dental treatment and becoming 'dentally fit'. The change in mood and contentment was raised as additional profits of dental treatment:

*'I got em fixed I was pure buzzin' eh. It was just like, you would think I had just won the lottery it was just that wee one simple thing about getting' your teeth fixed man made a big massive difference in my life eh.'*(P2\_P)

*'I'm a lot more happier and confident - aye definitely, it shows you something so small - do you know what I mean - can give you a big smile.'* (P29\_CV)

## **Summary**

The analysis showed that oral health impacted upon the quality of life of the prisoners. The prisoners viewed their oral health as important and acknowledged that their poor oral health had physical, social and psychological impacts upon their quality of life. These problems, individually or in combination, appeared to contribute to the prisoners being unable to interact or function in their daily lives, reducing their capacity to interact with others within the prison or to envisage an existence with paid work outside of prison.

## **Solving oral health concerns**

### **Prisoner strategies for improved quality of life**

Prisoner strategies for solving their oral health concerns and improving their quality of life emerged as [1] 'accessing dental services' and [2] 'adopting oral health self-care regimes'. Each of these behavioural strategies existed within the prison setting or when released. For both behavioural strategies - 'accessing dental services' and 'adopting oral health self-care regimes' – difficulties emerged with the prisoners being able to implement their actions. These difficulties in implementation were conceived as barriers. However in some instances the prisoners fully implemented their behavioural strategies and the ease with which this could be achieved was conceptualised as 'enablers'.

Therefore, on closer examination of the data, it became apparent that the prisoners encountered a number of difficulties when attempting to access dental services – either within the prison (inside) or after being released (outside). Similar problems occurred in their attempts to adopt preventive oral health routines which were influenced by being either inside or outside the prison environment. Consequently, the strategies the prisoners used were influenced by a variety of barriers which affected their ability to access dental treatment and maintain their oral health, either inside and/or outside the prison environment. However, in some circumstances, such as brushing teeth with fluoride toothpaste, the prison environment with its structures and systems acted as a supportive environment for oral health. It seems reasonable to suggest that the prison, in certain circumstances, became a supportive environment enabling the promotion of oral health; whereas at other times it acted as a reinforcer of behaviours detrimental to oral health (e.g. eating sweets in cells).

Therefore, within the two prisoner strategies of accessing dental services and adopting oral health self-care regimes and for each of the sub-themes of inside and outside the prison environment - three dimensions emerged. These dimensions were informed by Cohen's accessibility framework (1987) which categorises barriers and enablers to accessing dental treatment as: patient factors, dental health professional factors and policy factors

(Table 4.3). It became possible, therefore, to conceive the dimensions as patient factors, dental professional factors and policy factors.

<b>Patient factors</b>	'Lack of perceived need, anxiety and fear, financial considerations and lack of access'.
<b>Dental professional factors</b>	'Inappropriate manpower resources, uneven geographical distribution, training inappropriate to changing needs and demands and insufficient sensitivity to patients' attitudes and needs'.
<b>Policy factors</b>	'Insufficient public support of attitudes conducive to health, inadequate oral health care facilities, inadequate oral health manpower and insufficient support for research'.

**Table 4.3:** Accessibility barriers (Cohen, 1987)

## Accessing dental services

This section examines how the prisoners attempted to solve the impact their oral health had on their quality of life by accessing dental services inside and outside the prison environment.

### Accessing dental services inside prison: barriers

The prisoners spoke of the barriers they experienced when trying to access dental services **inside** the prison environment. The barriers were numerous and included patient, dental health professional and policy factors. However, the prisoners also spoke of factors relating to the prison regime which acted as enablers with regard to accessing dental services (Figure 4.8).

**Patient factors** Patient factors emerged as barriers to dental treatment inside prisons. One patient factor - dental anxiety - was noted.

**Dental anxiety and fear** Dental anxiety and fear was a common barrier to accessing dental services for the prisoners. The effect of prisoners' dental anxiety was to delay making dental appointments and once appointments were made, missing them:

*'as I was sayin' ta girls yesterday who were ... waitin' ta go ta their appointments, we're really worried an' anxious.'* (P1\_CV)

The item of dental treatment which caused most anxiety was the local anaesthetic injection or *'the fear of the needle'*. Comments such as *'I hate needles aye'* or *'I'm sort of nervous to go to see the dentist [because of] the needle'* were commonplace in the prisoners' descriptions of what they feared most about dental treatment.

Recounting why they were so fearful of treatment the prisoners spoke of childhood memories of *'bad'* or *'frightening'* dental experiences:

*'at school they [dentists] were bad ... you got dragged out kicking and screaming.'* (P1\_I)

Their dental anxiety, however, was exacerbated by taking part in, or overhearing, other prisoners' lurid images of dental treatment - of *'butcher dentists'*, of prison dentists being *'rough'* and *'just taking out teeth'*. Consequently, as this female prisoner stated, reflecting the views of others:

*'I don't trust that dentist at all, I've heard some horror stories about him.'*  
(P22\_CV)

While the *'horror stories'* were acknowledged as *'half of them jus' fabricated'*, the stories still increased dental fears and had the potential to delay access to dental services and to result in the avoidance of dental treatment in those prisoners who were dentally anxious:

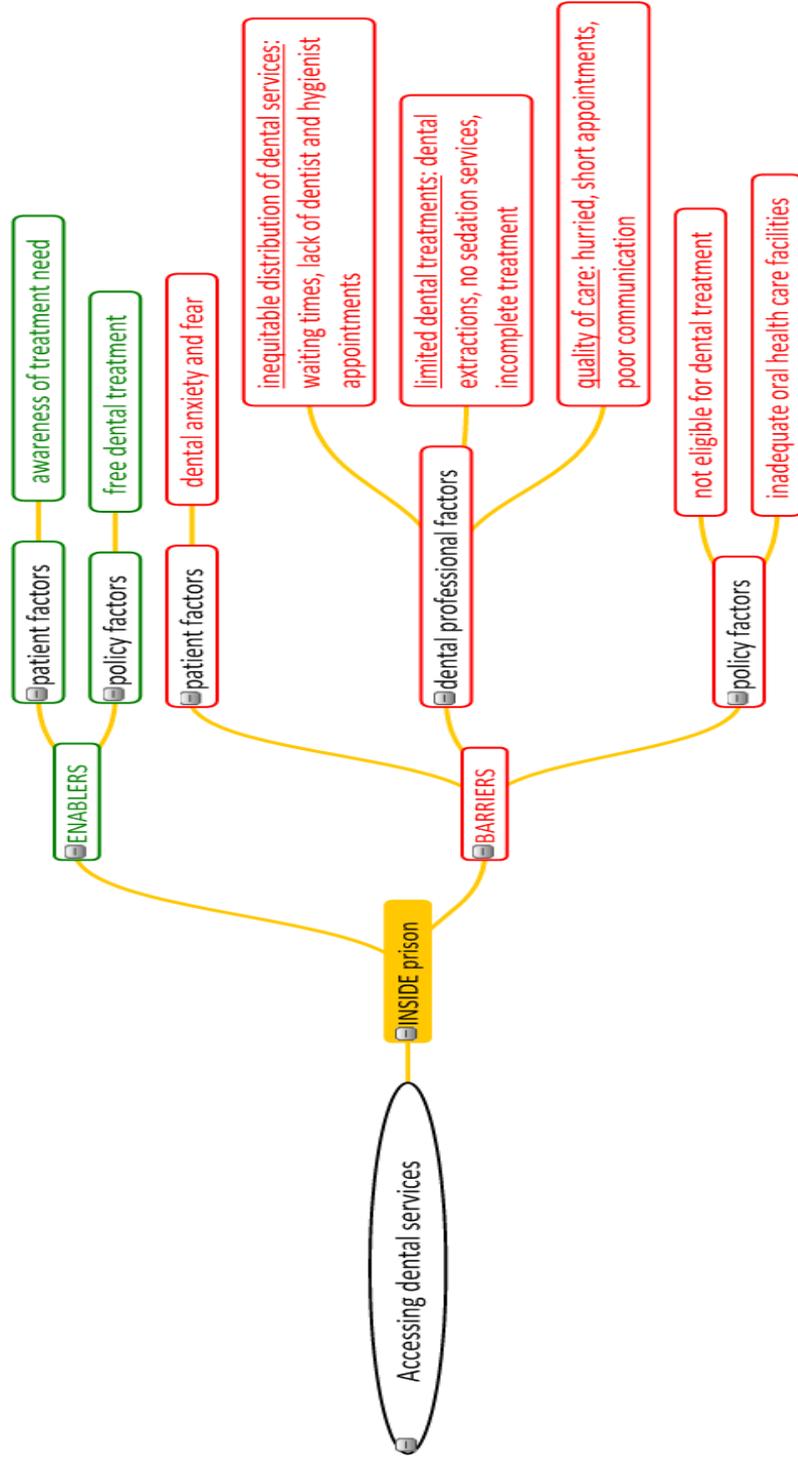


Figure 4.8: Solving oral health concerns: accessing dental care inside prison

*'I'm too scared to go the dentist here – I just take paracetamol - painkillers.'*  
(P31\_CV)

In their description of previous frightening treatment experiences and how 'horror stories' increased dental anxiety, it became possible to categorise the prisoners' dental anxiety as anticipatory and their dental fear as a fear of the unknown (Coriat, 1946; Freeman, 1985). This conceptualisation of the prisoners' dental anxiety as anticipatory is illustrated by the words of a prisoner from HMP Glenochil:

*'I've been petrified ever since and I still am [petrified] to this day - see when they put that needle anywhere near me.'* (P20\_G)

**Dental professional factors** When examining the transcripts, the majority of prisoners complained about the infrequent nature of the dental service, complained of the type(s) of dental treatments provided and demanded specialist services such as sedation. Some prisoners, nevertheless, recognised that the prison routines and the availability of free dental treatment enabled them to access dental care and in this respect reduced financial and cost barriers to accessing dental care.

Revisiting Cohen's accessibility factors (Cohen, 1987), it was possible to categorise the prisoners' complaints and demands as 'dental professional factors', since they reflected 'inappropriate manpower resources', 'uneven distribution' of services and their feelings that the dental team had 'insufficient sensitivity to [their] needs' (Table 4.4).

Accessibility factor	Prisoners' comments
	<p><b>Inequitable distribution of dental services:</b></p> <ul style="list-style-type: none"> <li>• Dental treatment appointments</li> <li>• Dental hygiene appointments</li> <li>• Waiting times</li> </ul>
<p>'Inappropriate manpower resources' 'Uneven distribution of services'</p>	<p><b>Limited dental treatment provision:</b></p> <ul style="list-style-type: none"> <li>• Dental extractions only treatment provided</li> <li>• Lack of sedation services for dentally anxious prisoners</li> <li>• Lack of follow-up appointments</li> <li>• Preferential treatment for those complaining of pain</li> </ul>
	<p><b>Quality of dental care:</b></p> <ul style="list-style-type: none"> <li>• Hurried dental appointments</li> <li>• Short treatment appointments</li> <li>• Poor communication skills</li> </ul>
<p>'Insufficient sensitivity to patients' attitudes and needs'</p>	

**Table 4.4:** Dental professional factors for accessibility to dental services

**Inequitable distribution of dental services** The most frequent complaint raised was the infrequency of visits from the dentist, the dental hygienist and the dental team:

*'... there's only **one** dentist in here and he comes round what is it, twice a month for the whole day.'* (P29\_CV)

The absence of a regular dental service acted as the most important factor affecting their resolution to access dental treatment. The tenor of the prisoners' comments revealed their frustrations at being unable to access dental care at a time that fitted their oral health needs and demands:

*'He [the dentist] only comes in – I think it's a Tuesday every fortnight. He comes in once a fortnight and there's 400 women in here – it's not enough.'* (P22\_CV)

Therefore in terms of equitable distribution of dental services - the frequency of dental visiting, duration of clinical time, preferential treatment toward those complaining of pain, and follow-up appointments - the prisoners complained of lack of continuity.

The prisoners noted that differences existed within and between prison establishments, suggesting an uneven distribution of dental services within the prison service. The following three vignettes are illustrative of differences within and between prisons regarding availability of dental services:

Within prison:

*'It is getting better now, but it was bad for a long time because I was in a segregation unit in the prison – so it's harder to get you seen by a dentist and get what you need.'* (P8\_I)

Between prisons:

*'In this prison I've been to the dentist and in [second prison] and in [third prison]. In [the second prison] it was quite good and they were quite thorough – treated me well...'* (P7\_I)

*'No, they take months to see you in [another prison]. Here [in this prison] it is quicker.'* (P39\_P)

The prisoners, in their attempt to find a strategy to solve their oral health dilemmas, suggested a solution – if dentists were only able to visit infrequently, they should be increased in number and distributed evenly throughout the prison. As one female prisoner suggested:

*'I just hope you can do something, because we need about three dentists in this place. I think they should have one for each block ... there are too many women in here, for one dentist.'* (P32\_CV)

As a result of the scarcity of dental services and the barrier this presented, many prisoners experienced toothache. The increased awareness of dental pain may have been due to successful drug rehabilitation (Akbar et al., 2012) resulting in some prisoners complaining that they had been suffering toothache for weeks or months. Several prisoners suggested that all prisoners should have their teeth examined on imprisonment and treatment provided as necessary. The prisoners also recognised that each prison was different and in some cases the prison health centre would *'get the emergency dentist in'* (P2\_1) while in others *'people could go through their whole sentences and not see anyone and nothing done'* (P12\_CV). This suggested that the prison environment could act as an enabler or as a barrier with regard to the prisoners' attempts to access dental services to solve their oral health concerns and improve their oral health-related quality of life.

**Waiting times** Many prisoners complained of the length of time they needed to wait for an appointment for dental treatment and their difficulties and frustrations as they waited for an available time:

*'Everyone knows that [this prison] is one of the worst places to get your teeth treated because they know for a fact that the chances of seeing anyone to get anything done ... you're on a waiting list forever.'* (P38\_P)

Waiting times for dental treatment within the prison therefore emerged as an important barrier to accessing dental care, with many prisoners describing how they had to wait *'months and months to see a dentist'*. The following is illustrative:

*'It takes months to see a dentist in here, I have been here 10 month and I have not seen a dentist.'* (P13\_G)

Of particular annoyance was the issue of self-referral for dental treatment. Self-referral for dental treatment was described as *'a joke'* or *'pointless'*. In the opinion of the prisoners the only way to be referred and to be treated was to cheat the system – to lie and to feign an emergency – *'has to be an emergency or something'* – to increase their chances of getting a dental appointment:

*'You need to tell em you've got toothache, or you're in agony, and I think about 75% of the guys jus' tell lies cos they're just wantin' their teeth fixed you know. But em, ... if you're putting in a [self-referral] form I think I need a filling or something in the form otherwise ... I din'nae think they'd ever see you.'* (P9\_I)

The difficulties encountered and the frustrations experienced by the prisoners in their attempts to access dental services within the prison were conceptualised as a lack of access (Cohen, 1987). The prisoners' solution to solving their problem of lack of access was to lie, cheat and feign toothache to access the dental treatment they demanded within the prison environment.

**Limited dental treatment provision** Several prisoners spoke of specific oral health needs being unmet by the prison dental service. This was raised not only in relation to the dental hygienist, *'the dental hygienist used to come along every three months - I've not seen her since May ... or June something like that'* (P15\_G) but also the type of treatment they received. Of particular concern to the prisoners was the extraction of their teeth. Concerns about whether the dentist was *'qualified or anything because all they really [do is] teeth pulling'* (P26\_CV) accompanied fears of appropriateness of planned dental extractions. The following comment from a young male offender appeared to sum-up the views of a majority of prisoners:

*'... teeth out - even if it's just a wee, little problem with the tooth ... I'm just too anxious to see him [the dentist] ... I don't want him to pull my tooth if it's not necessary.'* (P31\_P)

Prisoners consequently became suspicious of the type of dental treatment they received. Some felt that their dental treatment was not completed: *'chances are they won't do as much as you would get outside.'* (P35\_P), while others assumed that tooth extractions were the only treatment option offered to them:

*'If I had a regular dentist I'd go in and get a root canal treatment put in whereas these folks jus' wanna rip [the tooth] out.'* (P4\_I)

*'They [the dentists] aren't so interested in what's wrong, they just want to get it over and done with and away quickly, so it's easier to pull them out,.. so he can go ... and the reason 'cos there's that many people going to him.'* (P8\_I)

Other prisoners believed that their dental treatments required the use of general anaesthetic which could not be provided within the prison setting as *'... they don't put you under general anaesthetic'* (P11\_CV). The subsequent process to deliver their treatment needs required the arrangement of secure transfer to and from a local hospital where this treatment could be provided – this in turn meant an additional wait for treatment.

The unevenness in the type of dental treatment provided was noted. Female prisoners commented upon the absence of orthodontic treatment while others with a greater experience of the prison system commented upon inequity across different prisons. The following is illustrative:

*'Yeh, I've no problem with my teeth this sentence right eh but, as far as I know they've got a good service in [this prison]. I would say this is the best in Scotland that I've been, and I've been in a lot of prisons, and ... they take good care of you, they take good care of your health, if you got any problems they deal with the situation quite, quite, quickly.'* (P5\_I)

These more experienced prisoners spoke of how dentists in one prison would *'only pull teeth out but they won't do fillings'* while in other prisons, *'hygiene, de-scaling and tartar removal'* (P1\_I) were part of the routine dental care provided. However, the

older prisoners interviewed appeared to be the most vulnerable, often relying on other prisoners to arrange access to dental services for them.

Dentally anxious prisoners expressed their concerns and complained of the lack of sedation for their fears. Several stated that they would only attend for dental treatment if they were *'knocked out'* while others felt that they would *'only attempt'* a visit to the dentist if they were provided with oral anxiolytic medication:

*'I wish they could prescribe you something. People like me I wish I could get diazepam for the dentist.'* (P26\_CV)

The absence of sedation services acted as a barrier for those prisoners who confessed to be dentally anxious. Like other aspects of the prison dental service, sedation, in any form, was unavailable in some prisons and available in others:

*'In [another prison] they sedated me. That was great. It was jus' lie back an' you were there, but you were nae quite there you know what I mean.'* (P1\_I)

**Quality of dental care** The prisoners highlighted two aspects of their interaction with the dentist that were indicative of their questioning the quality of dental care provided. The first indicator was related to complaints about hurried, rushed and/or shortened dental appointment times; the second indicator was the dental staff's poor communication skills.

Frequent complaints of *'being hurried'* in their interactions with the dentist were mentioned by many prisoners which influenced their perception of the quality of care provided. During treatment, they felt that the number of people needing to be treated in the short clinical time gave rise to all treatments being rushed but left incomplete:

*'He tends to leave a lot. It's almost as if he's rushing me through.'* (P2\_CV)

Although the prisoners appreciated that the shortened appointment time was linked to the *'hundreds and hundreds of people they got to see'* the allocated dental treatment time apportioned to each prisoner was felt to be too short when compared with the length of time they had been waiting for treatment:

*'Would only be a matter of ten, fifteen minutes [with dentist] - after six months of waiting.'* (P6\_G)

With shortened appointment times and being rushed through their treatment, the prisoners' *'imagination ran away [with them]'* about the dental care they received and *'what sort of state [their teeth] would be in by the time [they got] out'*. These misgivings appeared to be connected with the quality of dental care provided within the prison environment. The following two vignettes are by way of example:

*'I went to see the dentist. He told me my teeth were absolutely fine, just to keep doing what I was doing, but I know I've got something wrong with my tooth, the tooth that I had toothache in.'* (P27\_CV)

*‘Everyone knows that it’s one of the worst places to get your teeth treated because they know for a fact that the chances of seeing anyone to get anything done ... that’s the perception you get from the [dental] care you get here which isn’t much.’ (P38\_P)*

Poor communication skills and unexplained treatment plans resulted in the view that the dental staff were not interested in them or their oral health needs:

*‘You go to a dentist outside but they’re interested like, most dentists that I’ve come across in prisons they aren’t so interested in what’s wrong, they just want to get it over and done with.’ (P8\_I)*

Therefore poor communication skills and apparent apathy regarding the prisoners’ expressed needs acted as an inhibitor to accessing dental treatment:

*‘It’s just every time I ask [the dentist] for an appointment, he gets a right moan on and says, “Aye, I want to take it out - I want to take it out – I want to take it out.” – and then nothing ever happens?’ (P10\_I)*

**Policy factors** Policy factors, in addition to those mentioned in dental professional factors, were the patients’ concerns about eligibility for dental treatment within the prison. This appeared to contribute to their difficulties in accessing dental treatment. Prisoners, therefore, on remand, with short sentences or who were segregated from others misunderstood the prison policy in this regard and felt that they were either not able or not entitled to access dental care:

*‘You put in another form out, you get a form back saying ... because they don’t normally see you if you’re just on remand.’ (P5\_P)*

## Accessing dental services inside prison: enablers

### Patient factors

**Perceived dental need** Many of the prisoners had accessed dental services prior to their present imprisonment. For the majority of these, their dental attendance had been on an emergency basis. Therefore a substantial minority spoke of not being aware of their dental needs and had a tendency to access the prison dental service only when experiencing toothache. In many respects the prisoners repeated their pattern of attendance in prison as they had done outside – attending with pain.

In some of the prisons the prisoners were aware of their oral health needs from health promotion talks and posters about oral health. In these circumstances oral health posters increased the prisoners' perceived oral health need and had assisted them to access dental treatment.

In other prisons, they were informed of the prison dental services and accessed dental treatment:

*'I was recommended when I was in for over a year, for something, to go ... so I went to the dentist'. (P\_8G)*

Such recommendations, from other prisoners or prison officers, enabled the prisoners to access dental treatment and, once in the dental surgery, they were provided with one-to-one oral health information and support from the dental hygienists and the dental nurses:

*'(S)he makes you feel quite welcomed and there's no messing about. (S)he explains everything to you ... and so there is no misunderstanding or anything like that.' (P\_I2I)*

### Policy factors

**Eligibility for NHS exempt dental treatment** Once aware that there was no cost for their dental treatment, many of the prisoners remarked how this enabled them to access dental care. It also increased their demands for dentures, crowns, tooth whitening and orthodontics.

## Accessing dental services outside prison: barriers

An exploration of the data regarding accessing care once released and outside prison was conducted. As within the prison environment, outside prison and in the wider community, the prisoners spoke of the barriers they encountered with regard to accessing dental treatment. However, the pattern of the barriers encountered was different and were primarily associated with 'patient factors', with 'dental health professional' and 'policy factors' playing a secondary role (Figure 4.9).

**Patient factors** Patient factors emerged as barriers to dental treatment outside prisons. There were eight patient factors: dental anxiety, low self-esteem/confidence, feeling like an outsider, being judged, chaotic lifestyle (drug & alcohol abuse), cost of dental treatment, lack of access and lack of perceived need (Table 4.5).

Accessibility factor	Prisoners' comments
Lack of perceived need anxiety and fear, financial considerations and lack of access	<b>Lack of perceived need:</b>
	<ul style="list-style-type: none"> <li>• influenced by significant others to attend</li> <li>• emergency only attendance</li> <li>• self-medication for toothache</li> </ul>
	<b>Psychosocial factors:</b>
	<ul style="list-style-type: none"> <li>• dental anxiety</li> <li>• low self-esteem and confidence</li> <li>• feeling like an outsider</li> <li>• fears of being judged</li> <li>• drug problems</li> <li>• financial costs of dental treatment</li> </ul>
	<b>Lack of access:</b>
	<ul style="list-style-type: none"> <li>• no knowledge of how to register for dental treatment</li> </ul>

**Table 4.5:** Patient factors for accessibility to dental services

**Lack of perceived need** Outside of the prison environment, the prisoners' pattern of dental attendance suggested that a shift had taken place. They acknowledged that the delay in attending for routine dental care was connected to lifestyle and subsequent apathy. Outside of prison their oral health lost its priority status and only when '*things* [toothache] *got out of control*' and their quality of life reduced, did they attend for emergency care. An alternative pathway to emergency treatment arose when '*partners*', '*mothers*' and '*the Mrs*' encouraged attendance after episodes of prolonged toothache or when analgesics (painkillers) no-longer worked:

*'Until [my] teeth are actually aching – I don't bother going to the dentist. I don't think a lot of people would bother, you don't care of these sort of things, there are more important things in your life - so you sit in agony rather than go.'* (P2\_G)

These observations suggested that a difference in their perceptions of felt dental need occurred within the prisoners in their journey from inside to outside prison. In their lives outside prison their priorities changed, which was influenced by their life circumstances. It is proposed, therefore, that the pathways to dental care adopted by the prisoners once

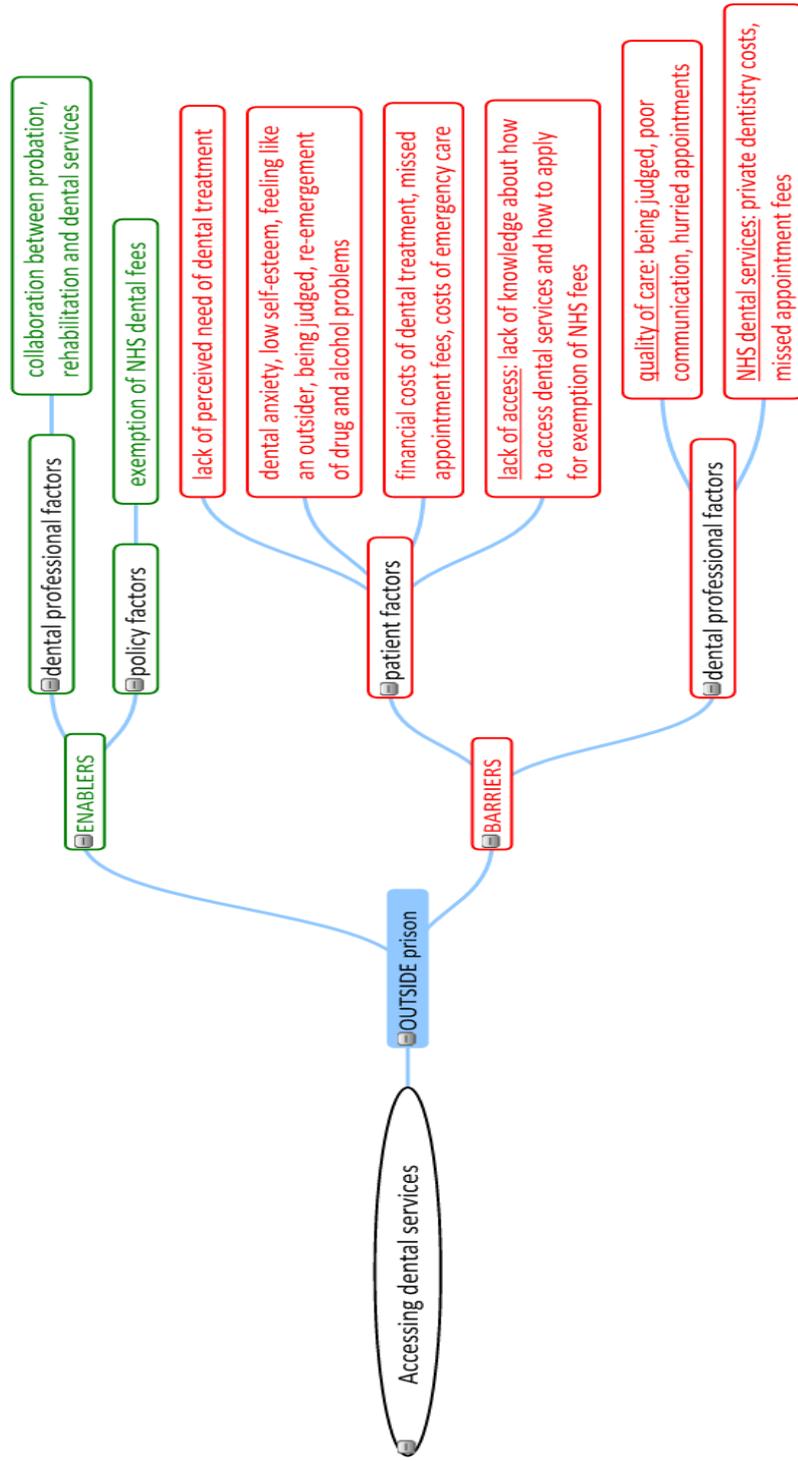


Figure 4.9: Solving oral health concerns: accessing dental care outside prison

released from prison were a consequence of lack of perceived need, fuelled by a change in their priorities, which together acted as barriers to accessing routine dental care. The following quote from a prisoner is illustrative:

*'The majority of them, I don't think they have a dentist, they don't go to the dentist. A lot of people in prison say that they will do this and that and when they actually get out they'll never get around to actually doing it.'* (P4\_I)

**Psychosocial factors** Dental anxiety and fears acted as a significant barrier outside prison prohibiting access to routine dental care:

*'It's embarrassing, you go in and a grown man walking in and you know gripping the chair and I don't know what it is. I just get into a lather.'* (P1\_I)

The prisoners spoke of their dental fears suggesting that their anxiety was of a different intensity and quality, outside compared with inside prison. Inside prison some spoke of having, *'sort of nervous tendencies'* whereas outside prison they had a *'phobia of the dentist'*:

*'I've got a phobia. Whole life, I'm scared of the dentist like, all my life as far back as I can remember. If I hadn't been in here [this prison] I would have suffered sore teeth and broken teeth at home.'* (P6\_I)

*'Once the phobia started, and it was like nine years before I seen one; I knew I should be going back.'* (P2\_CV)

The prisoners felt that their dental anxiety started in childhood and linked it to frightening experiences with the *'school dentist'*. Their fears, they suggested, had been reinforced by recent encounters with emergency dental services both inside and outside prison. As a consequence of their dental anxiety the prisoners stated that they were *'put off'* making appointments or *'talked themselves out of going'* into dental surgeries for treatment.

An additional fear associated with dental treatment was social anxiety. The source of this affect was the prisoners' belief that they were outsiders and therefore not welcomed as patients by dentists. Thoughts of being an *'ex-prisoner'*, stirred up feelings of alienation and judgement inhibiting their access to dental services. Nonetheless several prisoners had a solution. They felt that their expressed wishes should be taken into account and that a dental service, outside the prison, should be set-up specifically to suit the needs of ex-prisoners. This was raised in relation to recovery from substance misuse, with some prisoners believing that those addicted to drugs should have tailored dental facilities. In such a tailored dental service, the ex-offenders felt they would feel more comfortable without fears of being judged and of discrimination:

*'[Dental] places that we can go tae - for ex-prisoners, eh, more comfortable going to there.'* (P5\_I)

Therefore the belief that they were being judged by those on the outside was entangled with the prisoners' shame associated with their lifestyles, their prior imprisonments and missed life opportunities. As they returned to the apparent chaos of their life beyond prison, they recognised how their gradual re-entry into an existence of alcohol and drug misuse guaranteed that their lifestyle was apparent and visible to all as *'broken, discoloured and sore teeth'* or as one male prisoner stated as he pondered the costs of his drug and alcohol use:

*'I was just taking drugs and drinking all the time and that's why my teeth are in the state that they are in now.'* (P2\_G)

Low self-esteem together with reduced confidence acted as barriers to seeking treatment on release from prison. Poor oral health made prisoners *'embarrassed'* and increased feelings of *'self-consciousness'* concerning their appearance. The quantity and quality of their affect increased their social anxiety and deterred them from entering the dental surgeries, speaking to the receptionist and making an appointment to see the dentist:

*'... not got the confidence to go to a dentist outside.'* (P2\_I)

**Financial costs of dental treatment** The financial costs of dental treatment were voiced as a barrier to accessing dental treatment outside of prison. The prisoners acknowledged that their dental health needed to be good in order to attain paid employment, but without paid employment they feared they would never be able to afford dental treatment. It seemed that the prisoners were caught in a double bind:

*'I couldn't get a dentist- I didn't have any money - I didn't have a job.'* (P2\_I)

For a minority of prisoners who had been employed their weekly or monthly income was such that if they paid for their dental care they would have little money left for day-to-day living expenses:

*'If you need to pay for it and you are only getting 200 quid a week in your job surely your money is not going to be paid in your tooth.'* (P2\_G)

However, for others, as one male prisoner noted, while financial costs acted as a barrier, it hid other unforeseen costs of accessing dental care and these costs were associated with changes in life priority:

*'No, because I never had [a dentist outside]. I looked after my teeth a lot better after I came here because of the cost outside. Well that was part of it. I think I did go and see a dentist years ago but I was working. At least I was trying to look after my teeth while I was not going - OK so for me if anything went wrong I would have gone to see them.'* (P3\_G)

**Dental access knowledge** There was a general perception that waiting lists were long and it was difficult to register for a dentist because of a lack of NHS dentists. This perception was related to previous dental treatment experiences prior to current imprisonment. For instance a woman prisoner on remand spoke of her struggle to access routine dental care and the longest period between appointments being seven years. Nevertheless, some prisoners did state that they had been told that it was easier to access dental services, to register for a dentist and that ‘*NHS places*’ were available outside prison and in the community.

Exacerbating the prisoners’ lack of access was their inability to know how to physically access dental services, their lack of knowledge of the procedures associated with gaining exemption from NHS dental fees and current changes in regulations regarding dental registration. This lack of knowledge, and the subsequent uncertainty it raised, is illustrated in the following quote:

*‘I don’t know how it works ... I don’t know if it works the same way ... if I’m still registered or whether I’ve got to re-register.’* (P1\_CV)

Prisoners who had been in hostels or in temporary accommodation experienced difficulty in accessing NHS dental treatment. This was due to being unable to remember the original address used when registering for treatment. Therefore, difficulties in remembering the correct address, as a result of previous episodes of homelessness, acted as a barrier to accessing dental treatment - as this respondent stated the ‘*dentist just isn’t happening – I’ve been through that much with being homeless and you canna’ put half of it down*’ (P\_6G).

**Dental professional factors** The most frequent dental professional factor which emerged from the data was the quality of care provided by the dentist and their team outside prison (Table 4.6).

Accessibility factor	Prisoners’ comments
‘Insufficient sensitivity to patients’ attitudes and needs’	<b>Quality of dental care:</b> <ul style="list-style-type: none"> <li>• being judged</li> <li>• poor communication skills</li> <li>• hurried dental appointments</li> </ul>
	<b>NHS dental services:</b> <ul style="list-style-type: none"> <li>• private patients</li> <li>• penalties for missed appointments</li> </ul>

**Table 4.6:** Dental professional factors for accessibility to dental services outside prison

**Quality of dental care** Issues surrounding the quality of dental care ranged from perceptions of ‘crap’ NHS dental care to perceptions of feeling belittled due to the insensitivity of the dental team. Poor communication skills and dismissive tones were voiced by many as an additional reason for pain-only attendance. As one prisoner stated:

*‘He [the dentist] was very dismissive and I said to him I’m no good with dentists and it was that kind of attitude; you’re a grown man – yes he was very dismissive and it seemed to me as quick as he could to get me out of the chair.’ (P1\_I)*

The feeling of being judged on the outside was also expressed by prisoners as mainly the consequence of being ashamed of the poor state of their teeth or being worried about the possibility of getting judged as an ‘ex-offender’ or being ‘judged right away by within a minute of being in the surgery.’ (P2\_I) as a ‘drug addict or maybe an alcoholic’ (P\_G5). The following quote describes the social barriers felt by ex-prisoners on the outside which seemed to inhibit some from registering or seeking dental treatment:

*‘If this place was where they had that support and they know they could go to, and they could feel confident and they feel they no getting judged or anything like that. Well, I think that a lot of people out of prison do get judged’. (P5\_I)*

**NHS dental services** De-registration from dental practices attended prior to imprisonment was associated with dental practices deciding to become predominately private practices and to reduce the size of their NHS patient lists. Some prisoners spoke of family members being retained as NHS patients while they were de-registered. Others noted that in an emergency, there was little choice - either have emergency private dental treatment or no dental treatment:

*‘Well [my home town] is one of the worst. They’re signing off patients. It was only private patients they were keeping on and paying [NHS] patients and it was really hard. Like I said, if you had something the matter with your tooth, constantly in pain, if you don’t have a dentist that is it, unless you have an emergency appointment – but you don’t get proper treatment.’ (P25\_CV)*

Missing dental appointments was voiced as a common experience outside prison. Prisoners provided instances where missed appointments had resulted in a financial fine and being struck off the dentists’ patient list. The following is illustrative:

*‘If you miss your first appointment they make you pay the £40, that’s it, you’ve lost it. Then your second appointment if you miss after that you pay another £40 and then that’s you, you’ve been struck off your dentist. Some people were just struck off and a letter sent out to them with an explanation that they’d gone private and there were hundreds of people that didn’t have a dentist because of this.’ (P5\_CV)*

**Policy factors** The most commonly voiced accessibility factor which related to policy was the eligibility for exemption of NHS dental fees (Table 4.7). However, when the prisoners were aware of their eligibility for exemption of NHS fees this acted as an enabler to access services. In one instance a prisoner noted that (s)he was told about ‘*free treatment*’ (P13\_CV) when attending a drug testing centre:

*‘There was this place where you go and get a drug test every two weeks and they have a dentist and I was getting my teeth seen for free.’* (P13\_CV)

Accessibility factor	Prisoners’ comments
‘Inadequate oral health care facilities, inadequate oral health manpower’	<ul style="list-style-type: none"> <li>• Eligibility for exemption of NHS fees</li> <li>• In and out of prison</li> <li>• No fixed address</li> </ul>

**Table 4.7:** Policy factors for accessibility to dental services outside prison

Being unable to access ‘free treatment’ was associated with having no fixed address due to episodes of homelessness (see Dental access knowledge) and being released from prison. In addition, a minority of prisoners raised the issue of the availability of NHS dental care, waiting lists and their prison lifestyle:

*‘It’s hard to get a dentist outside of prison, it’s really hard and ... it’s the same old story, waiting lists and you’re on an NHS waiting list and then in all the time of waiting – I’m back in prison.’* (P10\_I)

## Summary

The overall findings from this qualitative exploration suggest that significant barriers exist for prisoners when accessing dental services either inside or outside the prison estate (Table 4.8). While similar barriers to access dental care existed, a difference occurred in the quality of the accessibility barrier experienced. For instance, within the prison, patient factors were of secondary importance compared with the considerable strength of dental professional factors acting to reduce access to prison dentistry. However, in comparison, outside of prison, patient factors gain primary importance with dental professional factors being relegated to being of lesser significance. In essence, it would seem reasonable to suggest that the role of environment had an effect to reduce the prisoners’ ability to access dental health care and resolve their oral health concerns.

Considering the role of environment as a means of supporting health behaviour change, it is possible that the prison environment has the potential to act as a safe haven with regard to accessing dental treatment by reducing the importance of patient factors. Thinking in this way has some merit since it allows for a modification in service delivery within and outside the prison. With improved dental treatment services within the prison estate a continuum from within to outside prison may be envisaged in terms of ‘through-care’

which may act to reduce the potency of patient factors as barriers to access dental treatment services for ex-offenders.

<b>Accessibility barriers</b>	
Factors	Outside prison
	<p><b>Lack of access:</b> No knowledge of how to register for dental treatment</p> <p><b>Psychosocial factors:</b> Dental anxiety Low self-esteem and confidence Feeling like an outsider Fears of being judged Problematic drug use Financial costs of dental treatment</p>
<b>Patient</b>	<p><b>Lack of perceived need:</b> Influenced by others to attend for treatment Emergency only attendance Self-medication for toothache</p> <p><b>NHS dental services:</b> Private patients Penalties for missed appointments</p>
<b>Dental professional</b>	<p><b>Inequitable distribution of dental services:</b> Waiting times Dental treatment appointments Dental hygiene appointments Limited dental treatment provision: Dental extractions only treatment provided Lack of sedation services for dentally anxious prisoners Differences across the prison estate</p> <p><b>Quality of dental care:</b> Hurried dental appointments Short treatment appointments Poor communication skills</p>
<b>Policy</b>	<p><b>Quality of dental care:</b> Poor communication skills Hurried dental appointments</p> <p>Eligibility for dental treatment when on remand Eligibility for exemption of NHS fees No fixed address</p>

**Table 4.8:** Summary of barriers experienced solving the oral health dilemma: dental service accessibility inside and outside prison

## Adoption of oral health self-care

The second theme to emerge from the prisoners' solutions was the adoption of oral self-care regimes to maintain their oral health. As the prisoners spoke of their dental health regimes it became apparent that the routine of the prison provided them with a structure in which they could practise and maintain their oral health. However, once released from prison their '*chaotic lifestyles*' were associated with a relapse to previous and potentially damaging oral health behaviours.

It was possible to suggest that barriers to maintaining oral health existed inside and outside prison and while these represented a trajectory they also highlighted the difficulties the prisoners experienced when trying to maintain their dental health. These barriers to maintaining their oral health behaviours inside and outside prison were conceptualised as patient factors, environmental factors and policy factors (Figure 4.10).

### Adoption of oral health self-care inside prison: barriers

**Patient factors** The routine of prison life emerged as the patient factor which acted as either a barrier or enabler for dental treatment inside prison. This patient factor was a result of the behaviours and habits of the prisoners. These routines of behaviour either enabled or inhibited the prisoners in maintaining their oral health (Table 4.9).

Accessibility factor	Prisoners' comments
Patient factor	<b>Routine of prison life:</b> Inhibiting routine of oral health behaviour Enabling routine oral health behaviour

**Table 4.9:** Patient factors for adopting oral self-care inside prison

**Inhibiting routine behaviours** The routine of prison life also acted to potentiate unhealthy behaviours that could lead to damaged teeth. For example, during lock-downs or when confined to cells at 9.00pm prisoners often spoke of their temptation to eat '*junk foods*', snack on '*sweeties*', '*bars of chocolate*', '*biscuits*', and drink '*bottles of Irn Bru or the big bottles eh Coca Cola*'. Some prisoners also complained of the fact that prison life was the cause of smoking more cigarettes than they would normally on the outside, which had an impact on their teeth:

*'I've not got it so I really don't know what to do with myself other than sitting watching telly so I just started smoking more and I can tell the difference in my teeth so I can.'* (P6\_P)

Boredom also appeared to be the major factor that led to unhealthy eating:

*'I never used to eat chocolate before I come in here . . . . End up eating 3-4 bars of chocolate a night . . . I think it is pure boredom.'* (P4\_I)

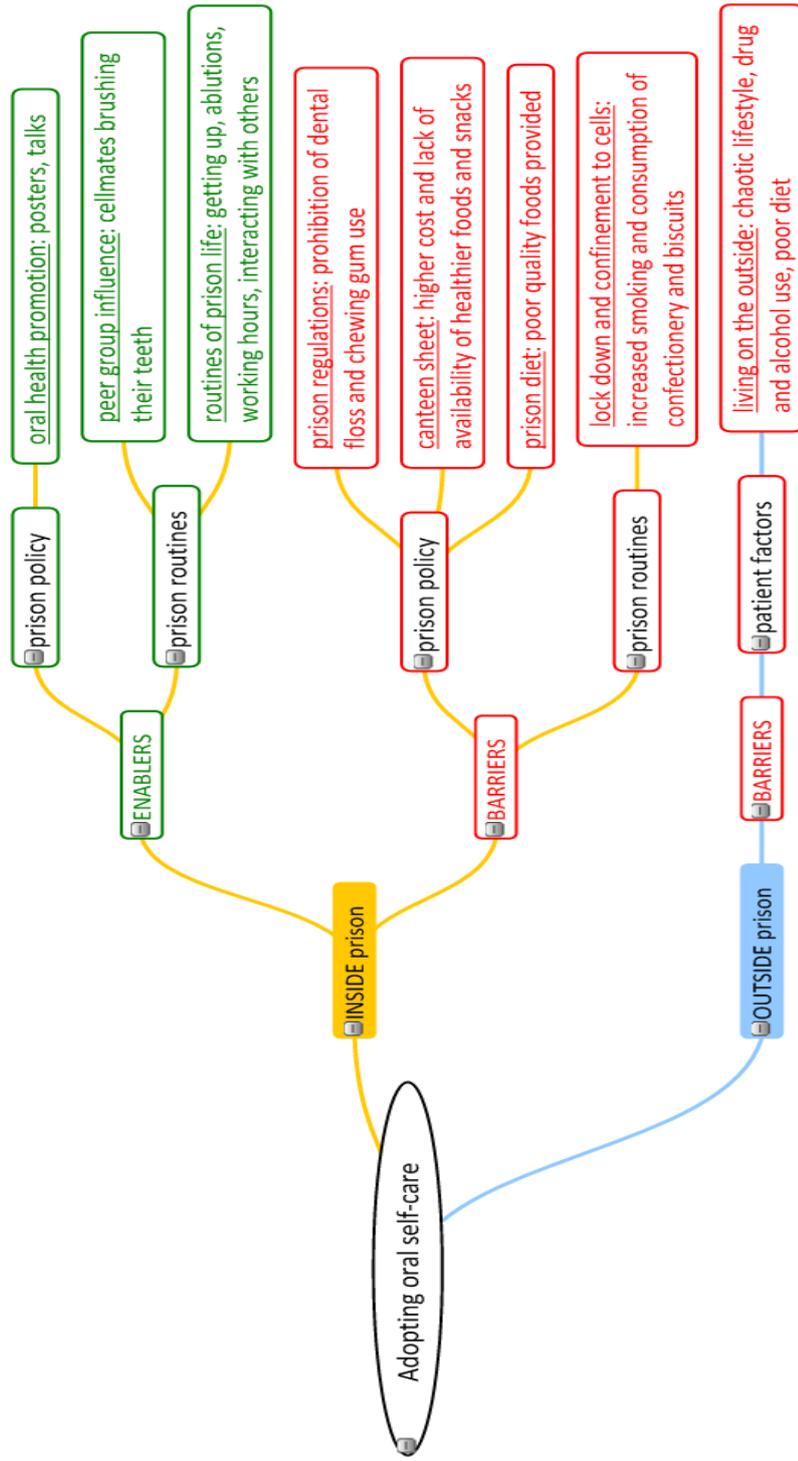


Figure 4.10: Schematic of solving oral health concerns: adopting oral health self-care

Excess sugar intake was related to methadone use and the belief that - *'your body gets used to that sugar'* (P2\_I). The prisoners who were on drug rehabilitation programmes were prescribed sugar-free methadone, but nonetheless, were of the opinion that their *'craving for likes of bits of chocolate and tha'* were exacerbated by the methadone and impossible to ignore when confined to their cells.

**Enabling routine oral health behaviours** As the prisoners spoke of their dental health regimes it became apparent that the routine of the prison provided them with a structure in which they could promote their oral health. This routine provided prisoners with opportunities to brush their teeth and maintain their oral health:

*'In here I found it quite easy to get into the routine of doin' it because you're sharing a cell with one maybe two other folk. And the other boys in the cell are brushing their teeth in the morning, it's like it must be my turn now.'* (P6\_P)  
*'...it's just there [in the cell] so you brush and when you go out you can't forget.'* (P5\_G)

The routine of prison work life also appeared to enhance toothbrushing - *'I like brushing my teeth before I go for work I think it just refreshes your mouth.'* (P3\_G).

Likewise, the desire to look presentable in front of other prison mates was also expressed as a factor in maintaining oral health:

*'I think it's just you's wanna make yourself look clean in your appearance and all that y'know?'* (P9\_I)

**Environmental factors** Environmental factors were the main barriers to maintaining oral health inside the prison. There were four environmental factors: lack of oral health promotion, provision of poor quality dental paraphernalia (e.g. toothbrush and toothpaste), prison diet and the canteen sheet (Table 4.10).

Accessibility factors	Prisoners' comments
Environmental	<b>Poor quality dental paraphernalia:</b> Provision of poor quality toothbrush, toothpaste and mouthwash
	<b>Prison meals:</b> Starchy foods, greasy foods Processed meat and chicken Lack of fresh fruit and vegetables
	<b>Resources available from canteen sheet:</b> Unhealthy snack foods readily available and cheaper Cariogenic foods and drinks readily available Toothpaste and toothbrushes are expensive Healthy foods and drinks available but dearer

**Table 4.10:** Environmental factors for adopting oral health self-care inside prison

**Lack of oral health promotion** The prisoners were aware of posters around the prison but some could not remember if they were about oral health or not. Others thought there were *'oral health classes there'* (P8\_P) while others *'didn't know about them'* (P3\_P) and some prisoners candidly admitted: *'a lot of people na interested'* (P8\_P) about their teeth or health. For those prisoners who were interested, they complained about the lack of oral health materials in their prisons. For example, they felt that they had not been provided with any leaflets or posters which would provide extra information about treatment or how they could care for their teeth:

*'But if you go about the prison and have a look at all the posters, you just can't see how many posters you see about teeth. Cos, I cannae think of where there's one.'* (P2\_P)

*'I think maybe put a wee bit more effort into tellin' people how important it is for oral health at the beginning. They've got smoking classes, they've got classes in this and that but there's nae about teeth.'* (P2\_P).

Other prisoners felt that the lack of continued presence of dental health staff within the prison was a missed opportunity for their dental health. These prisoners perceived dental health professionals as the main sources of oral health information and, without their input, felt that oral health promotion leaflets should be readily available for them to read.

*'I think if there was a bit more leaflets and the hygienist was coming in to check on them.'* (P3\_CV)

**Provision of poor quality dental paraphernalia** The toothbrushes and toothpaste provided by the prison system appeared to be of such a low quality that many prisoners saw them as unfit for purpose. For example, the prisoners criticised the toothbrushes in the following ways: *'too thin', 'too sore to use', 'plastiky', 'too soft', 'don't last long', 'makes your gums bleed'*. Almost every prisoner who was interviewed expressed a genuine dislike for the prison issued toothbrushes. Similarly, the prison issued generic toothpaste was also widely disliked. Prisoners criticised the toothpaste in the following ways: *'it does nae make your mouth taste fresh or clean', 'it's too sweet', 'you can taste and feel the cheapness of it', 'it's like chalk it leaves a horrible taste in your mouth'*. Consequently, many of the prisoners bought toothbrushes and toothpastes from the canteen lists at their own expense. However, this could be problematic due to availability and affordability issues.

Women prisoners, who had bought their own toothpastes and brushes, spoke about the lack of locked cabinets in their cells to safely store their own personal toiletries. Male prisoners also complained about sharing cells, stating that they felt anxious if their cellmate used their toothbrushes and if they would *'catch something from them'* (P8\_I).

The canteen supplied dental equipment for the prisoners. Prisoners often preferred to buy their own toothbrushes and toothpastes from the canteen. However, the cost was seen as a barrier to acquiring dental equipment:

*'We get £12 per week here and you've got to buy your tea bags, your sugar and if you smoke your cigarettes and then you've got to buy your toothpaste and that 'pro-enamel' is £3.50 in here.'* (P8\_CV)

*'Lot of guys have no got money to buy toothpaste and toothbrushes.'* (P2\_I)

**Prison meals** The majority of the prisoners stated that the meals provided for them were acceptable and reasonable but others complained about prison meals being unhealthy with the same menus month after month. Concerns were expressed about the lack of freshness of the food, fearing they were being given *'frozen vegetables'* and *'frozen fish'*. Related to the freshness of food, these prisoners spoke of the lack of fresh fruit given during meal times and puddings full of sugar. Food was described as *'very starchy'* or *'greasy'*, made with *'processed meats'* or *'reconstituted chicken'* and some prisoners suggested that it was the provision of unhealthy meals that contributed not only to their unhealthy teeth but also to being hypertensive, overweight and a variety of other physical ailments.

**The canteen sheet** Prisoners raised and commented upon the availability of cheap and, in their view, unhealthy snacks on the canteen sheet. They felt and emphasised that there was a lack of choice of foods on the canteen list. Some complained that they could only spend their wages on snacks that were sugary and bad for their teeth or high in fat and bad for health: the following quotes are illustrative:

*'What happens is every week you get a shop treat... and obviously the stuff that is on it is unhealthy, not just for your teeth, but it's all sweets and crisps. Pot Noodles, high fat and salt stuff.'* (P10\_CV)

*'... the only thing that's on the canteen is like biscuits, sweeties, there's nothing like, there's nothing else, nae help out.'* (P2\_I)

Of particular concern was the expense of the healthier food options due to their limited weekly budget. Fruit was usually the only healthy option but many of the prisoners said that they could not afford to buy it regularly, but probably would if it was cheaper. However, dissatisfaction at the quality of the fruit provided acted as a barrier. The following vignettes are descriptive:

*'There's absolutely nothin. And what, you can order an apple - £3 for an apple or £3 for an orange, that's only started in the last couple of weeks but nobody's buyin it because it's just that expensive eh.'* (P2\_I)

*'A guy bought a full pineapple, grapes and strawberries and it comes to £5.50 and I think if they were cheaper a lot of people would go and buy it.'* (P5\_G)

*'... sometimes the fruit that you get's no' in the greatest o' body, in the greatest nick...'* (P1\_CV)

The availability of unhealthy foods and the un-affordability of healthy snacks both emerged as major barriers to the prisoners' attempts to maintain their oral health. However, there was a desire for change inherent in the prisoners' attitudes, and the general consensus of opinion of their situation was aptly encompassed in this view from one prisoner:

*'Canteen should sell stuff better for teeth. Ribena and that low sugar. Rest the fizz.'* (PI\_7)

**Policy factors** The nature of the rules and regulations together with a more behavioural approach to prisoner management was felt by some prisoners as disempowering and inhibiting with regard to maintaining their oral health behaviours (Table 4.11).

Accessibility factor	Prisoners' comments
<b>Policy factor</b>	The prison system No dental floss Chewing gum not available

**Table 4.11:** Policy factors for adopting oral health self-care inside prison

In the prison setting chewing gum, sugar-free or otherwise, was *'banned ... because [it] can be used to stick locks.'* (P13\_CV) and dental floss *'was not allowed for suicide reasons.'* (P4\_G). In a bid to overcome these barriers some women prisoners, for example, reported *'having to use pieces of thread.'* (P11\_CV) instead of dental floss, while others went without.

Consequently, the majority of prisoners felt they were on the receiving end of prison rules and regulations. Related to the formality of the prison regime women prisoners recalled experiences of being unable to change their minds. These women recounted times when they wished to change items on their canteen sheet but to do so *'felt like a fight'* (P13\_CV) and *'such a carry on'* (P3\_CV) that requests for *'specialist toothpaste'* (P13\_CV) or *'half a pint of milk'* (P3\_CV) were subsequently avoided. Despite voicing genuine concerns, some felt that there was usually very little hope of effecting any improvement in their present situation and accepted the situation. Nevertheless, some prisoners blamed the prison system and its resistance to change. When complaints were ignored, prisoners stated that they felt disappointed and *'fed up'*, causing them to give up on maintaining their oral health and suffer in silence.

*'You can submit a complaint form, but to be honest it'll no do very much.'*  
(P10\_CV)

#### **Adoption of oral health self-care outside prison: barriers**

**Patient factors** Outside prison, patient factors constituted the main barriers to prisoners maintaining their oral health. The patient factors were often the result of a chaotic lifestyle which included drug and alcohol abuse and a poor diet (Table 4.12).

Accessibility factor	Prisoners' comments
	<b>Life outside prison:</b>
<b>Patient factor</b>	Chaotic lifestyle Drug and alcohol misuse Poor diet

**Table 4.12:** Patient factors for adopting oral health self-care outside prison

**Chaotic lifestyle** If the prison routine allowed the maintenance of toothbrushing behaviours, the lack of routine and the re-emergence of a more chaotic lifestyle on release from imprisonment was perceived by some prisoners as the most profound barrier to maintaining their oral health self-care. They associated their chaotic lifestyles with a relapse to previous and potentially damaging oral health behaviours. For example, some prisoners spoke of partying or staying away from home for days:

*‘Just forgetting to brush teeth or going somewhere and forgetting. Staying overnight and forgetting’ (P2\_P)*

*‘You’re doing it at the same time every day and every night whereas outside, maybe sleep in one day and you’ll be out partying and you’ll no get back in so you cannae [be bothered to] brush your teeth.’ (P3\_G)*

Consequently they forgot to brush their teeth or missed brushing their teeth by not having a toothbrush with them. For those who returned to homelessness they acknowledged that they experienced problems maintaining oral health self-care. For these men and women the main obstacle was lack of access to facilities. The following is illustrative: *‘Outside you’re shite, you’ve not got access to brush your teeth.’ (P7\_G)*

**Drugs, smoking and alcohol misuse** The maintenance of oral health self-care was imbued with fears of returning to previous drug habits on the outside. For those with a long history of drug and alcohol use their fears were apparent when they returned to life outside of the prison:

*‘Being back out, like I say, is maybe a wee bit of a worry. Cos eh of abuse with drink and drugs. Need to watch what I am doing.’ (P5\_G)*

Other prisoners acknowledged that their drug habits had prevented self-care and were detrimental to their oral health. Smoking drugs resulted in stained teeth while drinking alcohol resulted in broken and fractured teeth:

*‘With crack, I was addicted to crack as well and I find that’s when my teeth started to go and look bad with crack, but methadone’s been the worst for my teeth.’ (P5\_CV)*

*‘Smoking, I think it’s affected my teeth, smoking and taking drugs, that’s the main thing that’s fucked up my teeth.’ (P7\_P)*

For these prisoners the belief that their drug use had caused their tooth decay and increased clenching and grinding had resulted in their teeth *'crumbling away'*:

*'Drug use I would say a wee bit yeh, taken quite a lot of cocaine out there. Just chewing my mouth and teeth and that. Wee bits fallin' out, every now and 'gain wee bits.'* (P7\_I)

Other prisoners spoke of 'self-neglect' and of having little or no interest in their teeth when high on drugs. Despite this awareness, it seemed to do little to assuage their fears of returning to a lifestyle which they acknowledged was detrimental to their health and oral health. This comment by a male prisoner is illustrative:

*'Really you can't get time because you need to score and by the time you get a charge you are na interested'.* (P10\_G)

**Poor diet** Returning to their previous lives, in some cases returning to drug use - *'Cos when you're on heroin you don't really eat.'* (P10\_I) - and their chaotic lifestyles, the prisoners spoke of a restricted and unhealthy diet on the outside: *'Pot noodles, junk foods, I think I have been pretty lucky with my teeth to be honest with you.'* (P5\_G)

The prisoners' worries about their lack of skills in food preparation, together with fears about the costs of healthy foods acted as barriers to maintaining oral health outside of prison. Of particular concern was the missing of meals and the need for a *'balanced diet'* (P5\_I). However, underlying these considerable difficulties was the concern to look better and to have improved confidence and quality of life. It may be suggested that the wish for an improved appearance, therefore, acted as a driver for maintaining oral health.

## Summary

Differences emerged with regard to how the inside and outside prison environment affected the adoption and maintenance of prison oral health self-care (Table 4.13). These differences in the effect of environment as a factor in oral behaviour modification allowed the prison establishment with its structures and systems to be conceptualised as having the potential to act as an enabling oral health promoting environment, while during such time as 'lock down' to reinforce health behaviours detrimental to oral health. The prison, therefore with its rules and regulations, could act as an enabler or as an inhibitor to the consolidation of oral health behaviours. Outside of prison, the tendency to return to risk-taking behaviours where self-care became secondary to other pressing needs ensured that on release, without appropriate support, the prisoners were unable to maintain their oral health self-care regimes.

These findings, therefore, suggest that the maintenance of oral health whether inside or outside of the prison setting is a complex interplay of factors associated with routine, affordability and availability of oral health and self-resources. In the prison setting routines act to promote the use of fluoride toothpaste and removal of plaque but routine inhibits choices with regard to healthy eating regimes. Similarly outside the prison setting, as an apparently chaotic lifestyle replaces prison routine, the prisoners' concerns of how to maintain their oral health in an environment where drugs are readily available and the costs of oral health resources high, suggests that the affordability of maintenance is too great. Therefore it is suggested that a trajectory of oral health promotion be made available from prison-based services to those on release to enable ex-offenders to maintain their oral health in the face of considerable difficulties.

The findings suggest that dental services are more accessible to prisoners within than outside the prison setting. It is proposed that this may be due to a number of barriers to treatment, such as feeling like an outsider, being judged, cost of treatment, confidence issues to make appointments, costs of being a drug addict/alcoholic and having no address for registration, while removed inside prison, remain salient barriers on release. Therefore, it is suggested, that the prison acts like a safe haven for prisoners to seek out dental treatment. However, the quality of the service with regard to shorter waiting times and appropriate and negotiated treatment plans still needs further improvements to meet the various prisoner demands, particularly in the prison environment where significant dental treatment needs still remain. Within the confines of the prison system, it is suggested that accessible dental services should assist prisoners shift from pain-only attendance to asymptomatic attendance with an appropriate recall interval. In addition, it is suggested that a continuum of dental services is made available from prison-based services to those on release to enable ex-offenders to maintain their dental treatment attendance patterns.

<b>Accessibility barriers</b>		
<b>Factors</b>	Inside prison	Outside prison
<b>Patient</b>	Routine of prison life as enabler and inhibitor	Chaotic lifestyle Drug and alcohol misuse Poor diet
	Lack of oral health promotion	
	Poor quality dental paraphernalia: Provision of poor quality toothbrush, toothpaste and mouthwash No dental floss Sugar-free gum not available	
<b>Environmental</b>	Prison diet: lack of fresh fruit and vegetables	
	Resources available from canteen sheet: Unhealthy foods readily available and cheaper Cariogenic foods and drinks readily available Toothpaste and toothbrushes are expensive Healthy foods and drinks available but dearer	
<b>Policy</b>	The prison system	Sugar-containing methadone Emergency dental service

**Table 4.13:** Summary of barriers experienced solving the oral health dilemma: dental service accessibility inside and outside prison

## 4.5 Conclusions

This qualitative exploration of prisoners' thoughts, views and opinions of their oral health experiences allowed the prisoners' oral health concerns to emerge as the impact of their oral health upon their quality of life, and their solutions, as the means by which they aimed to access dental care and maintain their oral health. This allowed a discordant model to be conceived in which the prisoners' quality of life was a consequence of their oral health status which was at the mercy of the prisoners' awareness and ability to access dental services while adopting self-care dental health practices. In this model the potency of the various accessibility factors emerged as either barriers or enablers with regard to accessing dental treatment and self-care. However, the degree to which an accessibility factor acted as barrier or enabler was associated with the prisoners' environmental status and whether they were living within the prison estate or were released.

The overall findings from this qualitative exploration suggested that significant barriers exist for prisoners when accessing dental services either inside or outside the prison estate. While similar barriers to accessing dental care existed, a difference occurred in the quality of the accessibility barrier experienced. For instance, within the prison, patient factors (e.g. costs of dental treatment) were of secondary importance compared with the considerable strength of dental professional factors (e.g. inequitable distribution of services) acting to reduce access to prison dentistry. However in comparison, outside of prison, patient factors (e.g. fears of being judged, dental anxiety) gain primary importance, with dental professional factors (e.g. hurried dental appointments) being of less significance. In essence, it would seem reasonable to suggest that the role of environment – within prison in contrast to outside prison - had an effect to inhibit or reduce the prisoners' ability to access dental health care and resolve their oral health concerns.

It would seem that dental services are more accessible to prisoners within than outside the prison setting. It is proposed that this may be due to a number of the barriers to treatment, such as feeling like an outsider, being judged, cost of treatment, confidence issues to make appointments, costs of being a drug addict/alcoholic and having no address for registration, while removed inside prison, remain salient barriers on release. Therefore, it is suggested, the prison acts like a safe haven for prisoners to seek out dental treatment. However, the quality of service with regard to shorter waiting times and appropriate and negotiated treatment plans still needs further improvements to meet the various prisoner demands. Within the confines of the prison system it is suggested that accessible dental services should assist prisoners shift from pain-only attendance to asymptomatic attendance with an appropriate recall interval. In addition, it is suggested that a trajectory of dental services be made available from prison-based services to those on release to enable ex-offenders to maintain their dental treatment attendance patterns. Thinking in this way has some merit since it allows for a modification in service delivery within and outside the prison. With improved dental treatment services within the prison estate, a continuum from within to outside prison may be envisaged in terms of 'through-care' which may act to reduce the potency of patient factors (e.g. little knowledge of how to access dental treatment) as barriers to access dental treatment services for ex-offenders.

## 5

# Recommendations

### 5.1 General recommendations

- Gender-specific interventions tailored to the needs of female prisoners, male prisoners and young offenders.
- Prisoners to be provided with basic life skills for maintenance of health, oral health and mental health and well-being.
- Access to health care and health promotion to be part of pre-release preparations.
- Dental health care and oral health promotion protocols to be nested in the policy document, Better Health, Better Lives for Prisoners.

### 5.2 Dental health care recommendations

- Dental health services and oral health promotion to be part of a multidisciplinary and multi-sectoral approach within and across the prison estate. There is an equitable distribution of dental treatment services within the prison estate as provided by NHS Boards.
- There is an equitable distribution of treatment provision protocols within the prison estate as provided by NHS Boards.
- Prisoners to be provided with the skills to access dental health services within and outwith the prison estate.
- There is equitable distribution of oral health promotion initiatives across the prison estate e.g. the provision of healthier and affordable food and drink options on the canteen list, provision of suitable toothbrushes and fluoride toothpaste.
- The provision of dental through-care and oral health promotion from within the prison to the outside world.
- Access to oral health promotion services to be an integral part of pre-release preparations.

- Access to dental health services to be an integral part of pre-release preparations.

### **5.3 Training and continuing professional development recommendations**

- The training of dental health professionals regarding effective communication with prisoners inside and ex-offenders outside the prison estate.
- The training of all those working within the prison sector to provide tailored oral health promotion interventions to prisoners.
- The training of all those working within the criminal justice sector to provide tailored oral health promotion interventions to ex-offenders.

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## Appendix 1: Ethics Documents





**East of Scotland Research Ethics Service**

**Fife & Forth Valley Research Ethics Committee**

Research Ethics Office  
Residency Block, Level 2  
Ninewells Hospital & Medical School  
DUNDEE  
DD1 9SY

Professor Ruth Freeman  
Professor of Dental Public Health Research  
DHSRU, MacKenzie Building  
Kirsty Semple Way  
Dundee  
DD2 4BF

Date: 12 March 2010  
Your Ref:  
Our Ref: FB/10/S0501/10  
Enquiries to: Miss Fiona Bain  
Extension: Ninewells extension 32701  
Direct Line: 01382 632701  
Email: [fionabain@nhs.net](mailto:fionabain@nhs.net)

Dear Professor Freeman

**Study Title:** The Scottish Oral Health Improvement Prison Programme (SOHIPP):  
Developing, implementing and evaluating an oral health preventive  
programme for prison populations in Scotland: A survey of  
prisoners' oral health and a qualitative study of prisoners' oral  
health concerns.

**REC reference number:** 10/S0501/10  
**Protocol number:** 1.3

Thank you for your letter of 26 February 2010, 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 Vice-Chair.

**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.**

**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.



For NHS research sites only, management permission for research ("R&D approval") should be obtained from the relevant care organisation(s) 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 the only involvement of the NHS organisation is as a Participant Identification Centre, management permission for research is not required but the R&D office should be notified of the study. Guidance should be sought from the R&D office where necessary.

Sponsors are not required to notify the Committee of approvals from host organisations.

**Other conditions specified by the REC**

In the Participant Information Sheets, please amend the reference to the 'Fife & Forth Valley Research Ethics Service' to the "Fife & Forth Valley Research Ethics Committee". These should be submitted for our records.

**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
Protocol	1.3	11 January 2010
Investigator CV		06 January 2010
Evidence of insurance or indemnity	Renewal Date 01/08/2010	19 August 2009
Summary/Synopsis		
Interview Schedules/Topic Guides	1.4	06 January 2010
CV - Mr Derek Richards		07 January 2010
CV - Ms Patricia Smith		07 January 2010
Email from Jeannette Kalsgaard re sponsor letter		07 January 2010
Letter from Funder - Scottish Government		07 January 2010
flyer for Oral Health Survey	1.0	05 January 2010
Poster for Oral Health Survey	1.0	05 January 2010
Poster for Qualitative Study of Prisoners' main concerns	1.0	05 January 2010
flyer for Qualitative Study of Prisoners' main concerns	1.0	07 January 2010
Questionnaire: A Survey of Prisoners' Oral Health	2.0	11 January 2010
REC application		11 January 2010
A Survey of Prisoner's Oral Health 2010	2	11 January 2010
Letter from Sponsor	Updated	25 January 2010
Participant Information Sheet: Qualitative study of prisoners' oral health concerns	1.9	22 February 2010
Participant Consent Form: Qualitative study of prisoners' oral health concerns	1.5	22 February 2010
Participant Consent Form: A survey of prisoners' oral health	1.2	22 February 2010
Questionnaire: Questionnaire of prisoners' oral health		



Document	Version	Date
Response to Request for Further Information		26 February 2010
Participant Information Sheet: Survey of prisoners' oral health	1.9	22 February 2010

#### Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

#### After ethical review

Now that you have completed the application process please visit the National Research Ethics Service website > After Review

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.

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
- 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.

We would also like to inform you that we consult regularly with stakeholders to improve our service. If you would like to join our Reference Group please email [referencegroup@nres.npsa.nhs.uk](mailto:referencegroup@nres.npsa.nhs.uk).

<b>10/S0501/10</b>	<b>Please quote this number on all correspondence</b>
--------------------	---

Yours sincerely

  
for **Mr Gavin Costa**  
**Chair**

Enclosures: "After ethical review – guidance for researchers"

Copy to: Research & Innovation Services, University of Dundee  
NHS Tayside R&D office



**East of Scotland Research Ethics Service**

**Fife & Forth Valley Research Ethics Committee**

Research Ethics Office  
Tayside Academic Health Sciences Centre  
Ninewells Hospital & Medical School  
Residency Block, Level 3  
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Professor Ruth Freeman  
Professor of Dental Public Health Research  
University of Dundee  
DHSRU, MacKenzie Building  
Kirsty Semple Way  
Dundee  
DD2 4BF

Date: 30 September 2010  
Your Ref:  
Our Ref: **FB/DL/10/S0501/10**  
Enquiries to: Miss Fiona Bain  
Extension: Ninewells extension 32701  
Direct Line: 01382 632701  
Email: [fionabain@nhs.net](mailto:fionabain@nhs.net)

Dear Professor Freeman

**Study title:** **The Scottish Oral Health Improvement Prison Programme (SOHIPP): Developing, implementing and evaluating an oral health preventive programme for prison populations in Scotland: A survey of prisoners' oral health and a qualitative study of prisoners' oral health concerns.**

**REC reference:** **10/S0501/10**

**Amendment number:** **01**

Thank you for your letter of 28 September 2010, notifying the Committee of the above amendment.

The Committee does not consider this to be a "substantial amendment" as defined in the Standard Operating Procedures for Research Ethics Committees. The amendment does not therefore require an ethical opinion from the Committee and may be implemented immediately, provided that it does not affect the approval for the research given by the R&D office for the relevant NHS care organisation.

**Documents received**

The documents received were as follows:

Document	Version	Date
A Qualitative Study of Prisoner's Oral Health Concerns	1.3	07 January 2010
Copy of Research Ethics Letter		31 August 2010
Questionnaire		
Protocol		
Notification of a Minor Amendment	01	
A Survey of Prisoners' Oral Health 2010	3.1	10 September 2010
A Qualitative Study of Prisoner's Oral Health Concerns	3.0	03 September 2010



**Statement of compliance**

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

**10/S0501/10:**

***Please quote this number on all correspondence***

Yours sincerely



**Mrs Diane Leonard  
Administrative Assistant**

Copy to:                    NHS Tayside R&D Office





Date:  
Your Ref:  
Our Ref:  
Direct Line: 01324 677564  
Email: allyson.bailey@nhs.net  
R&D ref: FV 574

Professor Ruth E. Freeman  
Professor of Dental Public Health Research  
EDental Health Services & Research Unit,  
University of Dundee  
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Dundee  
DD2 4BF

Dear Prof. Freeman

**Study title: The Scottish Oral Health Improvement Prison Programme (SOHIPP): Developing, implementing and evaluating an oral health prevention programme for prison populations in Scotland: A survey of prisoners' oral health and a qualitative study of prisoners' oral health concerns. (Survey protocol v.3.1; Qualitative study protocol v.3)**

**NRES number: 10/SO501/10**

Following the favourable opinion from the Fife and Forth Valley Research Ethics Committee on 12 March 2010 I am pleased to confirm that I formally gave Management Approval to the study above on 20 January 2011.

This approval is granted subject to your compliance with the following:

1. Any amendments to the protocol or research team must have Ethics Committee and R&D approval (as well as approval from any other relevant regulatory organisation) before they can be implemented.
2. You and any local Principal Investigator are responsible for ensuring that all members of the research team have the appropriate experience and training, including GCP training if required.
3. All those involved in the project will be required to work within accepted guidelines of health and safety and data protection principles, any other relevant statutory legislation, the Research Governance Framework for Health and Community Care and IHC-GCP guidelines. A copy of the Framework can be accessed via the Chief Scientist Office website at: <http://www.cso.scot.nhs.uk/Publications/ResGov/Framework/RGFEdTwo.pdf> and ICH-GCP guidelines may be found at <http://www.ich.org/LOB/media/MEDIA482.pdf>
4. As custodian of the information collected during this project you are responsible for ensuring the security of all personal information collected in line with NHS Scotland IT security policies, until the destruction of this data.

5. You or the local Principal Investigator will be required to provide the following reports and information during the course of your study:

- A progress report **annually**
- Recruitment numbers on a **monthly** basis
- Report on SAEs and SUSARs if your study is a Clinical Trial of an Investigational Medicinal Product
- Any information required for the purpose of internal or external audit and monitoring
- Copies of any external monitoring reports
- Notification of the end of recruitment and the end of the study
- A copy of the final report, when available.
- Copies of or full citations for any publications or abstracts

The appropriate forms will be provided to you by the Research and Development office when they are needed. Other information may be required from time to time.

Yours sincerely

  
**DR. IAIN WALLACE**  
Medical Director

CC: Derek Richards,  
Consultant in Dental Public Health  
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**HEADQUARTERS**

**Research and Management  
Information**

**Calton House  
5 Redheughs Rigg  
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**Direct dialing: 0131 244 8771**

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Derek Richards  
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NHS Forth Valley  
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FK9 4SW

4 May 2010

Dear Derek

**A QUALITATIVE EXPLORATION OF PRISONERS' ORAL HEALTH CONCERNS  
AND SURVEY OF PRISONERS' ORAL HEALTH**

Thank you for your letter of 12 April with attachments, outlining the next stage of your programme of research into dental health in Scottish prisoners.

Unfortunately, your letter did not arrive in time to be included on the agenda of the SPS Research Access and Ethics Committee which met on 14 April. It will therefore be carried over to the next Committee meeting on 16 June for its information.

Your programme of oral health research was approved in principle last August, so your submission is by way of keeping the Committee informed of developments which is appreciated by sitting members. They may offer comment in due course.

I understand from Mary McCann that you wish to progress the research with a sample of prisoners from various establishments and that your researcher is looking to make arrangements to gain access. In order to facilitate this it would be helpful if you could let me know which establishments the project wishes to visit and when, in order that we can make preparatory arrangements with the Governor and healthcare staff.

A letter from me and/or Mary will be necessary to clear a path and set up a liaison point to manage local logistics. Your submission states that you wish to cover women, young offenders, short term prisoners and long term prisoners. I am assuming then, that access to

Cornton Vale, Polmont and probably Glenochil is required. I would be grateful if you could confirm this, or indeed set out any alternative sites that would be preferable.

Once we know what is required, we can advance accordingly.

Yours sincerely

Dr Jim Carnie  
SPS Research

Copy to: Mary McCann



## Appendix 2: Oral Health Survey Questionnaire



# The Scottish Oral Health Improvement Prison Programme



## A Survey of Prisoners' Oral Health



## GUIDE FOR COMPLETING SCANNABLE FORMS

This form has been designed to be machine read by a scanner. To ensure the best results during scanning, please read the following guide before completing the questionnaire.

1. For best results, please complete all pages of the survey using **black or blue** ink. Please do not use pencil.

2. **Check boxes:** The scanner will recognise your responses by the percentage of the box filled. You may use ticks, crosses, dots, lines or squiggles to mark your response to the questions.

- Unemployed
- Employed full-time
- Employed part-time

3. **Correcting errors:** If you make a mistake or want to change your answer, please score out your first response and clearly mark your preferred response, i.e. enter a large X in the wrong answer and a tick in the correct one.

4. **Text boxes:** Please write as clearly as you can, keeping all text within the box provided.

5. **Page markers:** Some of the pages on this form contain a page marker such as this:

 0730029900

This number is used to recognise which page is being scanned. Please do not write over this number or damage it in any way.



This form has been designed in collaboration with the NES eForms Service.



Participant number:

Today's date:  /  /

Prison name:

### 1. ABOUT YOU

Gender:  Male  Female Date of Birth:  /  /   
D D M M Y Y

Ethnic origin:  White  Black, Black British, Black Scottish  
 Mixed  Asian, Asian British, Asian Scottish  
 Other:

First language if not English:

What age were you when you left school?  years

Before coming into prison this time were you:  
 Unemployed  Training (apprentice/trainee)  
 Employed full-time  Full time education  
 Employed part-time  Part time education  Casual work

If employed, what was your job title:

What is your marital status?  Single  Married/cohabiting  Separated/divorced/widowed  
Do you have any children?  Yes  No If yes, how many?   
Was/were your child/children living with you before prison?  Yes  No

Previous living status  
As a child/teenager were you ever in a children's institution or home?  Yes  No  
As a child/teenager were you ever in foster care?  Yes  No

Before coming to prison where did you live (stay)?  
 Own property  Temporary accommodation: hostel  
 Rented (tied) accommodation  Temporary accommodation: half-way house  
 B&B  Temporary accommodation: with friends (e.g. sofa surfer)  
 Children's institution or home  Other accommodation   
 With parents or family  Homeless

Have you ever been homeless? <sup>1</sup>  Yes  No  
If yes, how long had you been homeless?  Less than 6 months  Between 1 year and 2 years  
 Between 6 months and 1 year  More than 2 years

How long ago did you begin your prison sentence?  years  months  days  
How many times have you been in prison?  remand  sentenced  
How long is your current stay in prison?  Less than 4 years  More than 4 years

<sup>1</sup> Homelessness is defined as a period of time when you may have stayed with friends or a family member because you had nowhere else to go, stayed in a hostel or B&B, on the streets or in another location such as a squat, a car or any other place you did not consider home.

2. CONFIDENTIAL MEDICAL HISTORY				
	Yes	No	Don't know	Prefer not to say
Are you receiving treatment from a doctor, hospital, clinic or specialist?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are you taking or using any medicines, pills, syrups, ointments, puffers or injectors prescribed for you by a doctor? If yes, please list below: <div style="border: 1px solid black; height: 30px; width: 100%;"></div>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have you had angina?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have you had blood pressure problems?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have you ever had a heart attack?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you suffer from any infectious disease, e.g. HIV, hepatitis?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you have asthma or any other lung disease?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you have epilepsy?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you have diabetes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you bruise or bleed easily?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are you allergic to any medicine, foods or materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are you pregnant? (if applicable)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you smoke cigarettes? If yes, how many per day? <input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you chew tobacco?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are there any other details you feel we should know about your medical history? <div style="border: 1px solid black; height: 30px; width: 100%;"></div>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Yes	No	Prefer not to say	
Have you ever used (illegal) drugs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Have you ever used intravenous drugs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Have you taken part in a drug treatment (rehab) programme?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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	Not anxious	Slightly anxious	Fairly anxious	Very anxious	Extremely anxious
If you went to your dentist for TREATMENT TOMORROW, how would you feel?	<input type="checkbox"/>				
If you were sitting in the WAITING ROOM (waiting for treatment), how would you feel?	<input type="checkbox"/>				
If you were about to have your TEETH DRILLED, how would you feel?	<input type="checkbox"/>				
If you were about to have your TEETH SCALED AND POLISHED, how would you feel?	<input type="checkbox"/>				
If you were about to have a LOCAL ANAESTHETIC INJECTION in your gum, above an upper back tooth, how would you feel?	<input type="checkbox"/>				

In the last 12 months:	Never	Hardly ever	Occasionally	Fairly often	Very often
have you ever had trouble pronouncing any words because of problems with your teeth, mouth or dentures?	<input type="checkbox"/>				
have you felt your sense of taste has worsened because of problems with your teeth, mouth or dentures?	<input type="checkbox"/>				
have you had painful aching in your mouth?	<input type="checkbox"/>				
have you found it uncomfortable to eat any foods because of problems with your teeth, mouth or dentures?	<input type="checkbox"/>				
have you been self-conscious because of your teeth, mouth or dentures?	<input type="checkbox"/>				
have you felt tense because of problems with your teeth, mouth or dentures?	<input type="checkbox"/>				
has your diet been unsatisfactory because of problems with your teeth, mouth or dentures?	<input type="checkbox"/>				
have you had to interrupt meals because of problems with your teeth, mouth or dentures?	<input type="checkbox"/>				
have you found it difficult to relax because of problems with your teeth, mouth or dentures?	<input type="checkbox"/>				
have you been a bit embarrassed because of your teeth, mouth or dentures?	<input type="checkbox"/>				
have you been a bit irritable with other people because of problems with your teeth, mouth or dentures?	<input type="checkbox"/>				
have you had difficulties doing your usual jobs because of problems with your teeth, mouth or dentures?	<input type="checkbox"/>				
have you felt that life in general was less satisfying because of problems with your teeth, mouth or dentures?	<input type="checkbox"/>				
have you been totally unable to function because of problems with your teeth, mouth or dentures?	<input type="checkbox"/>				

In the last week:	Rarely or none of the time (less than 1 day)	Some or little of the time (1-2 days)	Occasionally or a moderate amount of the time (3-4 days)	Most or all of the time (5-7 days)
I was bothered by things that usually don't bother me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I did not feel like eating; my appetite was poor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I felt that I could not shake off the blues even with help from my family or friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I felt I was just as good as other people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I had trouble keeping my mind on what I was doing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I felt depressed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I felt that everything I did was an effort	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I felt hopeful about the future	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I thought my life had been a failure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I felt fearful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My sleep was restless	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I was happy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I talked less than usual	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I felt lonely	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
People were unfriendly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I enjoyed life	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I had crying spells	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I felt sad	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I felt that people dislike me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I could not get "going"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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3. ORAL HEALTH AND DENTAL TREATMENT										
<b>How long ago was your last visit to a dentist (in or out of prison)?</b>										
<input type="checkbox"/> Less than 6 months ago			<input type="checkbox"/> Between 1 year and 2 years ago			<input type="checkbox"/> More than 5 years ago				
<input type="checkbox"/> 6 months to 1 year ago			<input type="checkbox"/> Between 2 years and 5 years ago			<input type="checkbox"/> Never been to a dentist				
<b>Last time you went to a dentist, what made you go?</b>										
<input type="checkbox"/> Trouble with teeth or gums			<input type="checkbox"/> I went for a check-up			<input type="checkbox"/> I can't remember				
<input type="checkbox"/> Other reason:			<input type="text"/>							
<b>At the dentist have you ever had:</b>										
	<b>Yes</b>	<b>No</b>	<b>Don't know</b>		<b>Yes</b>	<b>No</b>	<b>Don't know</b>			
Fillings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Fissure sealants (coating applied to tooth)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
An injection in your gum	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	General anaesthetic (gas)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
An injection in your arm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	An abscess	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
X-rays	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bridge work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Extractions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	A scale and polish	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Laughing gas (RA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Dentures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Fluoride treatments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Crowns	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
<b>Thinking about going to the dentist:</b>					<b>Definitely feel like that</b>	<b>To some extent</b>	<b>Don't know</b>	<b>Don't feel like that</b>		
If I had toothache I'd rather take painkillers than go to the dentist					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
The worst part of going to the dentist is the waiting					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Going to the dentist is like being processed on a conveyor belt					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
I'd like to know more about what the dentist is going to do and why					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
I don't want fancy (intricate) dental treatment					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
I don't like lying flat in the dental chair					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
I find NHS dental treatment difficult to find outside of prison					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
<b>If you went to a dentist with an aching back tooth would you prefer to have it taken out (extracted) or filled (supposing it could be filled)?</b>					<input type="checkbox"/> Filled		<input type="checkbox"/> Taken out			
<b>If a dentist said that a front tooth would have to be taken out (extracted) or capped (crowned), what would you prefer?</b>					<input type="checkbox"/> Crowned		<input type="checkbox"/> Taken out			
<b>Which of the following do you do daily to improve your oral health? (Please tick all boxes that apply to you)</b>							<b>Home</b>	<b>Prison</b>		
Clean my teeth with a toothbrush and fluoride toothpaste							<input type="checkbox"/>	<input type="checkbox"/>		
Don't eat or drink sugary foods and drinks between meals							<input type="checkbox"/>	<input type="checkbox"/>		
Clean my dentures <input type="checkbox"/> No dentures worn <input type="checkbox"/>							<input type="checkbox"/>	<input type="checkbox"/>		
Leave my dentures out at night <input type="checkbox"/> No dentures worn <input type="checkbox"/>							<input type="checkbox"/>	<input type="checkbox"/>		

Have you ever attended the prison dentist?  Yes  No

What do you think about visiting the prison dentist? (Please tick all boxes that apply to you)

- The dentist is not here enough  I have not been able to get the request form  
 It is difficult to get an appointment  I find it difficult to complete the request form  
 I don't like the dentist here  Other reason

Have you been shown how to look after your teeth and gums by someone other than prison staff whilst in prison?  
If yes, who?

**IF YOU HAVE LOST SOME, OR ALL OF YOUR NATURAL TEETH,  
WE WOULD LIKE YOU TO ANSWER THE FOLLOWING QUESTION**

Have you ever had any kind of denture?  Yes  No

If YES, what type of denture do you have?

	Yes	No		Yes	No	Sometimes
Full TOP denture	<input type="checkbox"/>	<input type="checkbox"/>	Do you wear it?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Full BOTTOM denture	<input type="checkbox"/>	<input type="checkbox"/>	Do you wear it?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TOP part denture	<input type="checkbox"/>	<input type="checkbox"/>	Do you wear it?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
BOTTOM part denture	<input type="checkbox"/>	<input type="checkbox"/>	Do you wear it?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If there is anything else you want to tell us about your mouth/teeth/dentures, or going to the dentist,  
please use the box below

**THANK YOU**

If you would like to talk about any part of this survey, or any other aspects of your dental health, please  
contact the Health Care Team in your prison.

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The rest of this questionnaire should be completed by the clinical research team

ORAL HEALTH EXAMINATION															
<b>Oral Mucosa</b>	<b>No Lesion</b>	<b>Lesion (Monitor)</b>	<b>Lesion (Refer)</b>												
Lips	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
Buccal Mucosa	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
Tongue	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
Floor Mouth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
Palate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
Fauces	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
<b>Plaque Score</b>			<table border="1"> <tr> <td><b>UR6</b></td> <td><b>UR1</b></td> <td><b>UL6</b></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td><b>LR6</b></td> <td><b>LL1</b></td> <td><b>LL6</b></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>	<b>UR6</b>	<b>UR1</b>	<b>UL6</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<b>LR6</b>	<b>LL1</b>	<b>LL6</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>UR6</b>	<b>UR1</b>	<b>UL6</b>													
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>													
<b>LR6</b>	<b>LL1</b>	<b>LL6</b>													
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>													
Plaque coverage:															
<b>Dentures</b>															
Is there a denture present in the mouth?	<input type="checkbox"/> Yes <input type="checkbox"/> No														
<b>IF YES:</b>															
Is the denture upper, lower or both?	<input type="checkbox"/> Upper only <input type="checkbox"/> Lower only <input type="checkbox"/> Both upper and lower														
<b>IF UPPER OR BOTH:</b>															
What is the upper denture type?	<input type="checkbox"/> Part Full <input type="checkbox"/> Complete <input type="checkbox"/> Implant														
What is the upper denture base material?	<input type="checkbox"/> Metal <input type="checkbox"/> Plastic														
What is the upper denture support?	<input type="checkbox"/> Tooth Borne <input type="checkbox"/> Tissue Borne <input type="checkbox"/> Both														
What is the status of the upper denture?	<input type="checkbox"/> Intact <input type="checkbox"/> Repair														
<b>IF LOWER OR BOTH:</b>															
What is the lower denture type?	<input type="checkbox"/> Part Full <input type="checkbox"/> Complete <input type="checkbox"/> Implant														
What is the lower denture base material?	<input type="checkbox"/> Metal <input type="checkbox"/> Plastic														
What is the lower denture support?	<input type="checkbox"/> Tooth Borne <input type="checkbox"/> Tissue Borne <input type="checkbox"/> Both														
What is the status of the lower denture?	<input type="checkbox"/> Intact <input type="checkbox"/> Repair														

## SOHIPP Oral Health Survey: CRIB Sheet

Missing Teeth		Mesial Occlusal Distal Buccal & Lingual Surfaces (MODBL)				Root Surface (R)			
		Restoration and Sealant Codes		Caries Codes		Restoration and Sealant Codes		Caries Codes	
Code	Description	Code	Description	Code	Description	Code	Description	Code	Description
92	Pontic placed for reasons other than caries	0	Not sealed or restored	0	Sound tooth surface	F	Amalgam restoration	N	No exposed root surface.
93	Pontic placed for carious reasons	1	Sealant, partial	1	First visual change in enamel	R	Not amalgam restoration	0	Exposed root surface present but no evidence of caries. Exposed root surface is any exposure of the root coronal to the gingival margin.
96	Tooth surface cannot be examined: surface excluded	2	Sealant, full	2	Distinct visual change in enamel	Y	Restoration not intact; no evidence of caries	4	Caries on the root surface equivalent to coronal caries codes 4 or 5. This is any caries which is believed to be active on the basis of texture. An active root lesion can be almost any colour from yellow or tan through to almost black. In some circumstances it can even be difficult to tell caries from extrinsic staining. The texture is very important and the probe must be used to try to determine this. Anything which shows evidence of softening or frank cavitation should be coded as carious. Shiny dark areas are much less likely to be actively carious and more likely to be arrested; such areas should be coded as 'H'. Usually stained calculus and extrinsic staining will be fairly obvious, but if there is any doubt the texture is critical.
97	Tooth extracted as a result of caries	3	Tooth coloured restoration	3	Enamel breakdown, no dentine visible	0	Restoration intact; no evidence of caries	6	Extensive cavity These lesions are deep and wide and probably involve the pulp.
98	Tooth missing for other reasons	4	Amalgam restoration	4	Underlying dentinal shadow (not cavitated into dentine)	6	Extensive distinct cavity with visible dentine	9	Unscorable Code 9 should be used sparingly, and only if it is not clear whether or not there is any root exposure. This is most likely where there are very large deposits of calculus around lower incisors. If there is any visible root it should be coded with the appropriate letter. If there is no root surface exposed then a code 0 should be used. Only if the examiner suspects an exposed root surface, but cannot examine it, should a code 9 be entered. Code 9 is also used when there has been gross destruction of the tooth and there are only roots remaining.
99	Unerupted	5	Stainless steel crown	5	Distinct cavity with visible dentine	H	Hard, arrested caries The surface should be glossy and hard, despite being discoloured. There has been decay, but it is now arrested.		
P	Implant	6	Porcelain, gold, PFM crown or veneer	6	Extensive distinct cavity with visible dentine				
		7	Lost or broken restoration	7	Lost or broken restoration				
		8	Temporary restoration	8	Temporary restoration				

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Participant number:

### ICDAS Chart

UPPER RIGHT		55	54	53	52	51	61	62	63	64	65	UPPER LEFT			
18	17	16	15	14	13	12	11	21	22	23	24	25	26	27	28
M															
O															
D															
B															
L															
R															
LOWER RIGHT		85	84	83	82	81	71	72	73	74	75	LOWER LEFT			
48	47	46	45	44	43	42	41	31	32	33	34	35	36	37	38
M															
O															
D															
B															
L															
R															

**If there is anything else you want to tell us about your patient's mouth/teeth/dentures, or dental attendance, please use the box below.**



**THANK YOU**

If you would like to talk about any part of this survey, please contact the Research Team. Please return this form as previously instructed.

Cover Art: *Self-Portrait with Toothache*. Michael, HM Prison Grendon. Courtesy of The Koestler Trust.

## Appendix 3: Qualitative Interview Guide





**The Scottish Oral Health Improvement Prison Programme**  
**A QUALITATIVE STUDY OF PRISONERS’  
ORAL HEALTH CONCERNS**

**Interview Guide**



This set of open questions will allow the participant to set the agenda. The participants will be encouraged to talk about any subject they wish, to refuse to pursue any topics they find disagreeable and to close the interview when they want. General health questions are included in this interview guide as many of the issues pertaining to the promotion of oral health have an effect on general health; for example smoking and periodontal disease; smoking and chronic bronchitis and emphysema.

### **Question set 1**

These opening questions will allow participants to explore their feelings about how they perceive their oral health as part of their general health and psycho-social well-being:

*'How important is your oral health to you?'*

- *teeth;*
- *gums;*
- *mouth;*
- *dentures.*

*'Do you ever experience?'*

- *Pain or discomfort?*
- *Eating problems – difficulty eating foods?'*

*'Do you ever feel?'*

- *Self-consciousness or embarrassment about dental appearance?'*
- *Effect on self-esteem and self-confidence? '*

### **Question set 2**

This second set of questions will allow participants to explore how they cared for their teeth, gums and mouth and for themselves before and during their time in prison and how they think they will care for their teeth, gums, mouth etc, when they return to the community. This would include for example dental attendance and attendance at screening clinics. This will allow participants to explore (if they wish) their main concerns surrounding their health behaviours such as access to primary care services as well as any worries about their general health, psycho-social wellbeing and oral health before, during and after their current spell in prison:

#### Oral health questions

*'What did you do to look after your teeth before you were in prison?'*

- *Attend for dental treatment?*
- *Toothbrush with fluoride toothpaste?*
- *Sweets, cakes, fizzy drinks?*
- *Smoking, alcohol?'*

- 'Since being in prison how do you find looking after your teeth in prison?*
- *What do you think would help you look after your teeth and be healthy in prison?*
  - *Thinking about your oral health, do you have any concerns about your teeth, gums, mouth?*
  - *What are the problems?*
  - *What could the prison do to help?*

*'How do you see yourself managing to look after your oral health when you return to the community?'*

#### General health questions

*'What did you do to look after yourself before you were in prison?'*

- *Attend for screening clinics?*
- *Diet?*
- *Smoking, alcohol?*

*'Since being in prison how do you find looking after yourself in prison?*

- *What do you think would help you to be healthy in prison?*
- *Thinking about your health, do you have any concerns: for example 'keeping fit'?*
- *What are the problems?*
- *What could the prison do to help?*

*'How do you see yourself managing to look after yourself when you return to the community?'*

#### **Question set 3**

This final set of questions allows participants to ask the researcher any questions and to raise any subject not already covered.

*'Is there anything that you might not have thought of before that you would like to say now?'*

*'Is there anything else you'd like to tell me to help me understand better?'*

*'Is there anything you'd like to ask me?'*

Version 1.4 06/01/2010

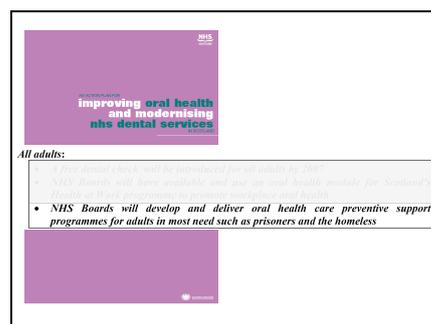
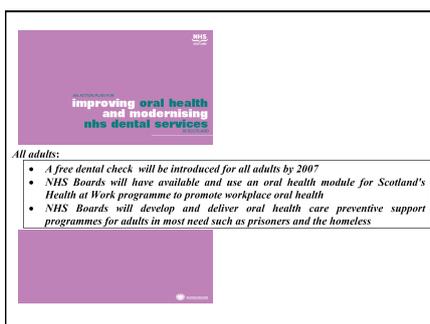
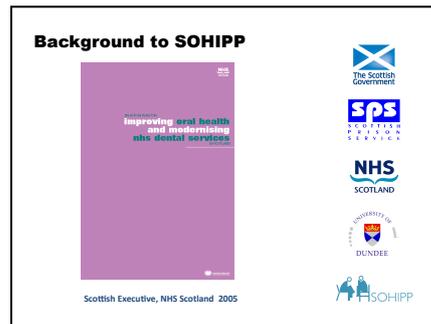


## Appendix 4: Survey Training Presentation





- Schedule**
- Background to SOHIPP
  - Overview of research programme
  - Quantitative research
    - Overview
    - Oral health survey & oral health examination
    - Prison establishments
  - Operational protocols for accessing prisons
  - SOHIPP Data Collection: questionnaire
  - ICDAS training
  - Any other matters arising

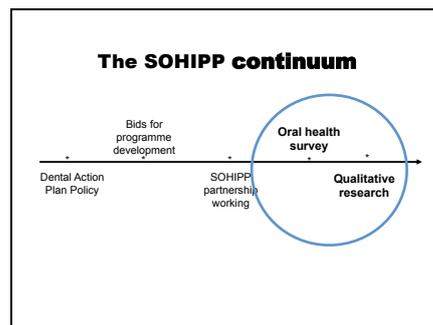
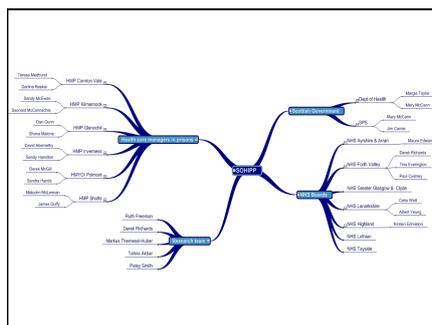
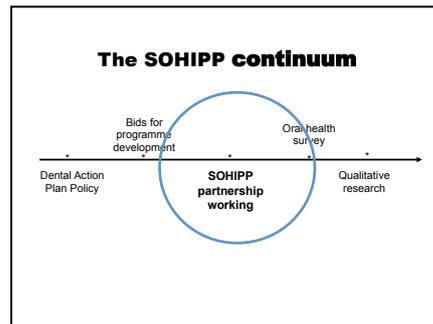
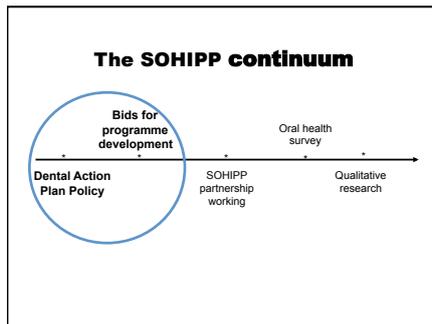


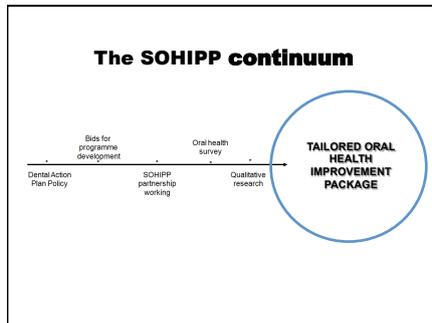
**Improving oral health and modernising nhs dental services**

Target Group: Adults including those with Special Needs	Actions	Responsibility	Impact
Health: Basic dental and health promotion programme for adults (Workplaces, prisoners, homeless and special needs)	2007: New health promotion packages in use at NHS Boards	NHS Health Scotland NHS Forth Prison service	Better understanding of dental health issues by those in most need
Changes to structure of dental services for adults including extending registration	2005: Phase one of programme 2006-2007: Further changes in line with proposals	SEHD	Increase registration especially in the elderly/special needs 60-74 yr olds from ~40% to 60%; 75 yrs and over from 20% to 40%
Oral examination free for those 60 and over	2007: 60+ Free examinations	SEHD	Better preventive advice and support, and surveillance of oral cancer
All NHS dental examinations free	2007: All adults		

**Improving oral health and modernising nhs dental services**

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All NHS dental examinations free	2007: All adults		





- SOHIPP RESEARCH PROGRAMME**
- 1. QUANTITATIVE**
    - Oral health survey
    - Oral health examination
  - 2. QUALITATIVE**
    - Prisoners' oral health concerns
    - Prison healthcare staff
    - Prison security staff
    - Dental health providers

- 1. Quantitative:** oral health survey & examination
- **AIM:**  
Snapshot of current oral health status of Scotland's prisoner population
  - **Three population groups:**
    - i. Adult male
    - ii. Female
    - iii. Young offenders
  - Total of 300 prisoners (100 per prison)

Prison establishments ...

POPULATION PROFILE	QUANTITATIVE Oral health survey & examination	QUALITATIVE Interviews
WOMEN	HMP & YOJ Cornton Vale	HMP & YOJ Cornton Vale
YOUNG OFFENDERS	HMYOI Polmont	HMYOI Polmont HMP Kilmarnock
LONG-TERM (1-4 YEARS)		HMP Inverness HMP Kilmarnock HMP Glenochil
REMAND/SHORT-TERM (<4 YEARS)		HMP Inverness HMP Kilmarnock
MALE	HMP Shotts	

- Quantitative research in depth:**
- i. Oral health survey**
    - a. Patient profile
    - b. Medical History
    - c. History of substance use
    - d. Dental anxiety (MDAS)
    - e. Oral health impact profile (OHIP-14)
    - f. Mood (CES-D)
    - g. Dental experience & behaviours
    - h. Oral health and dental treatment (ADHS)
  - ii. Oral health examination**
    - a. The International Caries Detection and Assessment System (ICDAS)

- Training Pack**
1. Agenda & Handouts
  2. Protocol
  3. Information Posters/Flyers
  4. Participant Information Sheet
  5. Consent Form
  6. Oral Health Survey Questionnaire
  7. ICDAS Crib Sheet
  8. [Operational Protocol]
  9. Contact details: DHS&RU
  10. Feedback form (please complete and return at the end of today's session)

**OPERATIONAL PLAN: quantitative research**



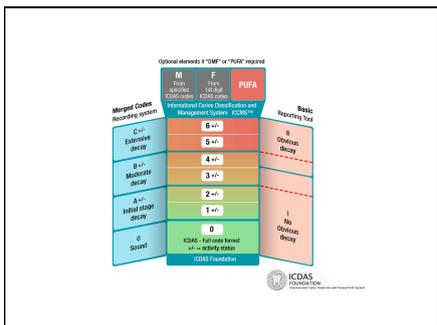
- Pilot: HMP Shotts
- Site Visits prior to oral health survey's
- Breakaway Training prior to oral health survey's
- Continuous communication between all research staff
- Enhanced Disclosure's – all research staff accessing a prison establishment

**International Caries Detection and Assessment System**

**ICDAS**

Professor Gail Douglas  
Professor of Dental Public Health,  
Leeds Dental Institute

ICDAS Lay Terms	Sound	Early Stage Decay	Established Decay	Severe Decay			
ICDAS Dental Terms	Sound	First visual change in enamel	Distinct visual change in enamel	Localized enamel breakdown	Underlying dentine exposure	Distinct cavity with visible dentine	Extensive cavity with visible dentine
ICDAS Indexes	0	1	2	3	4	5	6
ICDAS Activity	ICDAS Activity +/-						



- Any other matters arising





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