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Dental Public Health in Action

Dental Public Health in Action: Understanding oral health care needs and oral health-related quality of life in vulnerable adults in Plymouth

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Abstract: This paper aims to provide a snapshot analysis of the oral health status of vulnerable adults in Plymouth; and to demonstrate the extent to which oral disease impacts on their normal functioning through the implementation of the Oral Health Impact Profile (OHIP). It is acknowledged that gaining a representative sample of a transient population such as people who are homeless, or individuals affected by problematic use of drugs and/or alcohol is difficult. An opportunity was identified to collect data within the Community Engagement Team's (CET) programme of activity within the Peninsula Dental Social Enterprise. The CET works alongside local organisations to enable dental students from Peninsula School of Dentistry to undertake outreach programmes in a variety of settings. A study was designed which aimed to analyse the oral health status of vulnerable adults accessing three day-support services in Plymouth, and to understand the extent to which oral disease impacts on their normal functioning through the OHIP-14. For all impact domains, the 44 patients in this study reported a greater impact than that found in the Adult Dental Health Survey. The most commonly reported impact domains were physical pain and psychological discomfort. The sample was divided into high and low oral health-related quality of life impact groups, and those participants in the high impact group had significantly greater median D_3MFT scores, i.e. higher levels of decay experience. This survey highlights how these vulnerable groups are characterised by a high prevalence of poor oral health, ill-health, deprivation and social exclusion.

Public health competencies being illustrated: Oral health surveillance; strategic leadership and collaborative working for health and oral health improvement

Keywords: vulnerable adults, oral health, oral health related quality of life, England

Introduction

This paper aims to provide a snapshot analysis of the oral health needs and oral health-related quality of life of vulnerable adult groups in Plymouth.

It illustrates employment of the following public health competencies:

- Oral health surveillance
- Strategic leadership and collaborative working for health
- Oral health improvement

Initial impetus for action

At present there are no local data available on the oral health status or oral health-related quality of life of people experiencing alcohol/drug problems, nor about people who are experiencing homelessness in Plymouth. However, it is well accepted that the prevalence of dental caries, tooth loss, oral cancer and the destructive forms of periodontal disease all follow the social gradient. The highest levels of disease exist among the most deprived and vulnerable population groups (Do, 2012; Marmot and Bell, 2011)

People who are homeless, and people experiencing alcohol/drug problems tend to have poorer health than the rest of the population (Simons *et al*., 2012; Hill and Rimington, 2011; Daly *et al*., 2010a; Johnson *et al*., 2008; Collins and Freeman, 2007). Studies have consistently reported high unmet clinical need in terms of dental caries, dental pain and periodontal diseases, but low perceived need for oral health care (Daly *et al*., 2010a; Waplington *et al*., 2000; Blackmore *et al*., 1995). A recent study in Scotland demonstrated how depression in people who are homeless may be related to dental health status, oral-health-related factors, and in particular, the number of decayed and missing teeth (Coles *et al*., 2011). Studies in Northern Ireland and South Wales also confirm that oral health was a source of decreased oral health-related quality of life (Richards and Keauffling, 2009; Collins and Freeman, 2007).

Chaotic lifestyles, a lack of awareness of available NHS services (Hill and Rimington, 2011), fear/anxiety about dental treatment (Collins and Freeman, 2007) negative attitudes of dental staff, embarrassment and a lack of money are known to be key barriers for such population groups (Conte *et al*., 2006). From the perspective

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of service providers, some of the challenges of delivering services include high levels of non-attendance and low levels of treatment completion (Daly *et al*., 2010b; Simons *et al*., 2012).

Oral health related quality of life (OHRQoL) can be regarded as the extent to which oral conditions impact upon an individuals' normal functioning, both physically and psychologically, and can be measured using the Oral Health Impact Profile (OHIP-14). Reported oral health impacts among homeless people include toothache, discomfort, an inability to relax and feeling ashamed regarding dental appearance (Richards and Keauffling, 2009).

The local situation in Plymouth is summarised below:

- Homelessness has been a significant and constant challenge in Plymouth. The statutory rate of homelessness per 1000 households in 2014/15 was 2.4, the same as the national average (PHOF 2016).
- The estimated rate per 1000 population of opiate and/or crack users and injectors in Plymouth is higher than the respective national rates (PHE, 2014).
- The proportion of successful completions of drug treatment in Plymouth (24.6%) was below the national average of 39.2%, in 2014 (PHOF, 2016).
- There are estimated to be 6360 harmful drinkers in Plymouth (harmful drinking defined as more than 50 units of alcohol consumed per week by men and 35 units per week by women)
- Street drinkers in Plymouth have been identified as a vulnerable population group due to the high levels of alcohol misuse. People classed as "single homeless with support needs" or "rough sleeper" represent two of the biggest client groups with alcohol need accessing services commissioned by adult social care in 2010/11 (Plymouth City Council, 2012).

The study reported here describes a basic needs assessment to help raise awareness of oral health issues in this vulnerable population group and inform the planning and implementing of appropriate dental services and oral health improvement strategies targeted at these adults.

Solutions suggested

Gaining a representative sample of a transient population such as people who are homeless, or individuals affected by problematic use of drugs and/or alcohol is difficult. However, an opportunity was identified to collect data within the Community Engagement Team's (CET) programme of activity within the Peninsula Dental Social Enterprise.

The CET works alongside local organisations to enable dental students from the Peninsula School of Dentistry to undertake outreach programmes in a variety of settings, including day-support services for those experiencing homelessness and drug and alcohol problems. Students thus have access to a steady flow of patients from a range of backgrounds and can gain first-hand experience of common health risk factors and their impact on oral and general health and wellbeing.

The CET routinely deliver community triage events to reach out to vulnerable groups in their own familiar settings. These are held at day centres providing rehabilitation facilities for people in the community affected by problematic use of drugs and/or alcohol. A clinician completes a brief extra-oral and intra-oral examination and gives prevention advice. No diagnosis or treatment plan is given but, participants wishing to access dental services are signposted to various dental education facilities (DEFs) in Plymouth if they are suitable for dental student education.

A study was designed which aimed to assess the oral health status of vulnerable adults accessing three day-support services (Shekinah Mission, Hamoaze House, Devonport Lifehouse) in Plymouth, and to understand the extent to which oral health problems impact on their normal functioning through the OHIP-14.

Objectives:

- To collect data on the oral clinical status and impact of oral health conditions from a sample of vulnerable adults in Plymouth.
- To explore the relationship between clinical status and oral health-related quality of life.
- To highlight the oral health care needs of this vulnerable population group to local commissioners.
- To support referral into DEFS for preventive oral health advice and dental treatment by undergraduate dental students.

Completion of the Health Research Authority decision tool determined that ethical approval for the study was not required.

Data were collected in the form of a clinical examination and an OHRQoL interview using OHIP-14. The examination and diagnostic criteria for oral health status recognised visual dentine caries (D3) or 'decay that can be seen to go into the dentine.' Obvious decay experience is the sum (D_3MFT) of the number of teeth affected by decay (D3), the number of teeth that have been extracted (M) and the number of teeth that have been restored or filled (F). An assessment of the soft tissues was also undertaken to ascertain whether an abscess was present or not.

The OHIP-14 has been utilised routinely in the UK decennial national adult dental health surveys to assess the extent to which oral problems can impact upon an individuals' normal functioning both physically and psychologically. The questionnaire assesses seven dimensions of oral health that include: functional limitation, physical pain, psychological discomfort, physical disability, social disability and handicap. Participants are requested to record their response to each of the 14 items using five possible responses: never, hardly ever, occasionally, often and very often, considering their recall of experiences over the previous 12 month period.

Over a period of 6 months between June and November 2015, 6 triage sessions were delivered by 2 examiners. It was not possible to undertake duplicate examinations to assess intra-examiner variability, but both examiners were previously trained and calibrated on the diagnostic criteria.

Outcome

Forty-four patients attended one of the six triage sessions in three day centres (Shekinah Mission, Hamoaze House, Devonport Lifehouse) over a 6-month period between June and November 2015 and agreed to take part in the survey. Of these, 9 (20%) were female and 35 (80%) were male. The mean age of the patients was 42.5 years (SD 11.67, range 22-69). The ages of men and women were similar.

Of the total sample, 23 patients had attended for an assessment appointment at Devonport Dental Educational Facility by 17 February 2016. Ten patients suffered from mental health problems which included psychotic illnesses (3) and major depression and anxiety (7). All ten took anti-psychotic and/or anti-depressant medication. Ten patients drank alcohol, with an additional three describing problematic alcohol use such as binge drinking, alcoholism or the need to 'have a few cans everyday'. Three patients were regular drug users, and two were enrolled in a drug or alcohol rehabilitation programme.

The clinical data revealed that the mean number of decayed teeth was 8.9 (95%CI = 7.08,10.69) and that of missing teeth was 7.9 (95%CI 6.05,9.72). The mean number of restored teeth was 3.1 (95%CI = 1.86,4.23). The mean number of teeth affected by obvious decay (D_3MFT score) was 19.8 (95%CI = 17.71,21.93). DT was the largest component of the D_3MFT score, with the number of decayed teeth ranging from 7 to 32.

Of those examined, 97% (n = 43) had active decay ranging from one to 26 teeth, 34.1% (n = 15) had between one and 5 teeth affected and 63.6% (n = 28) had more than 5 decayed teeth. Younger people tended to have more missing teeth, but fewer filled teeth than older people ($p<0.01$). Older people tended to have a higher mean DMFT score ($p<0.01$). Abscesses were present in 4.6% (2) of those patients examined.

The mean OHIP-14 score was 21 (95%CI = 16.47, 25.08). Table 1 compares OHI-14 among the sample with data on the general population in the SW, from the 2009 Adult Dental Health Survey. For all impact domains, our participants reported greater impact than the general population.

Forty participants experienced between two and 14 impacts at least 'occasionally' and 22 participants experienced between one and 11 impacts 'very often'.

The most commonly reported impacts were problems with feeling self-conscious because of teeth, mouth or dentures and discomfort when eating and pain from the mouth. The most common domain impacts experienced by respondents were physical pain and psychological discomfort.

People were affected socially by their oral condition, with 75% of the participants stating that they felt at least 'occasionally' self-conscious, and 64% felt at least "occasionally" embarrassed about the appearance of their teeth. Forty six percent of the sample felt self-conscious 'very often' and 43% felt embarrassed 'very often' about the appearance of their teeth.

The sample was split into high and low oral health-related quality of life impact groups using a median split. Those scoring 15 and above (17; 39 %) were designated as experiencing high impacts and those scoring 14 or less (27; 61 %) as experiencing low impacts. Those participants in the high impact group had significantly greater median D_3MFT scores ($p<0.01$). However, the numbers of decayed teeth in the two groups were similar ($p= 0.32$).

Table 1. Oral Health Impact Profile – proportion of respondents attending triage service recording impact in domains and comparison to 2009 Adult Dental Health Survey.

Types of impact	*% of individuals responding to the item with occasionally, fairly or very often*	
	Triage patient (this study)	*Adult Dental Health Survey 2009 (SW region)*
Functional limitation	11	8
Physical pain	61	34
Psychological discomfort	57	19
Physical disability	30	8
Psychological disability	48	13
Social disability	16	7
Handicap	16	5
At least one impact	92	41

Challenges addressed

Gaining access to oral health data from a representative sample of such a vulnerable and hard to reach population group is difficult, as homeless people are often not routinely accustomed to accessing healthcare services. However, this study highlights how a proactive service, using personal contacts in community settings, can successfully engage with this group. This type of informal service delivery, based on a culture of trust was effective in recruiting patients and, as a result, many vulnerable adults who would not traditionally access dental services, received and completed treatment successfully at a DEF.

Whilst this convenience sample size is small, the analysis does demonstrate results in line with larger UK surveys (Daly *et al*., 2010a; Collins and Freeman, 2007). This survey highlights how this vulnerable population group are characterised by a high prevalence of poor oral and general health, high impacts of oral problems and social exclusion. Feeling ashamed about appearance, dental pain, and difficulties with eating were real concerns reported.

Future implications and learning points

The study highlights the complicated psycho-social factors that need to be taken into account when planning oral care services for this group, as people experiencing homelessness or addiction are likely to have a range of needs cutting across health and social care, substance use, and criminal justice. The oral health inequalities identified in this study will also be included in the city-wide approach to reducing health inequalities across Plymouth.

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