



Oral health-related quality of life improves in employees with disabilities following a workplace dental intervention



Archana Pradhan^{a,b,*}, Dominic Keuskamp^b, David Brennan^b

^a School of Dentistry, University of Queensland, 288 Herston Road, Herston, Queensland, 4006, Australia

^b Australian Research Centre for Population Oral Health (ARCPHO), The University of Adelaide, ARCPHO Level 1, 122 Frome Street, 5005, Australia

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ABSTRACT

This pilot study evaluated a dental intervention for employees with disabilities by measuring changes in self-rated oral health, dental behaviours and oral health-related quality of life (OHRQoL). Consenting employees with disabilities (≥ 18 years) at two worksites in South Australia underwent dental examinations at baseline, three and six months. Referrals were arranged as needed to public dental clinics. At one and two months a dental hygienist provided group oral health education to the employees. Employees' demographics, self-rated oral health, dental behaviours and OHRQoL were collected via face-to-face interviews. Of the 39 referred employees, 28 (72%) of them completed the recommended treatment. Self-rated oral health improved and there were significant reductions in the prevalence of oral health impact on quality of life (percentage of employees reporting 1+ items fairly/very often) from 27% to 11% (McNemar's test, $p < 0.05$); the extent of impact (mean number of items reported fairly/very often) from 1.3 to 0.6 and the severity of impact (mean of summed OHIP item scores) from 3.6 to 1.8 (paired t -tests, $p < 0.01$). As this pilot study indicates that enabling urgent referral for treatment and regular oral health education can improve OHRQoL and self-rated oral health among employees with disabilities, a larger study with a control group should be undertaken.

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1. Introduction

Although oral diseases are rarely life-threatening, they do impact on overall health, nutrition and wellbeing (Gift & Atchinson, 1995). Poor oral health can lead to pain, difficulty eating, sleep disturbance, and decreased self-esteem, all of which can have adverse impacts on an individual's quality of life (Locker & Allen, 2007). These impacts are more common among people with special needs than in the general population (Anders & Davis, 2010), an inequality which is compounded by poor access to oral health care. Australia's National Oral Health Plan 2004–2013 (National Advisory Committee on Oral Health, 2004) identified 'people with special needs' as a priority in 'Action Area Five', defining them broadly as "people with physical and intellectual

disability, or medical or psychiatric conditions that increase their risk of oral health problems or increase the complexity of oral health care". Yet this remains the only identified group in the Plan for which there no national population-based data, probably due to both its heterogeneity and difficulties with access to individuals and their consent. Oral health knowledge among this group and their carers is also documented as relatively poor (Pradhan, 2013; Pradhan, Keuskamp & Brennan, 2015). Consequently, patients with special needs often require emergency treatment for oral disease involving hospital admissions and general anaesthesia (National Advisory Committee on Oral Health, 2004). In Australia, the public sector offers dental care to those who are eligible by virtue of lower income, but resource constraints mean there are significant waiting times for treatment, and less emphasis on preventive care (Brennan, Luzzi, & Roberts-Thomson, 2008). This pilot study evaluates an intervention focussed on oral health education and urgent treatment for a group of people with special needs in South Australia.

In a previous South Australian study (2004–2007), a mailed questionnaire to carers was used to estimate oral health-related quality of life (OHRQoL) among adults with physical and intellectual disabilities (Pradhan, 2013). Carers recorded relatively low prevalences of four impacts from oral conditions – trouble

Abbreviations: ADHD, Attention Deficit Hyperactivity Disorder; ARCPHO, Australian Research Centre for Population Oral Health; OHIP, Oral Health Impact Profile; OHRQoL, Oral Health-Related Quality of Life.

* Corresponding author. Present address: School of Dentistry, University of Queensland, 288 Herston Road, Herston, Queensland, 4006, Australia.

E-mail addresses: a.pradhan@uq.edu.au, archanapradhan5042@gmail.com

(A. Pradhan), dominic.keuskamp@adelaide.edu.au (D. Keuskamp), david.brennan@adelaide.edu.au (D. Brennan).

sleeping, pain and discomfort, unsatisfactory diet and irritability. However, the impacts may have been underestimated by carers, as was determined in a retrospective French study (Hennequin, Faulks, & Roux, 2000). Nonetheless, carers have also emphasised the social implications of oral health of dependent people with disabilities in qualitative studies, with comments like “. . . the only thing that does put you off is bad breath” (Weeks & Fiske, 1994). Those with special needs who are more independent, such as those who are employed, can self-consent to research and self-report on their health. Hall, Chapman, and Kurth (2013) surveyed 433 adults with Social Security-determined disabilities enrolled in the Kansas Working Healthy project. Compared with the US population, the sample had significantly greater prevalence of painful aching, uncomfortable eating, and difficulty working due to dental problems.

Only a small number of studies have measured the impact of dental treatment and/or education on the oral health of people with disabilities. Fiske, Gelbier, and Watson (1990) measured the contribution of dental care to OHRQoL by using four categories of oral disadvantage (impairment of function, comfort, self-image and social interaction) among older adults in the UK. They found that the greatest post dental treatment gains were in self-image and social interaction. An uncontrolled study from Israel found that regular dental treatment and oral health education improved the oral health status of 39 institutionalised young people but concluded that behavioural change was impeded by the lack of staff engagement (Mann et al., 1986).

Workplaces offer a number of benefits as sites of oral health promotion for employers, employees and the dental profession (Schou, 1989). Workplace-based oral health education and/or referral has been shown to benefit individuals' oral health and reduce their health expenditure in the general working population (Fishwick, Ashley, & Wilson, 1998; Ide, Mizoue, Tsukiyama, Ikeda, & Yoshimura, 2001). In addition to its impacts on quality of life, poor oral health is likely to affect workplace productivity and inhibit work incentive projects aimed at increasing the independence of people with disabilities. One controlled intervention of 382 adults with intellectual disabilities attending adult training centres has been reported from the UK (Shaw & Shaw 1991). They showed that trainees were able to improve their oral hygiene and periodontal condition if they received regular educational input from a dental hygienist. Yet, there is to our knowledge no published data in Australia on oral health-related interventions for employees with disabilities. The aim of this pilot study was to evaluate a workplace intervention (dental education and referral for treatment) for employees with disabilities by reporting changes in self-rated oral health, dental behaviours and OHRQoL.

2. Methods

To overcome some of the challenges to data collection often encountered when involving people with disabilities, two workshops were conducted jointly by the South Australian Dental Service and the Australian Research Centre for Population Oral Health (ARCPHO) involving managers and carers of disability organizations and dental professionals involved in the dental care for adults with disabilities. One organization was identified as providing employment for people with physical and/or intellectual disability referred hereafter as 'employees' for this study.

Employees (≥ 18 years) at two worksites in Adelaide were approached via mail to participate in the study, and then followed up by their managers. A dentist and a dental recorder conducted face-to-face interviews at baseline, 3 months and 6 months to collect information on pre- and post-test questionnaires about employees' age, sex, living arrangement, period since last dental visit, type of disability, toothbrushing frequency, consumption of

sweetened food and drink, and self-rated oral health. OHRQoL was also assessed using 14 questions selected primarily from the Oral Health Impact Profile (OHIP-14) (Slade, 1997). OHIP items ask about the frequency of adverse impacts caused by oral conditions during the previous 12 months, e.g. 'How often during the past year have you had painful aching in your mouth because of problems with your teeth, mouth or dentures?' Responses were on a five-point ordinal scale ranging from 'very often' to 'never'. Only four questions were selected for the South Australian study on dependent adults with disabilities, as observable domains like function (problems eating) or social issues (irritability) are more likely to be validly assessed by proxy carers (Pradhan, 2013). As this study included independent adults with disabilities who could communicate, all the items of the OHIP-14 (Slade, 1997) were used but with a few changes. Some items were combined ('has your diet been unsatisfactory' and 'have you found it uncomfortable to eat any foods'; 'have you been self-conscious' and 'a bit embarrassed') so that two items regarding bad breath and interrupted sleep could be added, retaining 14 questions in total. The added items were sourced from the long-form version, OHIP-49 (Slade & Spencer, 1994), and reflected the oral impacts more observable to people with disabilities that had been highlighted in previous research. As suggested by MacEntee (2007) any comments provided by the employees on the dental intervention were also included in the evaluation.

One dentist (AP) examined all consenting employees at baseline. Referrals were arranged as needed to the SA Dental Service clinic closest to the employee's residence or workplace. In most cases, employees were seen urgently, i.e. within one month, and were not waitlisted as they usually would have been. At one month and two months a dental hygienist provided group oral health education to the employees. The dental hygienist had attended an oral health training program provided by AP to carers of people with disabilities (Pradhan et al., 2015). The oral health education included toothbrushing behaviours using a demonstration model, reinforcement of healthy diet and the importance of regular dental visiting, in a simple language that could be understood by the employees. At three months, the dentist re-examined the employees, noting any changes in oral health, reinforcing daily oral care and reminding employees of dental treatment needs. At six months, follow-up dental examinations were completed by the same dentist (AP).

3. Analysis

Analysis of OHIP items was based on analysis of OHIP-14 in the study by Slade et al. (2005). Values for each item were re-coded to 0 for a response of 'never' to 4 for a response of 'very often'. Three summary variables were then computed:

Prevalence: the percentage of people reporting one or more items 'fairly often' or 'very often'.

Extent: the number of items reported 'fairly often' or 'very often' (range 0–14).

Severity: the sum of ordinal responses (range 0–56).

Bivariate data analyses were conducted with SPSS version 20. McNemar and paired *t*-tests were used to compare pre- and post-intervention results.

4. Results

When 200 employees at two worksites were approached via mail to participate in the intervention, only two responses were received. When approached via managers at the worksites, responses increased to 26, and the number of participants at baseline eventually reached 51, facilitated by word of mouth. As this sample size was not sufficient to support a control group, the

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