Factors influencing the oral health of adults with physical and intellectual disabilities

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List of abbreviations

ABS	Australian Bureau of Statistics
ARCPOH	Australian Research Centre for Population Oral Health
CI	Confidence interval
DMFT	Decayed Missing Filled Teeth
FaCSIA	Families, Community Services and Indigenous Affairs
GA	General anaesthesia
OHRQoL	Oral health-related quality of life
QoL	Quality of life
SA	South Australia
SADS	South Australian Dental Service
SE	Standard error
UK	United Kingdom
US	United States of America
WHO	World Health Organisation

Abstract

Background: People with physical and intellectual disabilities have varying health needs and living arrangements. They depend on their carers for their daily oral hygiene care.

Objectives:

1. To describe the dental practices and oral health among people aged 18–44 years with physical and intellectual disabilities and
2. To determine if residential setting is associated with care recipients' oral health status, or if there are other factors, which if modified, could improve the oral health of adults with physical and intellectual disabilities.

Methods: Cross-sectional mailed questionnaire survey (February 2005 – June 2006) of carers of adults with physical and intellectual disabilities (18–44 years) living in South Australia in three settings: family home; community housing; and institutions, followed by oral examinations of care recipients by trained examiners at recalls or new appointments. Decayed (D), missing (M) and filled (F) teeth (DMFT), tooth wear, oral hygiene and gingival status were recorded.

Results: Carers completed the questionnaire for 485 adults, a yield of 37.9%, of which 267 care recipients were examined (completion rate = 55.1%). Some 47.4% of the care recipients lived in family homes, 31.4% in community housing and 21.2% in institutions.

Some 39.3% of care recipients had their teeth brushed once a day or less, with most needing assistance from their carers. Infrequent toothbrushing and inadequate time to clean were more frequently reported by carers at family homes than those at other settings ($P<0.001$).

Care recipients at institutions visited the dentist more frequently than those at other settings ($P<0.001$). Other care recipients had problems accessing dental care due to their carers' lack of awareness of dental services available, lack of dentists with adequate skills in managing people with disabilities, cost, location of dental clinic, lack of dentists willing to treat people with disabilities and transportation problems. Some 18.8% of care recipients required a general anaesthetic and 13.1% an oral sedation for oral examination and treatment.

Presence of both oral health problems and treatment needs were reported by almost 50% of carers, but only 13.5% of care recipients reportedly experienced one or more negative

impacts. Oral examinations showed that the prevalence of untreated decay among the care recipients in South Australia was 16.9% (95% CI= 12.7, 21.7) and 76.3% (95% CI= 71.0, 81.2) had past and present caries experience. None of the examined subjects wore a removable prosthesis, although nearly 50% had one or more missing teeth.

After adjusting for carer and care recipient characteristics, multivariate analysis showed that there was no difference (P>0.05) in the prevalence of untreated decay (D>0), missing teeth (M>0), filled teeth (F>0), caries experience (DMFT>0) or mean DMFT among the three residential settings. However, untreated decay was significantly associated with moderate [OR= 3.7 (1.2, 11.4)] and high intake [OR= 3.3 (1.1, 11.1)] of sweet drinks and never visiting the dentist or visiting only because of a problem [OR= 5.2 (1.7, 15.8)]; missing teeth were significantly associated with requirement for a general anaesthetic for dental treatment [OR= 3.2 (1.4, 7.2)] and having low [OR= 3.4 (1.1, 10.3)] and high [OR= 4.2 (1.7, 10.7)] weekly hours of care; filled teeth were significantly associated with 35–44 age-group [OR= 5.4 (2.0, 14.9)], lack of oral hygiene assistance from carers [OR= 5.1 (2.2, 11.8)] and high weekly hours of care [OR= 4.4 (2.0, 9.5)]; and caries prevalence was significantly associated with 35–44 age-group [OR= 7.3 (2.0, 26.3)], lack of oral hygiene assistance from carers [OR= 4.0 (1.3, 12.5)] and high weekly hours of care [OR= 6.3 (2.5, 15.9)]. Mean DMFT was significantly associated with 35–44 age-group [β= 3.0 (0.4, 5.6)], autism [β = 3.4 (1.3, 5.8)], intellectual disability [β = 2.5 (0.3, 4.8)], and high weekly hours of care [β = 3.6 (1.6, 5.6)].

Anterior tooth wear was found in 45.1% (95% CI= 36.1, 53.9) and posterior tooth wear in 23.9% (95% CI= 18.7, 29.0) of care recipients. Care recipients in the community were more likely to have posterior tooth wear compared to those in family homes. Anterior tooth wear was significantly associated with 25–34 age-group [OR= 3.1 (1.5, 6.5)], 35–44 age-group [OR= 2.6 (1.1, 6.2)] and rumination [OR= 3.4 (1.3, 9.2)].

Oral hygiene and gingival status were poor with the prevalence of extensive plaque (dental plaque on all surfaces of the tooth, with a score of 2 or more) of 40.0% (95% CI= 34.1, 45.9), extensive calculus (moderate to abundant amount of supra and subgingival calculus, with a score of 2 or more) of 41.9% (95% CI= 36.0, 47.8), and extensive gingivitis (gingivitis extending all around the tooth, with a score of 2 or more) of 36.0% (95% CI= 30.2, 41.8). Residential setting was not associated with oral hygiene and gingival status. Extensive plaque was significantly associated with 35–44 age-group [OR= 3.9 (1.4, 11.2)], poor to fair general

health [OR= 3.3 (1.2, 9.0)], habit of placing food/medicine/other products in mouth for lengthy periods of time [OR= 7.8 (2.7, 22.7)], care recipients cared for by male carers [OR= 3.9 (1.4, 10.8)], and care recipients with high weekly hours of care [OR= 4.0 (1.5, 10.8)]. Extensive calculus was significantly elevated in prevalence in the 25–34 age-group [OR= 4.3 (1.8, 10.7)], 35–44 age-group [OR= 5.3 (1.8, 15.4)]. Extensive gingivitis was significantly associated with always needing help for self-care activities from carers [OR= 3.5 (1.2, 10.2)].

Conclusions: Residential setting was not associated with caries experience, oral hygiene and gingival status among adults with disabilities, after adjustment for age and other relevant characteristics of care recipients. However, care recipients in the community were more likely to have posterior tooth wear compared to those in family homes. Emphasis should be placed on modifiable factors like carer assistance with daily oral hygiene care, diet and regular dental visits, whilst ensuring that carers are not overburdened.

Signed statement

This work contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text.

I give consent to this copy of my thesis, when deposited in the University Library, being available in all forms of media, now or hereafter known.

Signed: …….
Archana Pradhan

Date: ……

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Thesis format

This thesis presents an introductory chapter that provides background information on disabilities, demographics and living arrangements for people with disabilities in Australia and disability services in South Australia. It highlights the need for special health care, special oral health care and interdisciplinary collaboration, and the limitations of previous studies. It also includes a conceptual framework, thesis rationale, aims and hypothesis. The second chapter reviews available literature on oral health, how it impacts on quality of life and various factors that influence the oral health of adults with physical and intellectual disabilities. The third chapter describes the study design, sampling frame and data collection methods including details of mail questionnaire and oral examinations of care recipients. Data management includes data weighting and analytical approaches. The fourth chapter includes responses from the organisations in the sampling frame and results from the mail questionnaire completed by carers and the oral examinations of care recipients. The final chapter discusses the major findings of the study, whenever possible, comparing them with previous studies. It also includes the strengths and limitations of this study and the significance and implications of findings. It concludes with recommendations based on the findings of this study.

Tables and figures are presented together with their corresponding text, where possible. References to published work are in the text with the author(s) and date of publication in parenthesis. Where there were three or more authors, the first author is listed, followed by et al., in the text. The complete list of authors is listed in the bibliography at the end. Where there were multiple references for an author, references are listed in the bibliography in alphabetical order of authors and date. The appendices include primary approach letters to the administrators of organisations, contents of information package for the study participants with enclosed questionnaire; reminder card and follow-up letter; examination form and report on the findings; and letter for ethical approval of the study.