

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

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## TABLE OF CONTENTS

<b>TABLE OF CONTENTS</b> .....	<b>i</b>
<b>List of figures</b> .....	<b>v</b>
<b>List of tables</b> .....	<b>vi</b>
<b>List of abbreviations</b> .....	<b>ix</b>
<b>Abstract</b> .....	<b>x</b>
<b>Signed statement</b> .....	<b>xiii</b>
<b>Acknowledgements</b> .....	<b>xiv</b>
<b>Thesis format</b> .....	<b>xv</b>
<b>CHAPTER 1. INTRODUCTION</b> .....	<b>1</b>
1.1 Definitions of disability .....	1
1.1.1 Demographics .....	2
1.1.2 Living arrangements .....	3
1.1.3 Disability services in South Australia.....	3
1.2 Need for special health care.....	4
1.3 Need for special oral health care.....	5
1.4 Need for interdisciplinary collaboration .....	7
1.4.1 Carers .....	7
1.4.2 Dental health professionals.....	8
1.5 Limitations of previous studies .....	9
1.6 Thesis rationale .....	11
1.7 Aims and objectives.....	12
1.8 Hypothesis .....	13
1.9 Conceptual framework.....	14
<b>CHAPTER 2. LITERATURE REVIEW</b> .....	<b>16</b>
2.1 Oral health of adults with physical and intellectual disabilities .....	16
2.1.1 Dental caries .....	16
2.1.2 Tooth wear .....	17
2.1.3 Periodontal problems .....	18
2.1.4 Other oral health problems .....	19
2.1.4.1 Oro-facial trauma.....	19
2.1.4.2 Oral side-effects from medication usage .....	20
2.2 Perceived oral health needs.....	20
2.3 Oral health-related quality of life.....	21
2.4 Influences on the oral health of people with disabilities .....	22
2.4.1 Care recipients .....	22
2.4.1.1 Disability, general health and oral health .....	22
2.4.1.2 Living arrangements .....	23
2.4.1.3 Dental practices.....	25
2.4.1.3.1 Toothbrushing pattern.....	25
2.4.1.3.2 Dental visit pattern.....	25
2.4.1.4 Oral disease risk behaviours .....	27
2.4.2 Carers .....	28
2.4.2.1 Reasons for taking on primary caring role.....	28
2.4.2.2 Knowledge, attitude and behaviour of carers .....	28
2.4.2.3 Continuity of care .....	31
2.4.2.4 Effects of caring role.....	32
2.4.3 Dental professionals.....	33
2.5 Summary .....	34

<b>CHAPTER 3. METHODS .....</b>	<b>35</b>
3.1 Study design.....	35
3.1.1 Sampling frame.....	35
3.1.1.1 Sampling organisations associated with people with disabilities .....	36
3.1.1.2 Sampling people with disabilities for mail questionnaire.....	36
3.1.1.3 Sampling people with disabilities for oral epidemiological examinations...	37
3.2 Data collection .....	38
3.2.1 Mail questionnaire.....	38
3.2.2 Oral epidemiological examinations of care recipients.....	39
3.2.2.1 Appointment for oral examination.....	39
3.2.2.2 Oral examination procedure .....	39
3.2.2.3 Report of the oral examination .....	42
3.3 Data management .....	42
3.3.1 Recording of medications .....	43
3.3.2 Data weighting.....	43
3.3.3 Response formats.....	44
3.3.4 Analyses.....	47
3.4 Ethical implications and approvals.....	51
 <b>CHAPTER 4. RESULTS.....</b>	 <b>52</b>
4.1 Information from organisations .....	52
4.2 Response .....	53
4.2.1 Questionnaire to carers .....	53
4.2.2 Oral examination of care recipients.....	54
4.3 Analyses.....	55
4.3.1 Characteristics of carers.....	56
4.3.2 Characteristics of care recipients .....	56
4.3.3 Perceived oral health problems and treatment needs of care recipients and impacts on quality of life .....	58
4.3.4 Dental practices among care recipients .....	61
4.3.4.1 Toothbrushing pattern.....	61
4.3.4.1.1 Organisational difficulties when providing oral hygiene care.....	62
4.3.4.1.2 Behavioural difficulties when providing oral hygiene care.....	62
4.3.4.2 Dental visit pattern.....	63
4.3.5 Oral disease risk behaviours among care recipients .....	66
4.3.5.1 Diet .....	66
4.3.5.2 Medication usage .....	67
4.3.5.3 Prevalence of other risk behaviours.....	68
4.3.6 Knowledge, attitude and behaviour of carers across residential settings .....	69
4.3.6.1 Knowledge.....	69
4.3.6.2 Attitude of carers to oral health .....	69
4.3.6.3 Dental behaviours of carers .....	71
4.3.7 Care provided, continuity of care and effects of caring role on carers.....	71
4.3.7.1 Care provided and continuity of care.....	71
4.3.7.2 Effects of caring role on carers .....	72
4.3.7.3 Carer burden .....	73
4.4 Oral epidemiological examinations .....	75
4.4.1 Dental status.....	75
4.4.1.1 Relationship between dental status and care recipient characteristics.....	75
4.4.1.1.1 Summary of findings on dental status and care recipient characteristics .....	77
4.4.1.1.2 Stratified analyses of mean DMFT.....	78
4.4.1.2 Relationship between dental status and dental practices of care recipients...	79

4.4.1.2.1 Relationship between dental status and toothbrushing pattern of care recipients .....	79
4.4.1.2.2 Relationship between dental status and dental visit pattern of care recipients .....	80
4.4.1.2.3 Summary of findings on dental status and dental practices among care recipients .....	81
4.4.1.2.4 Stratified analysis of mean DMFT.....	82
4.4.1.3 Relationship between dental status and potential risk factors .....	83
4.4.1.3.1 Relationship between dental status and diet of care recipients.....	83
4.4.1.3.2 Relationship between dental status and medication intake of care recipients .....	83
4.4.1.3.3 Summary of findings on dental status and risk factors among care recipients .....	84
4.4.1.3.4 Stratified analyses of mean DMFT .....	85
4.4.1.4 Relationship between dental status of care recipients and carer characteristics.....	86
4.4.1.4.1 Summary of findings on dental status of care recipients and carer characteristics.....	87
4.4.1.4.2 Stratified analysis of mean DMFT.....	88
4.4.1.5 Relationship between dental status of care recipients and continuity of care .....	89
4.4.1.5.1 Summary of findings on dental status of care recipients and continuity of care .....	90
4.4.1.5.2 Stratified analyses of mean DMFT .....	91
4.4.2 Tooth wear .....	93
4.4.2.1 Relationship between tooth wear and care recipients.....	93
4.4.2.2 Relationship between tooth wear and oral habits of care recipients.....	94
4.4.2.3 Summary of findings on tooth wear among care recipients .....	95
4.4.3 Periodontal status .....	96
4.4.3.1 Relationship between periodontal status and care recipient characteristics .....	96
4.4.3.1.1 Summary of findings on periodontal status and care recipient characteristics.....	98
4.4.3.2 Relationship between periodontal status and dental practices of care recipients .....	99
4.4.3.2.1 Summary of findings on periodontal status and dental practices of care recipients.....	100
4.4.3.3 Relationship between periodontal status and risk factors.....	101
4.4.3.3.1 Summary of findings on periodontal status and risk factors among care recipients .....	102
4.4.3.4 Relationship between periodontal status and carer characteristics.....	103
4.4.3.4.1 Summary of findings on periodontal status and carer characteristics .....	104
4.4.3.5 Relationship between periodontal status and continuity of care.....	105
4.4.3.5.1 Summary of findings on periodontal status and continuity of care recipients .....	106
4.4.4 Multivariate models .....	107
4.4.4.1 Multivariate logistic regression models: factors associated with untreated decay among the care recipients .....	107
4.4.4.2 Multivariate logistic regression models: factors associated with missing teeth among the care recipients .....	108
4.4.4.3 Multivariate logistic regression models: factors associated with filled teeth among the care recipients .....	109
4.4.4.4 Multivariate logistic regression models: factors associated with caries prevalence (DMFT>0) among the care recipients .....	111
4.4.4.5 Linear regression models: factors associated with caries experience (mean DMFT) among the care recipients .....	112

4.4.4.6 Multivariate logistic regression model: factors associated with anterior tooth wear among the care recipients .....	114
4.4.4.7 Multivariate logistic regression model: factors associated with posterior tooth wear among the care recipients .....	115
4.4.4.8 Multivariate logistic regression model: factors associated with extensive plaque among the care recipients .....	115
4.4.4.9 Multivariate logistic regression model: factors associated with extensive calculus among the care recipients .....	117
4.4.4.10 Multivariate logistic regression model: factors associated with extensive gingivitis among the care recipients .....	118

## **CHAPTER 5. DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS ....120**

5.1 Results and comparison with previous studies .....	120
5.1.1 Results from mail questionnaire .....	120
5.1.1.1 Care recipient characteristics .....	120
5.1.1.2 Perceived oral health problems and treatment needs of care recipients and impact on quality of life .....	121
5.1.1.3 Dental practices .....	123
5.1.1.4 Frequency of risk factors and behaviours .....	127
5.1.1.5 Socio-demographics of carers .....	128
5.1.1.6 Care provided, continuity of care and effects of caring role .....	130
5.1.2 Results from oral epidemiological examination .....	131
5.1.2.1 Influence of residential setting on oral health of care recipients .....	132
5.1.2.2 Other factors influencing oral health .....	134
5.1.2.2.1 Care recipient characteristics .....	134
5.1.2.2.2 Dental practices .....	135
5.1.2.2.3 Oral disease risk behaviours .....	136
5.1.2.2.4 Carer characteristics, their knowledge, attitude and behaviour .....	136
5.1.2.2.5 Care provided, continuity of care and effects of caring role .....	137
5.2 Methodological strengths and limitations of this study .....	138
5.2.1 Study design and sampling .....	138
5.2.2 Response .....	140
5.2.2.1 Questionnaire .....	140
5.2.2.2 Oral examination .....	140
5.2.3 Non-response bias .....	142
5.2.4 Proxy-reported data .....	142
5.2.5 Recording of oral examination .....	143
5.3 Implications of the study .....	144
5.4 Future Research .....	144
5.5 Conclusions .....	146
5.6 Recommendations .....	149

## **BIBLIOGRAPHY .....153**

Appendix 1: Introductory letter .....	162
Appendix 2: Cover letter to participating organisations .....	165
Appendix 3: Information sheet for carers .....	166
Appendix 4: Information sheet for care recipients .....	167
Appendix 5: Information sheet on: .....	168
‘Contacts for information on project and independent complaints procedure’ .....	168
Appendix 6: Questionnaire .....	169
Appendix 7: Consent form for care recipient .....	181
Appendix 8: Consent form for parent or guardian or person responsible .....	182
Appendix 9: Reminder card .....	183

Appendix 10: Final follow-up letter .....	184
Appendix 11: Oral examination form .....	185
Appendix 12: Oral examination report .....	187
Appendix 13: Ethics approval.....	188

**List of figures**

Figure 1.1 Conceptual framework explaining factors influencing the oral health status of care recipients with physical and intellectual disabilities.....	15
Figure 4.1 Mean DMFT in the three residential settings, stratified by age-group .....	79
Figure 4.2 Mean DMFT in the three residential settings, stratified by disabling condition... ..	79
Figure 4.3 Mean DMFT in the three residential settings, stratified by frequency of dental visits .....	82
Figure 4.4 Mean DMFT in the three residential settings, stratified by frequency of sweet drinks .....	85
Figure 4.5 Mean DMFT in the three residential settings, stratified by number of medications.....	86
Figure 4.6 Mean DMFT in the three residential settings, stratified by relationship to care recipient. ....	89
Figure 4.7 Mean DMFT across the three residential settings, stratified by weekly hours of care provided by carers .....	91
Figure 4.8 Mean DMFT in the three residential settings, stratified by number of care recipients under charge. ....	92

## List of tables

Table 3.1	Excerpt from drug lookup file .....	43
Table 4.1a	Information from organisations on the number of care recipients by living arrangement .....	52
Table 4.1b	Number of care recipients excluded from study .....	53
Table 4.1c	In scope study population .....	53
Table 4.1d	Valid questionnaire responses .....	54
Table 4.1e	Summary table of responses from each residential setting.....	54
Table 4.1f	Reasons for non-response.....	54
Table 4.2a	Questionnaire weights.....	55
Table 4.2b	Examination Weights .....	55
Table 4.3	Characteristics of carers.....	56
Table 4.4	Characteristics of care recipients .....	57
Table 4.5a	Care recipients' need for help with self-care activities.....	58
Table 4.5b	Summary table of care recipients needing help with self-care activities .....	58
Table 4.6	Prevalence of oral health problems .....	59
Table 4.7	Prevalence of perceived dental treatment needs.....	59
Table 4.8a	Prevalence of negative oral health impacts on care recipients reported by carers.....	60
Table 4.8b	Summary of negative oral health impacts on care recipients reported by carers.....	60
Table 4.9	Prevalence of negative impacts by means of communication.....	60
Table 4.10	Frequency of toothbrushing pattern among care recipients across residential settings.....	61
Table 4.11	Frequency of organisational difficulties when providing oral hygiene care .....	62
Table 4.12a	Prevalence of reported behavioural problems .....	63
Table 4.12b	Summary table of reported behavioural problems .....	63
Table 4.13	Frequency of dental visit pattern among care recipients .....	64
Table 4.14	Frequency of usual dental services provided to care recipients .....	64
Table 4.15	Prevalence of problems obtaining dental care.....	65
Table 4.16a	Frequency of ratings of reported quality of dental care provided by dentist/hygienist (%).....	66
Table 4.16b	Summary report of quality of dental care provided by dentist/hygienist .....	66
Table 4.17a	Frequency of food consumption among care recipients .....	67
Table 4.17b	Frequency of food consumption among care recipients across residential settings.....	67
Table 4.18	Percentage of care recipients taking medications.....	68
Table 4.19	Prevalence of other risk habits.....	68
Table 4.20	Training of carers in oral care for people with disabilities.....	69
Table 4.21	Frequency of attitude of carers to oral health .....	70
Table 4.22a	Frequency of factors influencing family carers' decision to take on caring role .....	70
Table 4.22b	Frequency of factors influencing non-family carers' decision to take on caring role .....	70
Table 4.23	Frequency of dental behaviours among carers .....	71
Table 4.24	Care provided and continuity of care .....	72
Table 4.25a	Frequency of effects of caring role on carers (%) .....	72
Table 4.25b	Frequency of effects of caring role on carers across residential settings .....	73
Table 4.26	Carer burden across residential settings .....	74
Table 4.27	Relationship between dental status and care recipient characteristics .....	76
Table 4.28	Relationship between dental status and care recipient characteristics among care recipients .....	77

Table 4.29 Relationship between dental status and toothbrushing pattern of care recipients ..	80
Table 4.30 Relationship between dental status and dental visit pattern of care recipients .....	81
Table 4.31 Summary of findings on dental status and dental practices among care recipients .....	81
Table 4.32 Relationship between dental status and frequency of various food types among care recipients .....	83
Table 4.33 Relationship between dental status and medication intake among care recipients .....	84
Table 4.34 Summary of findings on dental status and risk factors among care recipients.....	84
Table 4.35 Relationship between dental status of care recipients and carer characteristics.....	87
Table 4.36 Summary of findings on dental status of care recipients and carer characteristics.....	88
Table 4.37 Relationship between dental status of care recipients and continuity of care .....	89
Table 4.38 Summary of findings on dental status of care recipients and continuity of care .....	90
Table 4.39 Prevalence of tooth wear among care recipients in each sextant.....	93
Table 4.40 Prevalence of anterior and posterior tooth wear among care recipients by residential setting .....	93
Table 4.41 Relationship between tooth wear and characteristics of care recipients.....	94
Table 4.42 Relationship between tooth wear and oral habits of care recipients.....	94
Table 4.43 Summary of findings on tooth wear among care recipients .....	95
Table 4.44a Relationship between periodontal status among care recipients and residential setting (mean scores) .....	96
Table 4.44b Prevalence of extensive plaque, calculus and gingivitis among care recipients across residential settings.....	96
Table 4.45 Prevalence of extensive plaque, calculus and gingivitis and care recipient characteristics.....	97
Table 4.46 Summary of findings on periodontal status and care recipient characteristics.....	98
Table 4.47 Relationship between extensive plaque, calculus and gingivitis and toothbrushing pattern of care recipients.....	99
Table 4.48 Relationship between extensive plaque, calculus and gingivitis and dental visit pattern of care recipients.....	100
Table 4.49 Summary of findings on periodontal status and dental practices of care recipients .....	100
Table 4.50 Relationship between extensive plaque, calculus and gingivitis and medication intake of care recipients .....	101
Table 4.51 Relationship between extensive plaque, calculus and gingivitis and risk habits of care recipients .....	102
Table 4.52 Summary of findings on periodontal status and risk factors among care recipients .....	102
Table 4.53 Relationship between extensive plaque, calculus and gingivitis and carer characteristics.....	103
Table 4.54 Summary of findings on periodontal status and carer characteristics .....	104
Table 4.55 Relationship between extensive plaque, calculus and gingivitis and continuity of care.....	105
Table 4.56 Summary of findings on periodontal status and continuity of care of care recipients .....	106
Table 4.57 Binary logistic regression models for factors associated with untreated decay (D>0) among the care recipients.....	108
Table 4.58 Binary logistic regression models for factors associated with missing teeth (M>0) among the care recipients .....	109
Table 4.59 Binary logistic regression models for factors associated with filled teeth (F>0) among the care recipients .....	110

Table 4.60 Binary logistic regression models for factors associated with caries prevalence (DMFT>0) among the care recipients .....	111
Table 4.61 Linear regression model: factors associated with caries experience (mean DMFT) among the care recipients .....	113
Table 4.62 Binary logistic regression models for factors associated with anterior tooth wear among the care recipients .....	114
Table 4.63 Binary logistic regression models for factors associated with posterior tooth wear among the care recipients .....	115
Table 4.64 Binary logistic regression models for factors associated with extensive plaque among the care recipients .....	116
Table 4.65 Binary logistic regression models for factors associated with extensive calculus among the care recipients .....	117
Table 4.66 Binary logistic regression models for factors associated with extensive gingivitis among the care recipients .....	118
Table 5.1 Number of care recipients examined at the three residential settings.....	143

## 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 [ $\beta$ = 3.0 (0.4, 5.6)], autism [ $\beta$  = 3.4 (1.3, 5.8)], intellectual disability [ $\beta$  = 2.5 (0.3, 4.8)], and high weekly hours of care [ $\beta$  = 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.