APPENDICES

APPENDIX A: A GUIDE TO THE SURVEY FIELDWORK INSTRUMENTS

TABLE A.1: OVERVIEW OF SURVEY FORMS

Survey Form	Information about	Information provided by	Information recorded by	Number of forms required
1. HOUSEHOLD RECORD FORM (HRF) Names, sex, age, date of birth, relationship to carers, State/Territory of birth and self-reported Indigenous status of each person in the household. Primary and secondary carers of each child. Duration that each child has lived with primary carer. Relationships within the household. Any other children aged 0–17 years who usually live at this address but who are temporarily away.	Number of people in household and how they are related	Primary carer	Interviewer	One per family
2a. CHILD HEALTH QUESTIONNAIRE (CHQLK) Collects information about children aged 0–3 years.	Child health information about children 0-3 years	Primary or secondary carer	Interviewer	One for each child 0-3 years
2b. CHILD HEALTH QUESTIONNAIRE (CHQBK) Collects information about children and young people aged 4–17 years.	Child health information about children and young people 4–17 years	Primary or secondary carer	Interviewer	One for each child/young person 4–17 years
3a. PRIMARY CARER'S QUESTIONNAIRE (CARER1) Collects information about the carer who is the main person looking after each child.	Family and community circumstances Family life and carer's health Carer's background and experiences	Primary carer	Interviewer	One or more per family
3b. SECONDARY CARER'S QUESTIONNAIRE (CARER2) Collects information about secondary carer(s) of each child.	Carer's background and experiences	Secondary or primary carer	Interviewer	One or more per family

4. YOUTH QUESTIONNAIRE (YSR-S/YSR-I))
 	
Collects information about young people aged 12–17 years.
 	
Two administration methods are available:
 	
    YSR-S (self-administered)
 	
    YSR-I (administered by interviewer)
	Family and community circumstances
	
	Schooling
	
	Health risk factors
		Young people 12-17 years	Young person or interviewer	One for each young person 12-17 years

5. SCHOOL & TEACHER QUESTIONNAIRES	Children and young people attending school	Teachers and school leadership team	Teachers and school leadership team	One for each child at school (consent required)

CONTENT OF THE SURVEY INSTRUMENTS

1.   Household Record Form (HRF)

        List of people currently living in the household

        List of children about whom information needs to be collected

        Whether any other children are temporarily away

2a.   Child Health Questionnaire 0–3 years (CHQLK)

        Information on birth and natural mother

        Feeding, sleeping and early development

        Immunisation and health care

        Common chronic illnesses

        Dental health

        Breathing and asthma

        Separations from family, accidents & hospitalisations

        Disability and functional impairment

        Use of medical and other services

        Use of day care

        Parenting practices

2b.   Child Health Questionnaire 4–17 years (CHQBK)

        Information on birth and natural mother

        Immunisation and health care

        Common chronic illnesses

        Dental health

        Breathing and asthma

        Separations from family, accidents & hospitalisations

        Disability and functional impairments

        Use of medical and other services

        Use of day care, kindergarten & preschool

        School and educational progress

        Emotions, problem behaviours and social development

        Emotional or behavioural difficulties - Strengths and Difficulties Questionnaire

        Parenting practices

        Diet and nutrition

3.   Carer's Questionnaire (CARER1 and CARER2)

Languages spoken at home

Participation and involvement in Aboriginal activities and culture

Education

Employment and training

Benefits, pensions and income support

Family financial strain, carer's income

Family stress from alcohol, gambling and violence

Experience of forced separation or relocation

Positive family interactions and family resilience*

Family life stress events *

Personal and social supports*

Religious beliefs and practice of religion*

Housing arrangements and housing standards*

Perception of local community problems*

Adequacy of, and access to, community amenities and services*

asked of primary carer only

4.   Youth Questionnaire (YSR-I & YSR-S)

Knowledge of Aboriginal language, culture and heritage

Health risk behaviour (smoking, sex, alcohol and drugs)

Diet and nutrition

Breathing and asthma

Emotions, problem behaviours and social development

Emotional or behavioural difficulties – Strengths and Difficulties Questionnaire

Depression and suicidal behaviour

Perceptions and experience of school

Experience of racism and bullying

Exposure to family violence, alcohol and gambling

Physical fitness and participation in sport

Religious beliefs and practice of religion

Friends and peer influence

Family support and encouragement

5a.   Principal's Questionnaire: School Details

School contact information, school type and year range

Student enrolment (Aboriginal and non-Aboriginal students)

Number of teaching staff (Aboriginal and non-Aboriginal)

Number of non-teaching staff (Aboriginal and non-Aboriginal)

Number of support staff external to the school (Aboriginal and non-Aboriginal)

Proportion of new (inexperienced) teachers

Implementation of professional development and curriculum activities for Aboriginal education

Principal's ratings of:

– School, social and community problems affecting the overall school environment

– School morale and pastoral care arrangements

– School's resources for education of Aboriginal students

Whether school has access to an Aboriginal Islander Education Officer (AIEO)

Whether school has an Aboriginal Student Support and Parent Awareness (ASSPA) Committee

5b.   Principal's Questionnaire — Student Academic Details

Main language spoken – at home, in the playground, in the classroom

Rating of overall academic performance

Achievements in literacy and numeracy

Duration of current enrolment at this school

Attendance record this year

Whether boarding, hostel or day student

Whether removed from class for behaviour problems

Use and need of educational support services

5c.   Teacher's Questionnaire — Student behaviour

Emotional or behavioural difficulties – Strengths and Difficulties Questionnaire

Functional impairment (peer relations, classroom learning)

Burden and need for professional help

5d.   Teacher's Questionnaire* — Student Skills

Matrices – Non-verbal reasoning skills

Word Definitions – English language proficiency

For high school students this section was administered by a school counsellor, form teacher, year head, or year coordinator

APPENDIX B: STRENGTHS AND DIFFICULTIES QUESTIONNAIRE (SDQ) CATI SURVEY OF NON-ABORIGINAL CHILDREN IN WA

INTRODUCTION

A supplementary survey was undertaken to obtain estimates of the proportion of non-Aboriginal children at high risk of clinically significant emotional or behavioural difficulties, in order to provide comparative figures to those obtained from the WAACHS in respect of Aboriginal Children. To achieve this, a telephone survey of 1,200 responding families with children aged 4–17 years was conducted by the Survey Research Centre at the University of Western Australia. The survey included basic demographic data about the child, and all the questions from the Strengths and Difficulties Questionnaire (SDQ). The data collection for this survey was undertaken in September 2004. The survey was conducted by means of computer assisted telephone interviewing (CATI), with telephone numbers selected at random from the electronic white pages. Figure B.1 gives a summary of how the telephone numbers were selected and screened. Households were only included in the survey if there was at least one child aged 4–17 years who was a resident of Western Australia.

RESPONSE RATE

In some households, the contacted respondent refused to participate in the survey and terminated the call before it was possible to determine if they would have been in-scope of the survey. As a result it is not possible to calculate an exact response rate. However, it was possible to estimate the approximate response rate, based on knowledge of the proportion of households that would have an in-scope child (24 per cent). Additional respondent refusals occurred after screening had identified the family as in-scope of the survey. Similarly, households that could not be contacted, obviously were not screened. Based on estimating the proportion of unscreened refusals and non-contacts that would be in-scope, it is estimated that 1,814 in-scope families were selected to obtain 1,200 completed interviews — a response rate of approximately 66 per cent.

Unlike the WAACHS, where all in-scope children were included in the survey, for the purposes of the CATI survey only one eligible child was included per household. If there was more than one child in the age range 4–17 years living in the household, the child with the next birthday was selected to participate in the survey. The primary carer of the child was then asked about the selected child only.

REPRESENTATIVENESS OF THE SAMPLE

Age, sex, postcode and indigenous status of the selected child were collected from the primary carer. The distribution of the sample according to these characteristics was compared with data from the 2001 Census. There was no evidence of any response bias by age or sex. Postcodes were mapped firstly to the Perth Statistical Division/ Remainder of WA, and also to each of the four socio-economic indexes in the 2001 SEIFA. There was no evidence of any response bias by either part of state or socio-economic status.

FIGURE B.1: ESTIMATED SURVEY RESPONSE RATES
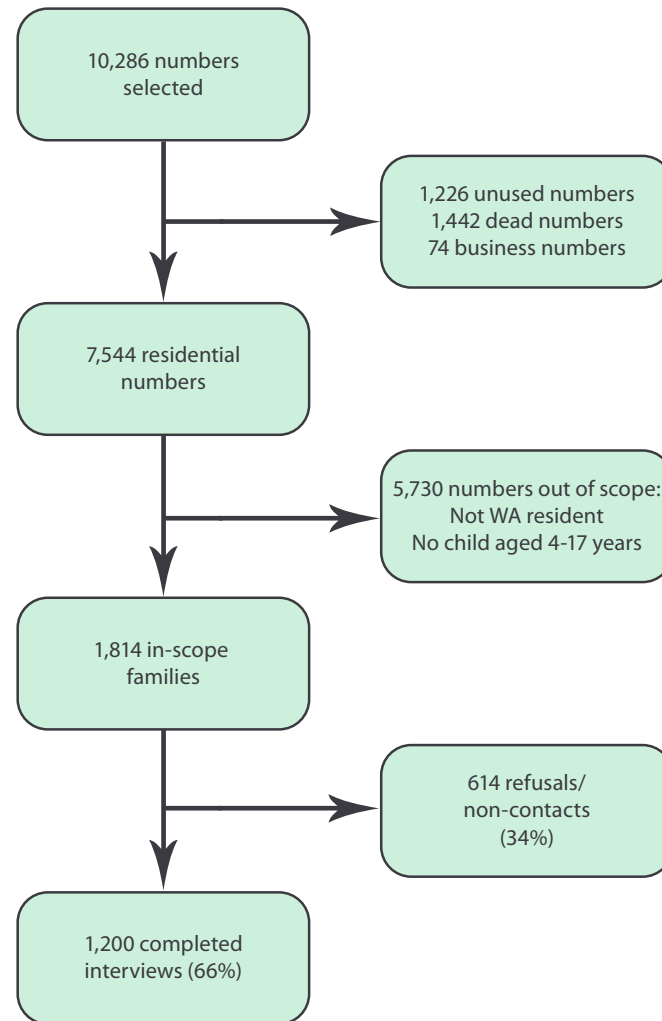
There were only 30 children identified as being of Aboriginal or Torres Strait Islander origin in the CATI survey. Based on 2001 ABS Estimated Resident Population figures,[1] 5.9 per cent of children aged 4–17 years in WA are of Aboriginal or Torres Strait Islander origin, which suggests that about 70 Aboriginal children should have been selected in the CATI survey. Thus it appears that Aboriginal children were under-represented in the CATI sample. However, as the purpose of the CATI survey was to obtain estimates of the proportion of non-Aboriginal children at high risk of clinically significant emotional or behavioural difficulties, and since the non-Aboriginal children in the CATI survey have been analysed separately, this issue does not directly impact on the representativeness of the CATI sample.

WEIGHTING

The 1,170 non-indigenous children were analysed separately from the 30 Aboriginal children, and separate weights were derived for non-Aboriginal and Aboriginal children.

As there was no evidence of any consistent non-response bias, the non-Aboriginal sample was treated as self-weighting, and each child was given an equal weight, based on the 2001 ABS Estimated Resident Population figures.[2]

IMPUTATION

A small amount of item-level non-response occurred in cases where the primary carer answered 'don't know' to a question. Several SDQ items had no 'don't know' responses, while the highest number of non-responses for an item was 19.

The same method of non-response imputation was used for the CATI data as was used in the WAACHS sample (See *Appendix B* in *Volume One — The Health of Aboriginal Children and Young People*[3]). Random hot deck imputation was used to randomly choose donor records to contribute data for the missing records, within imputation classes. Imputation classes were based on age, sex and a Perth metropolitan area/Ex-metropolitan split.

RESULTS

Non-Aboriginal children

Most of the results from the CATI survey are shown in Chapter 2. They provide comparisons for the data on Aboriginal children collected in the WAACHS. Extra tables are presented here, based on region and the ABS Socio-Economic Indexes for Areas.[4] For both of these variables, data collected in the CATI survey is not directly comparable with data collected in the WAACHS. This is due to the fact that the WAACHS survey sample was selected based on Census Collection Districts as used in the 1996 census. For the CATI survey, participants were asked to provide their postcode, but it was not possible to assign participants to census collection districts. Area based statistics from the CATI survey are aggregated from postcodes and not Census Collection Districts.

As only postcode of residence was collected from the participants in the CATI survey, it was not possible to map the CATI survey respondents to the level of relative isolation categories used in the WAACHS. Even if this information had been available, due to the fact that the population of non-Aboriginal children in areas of high and extreme relative isolation is very sparse, it would not have been possible to produce estimates for these areas from this sample.

Table B.1 shows estimates of the proportion of non-Aboriginal children at high risk of clinically significant emotional or behavioural difficulties by age group and part of state. No significant differences were found between children residing within the Perth statistical division and the remainder of the state.

TABLE B.1: NON-ABORIGINAL CHILDREN AGED 4–17 YEARS IN WA — RISK OF CLINICALLY SIGNIFICANT EMOTIONAL OR BEHAVIOURAL DIFFICULTIES, BY AGE GROUP AND PART OF STATE

Age Group	Risk of clinically significant emotional or behavioural difficulties	Number	95% CI	%	95% CI
			Perth Statistical Division		
4–11 years	Low	107 000	(97 000 - 116 000)	72.4	(68.4 - 76.4)
	Moderate	17 700	(13 200 - 22 200)	12.0	(9.1 - 14.9)
	High	23 000	(17 900 - 28 000)	15.6	(12.3 - 18.8)
12–17 years	Low	86 900	(78 000 - 95 800)	78.2	(73.9 - 82.5)
	Moderate	9 930	(6 500 - 13 300)	8.9	(6.0 - 11.9)
	High	14 300	(10 200 - 18 300)	12.8	(9.4 - 16.3)
Total	Low	194 000	(183 000 - 204 000)	74.9	(72.0 - 77.9)
	Moderate	27 600	(22 100 - 33 100)	10.7	(8.6 - 12.8)
	High	37 300	(30 900 - 43 600)	14.4	(12.0 - 16.8)
			Remainder of WA		
4–11 years	Low	36 900	(30 700 - 43 200)	65.4	(58.5 - 72.3)
	Moderate	8 070	(5 000 - 11 100)	14.3	(9.2 - 19.4)
	High	11 500	(7 800 - 15 100)	20.3	(14.5 - 26.2)
12–17 years	Low	41 300	(34 700 - 47 900)	85.8	(80.3 - 91.3)
	Moderate	1 240	(30 - 2 460)	2.6	(0.1 - 5.1)
	High	5 590	(3 030 - 8 150)	11.6	(6.6 - 16.7)
Total	Low	78 200	(69 700 - 86 800)	74.8	(70.1 - 79.4)
	Moderate	9 310	(6 000 - 12 600)	8.9	(5.9 - 11.9)
	High	17 100	(12 700 - 21 500)	16.3	(12.4 - 20.3)
			Total WA		
4–11 years	Low	144 000	(134 000 - 154 000)	70.5	(67.0 - 74.0)
	Moderate	25 800	(20 400 - 31 100)	12.6	(10.1 - 15.2)
	High	34 500	(28 400 - 40 600)	16.9	(14.0 - 19.8)
12–17 years	Low	128 000	(118 000 - 138 000)	80.5	(77.1 - 83.9)
	Moderate	11 200	(7 600 - 14 800)	7.0	(4.8 - 9.2)
	High	19 900	(15 100 - 24 600)	12.5	(9.6 - 15.3)
Total	Low	272 000	(263 000 - 281 000)	74.9	(72.4 - 77.4)
	Moderate	36 900	(30 700 - 43 200)	10.2	(8.4 - 11.9)
	High	54 300	(46 900 - 61 700)	15.0	(12.9 - 17.0)

Tables B.2 to B.5 show the relationship between risk of clinically significant emotional or behavioural difficulties and the ABS SEIFA indexes based on postcode of residence. Each of the four indexes produced by the ABS has been tabulated. In Aboriginal children no association was found between socio-economic status and the risk of clinically significant emotional or behavioural difficulties (see Chapter 2). However, there was some evidence of an association between SEIFA and emotional or behavioural difficulties in non-Aboriginal children. The strongest association was seen with the Index of Education and Occupation. Among children living in postcodes in the bottom 20 per cent of the Index of Education and Occupation 19.1 per cent (CI: 13.6%–24.6%) were at high risk of clinically significant emotional or behavioural difficulties, compared to 9.6 per cent (CI: 5.8%–13.4%) of children living in postcodes in the highest 20 per cent of the Index of Education and Occupation.

TABLE B.2: NON-ABORIGINAL CHILDREN AGED 4–17 YEARS IN WA —RISK OF CLINICALLY SIGNIFICANT EMOTIONAL OR BEHAVIOURAL DIFFICULTIES, BY AGE GROUP AND POSTCODE DERIVED QUINTILES OF INDEX OF RELATIVE SOCIO-ECONOMIC ADVANTAGE

Age Group	Risk of clinically significant emotional or behavioural difficulties	Number	95% CI	%	95% CI
		Index of relative socio-economic advantage — Bottom 20%			
4–11 years	Low	23 300	(18 200 - 28 400)	70.8	(62.1 - 79.4)
	Moderate	3 410	(1 410 - 5 420)	10.4	(4.6 - 16.2)
	High	6 210	(3 510 - 8 910)	18.9	(11.4 - 26.3)
12–17 years	Low	26 100	(20 700 - 31 400)	81.6	(74.1 - 89.0)
	Moderate	1 550	(190 - 2 910)	4.9	(0.7 - 9.0)
	High	4 350	(2 080 - 6 610)	13.6	(7.0 - 20.2)
Total	Low	49 400	(42 200 - 56 500)	76.1	(70.3 - 81.9)
	Moderate	4 970	(2 550 - 7 380)	7.7	(4.1 - 11.3)
	High	10 600	(7 100 - 14 100)	16.3	(11.3 - 21.3)
		Index of relative socio-economic advantage — 2nd quintile			
4–11 years	Low	32 900	(26 900 - 38 900)	66.7	(59.3 - 74.0)
	Moderate	6 830	(4 000 - 9 660)	13.8	(8.5 - 19.2)
	High	9 620	(6 300 - 13 000)	19.5	(13.3 - 25.7)
12–17 years	Low	29 800	(24 100 - 35 500)	80.7	(73.6 - 87.8)
	Moderate	2 170	(570 - 3 780)	5.9	(1.7 - 10.1)
	High	4 970	(2 550 - 7 380)	13.4	(7.3 - 19.6)
Total	Low	62 700	(54 800 - 70 600)	72.7	(67.4 - 77.9)
	Moderate	9 000	(5 800 - 12 200)	10.4	(6.8 - 14.0)
	High	14 600	(10 500 - 18 700)	16.9	(12.5 - 21.3)
		Index of relative socio-economic advantage — 3rd quintile			
4–11 years	Low	29 800	(24 100 - 35 500)	71.1	(63.5 - 78.8)
	Moderate	5 590	(3 030 - 8 150)	13.3	(7.6 - 19.1)
	High	6 520	(3 760 - 9 280)	15.6	(9.4 - 21.7)
12–17 years	Low	19 200	(14 600 - 23 900)	74.7	(65.3 - 84.1)
	Moderate	2 170	(570 - 3 780)	8.4	(2.5 - 14.4)
	High	4 350	(2 080 - 6 610)	16.9	(8.8 - 24.9)
Total	Low	49 100	(41 900 - 56 200)	72.5	(66.5 - 78.4)
	Moderate	7 760	(4 800 - 10 800)	11.5	(7.2 - 15.7)
	High	10 900	(7 300 - 14 400)	16.1	(11.2 - 20.9)
		Index of relative socio-economic advantage — 4th quintile			
4–11 years	Low	31 000	(25 200 - 36 900)	73.5	(66.1 - 80.9)
	Moderate	4 040	(1 850 - 6 220)	9.6	(4.6 - 14.5)
	High	7 140	(4 300 - 10 000)	16.9	(10.6 - 23.2)
12–17 years	Low	20 800	(16 000 - 25 600)	76.1	(67.2 - 85.0)
	Moderate	3 410	(1 410 - 5 420)	12.5	(5.6 - 19.4)
	High	3 100	(1 190 - 5 020)	11.4	(4.7 - 18.0)
Total	Low	51 800	(44 600 - 59 100)	74.6	(68.9 - 80.3)
	Moderate	7 450	(4 500 - 10 400)	10.7	(6.7 - 14.8)
	High	10 200	(6 800 - 13 700)	14.7	(10.1 - 19.4)

TABLE B.2 (*continued*): NON-ABORIGINAL CHILDREN AGED 4–17 YEARS IN WA — RISK OF CLINICALLY SIGNIFICANT EMOTIONAL OR BEHAVIOURAL DIFFICULTIES, BY AGE GROUP AND POSTCODE DERIVED QUINTILES OF INDEX OF RELATIVE SOCIO-ECONOMIC ADVANTAGE

Age Group	Risk of clinically significant emotional or behavioural difficulties	Number	95% CI	%	95% CI
	Index of relative socio-economic advantage — Top 20%				
4–11 years	Low	26 700	(21 300 - 32 100)	71.7	(63.6 - 79.7)
	Moderate	5 590	(3 030 - 8 150)	15.0	(8.6 - 21.4)
	High	4 970	(2 550 - 7 380)	13.3	(7.3 - 19.4)
12–17 years	Low	32 300	(26 400 - 38 200)	86.7	(80.6 - 92.7)
	Moderate	1 860	(380 - 3 350)	5.0	(1.1 - 8.9)
	High	3 100	(1 190 - 5 020)	8.3	(3.4 - 13.3)
Total	Low	59 000	(51 300 - 66 700)	79.2	(74.0 - 84.3)
	Moderate	7 450	(4 500 - 10 400)	10.0	(6.2 - 13.8)
	High	8 070	(5 000 - 11 100)	10.8	(6.9 - 14.8)
	Total				
4–11 years	Low	144 000	(134 000 - 154 000)	70.5	(67.0 - 74.0)
	Moderate	25 800	(20 400 - 31 100)	12.6	(10.1 - 15.2)
	High	34 500	(28 400 - 40 600)	16.9	(14.0 - 19.8)
12–17 years	Low	128 000	(118 000 - 138 000)	80.5	(77.1 - 83.9)
	Moderate	11 200	(7 600 - 14 800)	7.0	(4.8 - 9.2)
	High	19 900	(15 100 - 24 600)	12.5	(9.6 - 15.3)
Total	Low	272 000	(263 000 - 281 000)	74.9	(72.4 - 77.4)
	Moderate	36 900	(30 700 - 43 200)	10.2	(8.4 - 11.9)
	High	54 300	(46 900 - 61 700)	15.0	(12.9 - 17.0)

TABLE B.3: NON-ABORIGINAL CHILDREN AGED 4–17 YEARS IN WA — RISK OF CLINICALLY SIGNIFICANT EMOTIONAL OR BEHAVIOURAL DIFFICULTIES, BY AGE GROUP AND POSTCODE DERIVED QUINTILES OF INDEX OF RELATIVE SOCIO-ECONOMIC DISADVANTAGE

Age Group	Risk of clinically significant emotional or behavioural difficulties	Number	95% CI	%	95% CI
	Index of relative socio-economic disadvantage — Bottom 20%				
4–11 years	Low	20 800	(16 000 - 25 600)	68.4	(59.2 - 77.6)
	Moderate	4 040	(1 850 - 6 220)	13.3	(6.6 - 20.0)
	High	5 590	(3 030 - 8 150)	18.4	(10.7 - 26.0)
12–17 years	Low	23 300	(18 200 - 28 400)	80.6	(72.6 - 88.7)
	Moderate	1 860	(380 - 3 350)	6.5	(1.5 - 11.4)
	High	3 730	(1 630 - 5 820)	12.9	(6.1 - 19.7)
Total	Low	44 100	(37 300 - 50 900)	74.3	(68.2 - 80.5)
	Moderate	5 900	(3 270 - 8 530)	9.9	(5.7 - 14.2)
	High	9 310	(6 000 - 12 600)	15.7	(10.5 - 20.9)
	Index of relative socio-economic disadvantage — 2nd quintile				
4–11 years	Low	25 800	(20 400 - 31 100)	66.4	(58.1 - 74.7)
	Moderate	4 660	(2 320 - 7 000)	12.0	(6.3 - 17.7)
	High	8 380	(5 300 - 11 500)	21.6	(14.4 - 28.8)
12–17 years	Low	24 200	(19 000 - 29 400)	78.8	(70.7 - 86.8)
	Moderate	2 480	(770 - 4 200)	8.1	(2.7 - 13.4)
	High	4 040	(1 850 - 6 220)	13.1	(6.5 - 19.8)
Total	Low	50 000	(42 800 - 57 100)	71.9	(66.0 - 77.8)
	Moderate	7 140	(4 300 - 10 000)	10.3	(6.3 - 14.2)
	High	12 400	(8 600 - 16 200)	17.9	(12.8 - 22.9)

TABLE B.3 (*continued*): NON-ABORIGINAL CHILDREN AGED 4–17 YEARS IN WA — RISK OF CLINICALLY SIGNIFICANT EMOTIONAL OR BEHAVIOURAL DIFFICULTIES, BY AGE GROUP AND POSTCODE DERIVED QUINTILES OF INDEX OF RELATIVE SOCIO-ECONOMIC DISADVANTAGE

Age Group	Risk of clinically significant emotional or behavioural difficulties	Number	95% CI	%	95% CI
	Index of relative socio-economic disadvantage — 3rd quintile				
4–11 years	Low	36 300	(30 100 - 42 600)	74.5	(67.7 - 81.3)
	Moderate	6 210	(3 510 - 8 910)	12.7	(7.5 - 18.0)
	High	6 210	(3 510 - 8 910)	12.7	(7.5 - 18.0)
12–17 years	Low	24 200	(19 000 - 29 400)	78.0	(69.9 - 86.1)
	Moderate	1 860	(380 - 3 350)	6.0	(1.3 - 10.7)
	High	4 970	(2 550 - 7 380)	16.0	(8.8 - 23.2)
Total	Low	60 500	(52 800 - 68 300)	75.9	(70.6 - 81.1)
	Moderate	8 070	(5 000 - 11 100)	10.1	(6.4 - 13.8)
	High	11 200	(7 600 - 14 800)	14.0	(9.8 - 18.3)
	Index of relative socio-economic disadvantage — 4th quintile				
4–11 years	Low	32 900	(26 900 - 38 900)	70.7	(63.4 - 78.0)
	Moderate	5 280	(2 790 - 7 770)	11.3	(6.3 - 16.4)
	High	8 380	(5 300 - 11 500)	18.0	(11.9 - 24.1)
12–17 years	Low	23 900	(18 700 - 29 100)	76.2	(67.9 - 84.5)
	Moderate	4 040	(1 850 - 6 220)	12.9	(6.3 - 19.4)
	High	3 410	(1 410 - 5 420)	10.9	(4.8 - 17.0)
Total	Low	56 800	(49 300 - 64 400)	72.9	(67.4 - 78.4)
	Moderate	9 310	(6 000 - 12 600)	12.0	(7.9 - 16.0)
	High	11 800	(8 100 - 15 500)	15.1	(10.7 - 19.6)
	Index of relative socio-economic disadvantage — Top 20%				
4–11 years	Low	27 900	(22 400 - 33 500)	71.4	(63.5 - 79.3)
	Moderate	5 280	(2 790 - 7 770)	13.5	(7.5 - 19.5)
	High	5 900	(3 270 - 8 530)	15.1	(8.8 - 21.3)
12–17 years	Low	32 600	(26 600 - 38 500)	87.5	(81.6 - 93.4)
	Moderate	930	(0 - 1 980)	2.5	(0.0 - 5.3)
	High	3 730	(1 630 - 5 820)	10.0	(4.6 - 15.4)
Total	Low	60 500	(52 800 - 68 300)	79.3	(74.2 - 84.3)
	Moderate	6 210	(3 510 - 8 910)	8.1	(4.7 - 11.5)
	High	9 620	(6 300 - 13 000)	12.6	(8.5 - 16.7)
	Total				
4–11 years	Low	144 000	(134 000 - 154 000)	70.5	(67.0 - 74.0)
	Moderate	25 800	(20 400 - 31 100)	12.6	(10.1 - 15.2)
	High	34 500	(28 400 - 40 600)	16.9	(14.0 - 19.8)
12–17 years	Low	128 000	(118 000 - 138 000)	80.5	(77.1 - 83.9)
	Moderate	11 200	(7 600 - 14 800)	7.0	(4.8 - 9.2)
	High	19 900	(15 100 - 24 600)	12.5	(9.6 - 15.3)
Total	Low	272 000	(263 000 - 281 000)	74.9	(72.4 - 77.4)
	Moderate	36 900	(30 700 - 43 200)	10.2	(8.4 - 11.9)
	High	54 300	(46 900 - 61 700)	15.0	(12.9 - 17.0)

TABLE B.4: NON-ABORIGINAL CHILDREN AGED 4–17 YEARS IN WA — RISK OF CLINICALLY SIGNIFICANT EMOTIONAL OR BEHAVIOURAL DIFFICULTIES, BY AGE GROUP AND POSTCODE DERIVED QUINTILES OF INDEX OF EDUCATION AND OCCUPATION

Age Group	Risk of clinically significant emotional or behavioural difficulties	Number	95% CI	%	95% CI
		Index of education and occupation — Bottom 20%			
4–11 years	Low	22 400	(17 400 - 27 400)	67.3	(58.4 - 76.2)
	Moderate	3 410	(1 410 - 5 420)	10.3	(4.5 - 16.0)
	High	7 450	(4 500 - 10 400)	22.4	(14.5 - 30.3)
12–17 years	Low	22 400	(17 400 - 27 400)	78.3	(69.8 - 86.7)
	Moderate	1 860	(380 - 3 350)	6.5	(1.5 - 11.6)
	High	4 350	(2 080 - 6 610)	15.2	(7.9 - 22.6)
Total	Low	44 700	(37 900 - 51 500)	72.4	(66.1 - 78.6)
	Moderate	5 280	(2 790 - 7 770)	8.5	(4.7 - 12.4)
	High	11 800	(8 100 - 15 500)	19.1	(13.6 - 24.6)
		Index of education and occupation — 2nd quintile			
4–11 years	Low	31 000	(25 200 - 36 900)	69.4	(61.9 - 77.0)
	Moderate	5 280	(2 790 - 7 770)	11.8	(6.5 - 17.1)
	High	8 380	(5 300 - 11 500)	18.8	(12.4 - 25.1)
12–17 years	Low	31 000	(25 200 - 36 900)	82.6	(75.9 - 89.4)
	Moderate	1 860	(380 - 3 350)	5.0	(1.1 - 8.8)
	High	4 660	(2 320 - 7 000)	12.4	(6.5 - 18.3)
Total	Low	62 100	(54 300 - 69 900)	75.5	(70.3 - 80.7)
	Moderate	7 140	(4 300 - 10 000)	8.7	(5.3 - 12.1)
	High	13 000	(9 200 - 16 900)	15.8	(11.5 - 20.2)
		Index of education and occupation — 3rd quintile			
4–11 years	Low	32 600	(26 600 - 38 500)	68.6	(61.3 - 76.0)
	Moderate	7 450	(4 500 - 10 400)	15.7	(9.9 - 21.4)
	High	7 450	(4 500 - 10 400)	15.7	(9.9 - 21.4)
12–17 years	Low	21 700	(16 800 - 26 700)	76.1	(67.4 - 84.8)
	Moderate	2 170	(570 - 3 780)	7.6	(2.2 - 13.0)
	High	4 660	(2 320 - 7 000)	16.3	(8.8 - 23.9)
Total	Low	54 300	(46 900 - 61 700)	71.4	(65.8 - 77.1)
	Moderate	9 620	(6 300 - 13 000)	12.7	(8.5 - 16.8)
	High	12 100	(8 400 - 15 800)	15.9	(11.3 - 20.5)
		Index of education and occupation — 4th quintile			
4–11 years	Low	32 300	(26 400 - 38 200)	74.8	(67.6 - 82.0)
	Moderate	4 040	(1 850 - 6 220)	9.4	(4.5 - 14.2)
	High	6 830	(4 000 - 9 660)	15.8	(9.8 - 21.9)
12–17 years	Low	21 700	(16 800 - 26 700)	76.1	(67.4 - 84.8)
	Moderate	3 100	(1 190 - 5 020)	10.9	(4.5 - 17.2)
	High	3 730	(1 630 - 5 820)	13.0	(6.2 - 19.9)
Total	Low	54 000	(46 600 - 61 400)	75.3	(69.8 - 80.9)
	Moderate	7 140	(4 300 - 10 000)	10.0	(6.1 - 13.8)
	High	10 600	(7 100 - 14 100)	14.7	(10.2 - 19.3)

Continued . . . .

TABLE B.4 (*continued*): NON-ABORIGINAL CHILDREN AGED 4–17 YEARS IN WA — RISK OF CLINICALLY SIGNIFICANT EMOTIONAL OR BEHAVIOURAL DIFFICULTIES, BY AGE GROUP AND POSTCODE DERIVED QUINTILES OF INDEX OF EDUCATION AND OCCUPATION

Age Group	Risk of clinically significant emotional or behavioural difficulties	Number	95% CI	%	95% CI
		Index of education and occupation — Top 20%			
4–11 years	Low	25 500	(20 100 - 30 800)	72.6	(64.3 - 80.8)
	Moderate	5 280	(2 790 - 7 770)	15.0	(8.5 - 21.6)
	High	4 350	(2 080 - 6 610)	12.4	(6.3 - 18.5)
12–17 years	Low	31 400	(25 500 - 37 200)	87.1	(81.0 - 93.2)
	Moderate	2 170	(570 - 3 780)	6.0	(1.7 - 10.4)
	High	2 480	(770 - 4 200)	6.9	(2.3 - 11.5)
Total	Low	56 800	(49 300 - 64 400)	79.9	(74.7 - 85.1)
	Moderate	7 450	(4 500 - 10 400)	10.5	(6.5 - 14.4)
	High	6 830	(4 000 - 9 660)	9.6	(5.8 - 13.4)
		Total			
4–11 years	Low	144 000	(134 000 - 154 000)	70.5	(67.0 - 74.0)
	Moderate	25 800	(20 400 - 31 100)	12.6	(10.1 - 15.2)
	High	34 500	(28 400 - 40 600)	16.9	(14.0 - 19.8)
12–17 years	Low	128 000	(118 000 - 138 000)	80.5	(77.1 - 83.9)
	Moderate	11 200	(7 600 - 14 800)	7.0	(4.8 - 9.2)
	High	19 900	(15 100 - 24 600)	12.5	(9.6 - 15.3)
Total	Low	272 000	(263 000 - 281 000)	74.9	(72.4 - 77.4)
	Moderate	36 900	(30 700 - 43 200)	10.2	(8.4 - 11.9)
	High	54 300	(46 900 - 61 700)	15.0	(12.9 - 17.0)

TABLE B.5: NON-ABORIGINAL CHILDREN AGED 4–17 YEARS IN WA — RISK OF CLINICALLY SIGNIFICANT EMOTIONAL OR BEHAVIOURAL DIFFICULTIES, BY AGE GROUP AND POSTCODE DERIVED QUINTILES OF INDEX OF ECONOMIC RESOURCES

Age Group	Risk of clinically significant emotional or behavioural difficulties	Number	95% CI	%	95% CI
		Index of economic resources — Bottom 20%			
4–11 years	Low	29 800	(24 100 - 35 500)	69.1	(61.4 - 76.7)
	Moderate	4 970	(2 550 - 7 380)	11.5	(6.2 - 16.8)
	High	8 380	(5 300 - 11 500)	19.4	(12.8 - 26.0)
12–17 years	Low	30 400	(24 700 - 36 200)	83.1	(76.3 - 89.8)
	Moderate	1 550	(190 - 2 910)	4.2	(0.6 - 7.9)
	High	4 660	(2 320 - 7 000)	12.7	(6.7 - 18.7)
Total	Low	60 200	(52 500 - 68 000)	75.5	(70.2 - 80.7)
	Moderate	6 520	(3 760 - 9 280)	8.2	(4.8 - 11.5)
	High	13 000	(9 200 - 16 900)	16.3	(11.8 - 20.9)
		Index of economic resources — 2nd quintile			
4–11 years	Low	24 200	(19 000 - 29 400)	68.4	(59.9 - 77.0)
	Moderate	4 970	(2 550 - 7 380)	14.0	(7.7 - 20.4)
	High	6 210	(3 510 - 8 910)	17.5	(10.6 - 24.5)
12–17 years	Low	22 000	(17 100 - 27 000)	74.7	(66.0 - 83.5)
	Moderate	2 790	(980 - 4 610)	9.5	(3.6 - 15.4)
	High	4 660	(2 320 - 7 000)	15.8	(8.5 - 23.1)
Total	Low	46 300	(39 300 - 53 200)	71.3	(65.2 - 77.4)
	Moderate	7 760	(4 800 - 10 800)	12.0	(7.6 - 16.4)
	High	10 900	(7 300 - 14 400)	16.7	(11.7 - 21.8)

TABLE B.5 (*continued*): NON-ABORIGINAL CHILDREN AGED 4–17 YEARS IN WA — RISK OF CLINICALLY SIGNIFICANT EMOTIONAL OR BEHAVIOURAL DIFFICULTIES, BY AGE GROUP AND POSTCODE DERIVED QUINTILES OF INDEX OF ECONOMIC RESOURCES

Age Group	Risk of clinically significant emotional or behavioural difficulties	Number	95% CI	%	95% CI
		Index of economic resources — 3rd quintile			
4–11 years	Low	29 200	(23 500 - 34 800)	72.9	(65.2 - 80.5)
	Moderate	4 970	(2 550 - 7 380)	12.4	(6.7 - 18.1)
	High	5 900	(3 270 - 8 530)	14.7	(8.6 - 20.8)
12–17 years	Low	19 200	(14 600 - 23 900)	79.5	(70.5 - 88.4)
	Moderate	1 860	(380 - 3 350)	7.7	(1.8 - 13.6)
	High	3 100	(1 190 - 5 020)	12.8	(5.4 - 20.2)
Total	Low	48 400	(41 400 - 55 500)	75.4	(69.5 - 81.2)
	Moderate	6 830	(4 000 - 9 660)	10.6	(6.4 - 14.8)
	High	9 000	(5 800 - 12 200)	14.0	(9.3 - 18.7)
		Index of economic resources — 4th quintile			
4–11 years	Low	32 600	(26 600 - 38 500)	72.4	(65.1 - 79.7)
	Moderate	4 970	(2 550 - 7 380)	11.0	(5.9 - 16.1)
	High	7 450	(4 500 - 10 400)	16.6	(10.5 - 22.6)
12–17 years	Low	27 900	(22 400 - 33 500)	78.9	(71.5 - 86.4)
	Moderate	3 410	(1 410 - 5 420)	9.6	(4.2 - 15.1)
	High	4 040	(1 850 - 6 220)	11.4	(5.6 - 17.2)
Total	Low	60 500	(52 800 - 68 300)	75.3	(70.0 - 80.5)
	Moderate	8 380	(5 300 - 11 500)	10.4	(6.7 - 14.1)
	High	11 500	(7 800 - 15 100)	14.3	(10.0 - 18.5)
		Index of economic resources — Top 20%			
4–11 years	Low	27 900	(22 400 - 33 500)	69.8	(61.8 - 77.7)
	Moderate	5 590	(3 030 - 8 150)	14.0	(8.0 - 19.9)
	High	6 520	(3 760 - 9 280)	16.3	(9.9 - 22.6)
12–17 years	Low	28 600	(23 000 - 34 200)	85.2	(78.5 - 91.9)
	Moderate	1 550	(190 - 2 910)	4.6	(0.7 - 8.6)
	High	3 410	(1 410 - 5 420)	10.2	(4.5 - 15.9)
Total	Low	56 500	(49 000 - 64 000)	76.8	(71.4 - 82.2)
	Moderate	7 140	(4 300 - 10 000)	9.7	(5.9 - 13.5)
	High	9 930	(6 500 - 13 300)	13.5	(9.2 - 17.9)
		Total			
4–11 years	Low	144 000	(134 000 - 154 000)	70.5	(67.0 - 74.0)
	Moderate	25 800	(20 400 - 31 100)	12.6	(10.1 - 15.2)
	High	34 500	(28 400 - 40 600)	16.9	(14.0 - 19.8)
12–17 years	Low	128 000	(118 000 - 138 000)	80.5	(77.1 - 83.9)
	Moderate	11 200	(7 600 - 14 800)	7.0	(4.8 - 9.2)
	High	19 900	(15 100 - 24 600)	12.5	(9.6 - 15.3)
Total	Low	272 000	(263 000 - 281 000)	74.9	(72.4 - 77.4)
	Moderate	36 900	(30 700 - 43 200)	10.2	(8.4 - 11.9)
	High	54 300	(46 900 - 61 700)	15.0	(12.9 - 17.0)

To test the relationship between age and sex of child, socio-economic status and place of residence, a multivariate logistic regression model was fitted to the CATI data. The results of this model are shown in Table B.6. After adjusting for age, sex and place of residence, a strong association was found between the Index of Education and Occupation and risk of clinically significant emotional or behavioural difficulties. Children living in postcodes in the bottom 20 per cent of the Index of Education and Occupation were more than twice as likely to be at high risk of clinically significant

emotional or behavioural difficulties than children living in postcodes in the top 20 per cent of the Index of Education and Occupation (Odds Ratio 2.29; CI: 1.26–4.16). No association was found between either sex or place of residence and emotional or behavioural difficulties in non-Aboriginal children. Children aged 8–11 years were at most likely to be at high risk of clinically significant emotional or behavioural difficulties, with children in this age range 1.6 times more likely (Odds Ratio 1.64; CI: 1.09–2.49) than children aged 4–11 years to be at high risk of clinically significant emotional or behavioural difficulties.

TABLE B.6: NON-ABORIGINAL CHILDREN AGED 4–17 YEARS — LIKELIHOOD OF BEING AT HIGH RISK OF CLINICALLY SIGNIFICANT EMOTIONAL OR BEHAVIOURAL DIFFICULTIES, ASSOCIATED WITH AGE GROUP, SEX, PART OF STATE AND SEIFA

Parameter	Significance (p value)	Odds Ratio	95% CI
Sex			
Male	0.395	1.15	(0.83 - 1.60)
Female		1.00	
Age group (years)			
4–7		1.00	
8–11	0.019	1.64	(1.09 - 2.49)
12–14	0.791	0.94	(0.59 - 1.49)
15–17	0.584	0.87	(0.53 - 1.43)
Part of state			
Perth Statistical Division		1.00	
Remainder of WA	0.836	0.96	(0.66 - 1.42)
Quintiles of Index of Education and Occupation (a)			
Bottom 20%	0.007	2.29	(1.26 - 4.16)
2nd quintile	0.040	1.65	(0.93 - 2.93)
3rd quintile	0.048	1.80	(1.00 - 3.22)
4th quintile	0.089	1.83	(1.03 - 3.26)
Top 20%		1.00	

(a) Of the four indexes in SEIFA, the Index of Education and Occupation was the only one that was significantly associated with emotional or behavioural difficulties.

ABORIGINAL CHILDREN

Only 30 children were identified as being of Aboriginal or Torres Strait Islander origin in the CATI survey. Based on this small sample, an estimated one-third of Aboriginal children were at high risk of clinically significant emotional or behavioural difficulties (33.3 per cent; CI: 15.4%–51.2%) (Table B.7). Taking into account the small sample size and wide confidence interval on these estimates, the results of the CATI survey are supportive of the findings from the WAACHS survey, which was conducted by face-to-face interview.

TABLE B.7: ABORIGINAL CHILDREN AGED 4–17 YEARS IN WA — RISK OF CLINICALLY SIGNIFICANT EMOTIONAL OR BEHAVIOURAL DIFFICULTIES

Risk of clinically significant emotional or behavioural difficulties	Number	95% CI	%	95% CI
Low	13 700	(9 500 - 18 000)	60.0	(41.4 - 78.6)
Moderate	1 530	(0 - 3 700)	6.7	(0.0 - 16.1)
High	7 630	(3 500 - 11 700)	33.3	(15.4 - 51.2)
Total	**22 900**	**(22 800 - 22 900)**	**100.0**	

ENDNOTES

1. Australian Bureau of Statistics. *Population distribution Aboriginal and Torres Strait Islander Australians 2001.* Canberra: Australian Bureau of Statistics (Catalogue 4705.0); 2002.

2. Australian Bureau of Statistics. *Population by age and sex Australian States and Territories June 2001.* Canberra: Australian Bureau of Statistics (Catalogue 3201.0); 2002.

3. Zubrick SR, Lawrence DM, Silburn SR, Blair E, Milroy H, Wilkes T, Eades S, D'Antoine H, Read A, Ishiguchi P, Doyle S. *The Western Australian Aboriginal Child Health Survey: The health of Aboriginal children and young people.* Perth: Telethon Institute for Child Health Research; 2004.

4. Australian Bureau of Statistics. *Information paper Census of Population and Housing Socio-economic Indexes for Areas Australia 2001.* Canberra: Australian Bureau of Statistics (Catalogue 2039.0); 2003.

APPENDIX C: MEASURES DERIVED FROM MULTIPLE RESPONSES AND SCALES

The WAACHS survey questionnaires included several sets of questions that were designed to be analysed by grouping them together to form summary measures. For instance, the Strengths and Difficulties Questionnaire (SDQ), which has produced the main measure of risk of clinically significant emotional or behavioural difficulties (used throughout this volume and described in detail in Chapter 2), produces a single measure of risk from a set of 25 questions.

Several other summary measures have been used in this publication, and details of their derivation are included in this appendix. These are:

◆ Number of life stress events

◆ Family functioning

◆ Youth self-esteem

◆ Youth derived parenting style

◆ Carer derived quality of parenting.

LIFE STRESS EVENTS

This question was included on the primary carer form. Carers were asked:

'Have any of these things happened in your family in the past 12 months?

a   A close family member had a serious medical problem (illness or accident) and was in hospital.

b   A close family member was badly hurt or sick.

c   A close family member was arrested or in gaol/prison.

d   Your child/children were involved in or upset by family arguments.

e   A parent/caregiver lost his/her job or became unemployed.

f   A close family member had an alcohol or drug problem.

g   Your family didn't have enough money to buy food, for bus fares or to pay bills.

h   A close family member has a physical handicap.

i   An important family member passed away.

j   Parents or carers left because of family split-up.

k   You have felt too crowded where you lived.

l   Your child/children had to take care of others in the family.

m   Your child/children have been in a foster home.

n   Your child/children were badly scared by other people's behaviour.

o   Other (please specify).'

Less than 5 per cent of carers reported an 'other' type of life stress event (3.4 per cent; CI: 2.6%–4.5%), and the specified events covered such a diverse set of circumstances that the 'other' item was excluded from the analysis of life stress events. This left a

set of 14 events that could be combined to produce a score in the range 0–14. The frequency of occurrence of each of these life stress events in the previous 12 months is shown in Table C.1.

TABLE C.1: PRIMARY CARERS — FREQUENCY OF LIFE STRESS EVENTS IN THE LAST 12 MONTHS

Life stress event	Number	95% CI	%	95% CI
A close family member had a serious medical problem (illness or accident) and was in hospital	7 090	(6 790 - 7 390)	56.4	(54.0 - 58.8)
A close family member was badly hurt or sick	6 490	(6 190 - 6 790)	51.7	(49.3 - 54.1)
A close family member was arrested or in gaol/prison	4 640	(4 340 - 4 940)	36.9	(34.6 - 39.3)
Your child/children were involved in or upset by family arguments	4 120	(3 830 - 4 410)	32.8	(30.5 - 35.1)
A parent/carer lost his/her job or became unemployed	1 590	(1 400 - 1 810)	12.7	(11.1 - 14.4)
A close family member had an alcohol or drug problem	5 320	(5 010 - 5 620)	42.3	(39.9 - 44.7)
Your family didn't have enough money to buy food, for bus fares or to pay bills	3 710	(3 440 - 4 000)	29.6	(27.4 - 31.8)
A close family member has a physical handicap	2 600	(2 360 - 2 870)	20.7	(18.8 - 22.8)
An important family member passed away	6 290	(5 980 - 6 600)	50.0	(47.6 - 52.6)
Parents or carer left because of family split-up	1 480	(1 310 - 1 680)	11.8	(10.4 - 13.4)
You have felt too crowded where you lived	3 230	(2 970 - 3 510)	25.7	(23.6 - 27.9)
Your child/children had to take care of others in the family	1 930	(1 720 - 2 150)	15.4	(13.7 - 17.1)
Your child/children have been in a foster home	210	(140 - 300)	1.6	(1.1 - 2.4)
Your child/children were badly scared by other peoples behaviour	4 060	(3 780 - 4 350)	32.3	(30.1 - 34.7)
Other	430	(330 - 560)	3.4	(2.6 - 4.5)
Total Primary Carers	**12 600**	**(12 500 - 12 600)**	**100.0**	

The relationship between these life stress events was explored by fitting a Euclidean distance model which is shown in Figure C.1. The purpose of this type of analysis is to graphically depict the correlation between various life stress events. Rather than looking at the correlation between all possible pairs of events, the life stress events are placed into a two-dimensional space, using a dimension reduction algorithm that represents the best placement of the events within two dimensions. The dimensions are arbitrary and do not necessarily have any specific meaning. However, the location of two items close together on the graph shows that carers who reported one event were likely to report the other. The closeness of the items is a representation of the degree of correlation between them. Figure C.1 shows, for instance, that a family member being badly hurt or sick was strongly correlated with a family member being admitted to hospital for a serious medical problem, and strongly correlated with the death of an important family member.

FIGURE C.1 RELATIONSHIP BETWEEN LIFE STRESS EVENTS

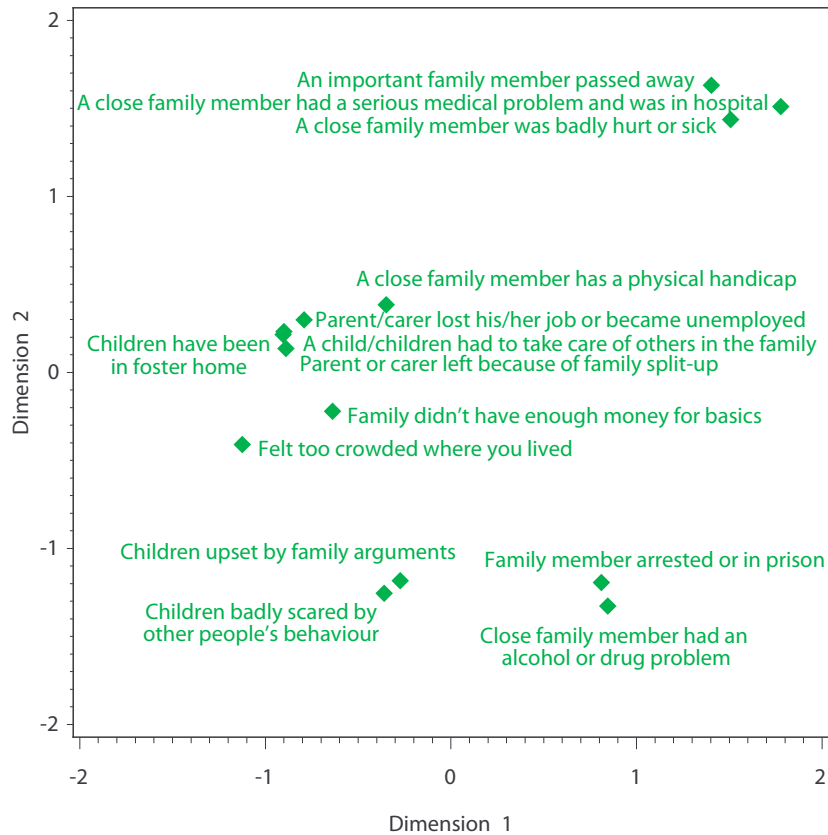**FIGURE C.2:** PRIMARY CARERS — NUMBER OF LIFE STRESS EVENTS REPORTED IN LAST 12 MONTHS
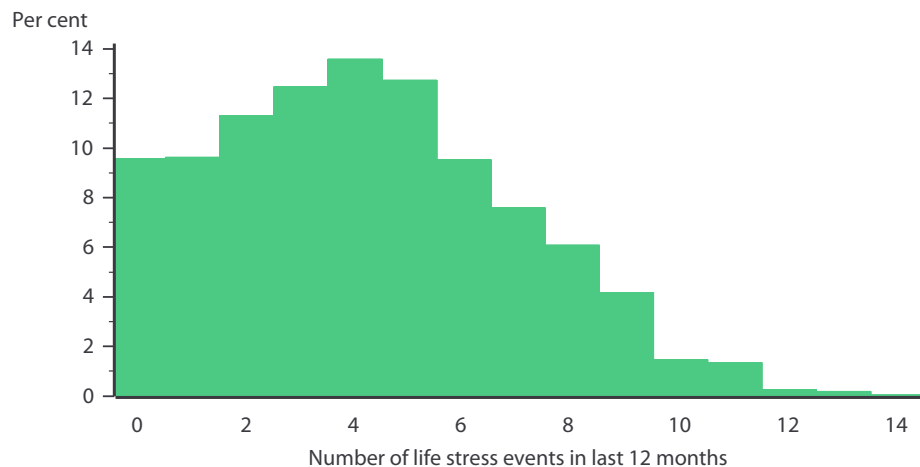

Figure C.2 shows the frequency distribution of the number of life stress events reported by carers. Based on the distribution of the number of life stress events experienced by carers over the preceding 12 months, and with no specific reason to classify them in any other way, quartiles were imposed. The ranges used were 0–2

events, 3–4 events, 5–6 events, 7–14 events. Because the data item is discrete, it is not possible to get exact quartile divisions. As seen in Table C.2, some 30.5 per cent of primary carers (CI: 28.3%–32.8%) fell in the bottom quartile reporting 2 life stress events or less, while only 21.2 per cent of primary carers (CI: 19.3%–23.1%) fell in the top quartile reporting 7 life stress events or more. These quartile ranges have been used in the analysis of life stress events in this volume.

TABLE C.2: PRIMARY CARERS — NUMBER OF LIFE STRESS EVENTS IN THE PREVIOUS 12 MONTHS

Number of life stress events	Number	95% CI	%	95% CI
0–2	3 840	(3 560 - 4 120)	30.5	(28.3 - 32.8)
3–4	3 270	(3 020 - 3 540)	26.1	(24.0 - 28.2)
5–6	2 800	(2 540 - 3 070)	22.3	(20.2 - 24.4)
7–14	2 660	(2 420 - 2 900)	21.2	(19.3 - 23.1)
Total	**12 600**	**(12 500 - 12 600)**	**100.0**	

FAMILY FUNCTIONING

Family functioning was measured by means of a nine-item scale specifically developed for the survey. The items were based on items from the McMaster Family Assessment Device,[1] and were designed to measure the extent to which families have established a climate of co-operation, emotional support and good communication. The question was included on the primary carer form. Carers were asked:

'Here are some statements about families. How well do these match the way things are done in your family?

(i)   The way we get on together helps us to cope with hard times.

(ii)   We like to remember people's birthdays and celebrate other special events.

(iii)   We find it easy to talk with each other about things that really matter.

(iv)   We are always there for each other and know that the family will survive no matter what.

(v)   When it comes to managing money we are careful and make good decisions.

(vi)   Our family has a lot in common in the interests we share and the things we do.

(vii)   People in our family are accepted for who they are.

(viii) We have good support from our in-laws, relatives and friends.

(ix)   We have family traditions and customs we would like to pass on to our children.'

Carers were shown a prompt card to assist them in answering the question. The prompt card included the following response scale:

1   Not at all

2   A little

3   Some

4   Quite a lot

5   Very much

TABLE C.3: PRIMARY CARERS — RESPONSES TO FAMILY FUNCTIONING ITEMS

Response	Number	95% CI	%	95% CI
The way we get on together helps us cope with hard times				
Not at all	230	(150 - 340)	1.8	(1.2 - 2.7)
A little	410	(330 - 510)	3.3	(2.6 - 4.1)
Some	1 730	(1 530 - 1 930)	13.7	(12.2 - 15.4)
Quite a lot	4 070	(3 790 - 4 360)	32.4	(30.1 - 34.7)
Very much	6 130	(5 820 - 6 440)	48.8	(46.3 - 51.3)
We like to remember people's birthdays and celebrate other special events				
Not at all	470	(380 - 580)	3.8	(3.0 - 4.6)
A little	600	(460 - 750)	4.8	(3.7 - 6.0)
Some	1 850	(1 650 - 2 080)	14.8	(13.1 - 16.5)
Quite a lot	3 070	(2 810 - 3 330)	24.4	(22.4 - 26.5)
Very much	6 570	(6 250 - 6 880)	52.3	(49.8 - 54.8)
We find it easy to talk with each other about things that really matter				
Not at all	270	(200 - 360)	2.2	(1.6 - 2.9)
A little	860	(710 - 1 030)	6.9	(5.7 - 8.2)
Some	2 070	(1 850 - 2 290)	16.4	(14.7 - 18.2)
Quite a lot	3 850	(3 580 - 4 130)	30.6	(28.5 - 32.9)
Very much	5 520	(5 190 - 5 830)	43.9	(41.3 - 46.4)
We are always there for each other and know the family will survive no matter what				
Not at all	130	(90 - 200)	1.1	(0.7 - 1.6)
A little	270	(200 - 350)	2.1	(1.6 - 2.8)
Some	710	(590 - 840)	5.7	(4.7 - 6.7)
Quite a lot	2 810	(2 570 - 3 060)	22.4	(20.4 - 24.4)
Very much	8 640	(8 370 - 8 910)	68.8	(66.6 - 70.9)
When it comes to managing money we are careful and make good decisions				
Not at all	240	(150 - 360)	1.9	(1.2 - 2.9)
A little	850	(710 - 1 020)	6.8	(5.6 - 8.1)
Some	3 520	(3 250 - 3 810)	28.1	(25.9 - 30.3)
Quite a lot	3 910	(3 640 - 4 200)	31.1	(28.9 - 33.4)
Very much	4 030	(3 750 - 4 320)	32.1	(29.9 - 34.4)
Our family has a lot in common in the interests we share and the things we do				
Not at all	300	(220 - 410)	2.4	(1.7 - 3.3)
A little	570	(460 - 680)	4.5	(3.7 - 5.4)
Some	1 850	(1 650 - 2 060)	14.7	(13.1 - 16.4)
Quite a lot	4 230	(3 960 - 4 520)	33.7	(31.5 - 35.9)
Very much	5 610	(5 310 - 5 920)	44.7	(42.3 - 47.1)
People in our family are accepted for who they are				
Not at all	80	(40 - 150)	0.6	(0.3 - 1.2)
A little	210	(140 - 290)	1.7	(1.1 - 2.3)
Some	750	(630 - 890)	6.0	(5.0 - 7.1)
Quite a lot	2 480	(2 250 - 2 720)	19.7	(17.9 - 21.6)
Very much	9 050	(8 780 - 9 300)	72.0	(69.9 - 74.0)
We have good support from our in-laws, relatives and friends				
Not at all	640	(520 - 760)	5.1	(4.2 - 6.1)
A little	860	(720 - 1 010)	6.8	(5.8 - 8.0)
Some	1 860	(1 660 - 2 080)	14.8	(13.2 - 16.6)
Quite a lot	2 590	(2 340 - 2 840)	20.6	(18.6 - 22.6)
Very much	6 620	(6 320 - 6 920)	52.7	(50.3 - 55.1)

Continued . . . .

TABLE C.3 (*continued*): PRIMARY CARERS — RESPONSES TO FAMILY FUNCTIONING ITEMS

Response	Number	95% CI	%	95% CI
	We have family traditions and customs we would like to pass on to our children			
Not at all	940	(810 - 1 090)	7.5	(6.4 - 8.7)
A little	950	(770 - 1 150)	7.5	(6.1 - 9.1)
Some	2 140	(1 920 - 2 390)	17.0	(15.3 - 19.0)
Quite a lot	2 410	(2 180 - 2 650)	19.2	(17.4 - 21.1)
Very much	6 130	(5 800 - 6 450)	48.8	(46.2 - 51.4)

Table C.3 shows the distribution of responses to each of the nine items. The most positive responses were reported for item (vii) 'People in our family are accepted for who they are', while the least positive responses were reported for item (v) 'When it comes to managing money we are careful and make good decisions.'

FIGURE C.3: RELATIONSHIP BETWEEN FAMILY FUNCTIONING ITEMS
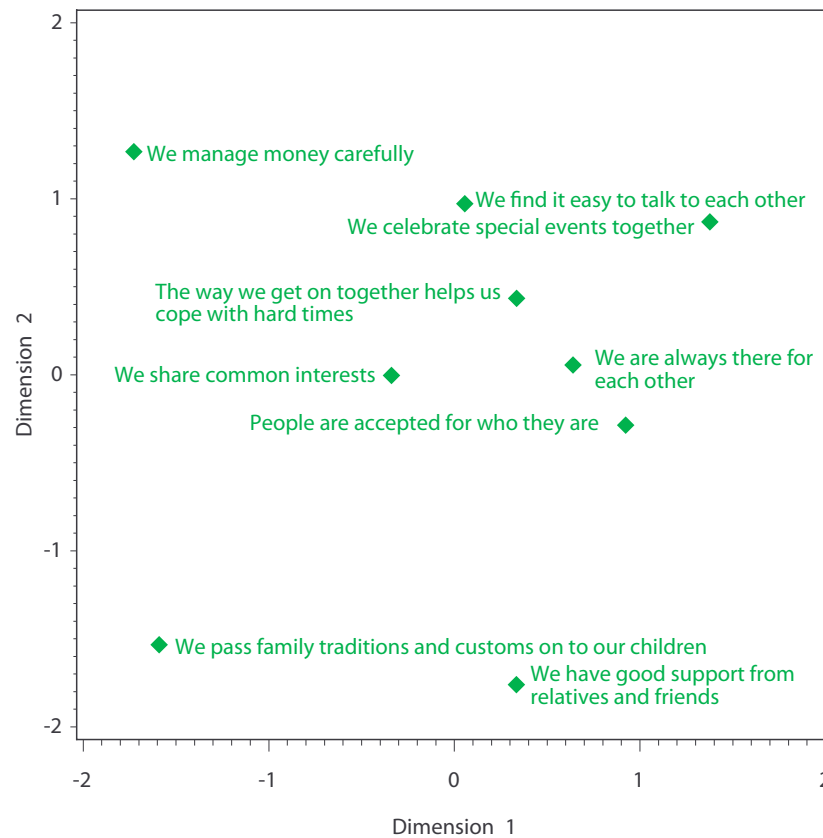
To examine the relationship between the items two approaches were used — fitting a Euclidean distance model, and factor analysis. Figure C.3 shows the results of the Euclidean distance model applying a multidimensional scaling algorithm to place the items on a two dimensional grid. The dimensions are arbitrary and do not have any specific meaning, but the closeness of items on the grid indicates the degree of commonality between them. The placement of items on the grid shows a reasonably homogenous spread of the items with no clear factor structure emerging. A factor analysis of these data failed to extract more than one factor, confirming the lack of an underlying factor structure in these data.

As a result of these analyses, it was decided to sum the nine family functioning items to produce a family functioning total score, in the range 9–45. A score of 9 occurs for carers who responded 'not at all' to all nine items, while 45 would be scored for carers responding 'very much' to all nine items. The distribution of family functioning total scores is shown in Figure C.4. It can be seen that the distribution has a strong negative skew, with the majority of carers scoring highly.

FIGURE C.4: PRIMARY CARERS — FAMILY FUNCTIONING TOTAL SCORE
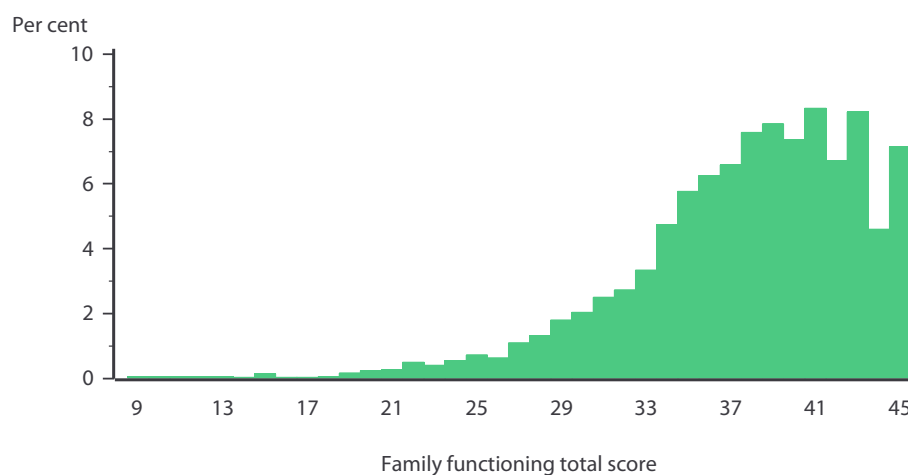
With no independent information available to set cut-off points, quartiles were imposed on the score. These have been, somewhat arbitrarily, labelled poor, fair, good and very good for the purposes of this publication. The quartile ranges and the number of carers in each range are shown in Table C.4. Because this is a discrete data item, it is not possible to get exactly 25 per cent of carers in each quartile range, but the deviations from this are small. These quartiles have been used in all analyses involving family functioning in this publication. In some instances the categories 'fair' to 'very good' have been combined.

TABLE C.4: PRIMARY CARERS — QUARTILES OF FAMILY FUNCTIONING

Family functioning quartiles	Number	95% CI	%	95% CI
Poor (9–34)	2 960	(2 720 - 3 220)	23.6	(21.6 - 25.6)
Fair (35–38)	3 290	(3 030 - 3 560)	26.2	(24.1 - 28.4)
Good (39–41)	2 960	(2 700 - 3 230)	23.5	(21.5 - 25.7)
Very good (42–45)	3 350	(3 080 - 3 630)	26.7	(24.5 - 28.9)
Total	**12 600**	**(12 500 - 12 600)**	**100.0**	

YOUTH SELF-ESTEEM

Young people were asked to respond to a series of items designed to measure their level of self-esteem. The items were specifically designed for use in the WAACHS survey and were included on the Youth Self Report (YSR) form. The majority of young people filled in this form in their own time, but for 20 per cent of young people, the questionnaire was administered by an interviewer.

Young people aged 12–17 years were asked:

'How much do these statements sound like you?

(i)   I find it easy to make friends.

(ii)   I like most things about myself.

(iii)   I feel proud of how I am.

(iv)   I can usually sort out my own problems.

(v)   I wish I had more respect for myself.

(vi)   When I try, I can make good things happen for me.

(vii)   No matter how bad I feel I know that I will feel better eventually.'

Young people were asked to rate each of these items on the following scale:

1   Not at all

2   A little

3   Some

4   Quite a lot

5   Very much

Table C.5 shows the distribution of responses to each of these seven items. All but one of these items are phrased as positive statements. Item (v) 'I wish I had more respect for myself' has been reversed coded for the remainder of the analysis of youth self-esteem, so as to align it with the other positive statements used in this measure.

The relationship between the individual self-esteem items was explored by two methods—by fitting a Euclidean distance model, and by factor analysis. The results of the Euclidean distance model are shown in Figure C.5. It can be seen that item (v) 'I wish I had more respect for myself' stands out in the first dimension while all other items have similar values for this dimension. This suggests that there could be a strong relationship between the remaining six items excluding the item on self-respect. Factor analysis confirmed this association, extracting a single factor from the six other items excluding self-respect. On the basis of this result, item (v) was excluded from the composite scale on self-esteem. The remaining six items were summed to produce a self-esteem score in the range of 6–30, with a score of 6 being given to young people who responded 'not at all' to all six items and a score of 36 being given to young people who responded 'Very much' to all six items.

TABLE C.5: YOUNG PEOPLE AGED 12–17 YEARS — RESPONSES TO SELF-ESTEEM ITEMS

Response	Number	95% CI	%	95% CI
I find it easy to make friends				
Not at all	210	(140 - 300)	2.3	(1.6 - 3.3)
A little	750	(580 - 950)	8.2	(6.4 - 10.4)
Some	1 980	(1 740 - 2 230)	21.7	(19.1 - 24.5)
Quite a lot	2 780	(2 490 - 3 080)	30.6	(27.4 - 33.8)
Very much	3 390	(3 090 - 3 700)	37.2	(33.9 - 40.6)
I like most things about myself				
Not at all	330	(240 - 430)	3.6	(2.7 - 4.8)
A little	940	(760 - 1 150)	10.4	(8.4 - 12.7)
Some	2 670	(2 390 - 2 950)	29.3	(26.3 - 32.4)
Quite a lot	2 310	(2 040 - 2 620)	25.4	(22.4 - 28.8)
Very much	2 850	(2 560 - 3 150)	31.3	(28.2 - 34.6)
I feel proud of how I am				
Not at all	220	(140 - 320)	2.4	(1.5 - 3.5)
A little	880	(720 - 1 070)	9.7	(7.9 - 11.8)
Some	1 730	(1 480 - 2 020)	19.0	(16.3 - 22.2)
Quite a lot	2 060	(1 780 - 2 360)	22.6	(19.6 - 25.9)
Very much	4 210	(3 900 - 4 530)	46.3	(42.8 - 49.8)
I can usually sort out my own problems				
Not at all	260	(160 - 400)	2.9	(1.8 - 4.4)
A little	850	(690 - 1 040)	9.3	(7.6 - 11.4)
Some	2 490	(2 220 - 2 780)	27.3	(24.4 - 30.5)
Quite a lot	2 760	(2 460 - 3 080)	30.3	(27.0 - 33.8)
Very much	2 750	(2 470 - 3 040)	30.2	(27.2 - 33.4)
I wish I had more respect for myself				
Not at all	2 050	(1 790 - 2 320)	22.6	(19.7 - 25.5)
A little	1 540	(1 310 - 1 800)	17.0	(14.3 - 19.8)
Some	2 410	(2 140 - 2 700)	26.4	(23.5 - 29.6)
Quite a lot	1 380	(1 150 - 1 640)	15.1	(12.7 - 18.0)
Very much	1 720	(1 480 - 1 980)	18.9	(16.3 - 21.7)
When I try, I can make good things happen for me				
Not at all	180	(120 - 270)	2.0	(1.3 - 3.0)
A little	600	(460 - 760)	6.5	(5.1 - 8.4)
Some	2 240	(1 980 - 2 520)	24.6	(21.8 - 27.7)
Quite a lot	2 780	(2 490 - 3 100)	30.6	(27.4 - 34.0)
Very much	3 300	(3 010 - 3 600)	36.2	(33.0 - 39.6)
No matter how bad I feel I know that I will feel better eventually				
Not at all	210	(140 - 300)	2.3	(1.5 - 3.3)
A little	600	(460 - 780)	6.6	(5.0 - 8.6)
Some	2 140	(1 900 - 2 410)	23.6	(20.8 - 26.5)
Quite a lot	2 750	(2 460 - 3 060)	30.2	(27.0 - 33.6)
Very much	3 400	(3 110 - 3 700)	37.4	(34.2 - 40.6)

FIGURE C.5: RELATIONSHIP BETWEEN YOUTH SELF-ESTEEM ITEMS

The distribution of the self-esteem total scores is shown in Figure C.6. It can be seen that the distribution has a strong negative skew. In the absence of any independent measure of self-esteem on which to base cut-off scores, the self-esteem scores were ranked and split into quartiles. Because only integer values are possible for the self-esteem total score, it is not possible to obtain exact quartiles. Table C.6 shows the cut-off values used for each quartile and the percentage of young people falling into each quartile. These quartiles have been used in all analyses of youth self-esteem in this volume.

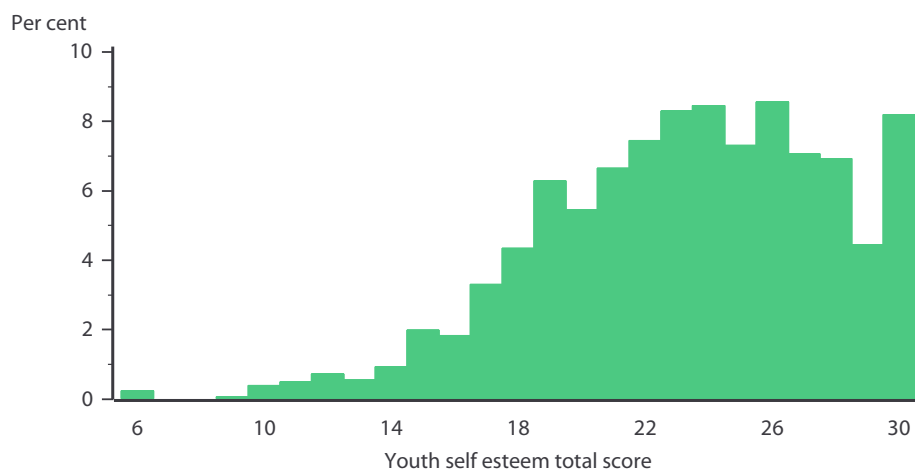**FIGURE C.6:** YOUNG PEOPLE 12–17 YEARS — SELF-ESTEEM TOTAL SCORE

TABLE C.6: YOUNG PEOPLE AGED 12–17 YEARS — QUARTILES OF SELF-ESTEEM TOTAL SCORE

Self-esteem total score	Number	95% CI	%	95% CI
Lowest quartile (0–20)	2 420	(2 160 - 2 700)	26.6	(23.7 - 29.7)
2nd quartile (21–23)	2 040	(1 770 - 2 320)	22.4	(19.5 - 25.5)
3rd quartile (24–26)	2 210	(1 940 - 2 510)	24.3	(21.3 - 27.5)
Highest quartile (27–30)	2 430	(2 170 - 2 700)	26.6	(23.9 - 29.7)
Total	**9 100**	**(9 050 - 9 100)**	**100.0**	

YOUTH DERIVED PARENTING STYLE

Two measures of parenting style were included in the WAACHS questionnaires. The first was based on questions asked of young people aged 12–17 years on the Youth Self Report form.

Young people were asked the following series of questions aimed at assessing their perceptions of their carers' parenting style:

'How often do these things happen to you?'

(i)   Your parents smile at you.

(ii)   Your parents want to know exactly where you are and what you are doing.

(iii)   Your parents soon forget a rule they have made.

(iv)   Your parents threaten punishment more than they use it.

(v)   Your parents praise you for the good things you do.

(vi)   Your parents let you go out any night you want.

(vii) Your parents only keep rules when it suits them.

(viii) Your parents hit you or threaten to do so.

(ix)   Your parents seem proud of the things you do.

(x)   Your parents give you lots of help when something is worrying you.'

Young people were asked to rate each of these items on the following scale:

1   Never

2   Sometimes

3   Often

4   Very often

Nine of the ten items used in this scale were taken from the work of Lempers, Clark-Lempers and Simons,[2] whose parenting scale contains 29 items. For the WAACHS, the number of items included needed to be reduced to limit respondent burden, and there were some slight changes to wording to make items more culturally appropriate.

Table C.7 shows the distribution of responses to each of the 10 items used in the WAACHS youth report parenting scale.

TABLE C.7: YOUNG PEOPLE AGED 12–17 YEARS — RESPONSES TO PARENTING SCALE ITEMS

Response	Number	95% CI	%	95% CI
Your parents smile at you				
Never	330	(250 - 430)	3.7	(2.8 - 4.7)
Sometimes	2 180	(1 910 - 2 470)	23.9	(21.0 - 27.1)
Often	2 500	(2 230 - 2 800)	27.5	(24.5 - 30.7)
Very often	4 090	(3 780 - 4 410)	44.9	(41.5 - 48.4)
Your parents want to know exactly where you are and what you are doing				
Never	450	(300 - 670)	4.9	(3.3 - 7.4)
Sometimes	1 780	(1 550 - 2 030)	19.6	(17.0 - 22.3)
Often	2 320	(2 050 - 2 600)	25.5	(22.5 - 28.6)
Very often	4 550	(4 230 - 4 870)	50.0	(46.5 - 53.5)
Your parents soon forget a rule they have made				
Never	3 240	(2 940 - 3 570)	35.6	(32.3 - 39.2)
Sometimes	3 640	(3 330 - 3 960)	40.0	(36.6 - 43.5)
Often	1 490	(1 280 - 1 720)	16.3	(14.0 - 18.9)
Very often	730	(550 - 940)	8.0	(6.1 - 10.4)
Your parents threaten punishment more than they use it				
Never	3 060	(2 750 - 3 380)	33.6	(30.2 - 37.2)
Sometimes	2 960	(2 660 - 3 270)	32.5	(29.3 - 35.9)
Often	1 870	(1 640 - 2 110)	20.5	(18.0 - 23.2)
Very often	1 220	(1 020 - 1 440)	13.4	(11.2 - 15.8)
Your parents praise you for the good things you do				
Never	520	(400 - 670)	5.8	(4.4 - 7.4)
Sometimes	2 410	(2 130 - 2 710)	26.5	(23.4 - 29.8)
Often	2 400	(2 120 - 2 700)	26.4	(23.2 - 29.7)
Very often	3 770	(3 450 - 4 080)	41.4	(37.9 - 44.9)
Your parents let you go out any night you want				
Never	2 890	(2 580 - 3 210)	31.7	(28.3 - 35.3)
Sometimes	3 710	(3 390 - 4 030)	40.8	(37.3 - 44.3)
Often	1 100	(890 - 1 330)	12.0	(9.8 - 14.6)
Very often	1 410	(1 180 - 1 660)	15.4	(12.9 - 18.3)
Your parents only keep rules when it suits them				
Never	3 040	(2 730 - 3 380)	33.4	(30.0 - 37.1)
Sometimes	3 410	(3 100 - 3 750)	37.5	(34.1 - 41.1)
Often	1 540	(1 320 - 1 760)	16.9	(14.6 - 19.4)
Very often	1 110	(920 - 1 340)	12.2	(10.1 - 14.7)
Your parents hit you or threaten to do so				
Never	5 390	(5 070 - 5 690)	59.2	(55.7 - 62.5)
Sometimes	2 950	(2 660 - 3 250)	32.4	(29.2 - 35.7)
Often	430	(330 - 560)	4.8	(3.6 - 6.1)
Very often	330	(230 - 480)	3.6	(2.5 - 5.2)
Your parents seem proud of the things you do				
Never	320	(230 - 430)	3.5	(2.5 - 4.7)
Sometimes	2 170	(1 910 - 2 430)	23.8	(21.0 - 26.7)
Often	2 250	(1 970 - 2 540)	24.7	(21.6 - 28.0)
Very often	4 370	(4 040 - 4 690)	48.0	(44.4 - 51.5)
Your parents give you lots of help when something is worrying you				
Never	800	(640 - 990)	8.8	(7.0 - 10.9)
Sometimes	2 030	(1 760 - 2 330)	22.4	(19.3 - 25.6)
Often	2 310	(2 030 - 2 610)	25.4	(22.2 - 28.7)
Very often	3 950	(3 630 - 4 270)	43.4	(39.9 - 46.9)

To examine the relationship between the items two approaches were used — fitting a Euclidean distance model, and factor analysis. Figure C.7 shows the results of the Euclidean distance model applying a multidimensional scaling algorithm to place the items on a two dimensional grid. The dimensions are arbitrary and do not have any specific meaning, but the closeness of items on the grid indicates the degree of commonality between them. The distribution of items on the grid suggests the possibility of an underlying factor structure, with two groups of four items each clustering quite closely together, while two additional items stand out on their own.

FIGURE C.7: RELATIONSHIP BETWEEN YOUTH REPORTED PARENTING STYLE ITEMS
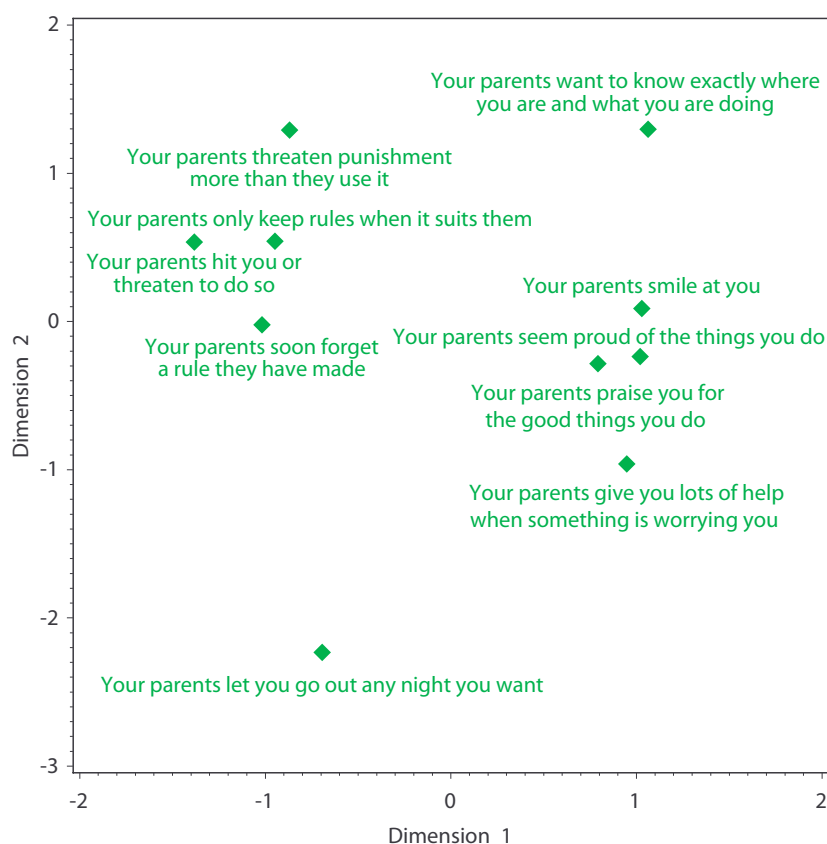
A factor analysis was undertaken on these items. This analysis confirmed the existence of two strong factors, with the remainder of the items being largely independent. The factor structure identified is shown in Table C.8.

TABLE C.8: FACTOR STRUCTURE FOR YOUTH REPORTED PARENTING STYLE

Factor	Items	
Responsiveness	(i)	Your parents smile at you
	(v)	Your parents praise you for the good things you do
	(ix)	Your parents seem proud of the things you do
	(x)	Your parents give you lots of help when something is worrying you
Harshness	(iv)	Your parents threaten punishment more than they use it.
	(viii)	Your parents hit you or threaten to do so.
Consistency	(vii)	Your parents only keep rules when it suits them
Laxness	(vi)	Your parents let you go out any night you want

Two items (items (ii) and (iii)) were found to load on multiple factors, and were excluded from the construction of the parenting style indicator. For each of the four identified factors separate indicators were derived, labelled responsiveness, harshness, consistency and laxness. For responsiveness, this indicator was derived by summing the responses to each of the four items ((i), (v), (ix) and (x)), resulting in scores in the range 4–16. For harshness, it was considered that item (viii) was a more direct measure of parental harshness than item (iv), and it was given a higher weight in deriving the harshness indicator. It was decided to identify harsh parenting as cases where the youth responded 'often' or 'very often' to item (viii) 'Your parents hit you or threaten to do so', or responded 'very often' to item (iv) 'Your parents threaten punishment more than they use it', or both. Both the consistency and laxness factors contained only one item. Parenting style was considered to be inconsistent if the youth responded 'often' or 'very often' to item (vii) 'Your parents only keep rules when it suits them'. Parenting style was considered to be lax where youth responded 'often' or 'very often' to item (vi) 'Your parents let you go out any night you want'.

Table C.9 shows the distribution of young people by each of the factors identified as components of parenting style. In addition, an overall summary measure of parenting quality was derived. Laxness was excluded from overall parenting quality since it was based on the question about whether your parents let you go out any night you want and appropriate response to this item varies with age. Overall parenting quality was defined based on harshness, responsiveness and consistency. Where parents were rated as not harsh, responsive and consistent, parenting style was considered to be adequate. Where parents were rated as harsh, with or without either responsiveness or consistency, parenting style was considered to be poor. Otherwise parenting style was considered to be sub-optimal. These three components and the overall measure of parenting quality have been used in the analysis of parenting style in this volume.

TABLE C.9: YOUNG PEOPLE AGED 12–17 YEARS — PARENTING STYLE FACTORS

Category	Number	95% CI	%	95% CI
Harshness				
Harsh	1 690	(1 460 - 1 920)	18.5	(16.0 - 21.1)
Not harsh	7 420	(7 180 - 7 640)	81.5	(78.9 - 84.0)
Responsiveness				
Not responsive	2 450	(2 190 - 2 740)	26.9	(24.0 - 30.1)
Responsive	6 650	(6 360 - 6 910)	73.1	(69.9 - 76.0)
Consistency				
Inconsistent	2 650	(2 370 - 2 940)	29.1	(26.1 - 32.3)
Consistent	6 460	(6 160 - 6 730)	70.9	(67.7 - 73.9)
Laxness				
Lax	2 500	(2 210 - 2 810)	27.5	(24.3 - 30.9)
Not lax	6 600	(6 290 - 6 890)	72.5	(69.1 - 75.7)
Quality of parenting				
Poor	1 020	(850 - 1 220)	11.2	(9.3 - 13.4)
Sub-optimal	4 010	(3 710 - 4 310)	44.0	(40.8 - 47.4)
Adequate	4 070	(3 760 - 4 400)	44.7	(41.3 - 48.3)

CARER DERIVED QUALITY OF PARENTING

The second measure of parenting style was derived from data obtained from carers of children aged 4–17 years. This measure was developed specifically for use in the WAACHS.

In respect of each survey child, carers were asked:

'In bringing up your child, over the past 6 months, how often would you say that you have:

(i)   reminded him/her about how he/she should behave

(ii)   asked where he/she was going when he/she left the house

(iii)   known what he/she was doing with his/her free time

(iv)   told him/her off when he/she did something wrong

(v)   made sure that he/she did what you told him/her to do

(vi)   praised him/her for doing something good

(vii) hit or smacked him/her for doing something wrong

(viii) laughed together'

Carers were asked to respond on the following scale:

1   Never

2   Hardly Ever

3   Once in a while

4   Quite often

5   Almost always

Carers were also given the opportunity to say that their child was too young for a particular item to be applicable to them. Table C.10 shows the distribution of children aged 4–17 years by their carer's responses to each of these parenting scale items.

TABLE C.10: CHILDREN AGED 4–17 YEARS — CARER RESPONSES TO PARENTING SCALE ITEMS

Response	Number	95% CI	%	95% CI
		Reminded child about how he/she should behave		
Never	960	(750 - 1 210)	4.2	(3.3 - 5.3)
Hardly ever	2 590	(2 260 - 2 950)	11.3	(9.9 - 12.9)
Once in a while	6 530	(6 020 - 7 060)	28.5	(26.3 - 30.8)
Quite often	7 110	(6 590 - 7 640)	31.1	(28.8 - 33.4)
Almost always	5 710	(5 230 - 6 220)	24.9	(22.8 - 27.1)
Too young	0	(0 - 10)	0.0	(0.0 - 0.0)
		Asked where child was going when he/she left the house		
Never	3 140	(2 710 - 3 600)	13.7	(11.8 - 15.7)
Hardly ever	2 840	(2 510 - 3 190)	12.4	(11.0 - 13.9)
Once in a while	3 570	(3 180 - 3 970)	15.6	(13.9 - 17.3)
Quite often	3 130	(2 790 - 3 510)	13.7	(12.2 - 15.3)
Almost always	10 100	(9 500 - 10 700)	44.1	(41.4 - 46.9)
Too young	110	(50 - 220)	0.5	(0.2 - 1.0)

TABLE C.10 (*continued*): CHILDREN AGED 4–17 YEARS — CARER RESPONSES TO PARENTING SCALE ITEMS

Response	Number	95% CI	%	95% CI
	Known what child was doing with his/her free time			
Never	700	(530 - 910)	3.0	(2.3 - 4.0)
Hardly ever	1 250	(1 030 - 1 490)	5.4	(4.5 - 6.5)
Once in a while	3 140	(2 760 - 3 540)	13.7	(12.1 - 15.5)
Quite often	5 290	(4 830 - 5 770)	23.1	(21.1 - 25.2)
Almost always	12 500	(11 900 - 13 100)	54.7	(52.2 - 57.1)
Too young	10	(0 - 20)	0.0	(0.0 - 0.1)
	Told him/her off when he/she did something wrong			
Never	460	(330 - 630)	2.0	(1.4 - 2.8)
Hardly ever	1 730	(1 410 - 2 080)	7.6	(6.2 - 9.1)
Once in a while	5 370	(4 900 - 5 840)	23.4	(21.4 - 25.5)
Quite often	5 670	(5 190 - 6 170)	24.8	(22.7 - 26.9)
Almost always	9 680	(9 100 - 10 300)	42.2	(39.6 - 45.0)
Too young	0	(0 - 10)	0.0	(0.0 - 0.0)
	Made sure that he/she did what you told him/her to do			
Never	500	(380 - 650)	2.2	(1.6 - 2.9)
Hardly ever	1 630	(1 350 - 1 930)	7.1	(5.9 - 8.4)
Once in a while	4 680	(4 270 - 5 110)	20.4	(18.7 - 22.3)
Quite often	6 640	(6 160 - 7 140)	29.0	(26.9 - 31.2)
Almost always	9 460	(8 900 - 10 100)	41.3	(38.7 - 44.0)
Too young	0	(0 - 10)	0.0	(0.0 - 0.0)
	Praised him/her for doing something good			
Never	180	(110 - 300)	0.8	(0.5 - 1.3)
Hardly ever	300	(190 - 460)	1.3	(0.8 - 2.0)
Once in a while	2 780	(2 370 - 3 210)	12.1	(10.3 - 14.0)
Quite often	5 200	(4 730 - 5 690)	22.7	(20.6 - 24.8)
Almost always	14 400	(13 900 - 15 000)	63.0	(60.5 - 65.5)
Too young	10	(0 - 20)	0.0	(0.0 - 0.1)
	Hit or smacked him/her for doing something wrong			
Never	6 810	(6 320 - 7 320)	29.7	(27.6 - 32.0)
Hardly ever	5 430	(4 990 - 5 900)	23.7	(21.8 - 25.8)
Once in a while	7 270	(6 770 - 7 790)	31.7	(29.6 - 34.0)
Quite often	1 820	(1 560 - 2 110)	8.0	(6.8 - 9.2)
Almost always	1 560	(1 290 - 1 860)	6.8	(5.6 - 8.1)
Too young	0	(0 - 10)	0.0	(0.0 - 0.0)
	Laughed together			
Never	110	(50 - 220)	0.5	(0.2 - 1.0)
Hardly ever	80	(40 - 150)	0.4	(0.2 - 0.7)
Once in a while	1 590	(1 330 - 1 870)	6.9	(5.8 - 8.2)
Quite often	4 970	(4 510 - 5 470)	21.7	(19.7 - 23.9)
Almost always	16 100	(15 600 - 16 700)	70.5	(68.1 - 72.8)
Too young	0	(0 - 10)	0.0	(0.0 - 0.0)

Initial attempts to derive a measure of quality of parenting using all eight items were unsuccessful. Analysis of the data items suggested that the first five items were unsuccessful in discriminating between differing parenting styles. These items can't be considered to range on a scale of 'good' to 'bad'. A response of 'never' or 'hardly ever' to each of these items might be considered as lax parenting while a response of 'quite often' or 'almost always' might be considered as overbearing or intrusive parenting. This makes it difficult to label the parenting style as either 'good' or 'bad'. The most desirable responses would also be expected to vary by age and the nature of the child's behaviour. A five-item response scale does not seem able to distinguish concepts where

a moderate amount might be considered the most appropriate response. The subtlety of the questions has been defeated by the coarseness of the scale used to measure them.

As a result, it was necessary to drop the first five items from the development of the carer reported measure of quality of parenting. With only three items remaining, a simple scoring procedure was used. Item (vii) 'how often would you say you have hit or smacked your child for doing something wrong' was reverse coded. Then the three items were added producing a score on a scale of 3–15. Approximate quartiles were applied, and the quartiles have been labelled, somewhat arbitrarily, 'poor', 'fair', 'good' and 'very good'.

As a result, the measure of quality of parenting derived from carer responses is limited to the two concepts of parental warmth and harshness, measured by only three items.

ENDNOTES

1. Epstein NB, Baldwin LM, Bishop DS. The McMaster Family Assessment Device. *Journal of Marital and Family Therapy* 1983;9:171-80.

2. Lempers JD, Clark-Lempers D, Simons RL. Economic hardship, parenting, and distress in adolescence. *Child Development* 1989;60:25-39.

APPENDIX D: LEVELS OF FAMILY AND YOUTH PARTICIPATION

This appendix describes the characteristics of the families and individuals that refused to participate in the survey. The survey was voluntary, but community acceptance of the survey was high, and the overall response rate was very good. However, non-response is an inevitable fact of any survey. Within the WAACHS, non-response could occur at three levels:

◆ at the family level if the family refused to participate or could not be contacted

◆ at the person level if a particular individual within a participating family refused to participate (this occurred mostly with secondary carers and with the youth self-report forms)

◆ at the item level where individuals did not answer particular questions, or survey processes failed to collect required or usable information.

Because of the large number of questions asked in the survey most forms returned contained at least one question where the respondent didn't know or did not provide the answer.

Non-response can have an impact on the validity of the survey results if the non-respondents are systematically different from the respondents in some way. As far as possible, characteristics of the non-respondents have been compared with respondents to test for possible biases.

FAMILY AND PERSON LEVEL NON-RESPONSE

A total of 2,386 families were selected to participate in the survey, of which 1,999 (83.8 per cent) participated. To count as a participating family, at least one substantially completed child form had to be received. A few families consented to participate in the survey but then, for one reason or another, completed only a small number of questions, and these have not been counted as participating families.

Table D.1 shows the person level response rates within the 1,999 participating families. Note that the number of participating primary carers (2,113) is greater than the number of participating families because of the number of families with complex structures that contain children with separate primary carers. For families that participated in the survey, information on the primary carer and child level information as reported by the primary carer was almost always obtained. However where separate contact was required with other household members (i.e. the secondary carer or youths) the response rate was considerably lower.

TABLE D.1 PERSON LEVEL RESPONSE RATE BY FORM TYPE AMONG PARTICIPATING FAMILIES

Form	Number within participating families	Number of respondents	Response rate (%)
Primary carer	2 225	2 113	95.0
Secondary carer	1 259	1 040	82.6
Child Health Questionnaire for children aged 0–3 years	1 340	1 296	96.7
Child Health Questionnaire for children aged 4–17 years	4 173	3 993	95.7
Youth self report for young people aged 12–17 years	1 480	1 073	72.5

Non-response at the family and person level was dealt with by means of weighting adjustments. The weighting procedure used in the survey was described in *Appendix B — Sample Design* in Volume One.[1]

COMPARISON OF RESPONDENTS AND NON-RESPONDENTS

It was possible to collect some rudimentary information about non-respondents in the survey. Of the 387 families that did not participate in the survey, 245 families (64 per cent) had a Household Record Form (HRF) that was fully completed at the time of initial screening. The HRF provides a list of all the residents of the household, their ages, indigenous status and relationships within the household. Of the remaining 142 families refused to participate in the survey, the interviewer was able to obtain a basic age breakdown of the number of in-scope children living in the household in 92 cases. There were 50 families who refused to participate in the survey, and refused to give any indication of the number of in-scope children resident.

From this data it is possible to compare the respondents and non-respondents by basic demographic characteristics, where provided, and also by characteristics of the Census Collection Districts (CDs) where they live.

Carer reports

Carer reports about the children and young people in the sample were obtained on the Child Health Questionnaire forms. In the 245 non-participating families where HRF information was obtained, there were 651 in-scope children listed. Among participating families there were an additional 224 children for whom forms were not received (180 children aged 4–17 years and 44 children aged 0–3 years) (Table D.1). This group of 875 non-responding children were compared with the 5,289 children for whom responses were received by demographic characteristics collected on the HRF.

Table D.2 compares the responding children with the known non-respondents by selected characteristics. There were significant associations found with region, age and socio-economic status. Age and region are factors that have been incorporated into the weighting design.

Youth self-report

For each young person aged 12–17 years, in addition to collecting information from the primary carer on the Child Health Questionnaire, information was collected directly from the young person via the Youth Self Report questionnaire. This could either be administered by the interviewer, or the form could be left with the young person for self-completion and later collection, at the convenience of the family.

As noted in Table D.1, only 73 per cent of young people in participating families completed the youth self-report. For many of the non-responding young people, some information was available on the Child Health Questionnaire as reported by the primary carer. Thus it was possible to compare characteristics of respondents and non-respondents to the youth form, by information collected from their carers.

In addition to standard demographics, the following variables were examined:

◆ whether the youth was still in school

◆ presence of mental health problems

◆ contact with police or juvenile justice agencies

◆ contact with Family and Children's Services

◆ number of houses lived in

◆ whether the primary carer is the child's natural mother.

TABLE D.2: RESPONSE RATES TO CHILD HEALTH QUESTIONNAIRE, BY SELECTED CHARACTERISTICS

	Response rate (%)	Significance (p-value) (a)
Sex—		
Male	85.7	
Female	86.2	0.58
Age—		
0–3	86.6	
4–11	87.6	
12–14	84.6	
15	80.3	
16	79.2	<0.001
17	75.1	
Region—		
Perth metropolitan area	82.1	
South West	80.9	
Midwest and Goldfields	90.9	
Kimberley and Pilbara	89.8	< 0.001
Index of relative socioeconomic disadvantage—		
Bottom 5%	84.5	
5%–10%	85.9	
10%–25%	84.1	
25%–50%	87.2	
Top 50%	90.8	< 0.001
Household size—		
3 members or less	87.6	
4	85.3	
5	86.2	
6	86.8	
7 or more	84.7	0.24

(a) Significance of association between response rates, assessed using χ^2 test

As can be seen from Table D.3, young people responding to the youth self-report were more likely to be aged between 13–15 years and to be living in the Perth metropolitan region, while non-respondents were more likely to live in census collection districts classified to the bottom 5 per cent of socioeconomic disadvantage, to have had contact with police, juvenile justice or courts, or to be at high risk of clinically significant emotional or behavioural difficulties.

TABLE D.3: RESPONSE RATES TO YOUTH SELF-REPORT, BY SELECTED CHARACTERISTICS FROM CARER REPORTS

	Response rate (%)	Significance (p-value) (a)
Sex—		
Male	69.7	
Female	78.0	<0.001
Age (years)—		
12	63.8	
13	78.5	
14	77.5	
15	80.1	
16	72.9	
17	70.6	<0.001
Region—		
Perth metropolitan area	79.7	
South West	73.5	
Midwest and Goldfields	71.6	
Kimberley and Pilbara	69.1	0.005
Index of relative socioeconomic disadvantage—		
Bottom 5%	66.4	
5%–10%	79.8	
10%–25%	75.5	
25%–50%	74.8	
Top 50%	79.1	0.003
Still at school—		
Yes	71.8	
No	74.5	0.335
Primary carer—		
Birth mother	71.9	
Someone else	74.7	0.275
Contact with police—		
No	74.9	
Yes	67.7	0.033
Contact with juvenile justice officer—		
No	74.8	
Yes	63.4	0.008
Contact with children's court—		
No	75.0	
Yes	59.8	<0.001
Contact with Family and Children's Services—		
No	73.7	
Yes	76.4	0.507
Number of homes lives in—		
1	65.9	
2	68.5	
3	76.5	
4–6	77.1	
7 or more	75.8	0.010
Risk of clinically significant emotional or behavioural difficulties—		
Low	74.4	
Moderate	80.6	
High	69.2	0.038

(a) Significance of association between response rates, assessed using χ^2 test

These results suggest that young people at high risk of clinically significant emotional or behavioural difficulties and other behavioural problems are slightly under-represented among respondents to the Youth Self Report. While the weights have been designed to compensate for the differential response rates by age and region, it is not

possible to adjust for the lower representation of young people at high risk of clinically significant emotional or behavioural difficulties as no population benchmarks are available at this level.

IMPUTATION FOR ITEM-LEVEL NON-RESPONSE

Almost all of the items collected in the survey have some level of item non-response. Very few survey questionnaires were complete for every item. Item level non-response often arose in cases where the respondent did not know the answer to a particular question. While each survey form contained hundreds of data items, most forms only had missing or unknown responses for a handful of data items. In these cases it would be wasteful to exclude entire forms because of the lack of a small number of data items. For most of the data items there was only a small amount of item level non-response.

Table D.4 presents a summary of the item level non-response for the forms in the WAACHS. There were significant issues with a small number of questions, which as a result have had to be excluded from the analysis. A combination of a printing error and an error in the data entry system resulted in large quantities of missing data for the questions asking if carers smoked in the house and the number of people who smoke inside the house. Regrettably it was not possible to analyse these items. On the Child Health Questionnaires there were issues in cases where the primary carer was not the natural mother of the child and then not knowing about substance use during pregnancy, breastfeeding etc. These 'don't know' responses are included as a separate category in the analysis.

The youth self-report was mostly filled in by young people without assistance from the interviewer and a higher rate of item-level non-response has been recorded. Questions about problems at school, diet, medicines taken, severity of any emotional or behavioural difficulties and bullying were not well answered.

TABLE D.4: ITEM LEVEL NON-RESPONSE ON WAACHS HOUSEHOLD SURVEY FORMS

Form type	Number of items	Number of missing items		Number of items not imputed (a)	Most frequently missed items
		Range	Median		
Carer 1	302	0–174	2	5	Whether carer smoked in house, Number of people who smoke in house
Carer 2	101	0–39	1	2	Whether carer smoked in house, Number of people who smoke in house
Child Health Questionnaire for children 4–17 years	256	0–168	2	25	Months breastfed, Smoking alcohol and drug use during pregnancy if carer not natural mother, Age of first day-care, Likes and dislikes about school
Child Health Questionnaire for children 0–3 years	116	0–53	0	10	Names of antibiotics taken, Asthma medications, Why immunisations not up to date
Youth self report	241	0–204	5	46	Use of asthma medicines, Fruit eaten, Severity of emotional or behavioural difficulties, Victim of bullying, Bullying behaviour, Problems at school

(a) Imputation for item level non-response was not performed if the number of records with missing values exceeded 10% of the number of respondents eligible to answer the question.

For variables with low levels of non-response, it was decided to impute values as in general the low level of non-response has minimal substantive effect on the analysis, whereas the inclusion of a 'not stated' category in each table would complicate the presentation or results, particularly when calculating ratios and percentages.

Random hot-deck imputation was used for imputing non-response at the item level. Imputation classes were formed based on age, sex and remoteness. Then within each imputation class, a donor was chosen at random for each non-respondent. The donor's response was then used to impute the value for the non-respondent.

This procedure doesn't add extra information about the non-respondents, but serves to fill out the data set to make analysis and interpretation of the results more straight-forward. To prevent imputed values affecting the analysis in any substantive way, a cut-off of 10 per cent of the applicable responses was set as a limit. If the level of non-response for any item exceeded this limit, no imputation for that item took place, and the categories 'don't know' and 'not stated' were maintained and are presented in the published results. As sequencing of the questionnaires limits the sub-population answering some items on the survey forms, this cut-off was applied at the sub-population level. For instance, suppose that question one asks 'are you the natural mother of the child?' and question two asks the natural mothers 'How long did you breastfeed this child?'. If more than 10% of the natural mothers either answered 'Don't know' or didn't provide an answer no imputation would take place for this item. There were only a small number of items where this limit was exceeded, as seen in Table D.4.

SUMMARY

Non-response in sample surveys can be a source of bias and assessing its impact is a critical step in evaluating data quality and generalisability. Fortunately the WAACHS has been well supported by the Aboriginal families of WA, and response rates were very high. This acts to minimise the impact of non-response on the generalisability of the findings. Comparison of the responding sample with Census data revealed differences in response rates by age of child (with a tailing off of participation of children from ages 12 to 17 years) and by household size. These differences have been accounted for by making adjustments to the survey weights. As a result, the weighted estimates from the survey will be representative of the population of Aboriginal children by age and household size.

There is a limit to the extent that non-response bias can be measured, because there is not a great deal known about the non-respondents. There is only a small set of variables common to both the WAACHS and the Census, and differences between respondents and non-respondents by other characteristics cannot be measured. It is never possible to completely rule out the possibility of response bias. However, the high response rate coupled with the fact that no differences in sample distribution were observed for most of the census variables considered, suggests that overall the impact of non-response at the family level will be minor.

At the person level, there were lower levels of response observed for secondary carers and for the youth self-report forms. Because a population of secondary carers cannot be defined from the census, it is very difficult to make any judgements about the responding sample of secondary carers. However, the young people responding to the youth self-report have been compared with the non-respondents according to a range of characteristics reported by the primary carer. There is some evidence of systematic

differences, suggesting that young people responding to the youth self-report are different from the non-respondents. Differences by age, sex and region have been accounted for in the weighting adjustments. However, it was not possible to make adjustments for young people with emotional or behavioural difficulties, or who have had contact with police, juvenile justice officers or children's court. This will need to be kept in mind when interpreting the results of the youth self-reports — that young people with serious emotional and behavioural problems are underrepresented in this part of the sample.

In the main, item level non-response has not significantly impacted on the survey. Most items have only a small amount of item non-response, and for convenience, these missing figures have been imputed using random hot-deck imputation. The few variables with high rates of item level non-response have been excluded from the analysis.

ENDNOTES

1. Zubrick SR, Lawrence DM, Silburn SR, Blair E, Milroy H, Wilkes T, Eades S, D'Antoine H, Read A, Ishiguchi P, Doyle S. *The Western Australian Aboriginal Child Health Survey: The health and wellbeing of Aboriginal children and young people*. Perth: Telethon Institute for Child Health Research; 2004.

APPENDIX E: RELIABILITY OF ESTIMATES

MEASURING SAMPLING ERROR

Estimates from the WAACHS are based on information obtained from a sample of families, and are therefore subject to sampling variability. The figures from the sample may be different from the figures that would have been obtained had all families with Aboriginal children in Western Australia been included in the collection, just by virtue of random chance. This variability is known as sampling error. The size of the survey sample and the way the sample is designed are factors in determining the amount of sampling error.

Sampling errors can be estimated from the survey data. One measure of the sampling error is given by the 95% confidence interval. The confidence interval measures the degree to which an estimate may vary from the value that would have been obtained from a complete enumeration of the entire population. There are about nineteen chances in twenty (i.e. a 95% chance) that the population value will lie in the range indicated by the confidence interval.

For example, the proportion of Aboriginal children aged 4–17 years who were assessed as being at high risk of clinically significant emotional or behavioural difficulties based on reports from their carers was estimated to be 24.0 per cent with a 95% confidence interval of (21.9%–26.1%). This means that there is a 95% chance that if the entire population had been enumerated, and not just the sample, the population value would lie between 21.9 per cent and 26.1 per cent (a range of 4.2 percentage points).

The size of a confidence interval is a measure of the accuracy of an estimate. The smaller the confidence interval the more accurate the estimate is. As a general rule, the smaller the sample size used for calculating an estimate, the less accurate that estimate will be. For instance, the proportion of Aboriginal children aged 4–17 years living in the Perth metropolitan area who were assessed as being at high risk of clinically significant emotional or behavioural difficulties was 27.4 per cent with a 95% confidence interval of (23.5%–31.3%), a range of 7.8 percentage points. As only approximately 30 per cent of survey children live in the Perth metropolitan area this estimate is based on a smaller sample size than the estimate for WA overall. As shown above, the confidence interval for the WA estimate has a range of 4.2 percentage points, whereas when restricted to the Perth metropolitan area only, the confidence interval has a range of 7.8 percentage points.

ASSESSING STATISTICAL SIGNIFICANCE

Confidence intervals provide a means to assess the statistical significance of differences between figures. When comparing different estimates it is possible that differences could arise by chance alone, because the data is based on a random sample. Differences between figures are said to be statistically significant when it is very unlikely that the difference could be attributed to random chance. The confidence interval gives a ready means of identifying the statistical significance of differences between figures.

For example, the proportion of Aboriginal children aged 4–17 years who were assessed as being at high risk of clinically significant emotional or behavioural difficulties was estimated to be 27.4 per cent among children living in the Perth metropolitan area, and 10.8 per cent among children living in areas of extreme relative isolation.

The respective 95% confidence intervals are (23.5%–31.3%) and (7.4%–15.0%). If two confidence intervals overlap we conclude that there is a possibility the difference could be due to chance variation. When there is no overlap, as in this example, we conclude that the difference is statistically significant. That is, it is likely to represent a real difference in the proportion of children at high risk of clinically significant emotional or behavioural problems between the two areas that cannot be explained by random chance alone. However, the proportion of Aboriginal children aged 4–17 years who were assessed as being at high risk of clinically significant emotional or behavioural difficulties was estimated to be 25.0 per cent among children living in areas of low relative isolation, with a 95% confidence interval of (21.0%–29.2%). As there is substantial overlap between this confidence interval and the confidence interval for the estimate from the Perth metropolitan area, it is possible that the difference in the estimates could be due to chance variation. The difference between the figures for the Perth metropolitan area and for areas of low relative isolation would be regarded as not statistically significant.

It is important to note that just because a difference is not statistically significant does not mean that there is no real difference between the groups being compared. Where there is a true, but small difference, it is possible that the difference is smaller than the accuracy of the estimates, as measured by the confidence interval. For instance, if there was a one per cent difference in the true population values of the proportion of children at high risk of clinically significant emotional or behavioural difficulties between the Perth metropolitan area and areas of low relative isolation, the survey could not detect this, as the confidence intervals for the estimates are wider than one per cent. This is referred to as the power of the survey. Generally speaking, the survey does not have the power to detect differences in figures less than two to three per cent, and the power of the survey is reduced for small subsets of the survey population.

NON-SAMPLING ERRORS

In addition to sampling error, survey estimates can be subject to other inaccuracies, which are referred to collectively as non-sampling error. Non-sampling errors can occur because of form design limitations, errors in reporting by respondents due to difficulties recalling certain data or lack of appropriate records for certain data, errors made in collection such as in recording and coding data by the interviewers, and errors in the processing of the data. Non-sampling errors may occur in any enumeration, whether it is a full census or a sample.

Every effort is made to reduce non-sampling error to a minimum by careful design and testing of questionnaires, thorough training of interviewers, efficient operating procedures including quality control procedures, editing of survey returns and use of appropriate survey methodologies.

APPENDIX F: WESTERN AUSTRALIAN ABORIGINAL COMMUNITIES MAPS

WESTERN AUSTRALIA
ABORIGINAL COMMUNITIES
Map 1 of 2

LEGEND

• Menzies	Community Name
• Leonora	Town
	Major Road

For communities in this area,
please refer to Map 2 in this set of 2,
Kimberley Region - Aboriginal Communities

Wyndham
Kununurra
Derby
Broome

Tjalkaboorda
Ngarla-Coastal Njamal
Port Hedland
Tjalka Wara
Jinparinya
Pippingarra
Strelley
Warralong
Cheeditha
Bunnengarra
Coongan
Karratha
Mingullatharnd
Roebourne
Marble Bar
Pipunya
Goodabinya
Ngurawaana
Yandeyarra
Woodstock
Bindi Bindi
Yatharla
Onslow
Mumbultjari
Irrungadji
Punmu
Kunawarriji
Exmouth
Ngalakura
Youngaleena Bunjima
Wakathuni
Camp 61
Cotton Creek
Kiwirrkurra
Innawonga
Billanooka
Jigalong
Pumajina
Newman
Puntawari
Ullawarra
Robertson Range
Tjukurla
Patjarr
Karrku
Burringurrah
Tjirrkarli
Warakurna
Carnarvon
Mungullah
Wannarn
Denham
Jamieson
Warburton
Papulankutja
Wingellina
Yulga Jinna
Kutabubba
Bondini
Windidda
Meekatharra
Wiluna
The Village
Gidgee Gully
Bundundea
Ullula Station
Pia Wadjarri
Cue
Mulga Queen
Barrel Well
Mt Magnet
Leinster
Cosmo Newberry
Wandanooka
Guddo Marddah
Laverton
Geraldton
Wongutha Wonganarra
Bundy Bunna
Leonora
Mt Margaret
Dongara
Nambi Road Village
Tjuntjuntara
Eneabba
Marmion Village
Jurien
Dalwallinu
Kalgoorlie
Cunderlee
Kurrawang
Ningia Mia Village
New Norcia
Coolgardie
Coonana
Southern Cross
Kambalda
Northam
Merredin
Gnangara
Saunders Street
Cullacabardee
Lockridge
Iragul
Perth
Norseman
Pinjarra
Brookton
Williams
Lake Grace
Bunbury
Collie
Ravensthorpe
Busselton
Donnybrook
Kojonup
Esperance
Margaret River
Manjimup
Mt Barker
Denmark
Albany

Mulan
Balgo Hills
Kearney Range
Weriatto
Killi Killi
Jalyirr
Ngulupi
Yagga Yagga
Yarramurral

0 100 200
km

N

Last Update : February 2002

WALIS

GOVERNMENT OF WESTERN AUSTRALIA

Department of
Indigenous Affairs

KIMBERLEY REGION
ABORIGINAL COMMUNITIES
Map 2 of 2

Map Area

**For communities in the remainder of the state,
please refer to Map1 in this set of 2,
Western Australia - Aboriginal Communities**

Department of
Indigenous Affairs

GOVERNMENT OF WESTERN AUSTRALIA

WALIS

N

LEGEND

Community Name   • Beagle Bay

Town   • Broome

Roads

Last Update : February 2002

Wsudm
Mirima
Nulleywah
Kumbarumba
Yuna Springs
Emu Creek
Bell Springs
Red Creek
Nguiwinwirnt
Four Mile
Eight Mile
Cockatoo Springs
Hollows Springs
Dingo Springs
Alligator Hole

Kununurra
Nimbing
Gudia Guda
Goodarl
Yirralalem
Flying Fox Hole
Molly Springs
Dillon Springs
Wuggubun

Warrayu
Wyndham
Mud Springs
Woolah
Geboowama

Darlu-Darlu
RIB River Junction
Malangan
Cattle Creek

Glen Hill
Kawanyjunjai
Lumuku
Kawarre
Mindi Mindi

Crocodile Hole
Bow River
Warmun
Kalungkurriji
Baulu-Wah
Wurrenranginy
Janterriji

Chinaman Garden
Fletcher Family
Milba
Halls Creek
Wungu
Linga
Barangya

Paradise Pool
Jahantu
Oombulgurri
Neildu
Nulla Nulla
Bindoola
Berkeley
King George River
Carson River
McGowan Island
Kalumburu
Pago
Honeymoon Beach
Kandiwal
Marunbabidi
Djarworrada
Pantijan
Windjingayre
Imintji
Yulumbu
Tirralintji
Ngalangunda
Dodnun
Kupungarri
Kundat Djaru
Caranya
Mindibungu
Ngaranjadu

Red Hill
Mardiwa Loop
Nicholson Camp
Yaridgee
Wunkul
Koongie Park
Ganinyi
Yiyili
Pullout Springs
Lamboo Station
Moongardie
Kupartiya
Budjbidi

Gudargie
Ngyallawilli
Munjan
Galeru Gorge
Mimbi

Gajamanda
Darlngunaya
Bindu
Bamku
Muludja
Mindi Rardi
Parukupan
Glaroong
Joy Springs
Kampari
Ngalingkadji

Wamali
Fitzroy Crossing
Jimbalakudunj
Paradise Station
Bungardi
Junjuwa
Kurnangki
Ngurtuwarta
Bayulu
Wormbah
Noonkanbah
Pumawala
Yakanara
Ngumpan
Wangkatjungka
Djugerari
Kadjina
Djilmbaridi

Mowla Bluff
Bidijul
Kcorrabye
Yarri Yarri

Brunhgarr
Gumbaemun
Malumbo
One Arm Point
Niliapoon
Bygnun
Mudnunn
Djaradung
Gooni Ardan
Goodarl
Godamul
Goolemgon
Madalan
Belis Pt
La Djardam Bay
Goomarag
Lower Bulk
Wulununjur
Malabura

Gadima
Bulgin
Cone Bay
Tjarramba
Pandanus Park
Balginjir
Nyingina
Looma
Jarimadangah Burru

Bedunburra
Beagle Bay
Banana Wells
Bobieding
Ngardan
Billard
Mungel
Emoabjun
Goomaragi

Ngamakoon
Gulumonon
Godamonon
Lombadina
Djarindjin
Chile Creek
Lournard
Djoodood
Gurbuljun
Middle Lagoon
Milargoon
Neem
Taapers Inlet
Gooibinj
Gnylmarung
Nillygan
Murphy Creek
Yalleil
Loongabid
Ngaddargin
Budgarjook
Jibing
Monkon
Morard
Carnot Springs
Nudugun
Jabir Jabir

Yawuru
Broome
Yardoogarra
Nygah Nygah Gardjari
Bidyadanga
Waranamurriyundong
Kalyeeaiyan
Mulibidee

Rolah
Frazier Downs
Mallingbarr
Bilgungurr
Nillir Irbanjin
Morgans Camp

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