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Breastfeeding in Australia

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S. K. Jain

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DEMOGRAPHIC, SOCIO-ECONOMIC AND HEALTH CORRELATES OF BREASTFEEDING IN AUSTRALIA : EVIDENCE FROM THE 1989–90 NATIONAL HEALTH SURVEY

S.K. Jain

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ABSTRACT

Data from the 1989–90 National Health Survey of Australia are used to explore differentials in the duration of breastfeeding by selected characteristics of mothers. Using survival analysis and hazard model techniques, mothers age at the childs birth, marital status, urban-rural place of residence, country of birth, Aboriginality, education, use of the contraceptive pill, obesity, and smoking status are all found to be related to breastfeeding duration.

The results are offered, describing the levels and patterns of breastfeeding in Australia in 1989–90, as benchmarks for future studies. An enhanced data set on breastfeeding is currently being collected in the 1995 National Health Survey. Results from this survey are expected to become available late in 1996.

BACKGROUND

IN R UC I N

Breastfeeding is important in population studies because of its contribution to a decline in fertility and improvement in infant and childhood mortality. ertility reduction takes place through the contraceptive effect of the extended periods of breastfeeding, which delays ovulation and decreases the probability of conceiving. This lengthens the interval between successive births which, in societies where there is little or no other means of contraception practised, suppresses the total fertility of women (Guz and Hobcraft 1991). The nutritional advantage of breastfeeding contributes positively to the child's development (Huffman and Lamphere 1984).

In developed countries, it is the child's development aspect of breastfeeding which has found its way into health policies. Targets are set which aim for nearly universal initiation of breastfeeding and its continuation at higher levels at three, six or nine months of infant's age.

In Australia, there is a high prevalence of breastfeeding immediately following the birth of the child, but considerable variation in the duration of breastfeeding by specific characteristics of mothers. The health goals and targets for Australia propose a further rise in the proportion of mothers who initiate breastfeeding and to continue breastfeeding for longer durations than is currently practised (Nutbeam et al. 1993). A study into breast-weaning differentials can assist in understanding and targeting women who are breastfeeding for shorter durations.

King and Ashworth (1991) contrast between traditional and recent practices with regard to supplementary food given to breastfed children and attribute the change to greater participation in the workforce by mothers, health sector activities (distribution of processed milk from clinics), commercial availability of processed milks and cereals, urbanisation and modernisation, poverty and poor maternal nutrition (causing lactation failure), as well as perceived insufficiency of breast milk.

In the context of the developed world, Baghurst (1988) mentions attitudinal, medical and societal determinants of infant-feeding practices and lists both positive and negative factors that may influence breastfeeding behaviour. Positive factors include the women's movement and women's mutual support groups such as the Nursing Mother's Association of Australia, the general move towards a natural' food supply, increased understanding of the advantages of breastfeeding, changing patterns of women's employment and worksite-based health-promotion programs. Negative factors include lack of confidence in breastfeeding, work commitments, a mother's perception that the available milk is insufficient for the child, embarrassment or inconvenience of breastfeeding, or medical reasons such as sore nipples or the mother or child being sick.

Based on surveys conducted in Western Australia and Tasmania, Hitchcock and Coy (1989) reported: The prevalence of breast-feeding among these sampled mothers was influenced significantly by the social groups of the mother, with a higher prevalence and a longer duration of breast-feeding among mothers from higher social groups'.

Trussell et al. (1992) citing the work of Huffman (1984) and Lamphere indicated that place of residence (urban/rural), education and income were the three most important factors associated with differentials in breastfeeding. They noted that in many Westernized countries, educated women are more likely to breastfeed and for longest in many developing countries, the education is negatively associated with both initiation and length of breastfeeding', and also that the use of the modern contraceptives is consistently associated with a smaller likelihood of initiating breastfeeding and with shorter durations'.

This paper documents the breastfeeding behaviour in Australia based on the 1989–90 National Health Survey (NHS). It examines the various demographic, social, economic and health characteristics of mothers and isolates those that are associated with weaning practices. Similar data from the 1995 NHS will provide a time-trend dimension to the present analysis.

A A AN E S

The prevalence of breastfeeding is a function of two decisions:

- whether to breastfeed the newly born and
- if having decided to breastfeed, the duration of breastfeeding.

Weaning a breastfed child is a gradual process and for retrospective data collection purposes two strategies can be used. irst, mothers can be asked to provide information on whether they were breastfeeding their last born child (yes or no) and the age of the child (in months) at the time of the data collection. Second, the age at the collection date and the duration of breastfeeding for each child (or children born in a specific period) can be sought. There is a debate in the literature as to which strategy produces superior estimates of breastfeeding durations. Trusell et al. (1992) show that the choice of the data affects the conclusions drawn about breastfeeding.

The two options mentioned above can be extended to include the age of the breastfed child (in weeks and months) at various other stages of the child's life, i.e., the age at which he/she was given infant formula regularly, given cow's milk regularly, given any other milk substitute regularly, and given solid food regularly. An additional question seeking age of the child at complete weaning and the reason why the mother ceased breastfeeding can provide further insight to weaning practices. A detailed strategy, such as that described above, is being employed in the 1995 NHS.

The previous NHS conducted in 1989–90 collected only limited data on breastfeeding. In this survey, three questionnaires were used: a household form a personal interview form and a women's health supplementary form. The first two forms were completed by trained ABS interviewers, while the last form was completed by the women themselves. Women respondents aged 18–64 were invited to complete the sixteen-question supplementary form relating to specific women's health issues. After completing the form, they were asked to seal the questionnaire in an envelope, and return it to the interviewer. Some 97 of all eligible women respondents completed this supplementary form.

Breastfeeding questions formed a part of this supplement. Mothers aged 18–50 who were still breastfeeding or had a breastfed child (or children) aged five years or less at the time of the interview were asked to provide information on the ages (in months) and the duration of breastfeeding (in months) for each breastfed child. No instructions were issued to distinguish between partial or full breastfeeding for reporting the duration of breastfeeding. Also, no information is available for children who were born during the specified period but had died by the date of the survey. The concepts and methodologies used in the survey are contained in the publication *ational ealth urvey, sers uide* (4364.0).

rom the computer file containing all records from the 1989–90 NHS, a sub-file was created which isolated selected demographic, socio-economic and health information of each mother together with the number of her children aged five years or less as being breastfed, their ages and the duration of breastfeeding in completed months at the time of the survey. In all, 2,685 mothers (unweighted number) qualified for inclusion in the sub-file. or 222 mothers, the reported number of breastfed children based on the questions on age and the duration of breastfeeding was inconsistent. These records were removed from the file and from further analysis. The effective data sub-file then contained information on 2,463 mothers and 3,442 children (Table 1). rom this sub-file, a children's file was created, containing 3,442 records.

1 CREA I N E A A I ES R E 1989 90 NA I NA EA SUR E N S

Women's file	*All women aged 18–50 years* no.
omen in the N S	13 395
omen in the women s su lement of the N S who had a child under five years of age	3 486
omen who had breastfed their child children aged under five	2 685
omen selected for the study e cluding cases omitted due to inaccuracies in answering uestions on breastfeeding	2 463

NU BER C I REN AGE I E EARS R ESS REP R E AS A ING BEEN BREAS E

Number of children per woman	*Number of women*	*Number of children*
ne child	1 592	1 592
wo children	772	1 544
hree children	90	270
our children	9	36
Total	**2 4 3**	**3 442**

C I REN S I E A C I REN AGE I E EARS R ESS REP R E AS A ING BEEN BREAS E

otal first re orted children	child 1	2 463
otal second re orted children	child 2	871
otal third re orted children	child 3	99
otal fourth re orted children	child 4	9
Total c ildren		**3 442**

The selection of the demographic, socio-economic, and health variables of mothers was dictated by their availability in the survey, and their anticipated relationship with breastfeeding response. The latter was based on the literature search on the topic.

The descriptive analysis of the data utilises the mean duration of breastfeeding as a summary measure it has been calculated for the various subcategories of specific characteristics of mothers. It is followed by a survival analysis, where additional measures of the duration of breastfeeding are considered. inally, a hazard model analysis examines the univariate and multivariate dimensions of the influence of a mother's characteristics on the risk ratios of weaning a child. Details of these techniques are given in the Appendix.

The analysis has been restricted to, and carried out separately for, the first and second reported breastfed child. There were 2,463 first reported children and 871 second reported children in the selected data file. Numbers for the third and the fourth reported children, 99 and 9 respectively, were considered too small to analyse separately and were excluded. As the birth order of the breastfed children was not collected

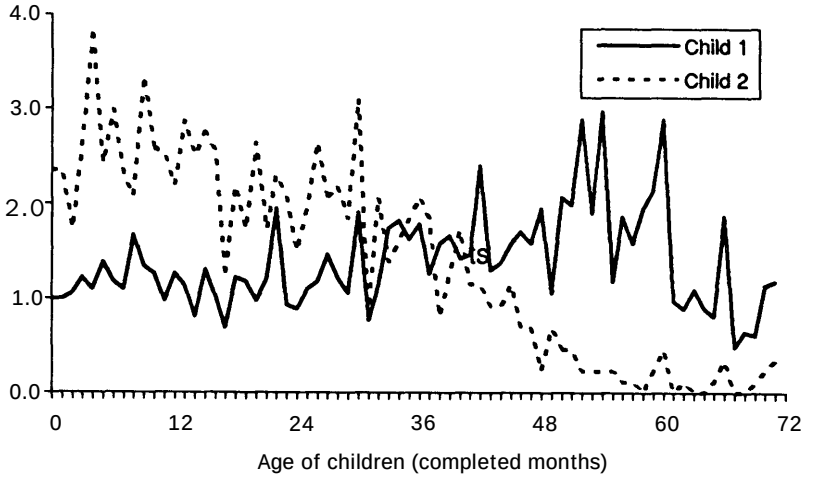
in the NHS, the first and the second reported child could have been of any birth order. However, as the second reported child was always younger than the first reported child, the first reported child would have to be of higher birth order than the second reported child. Moreover, as the total fertility rate in Australia has hovered around 1.8 children per woman throughout the late 1980s, most of the children in the data file are expected to be of the first, second and third birth orders only.

BREAS E C I REN

The proportionate age distribution of the breastfed children is shown in Chart 1. Some degree of age heaping is evident in the reported ages of both the first and the second child. This heaping could have also been a result of the fluctuations in the occurrence of births (as well as deaths) on a monthly basis over a period of the last five years.

The mean age of the first reported child was 37.1 months and that of the second reported child 22.0 months. Children who had, been weaned by the survey date were older, with a mean age of 40.2 months for the first and 26.9 months for the second reported child.

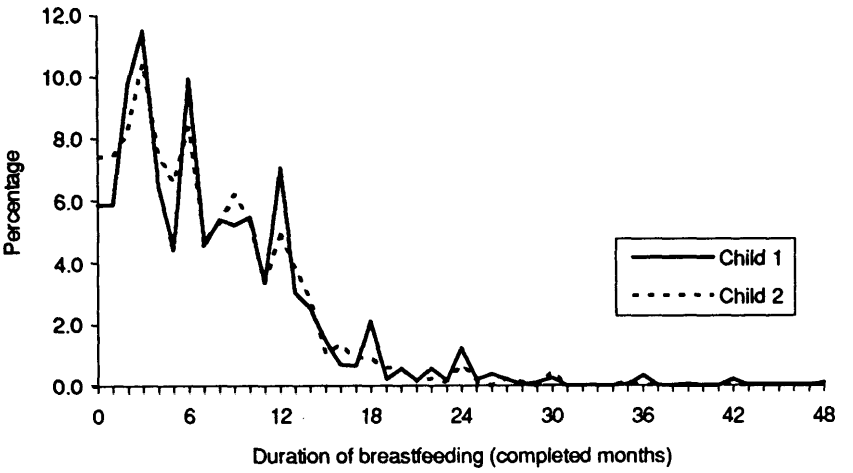
C AR 1 PERCEN AGE AGE IS RIBU I N BREAS E C I REN



Note: Age group 0-1 months is split into ages 0 and 1 months in equal proportions.

Chart 2 shows the percentage distribution of children by duration of breastfeeding in months. Heaping of children at 3, 6, 9, 12, 18 and 24 months of duration of breastfeeding is present. No adjustment for heaping in the numbers of children at specific ages or duration of breastfeeding was made.

C AR 2 PERCEN AGE IS RIBU I N URA I N BREAS EE ING



/Vote: Duration group O-1 months is split into durations of O and 1 months in equal proportions.

INI IA I N BREAS EE ING

The Nursing Mother's Association of Australia compiles statistics on the prevalence of breastfeeding at the time of the mother's discharge from hospital, or from the first visit to the centre/clinic (usually a week after being discharged). In their summary sheet (Nursing Mother's Association 1995) further evidence on the topic from ad hoc sample surveys of different scopes and sample sizes, carried out in various parts of Australia, is also included. The fragmentary evidence available suggests that since the early 1970s, there has been an upward trend in the proportion of women initiating breastfeeding from about 4045 in the 1970s to about 80 in the 1990s. The most recent figure is from Victoria 76 of babies were being breastfed when discharged from hospital in 1992–93.

Published results from the 1989-90 NHS *(Summary of Results, ABS* Cat. No. 4364.0 (1991)) reported that just over 1 million women aged 18 to so years *(25.3%* of women in this age group) had a child or children aged five or younger at the time of the survey. Of these, 77 had breastfed one or more of those children for some period of time. The national result is therefore consistent with the figure for Victoria.

The NHS data suggest that, among children born during the four years prior to the survey date, between 67 and 77 were breastfed for some time in their life (Table 2). The highest percentage (above 74) was found for those who were very young, i.e., born during the two years prior to the survey date. The proportional hazard model which examines the relative likelihood of weaning by age of breastfed children, however, does not lend support to any substantial change in the breastfeeding duration over the last five years.

2 E E EN BREAS EE ING B AGE C I REN

Child's age (months)	*Breastfed children*[1]	*Survey population*[2]	*Per cent breastfed*
0 2	148	193	76.68
3 5	179	241	74.27
6 8	175	233	75.11
9 11	180	251	71.71
12 23	606	814	74.45
24 35	601	837	71.80
36 47	596	886	67.27
48 59	608	872	69.72
60 71	349	889	39.26
Total	**3 442**	**5 21**	**5.99**

[1] Based on res onse to the breastfeeding uestions in women s health su lementary uestionnaire. hese figures will be an underestimate for 1 97 of the eligible women aged 18 64 res onded to women s health uestionnaire and 2 breastfeeding information from 222 women was e cluded due to inconsistency in the re orting of the number of breastfed children in the two uestions on age and duration of breastfeeding.

[2] his is an unweighted o ulation of children based on age variable in the main uestionnaire of the National ealth Survey.

C N INUA I N BREAS EE ING

Having elected to breastfeed, mothers continue breastfeeding for various durations until they decide to partially or fully wean their baby. Data available for Victoria from the Nursing Mothers' Association of Australia give a figure of 48 for children fully breastfed at age three months in 1950, with a sustained decline to a level of 21 in 1971, and rising thereafter to a level of about 53 in the early 1990s. At age six months these percentages follow the same pattern, but are lower — 39 in 1950 to 9 in 1971 and 39 in the 1990s.

The 1989–90 NHS data on breastfeeding are not strictly comparable with the Victorian data for two reasons. irst, the NHS data are retrospective and the Victorian data are prospective. Second, in the NHS no distinction was made between full and partial breastfeeding. NHS data indicate (Table 3) much higher proportions of breastfeeding at durations of three and six months — 63 and 41 , respectively, for the first reported child and still higher percentages for the second reported child.

If the breast-weaning experience of all children (ignoring their age) is taken into account through the use of the survival analysis techniques (which also allows for the censoring of the breastfeeding experience of children who were still being breastfed at the time of the survey), 19 of first reported children were weaned at age three months, 40 at six months and 60 at nine months. In contrast, the second reported child was weaned slightly later than the first child — 18 at age three months, 38 at six months, and 55 at nine months. Based on the survival analysis, the mean duration of breastfeeding prior to weaning of the child was 8.53 months for the first child and 8.99 months for the second child (Table 4). The unadjusted (for censoring) means are 7.93 months for the first child and 7.30 months for the second child. A slightly higher mean is registered for children who had been weaned by the survey date (Appendix Table A1).

3 PERCEN AGE C I REN BREAS E B AGE E IRS AN SEC N REP R E C I

Age of child (months)	*First reported child*			*Second reported child*			*First and second reported children*		
	Weaned	*Total*	*Not weaned*	*Weaned*	*Total*	*Not weaned*	*Weaned*	*Total*	*Not weaned*
	no.	no.		no.	no.		no.	no.	
0 1	0	49	100.0	0	41	100.0	0	90	100.0
2	4	26	84.6	4	15	73.3	8	41	80.5
3	11	30	63.3	6	23	73.9	17	53	67.9
4	13	27	51.9	12	33	63.6	25	60	58.3
5	16	34	52.9	3	21	85.7	19	55	65.5
6	17	29	41.4	9	26	65.4	26	55	52.7
7	18	27	33.3	9	20	55.0	27	47	42.6
8	26	41	36.6	8	18	55.6	34	59	42.4
9	25	33	24.2	12	29	58.6	37	62	40.3
10	16	31	48.4	12	22	45.5	28	53	47.2
11	19	24	20.8	17	22	22.7	36	46	21.7
Total	*165*	*351*	*53.0*	*92*	*270*	*65.9*	*257*	*621*	*58.6*
0 2	4	75	94.7	4	56	92.9	8	131	93.9
3 5	40	91	56.0	21	77	72.7	61	168	63.7
6 8	61	97	37.1	26	64	59.4	87	161	46.0
9 11	60	88	31.8	41	73	43.8	101	161	37.3
12 23	308	337	8.6	208	233	10.7	516	570	9.5
24 35	382	392	2.6	196	200	2.0	578	592	2.4
36 47	467	471	0.8	125	125	0.0	592	596	0.7
48 59	580	580	0.0	28	28	0.0	608	608	0.0
60	332	332	0.0	15	15	0.0	347	347	0.0
Total	**2 234**	**2 4 3**	**9.3**	**4**	**8 1**	**23.8**	**2 898**	**3 334**	**13.1**

It should be noted that the analysis includes only those children who were alive at the survey date and whose mothers elected to breastfeed them. Although mortality under age five is very small in Australia, mothers who did not breastfeed (23) will have substantial influence on the proportion of children breastfed by a given age. The published target figures for Australia — 90 breastfed babies up to two months of age, and 60 fully breastfed and 80 partially breastfed up to three months of age by year 2000 — are for all children, whether breastfed at birth or not (Nutbeam et al. 1993). As an approximation, if all mothers are included in the denominator, the proportion of mothers breastfeeding the first child at three months of age will be 66 (81/1.23) and 49 (60/1.23) at six months. Again, these figures may include both full and partial breastfeeding. Thus, the figures based on the NHS are lower than those set as targets for the year 2000.

4 NUMBER OF CHILDREN AND MEAN DURATION OF BREASTFEEDING (IN MONTHS) BY ORDER OF REPORTED CHILD, BY CHARACTERISTICS OF WOMEN/CHILDREN

	Child 1							*Child 2*						
		Breast feeding	*% weaned at months*						*Breast feeding*	*% weaned at months*				
			3	*6*	*9*					*3*	*6*	*9*		
Characteristics of women/child	no.	mean months	%	%	%	Risk ratio	p	no.	mean months	%	%	%	Risk ratio	p
All children	2 463	8.53	18.9	40.1	59.9			871	8.99	17.8	37.8	55.2		
Age (years)														
18–24	296	5.78	35.3	62.6	75.4	•		78	6.80	32.4	57.6	69.8	•	
25–34	1 663	8.21	18.7	40.1	62.2	0.904		662	8.74	17.1	37.6	56.3	0.854	
35+	504	10.80	10.6	27.6	44.4	0.761	0.019	131	11.05	12.5	27.5	41.9	0.749	
Age (years) at birth of child														
18–24	814	6.86	26.3	51.7	71.7	•		199	6.74	25.7	49.7	69.3	•	
25–34	1 410	9.08	15.8	35.3	55.9	0.818	0.001	583	9.27	16.0	35.3	52.2	0.846	0.157
35+	239	10.93	12.4	29.0	43.7	0.760	0.016	89	11.91	11.7	27.0	42.7	0.748	
Marital status														
Married	2 216	8.74	17.9	38.8	58.4	•		813	9.14	17.3	36.8	53.8	•	
Sep.+Div.+Wid.	131	7.43	20.7	43.2	67.3	1.109		44	7.65	20.5	48.1	69.5	1.277	0.173
Never married	116	5.63	36.8	61.7	81.8	1.361	0.007	14	3.71	40.2	68.5		1.421	
Place of residence														
Capital city	1 507	8.36	19.2	41.0	62.0			51.9	8.67	19.6	40.1	56.7		
Other urban	687	8.37	20.2	41.7	59.9	0.954		237	8.85	18.0	37.0	55.8	0.943	
Rural	269	8.92	14.0	31.0	48.6	0.826	0.009	115	10.46	9.1	29.3	47.5	0.817	0.112
Country of birth														
Australia	1 900	8.53	18.7	40.3	59.6	•		699	8.95	17.4	37.7	53.7	•	
Other Oceania	79	9.95	10.3	35.4	55.6	0.824	0.113	26	10.40	8.3	35.9	40.8	0.658	0.114
Europe+USSR+Amer.	327	8.66	18.7	34.8	57.9	1.012		105	8.64	17.6	36.2	67.0	1.012	
Middle East+Asia	122	6.67	31.4	56.3	75.8	1.521	0.000	31	7.15	38.4	53.1	69.3	1.394	0.133
Other	35	9.97	11.7	31.3	56.2	0.784		10	10.08	10.0	21.3	37.0	1.121	
Year of arrival in Australia														
Australian born	1 900	8.53	18.7	40.3	59.6			699	8.95	17.4	37.7	53.7		
Before 1980	311	8.95	19.3	36.3	58.6			105	8.80	17.7	37.8	65.4		
1980–84	112	7.86	18.8	37.8	61.6			35	9.37	23.4	38.6	49.7		
1985–90	140	7.68	21.9	47.7	67.4			32	7.75	20.1	39.0	63.8		
Indigenous status														
Non-Indigenous	2 433	8.51	19.0	40.1	60.0	•		860	8.97	17.7	37.8	55.4	•	
Indigenous	30	9.46	13.3	40.7	55.4	0.575	0.010	11	10.73	20.0	40.0	40.0	0.537	0.119

... continued

4 NUMBER OF CHILDREN AND MEAN DURATION OF BREASTFEEDING (IN MONTHS) BY ORDER OF REPORTED CHILD, BY CHARACTERISTICS OF WOMEN/CHILDREN — *continued*

	Child 1							*Child 2*						
		Breast feeding	*% weaned at months*						*Breast feeding*	*% weaned at months*				
			3	*6*	*9*					*3*	*6*	*9*		
Characteristics of women/child	no.	mean months	%	%	%	Risk ratio	p	no.	mean months	%	%	%	Risk ratio	p
Highest qualification														
No post school	1 282	7.92	22.2	44.7	64.9	•		449	8.25	21.8	42.5	60.1	•	
Trade/apprent.	114	6.92	18.7	47.0	73.1	1.120		35	7.12	14.4	47.6	65.3	1.279	
Cert./diploma	826	8.88	16.4	37.2	56.0	0.936	0.195	300	9.24	15.1	35.0	51.8	0.824	0.046
Bachelors+high	241	11.13	10.6	22.2	40.3	0.783	0.005	87	11.37	7.3	19.1	37.2	0.665	0.011
Occupation														
Not working	1 353	8.51	20.9	41.5	59.7	•		533	9.10	18.8	38.6	54.9	•	
Manag./Admin.	172	9.59	10.5	28.2	51.0	0.989		59	9.66	10.6	26.7	41.5	1.045	
Professional	174	10.62	7.5	26.4	45.8	1.031		42	9.59	9.5	34.3	52.0	1.210	
Trade/Plant	65	6.67	26.2	52.8	80.3	1.168		22	7.63	18.2	59.1	63.9	1.252	
Clerk/Sale/Serv.	590	8.00	18.8	42.2	64.0	1.107	0.052	179	8.08	19.3	37.1	59.0	1.114	
Labourer	109	8.07	23.1	44.6	64.4	1.026		36	7.87	17.0	38.4	61.1	0.826	
Health status														
Poor	26	6.81	23.1	57.7	69.2	•		10	5.50	50.0	70.0	70.0	•	
Fair	214	8.14	24.0	46.6	65.7	0.774		77	8.09	21.0	48.6	66.8	0.687	
Good	1 238	8.03	22.0	44.3	64.5	0.858		430	8.71	18.9	41.9	58.4	0.637	
Excellent	985	9.31	13.8	32.8	52.5	0.814		354	9.42	14.7	29.5	48.4	0.610	
Self-assessed happiness														
Unhappy	52	6.13	23.8	56.0	74.8	•		18	6.10	29.3	58.8	70.5	•	
Happy	1 514	8.46	20.7	42.4	62.5	0.809	0.181	517	8.88	18.6	38.3	55.1	0.926	
Very happy	897	8.79	15.6	35.1	54.6	0.817		336	8.70	15.8	35.9	54.6	1.008	
Use of contraceptive pill														
Currently using	828	7.51	24.7	44.5	67.7	•		327	7.47	21.5	43.6	64.7	•	
Not using	1 635	9.05	16.0	37.8	56.0	0.848	0.000	544	9.77	15.5	34.3	49.4	0.677	0.000
Body-mass index														
Underweight	508	8.86	18.7	38.8	59.7	•		169	8.21	19.4	39.3	58.2	•	
Acceptable	1 344	8.81	16.7	36.5	57.1	1.010		491	8.96	17.1	37.9	54.8	0.951	
Overweight	372	8.20	20.2	44.8	63.1	1.134	0.083	132	8.83	17.3	36.3	53.7	0.936	
Obese	163	6.29	31.7	58.3	72.4	1.543	0.000	54	9.98	21.2	38.0	56.2	0.935	
Not available	76	8.02	26.9	50.2	69.0	1.214	0.160	25	8.97	14.0	33.6	47.4	0.747	

... continued

4 NUMBER OF CHILDREN AND MEAN DURATION OF BREASTFEEDING (IN MONTHS) BY ORDER OF REPORTED CHILD, BY CHARACTERISTICS OF WOMEN/CHILDREN — *continued*

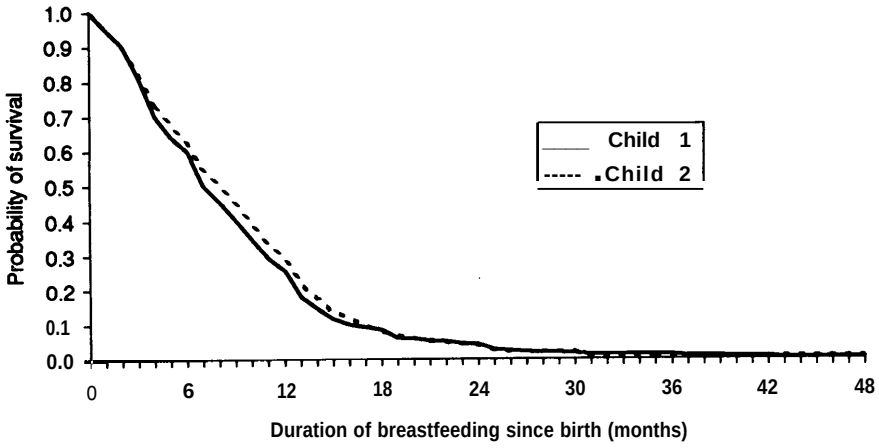
	Child 1							*Child 2*						
		Breast feeding	*% weaned at months*						*Breast feeding*	*% weaned at months*				
			3	*6*	*9*					*3*	*6*	*9*		
Characteristics of women/child	no.	mean months	%	%	%	Risk ratio	p	no.	mean months	%	%	%	Risk ratio	p
Alcohol risk(F)														
Not applicable	1 149	8.39	21.0	43.2	61.4	•		418	9.19	19.2	40.9	55.9	•	
Low	1 211	8.65	16.8	37.5	58.3	1.046		417	8.79	16.4	34.6	54.6	1.126	0.172
Medium	85	8.77	20.0	37.9	59.8	0.937		30	9.49	13.3	31.6	50.7	0.912	
High	18	6.89	22.2	33.3	72.2	0.994		6	4.48	38.6	79.5	79.5	1.268	
Smoking status														
Smoker	659	6.88	27.4	53.6	73.0	•		206	6.60	29.3	55.8	70.9	•	
Ex-smoker	557	8.75	16.3	36.3	55.2	0.808	0.001	224	9.21	10.3	30.2	52.0	0.705	0.003
Never smoked	1 247	9.29	15.6	34.7	55.1	0.774	0.000	441	10.05	16.1	33.1	49.4	0.653	0.000
Child's age (years)														
0	351	3.90	28.4	55.9	65.3	•		270	5.69	18.4	30.7	48.8	•	
1	337	7.38	17.5	40.4	65.0	0.916		233	8.48	18.0	40.3	53.6	1.335	0.030
2	392	8.61	18.9	39.3	56.4	0.833	0.061	200	8.57	18.0	38.5	55.5	1.234	0.125
3	471	8.70	21.2	36.9	58.0	0.856	0.110	125	8.36	15.2	41.6	61.6	1.513	0.006
4	580	8.51	14.3	38.1	58.6	0.901		28	9.18	10.7	32.1	64.3	1.130	
5	332	8.95	16.6	36.4	58.1	0.869	0.178	15	6.17	53.3	73.3	80.0	2.131	0.010

• reference category used in this model.
Note: *p* values for significant levels up to 20% only are given. The blank in the *p* column indicates that the risk ratio value was not significant up to 20% level. For details see Appendix.

DEMOGRAPHIC, SOCIO-ECONOMIC AND HEALTH DIFFERENTIALS OF BREASTFEEDING

In the analysis that follows, the mean duration of breastfeeding and the percentage of mothers weaning their baby after specific duration of breastfeeding by demographic, socio-economic and health characteristics of mothers, are determined using the survival analysis technique (Appendix Tables A2 and A3). The survival curves by duration of breastfeeding (i.e. the proportion of mothers breastfeeding at each specific duration) for the first and second reported children (Chart 3) were significantly different from one another, and therefore the entire analysis was carried out for these two categories of children separately.

C AR 3 SUR I A CUR ES BASE N I E AB E ANA SIS



Note: The probability of survival at 1 month duration is intepolated between durations of O and 2 months.

The risk ratios of weaning the child with mothers' characteristics is seen using the univariate hazard model analysis. This analysis showed that weaning a child was related to many of the mother's characteristics (Appendix Table A4). However, care is required in interpreting the statistical significance of some of the associations found, particularly for differences which are marginally significant, as statistical significance is based on the model assumptions which might not hold exactly because of the sample design, non-response or failure of the model to completely reflect the real world. Statistical non-signficant (at 5 level) associations were found with some characteristics of mothers such as their year of arrival in Australia, alcohol risk level, Indigenous status, and the child's age. Additional characteristics of mothers which showed non-signficant associations for the second reported child were the place of residence, country of birth, occupation, health status, body-mass index, and self-assessed happiness.

inally, the multivariate proportional hazard model analysis is used which compares the risk ratios of weaning the child by specific characteristic of mother after controlling for the influence of their remaining characteristics used in the model (Appendix Table A5). In fitting this model, all the variables, except year of arrival in Australia (it

highly with the country of birth variable), were used because of their possible confounding with other variables, their importance in terms of the differentials in breastfeeding, and the need to maintain consistency of the fitted models to the data for the first and second reported children. The results are shown in Appendix Table A5.

The proportionality assumption for use in the hazard model analysis (graphical justification of the independent variables to be time invariant) is presented in Appendix Charts A1 and A2.

A summary of the results of the survival and hazard model analyses is presented in Table 4.

C ARAC ERIS ICS ER AN BREAS EE ING EANING

Age of mother

Mother's age, and even more so mother's age at birth of the child, is one of the most important characteristics influencing the duration of breastfeeding and weaning practice. Older mothers at the survey date or at the birth of the child tended to breastfeed their children for a longer period than younger mothers. The mean duration of breastfeeding ranged between 6 and 7 months for mothers aged 18–24 years at the birth of the child. This increased to closer to 9 months for mothers aged 25–34 and closer to 11 months for mothers aged 35 years and over.

Mothers aged 25 years or more tended to breastfeed the second reported child for a longer period than the first reported child.

Nearly 26 of mothers aged 18–24 years at the birth of the first or second reported child had weaned their infants by three months compared with 16 and 12 , respectively, of mothers aged 25–34 years and 35 years and over.

The risk ratio is a quotient of the probability of breast-weaning among the mothers in a specified category to that among the mothers in the reference category (the first category of each variable). Thus, a ratio of less than one for a category will indicate longer duration of breastfeeding in that category as compared to the base category of the variable, having controlled for the influence of the other remaining variables in the model. If the ratio is more than one, the converse will apply. It can be seen from Table 4 that the risk ratios were less than one and decreased with rising mother's age at birth of the child, indicating that the older mothers breastfed longer in relation to the mothers in the youngest age group 18–24. The risk ratios for the two older age groups 25–34 and 35 and over were statistically different (at 5 level) from the risk ratio of unity of the base-line age group 18–24 in respect of the first reported child only.

arital status

Married mothers tended to breastfeed their babies for longer periods than those who were separated, divorced or widowed, and single at the survey date. The second reported child tended to be breastfed for longer durations by married mothers and for shorter durations by mothers in the other two groupings of marital status in Table 4.

In comparison with married mothers, the shorter duration of breastfeeding (risk ratio of 1.36) by never married mothers was significant for the first reported child only.

Place of residence

Mothers living in capital cities tended to breastfeed for shorter durations than those living in other urban or rural areas. The duration of breastfeeding was longest in the rural areas. The second reported child was breastfed for longer durations than the first reported child irrespective of the place of residence.

The risk ratios for rural mothers were lower than one, indicating longer periods of breastfeeding than mothers in capital cities. or the first reported child, the risk ratio was significantly different from the risk ratio of the base-line category of capital city mothers.

Country of birth

About 80 of the mothers in the sample were born in Australia. Mothers born in Other Oceania countries tended to breastfeed their babies for slightly longer durations than Australian-born mothers, while European and American-born mothers revealed the same mean duration of breastfeeding as Australian-born mothers. The most revealing contrast was for mothers born in the Middle-East and Asia they tended to breastfeed for shorter durations than Australian-born mothers and their risk ratio was significantly higher in relation to the base category of this variable (in respect of the first reported child only).

ear of arrival in Australia

Among mothers born overseas, there were only small differences in the mean duration of breastfeeding by year of arrival in Australia. Mothers who arrived before 1980 breastfed for slightly longer durations than those who came later. However, as the risk ratios were not calculated for this variable, the difference noted could have been due to other confounding variables such as age.

Indigenous status

Only 30 Indigenous mothers identified in the survey reported breastfeeding their first child and 11 mothers the second child. Despite these small numbers, Indigenous mothers breastfed for longer durations, and their risk ratios of weaning were significantly lower than for the non-Indigenous mothers, at least for the first reported child.

ighest education com leted

The mean duration of breastfeeding generally increased as the level of education of the mother increased. However, mothers who had no post-school qualifications breastfed for slightly longer durations than those with trade and apprenticeship qualifications. Mothers who had a degree or higher qualification tended to breastfeed for longer periods than those with other qualifications. Across all education categories, the second child tended to be breastfed for longer durations than the first child. The risk ratios were lower than one and declined with increased education of the mother. The ratio was lowest for mothers with a degree or higher qualification, and it was statistically significant (at 5 level) for both their first and second reported children. or the second child, the risk ratio for mothers with a certificate or diploma qualification was also statistically significant (at 5 level).

ccu ation A substantial proportion of mothers (55 of the first and 61 of the second child) were not working at the time of the NHS. Mothers in managerial and professional occupations tended to breastfeed for longer durations than mothers either not working or working in other non-professional occupations. This differential in the mean duration of breastfeeding, however, disappeared when all other characteristics of mothers were taken into account the risk ratio was statistically significant (at 5.2 level) only for mothers in clerical, sales and service occupations, and only for the first child. Overall, mother's occupation was found to have had no significant effect on the duration of breastfeeding.

Self assessed health status The NHS asked the respondents to rate their health from excellent to poor (ABS 1991). The mean duration of breastfeeding increased with upward rating of health from poor to excellent. However, the risk ratio for each category of the rated health status of women was not significantly different from the base-line category.

Self assessed ha iness This question was asked to assess how respondents felt overall from very unhappy to very happy (ABS 1991). Most of the mothers reported themselves to be happy or very happy. Unhappy mothers tended to breastfeed for shorter durations than happy or very happy mothers. The risk ratio of breast-weaning for each category of happiness rating was not significantly different from the base-line category.

Use of contrace tive ill Mothers who used the contraceptive pill at the time of the NHS tended to breastfeed for shorter periods than those who were not using the pill. The risk ratio was below one and statistically significant for mothers who were not using the pill at the time of the survey.

Body mass inde Based on height (in metres) and weight (in kilograms) reported to the NHS, uetelet's body-mass index was calculated as weight divided by the square of the height. The scores were grouped into four categories — underweight (20), acceptable weight (20–25), overweight (25–30) and obese (30). The mean duration of breastfeeding decreased as mothers moved from underweight to obese, at least for the first reported child. The risk ratio for the obese category of mother was over one and statistically significant for the first child. or the second child, there was no significant difference in the risk ratio for mothers having different body-mass index scores than the base category (underweight mothers).

Alcohol ris As a life-style factor with implications for health, respondents in the NHS were asked about their alcohol consumption in the last seven days prior to the survey. Consumption per day was calculated after converting types and volumes of alcohol reported as consumed into a standard unit — millilitres of alcohol consumed. Respondents were classified to an alcohol risk level based on their reported average daily consumption. Women were classified to low, medium and high risk levels on the basis of 25 ml, 25–50 ml and 50 ml of alcohol consumption per day, respectively.

About 47 of mothers did not consume alcohol in the week prior to the survey. Only 4 of the mothers were classified to the medium and high risk groups based on their reported alcohol consumption levels. The mean duration of breastfeeding fluctuated in a narrow range according to the alcohol risk level of the mother. However, none of the risk ratios were significantly different from the base category, indicating a lack of breastfeeding differential by subcategories of this variable of mothers.

Smo ing status

Substantial differences in the mean duration of breastfeeding were found among mothers according to whether they were smokers, ex-smokers or had never smoked. Mothers who never smoked breastfed longest followed by those who were ex-smokers and smokers. This differential persisted even after controlling for other characteristics of mothers. The risk ratio was below one and statistically significant for mothers who were ex-smokers and those who never smoked.

Child s age

As all children in the NHS for whom the breastfeeding questions were asked were five years of age or younger (born in the five years prior to the survey date), age of the child variable was included in the analysis to examine if there had been any change in the duration of breastfeeding over the last five years. There is some indication of a decline in the mean duration of breastfeeding with time for children born over the last five years. However, the risk ratio for first reported child does not lend support to such time-trend differentials. In contrast, a time-of-birth differential was found for the second reported child, indicating a decline in the duration of breastfeeding between 1985 and 1990, i.e. in the five years before the survey date.

CONCLUSION

This paper first assessed the quality of breastfeeding data collected in the 1989–90 NHS. Despite these data being collected in a supplementary part of the survey and in self-completion format, the response coverage was excellent and the quality of data of acceptable standards. The data are limited by the scope of the questions asked for example, in response to the question on how long the baby was breastfed we do not know whether the response related to partial or full weaning, and the information on the health status of the breastfed child cannot be linked with breastfeeding experience. Information on such aspects of breastfeeding is important for policy and programs purposes. These data will be available from the 1995 NHS.

This study has shown that the duration of breastfeeding is related to various characteristics of mothers, including mother's age at the child's birth, marital status, country of birth and Indigenous status. It supports the positive relationship between higher socio-economic status of women and longer duration of breastfeeding as found in surveys conducted in Western Australia, Tasmania and Canberra (Hitchcock and Coy 1988, Ryan and Dent 1984). Other relationships found in overseas countries such as a negative relationship between duration of breastfeeding and the use of contraception (De Leon and Potter 1989, Hakansson and Carlson 1992), and a positive relationship between breastfeeding and higher education in the context of the developed countries (Trussell et al. 1992) are also confirmed in the present study. In addition, this study revealed an inverse relationship of breastfeeding with urban living, smoking, and obesity of mothers.

The results in this paper have provided bench-mark information on national breastfeeding levels and differentials in Australia. A similar analysis of data from the 1995 NHS will reveal time-trend change in the breastfeeding levels and maternal differentials and will enable further investigation of duration taking account of full and partial breastfeeding practices.

APPENDI

SUR I A ANA SIS

Survival analysis is a model which is fitted to data that specify the time elapsed between an initiating event and a terminating event. In mortality analysis, this model takes the form of a life table, where the initiating event is birth and the terminating event is death. Time elapsed is the age of the deceased. The terminating event, death, is regarded as the failure. The l function which represents the survivors to an exact age out of a radix of l , is known as the survival function when l equals one. It evaluates the probability of persons surviving to an exact age . The converse of the l function, (l), is the cumulative probability of dying (failure) from birth to age . rom this converse, one can calculate the extent of death (failure) up to a specific age (time duration) and/or the mean or quartile ages (durations of failure times) of persons dying (failing).

Survival analysis is usually applied to survey data where the failure time for some individuals is *censored*, and the calculation of the survival function needs to take this *censorin* into account. In the context of the breastfeeding data, the initiating event is the start of breastfeeding, the terminating event is weaning of the child or the date of the survey, whichever is first. or children who were being breastfed at the time of the survey, the available information is that they were not weaned by the date of the survey (or in other words they were breastfed at least from birth until their age at the survey date). Such cases are referred to as *censored* observations.

In the life table calculations, one could drop the *censored* observations or wait until each child has been weaned. Both of these options are undesirable:

- due to the loss of the sample and
- for the timeliness of the results.

The survival analysis keeps the *censored* observations in the calculation of the survival function until the time the cases are failed or *censored*. The survival functions for breastfeeding durations for mothers of specific characteristics are calculated by splitting the sample into those characteristics. This leads to fewer observations for some characteristics as the number of subdivisions increase, causing the results of the survival analysis to become untrustworthy. In order to avoid such a situation, the hazard models are fitted, which economise on the number of cases and help evaluate the influence of the various characteristics of mothers on their breastfeeding behaviour.

A AR E ANA SIS

In the hazard model, two *ha ard* functions are defined which incorporate all independent variables of interest. In one function, all *levels* of all independent variables are considered whereas in the other function the independent variables at some *base line level* only are considered. The first function is equated to the second function after the latter is multiplied by a constant (in the proportional hazard models).

This constant is the exponential of a linear combination of all *levels* of all independent variables and their interactions (if included in the model).

A *ha ard* function is the probability rate of *failure* in the next infinitesimally small *time interval* given survival to the beginning of the last interval. In the context of this study, the independent variables are the characteristics of women/children, the *level* is the subcategories of each variable, the *failure* is the breast-weaning, and the *time interval* is the duration of breastfeeding in months.

The effect of each *level* of a variable on the *ha ard* incorporating that variable is measured by the risk ratio specific to that *level*. The risk ratio is the relative contribution of a *level* of the variable to the base-line *ha ard* after having controlled for the effects of the remaining variables in the model. The selection of the base-line hazard is arbitrary and does not affect the values of the risk ratios.

In a univariate hazard model, all subcategories of one variable are included. One of the subcategories is used as the base-line. The risk ratio for each subcategory measures the relative effect of this subcategory on the hazard function incorporating all subcategories, relative to the base-line hazard function incorporating the base-line category only. The concept is extended to the multivariate hazard models where more than one variable is included.

or the proportional hazard model, the assumption that the factor which is multiplied to the base-line hazard is constant needs justification. Technically, this assumption means that the independent variables used in the model do not change with time at which the hazard function is evaluated. Retherford and Choe (1993 p. 197) suggest to plot $lo\ lo\ (t)$ against $lo\ lo\ _b(t)$, where (t) is the probability of breastfeeding at time duration t of mothers in subcategory $_b(t)$ is the same probability of mothers in the base category b. If these plots are nearly parallel for each variable, the assumption of the proportional hazard model is satisfied.

A1 NU BER C I REN AN EAN URA I N BREAS EE ING IN N S B R ER REP R E C I EANE AN A C I REN B C ARAC ERIS ICS EN C I REN

Characteristics of women/child	Code	Weaned children: Child 1 no.	Weaned children: Child 1 mean months	Weaned children: Child 2 no.	Weaned children: Child 2 mean months	All children: Child 1 no.	All children: Child 1 mean months	All children: Child 2 no.	All children: Child 2 mean months
Age group ears	AGEB								
18 24	1	239	4.83	57	5.02	296	5.00	78	5.06
25 34	2	1 527	7.82	510	7.38	1 663	7.77	662	7.24
35	3	468	10.20	97	9.45	504	10.39	131	9.15
Age group ears at irt of c ild	AGE C 1								
18 24	1	749	6.40	166	5.89	814	6.36	199	6.07
25 34	2	1 279	8.62	441	7.77	1 410	8.50	583	7.47
35	3	206	9.78	57	9.64	239	10.07	89	9.06
Marital status	ARS A A								
arried	1	2 008	8.17	612	7.49	2 216	8.12	813	7.34
Se . iv. id.	2	128	7.62	42	7.84	131	7.58	44	7.77
Never married	3	98	4.35	10	3.56	116	4.80	14	3.66
Place of residence	URC								
Ca ital city	1	1 369	7.79	401	7.18	1 507	7.82	519	7.08
ther urban	2	624	7.84	175	7.50	687	7.77	237	7.23
Rural	3	241	9.20	88	8.59	269	8.92	115	8.51
Countr of irt	C BB								
Australia	1	1 730	7.94	537	7.52	1 900	7.96	699	7.32
ther ceania	2	73	9.65	16	8.64	79	9.39	26	8.46
Euro e USSR Amer.	3	295	8.19	80	7.07	327	8.07	105	7.35
iddle East Asia	4	108	6.09	25	6.13	122	6.01	31	5.74
ther	5	28	9.19	6	8.79	35	8.38	10	7.47
Year of arri al in Australia	ARRA								
Australian born	1	1 730	7.94	537	7.52	1 900	7.96	699	7.32
Before 1980	2	287	8.44	77	6.79	311	8.30	105	7.07
1980 84	3	105	7.81	27	8.36	112	7.93	35	7.92
1985 90	4	112	7.08	23	6.91	140	6.68	32	6.99
Indigenous status									
Non Indigenous	1	2 210	7.95	657	7.44	2 433	7.91	860	7.30
Indigenous	2	24	8.39	7	7.92	30	9.35	11	7.81
Hig est ualification	IG QUA								
No ost school	1	1 174	7.27	351	6.83	1 282	7.31	449	6.72
rade a rent. t	2	104	6.89	27	6.03	114	6.98	35	6.36
Cert. di loma	3	747	8.43	226	7.71	826	8.34	300	7.76
Bachelors higher	4	209	10.67	60	10.67	241	10.28	87	9.08
Occupation	CCB								
Not wor ing	1	1 180	7.63	379	7.26	1 353	7.57	533	6.96
anag. Admin.	2	163	9.23	48	8.63	172	9.21	59	8.70
Professional	3	159	10.54	35	8.94	174	10.42	42	8.46
rade Plant	4	63	6.49	20	5.91	65	6.43	22	6.23
Cler Sale Serv.	5	565	7.70	154	7.51	590	7.77	179	7.66
abourer	6	104	8.01	28	6.91	109	8.00	36	7.75
Healt status	S A								
Poor	1	26	6.75	8	3.76	26	6.75	10	4.80
air	2	201	7.33	66	7.01	214	7.36	77	7.15
Good	3	1 135	7.45	325	6.94	1 238	7.51	430	6.84
E cellent	4	872	8.79	265	8.31	985	8.59	354	7.97
Use of contracepti e pill	PI								
Currently using	1	755	6.96	257	6.22	828	6.98	327	6.28
Not using	2	1 479	8.47	407	8.24	1 635	8.41	544	7.93
Bod - ass inde	IN E B								
Underweight	1	449	8.05	131	6.80	508	8.10	169	7.17
Acce table	2	1 220	8.34	373	7.52	1 344	8.26	491	7.30
verweight	3	343	7.63	103	7.92	372	7.55	132	7.42
bese	4	155	6.13	42	7.80	163	6.13	54	7.67
Not available	5	67	6.27	15	7.45	76	6.60	25	6.95

continued

A1 NU BER C I REN AN EAN URA I N BREAS EE ING IN N S B R ER REP R E C I EANE AN A C I REN B C ARAC ERIS ICS EN C I REN — *continued*

		Weaned children				*All children*			
		Child 1		*Child 2*		*Child 1*		*Child 2*	
Characteristics of women/child	Code	no.	ean months	no.	ean months	no.	ean months	no.	ean months
Alco ol ris F	A CRIS								
Not a licable	1	1 037	7.80	318	7.51	1 149	7.73	418	7.36
ow	2	1 099	8.10	317	7.35	1 211	8.11	417	7.22
edium	3	80	8.22	24	8.56	85	8.25	30	8.37
igh	4	18	6.93	5	4.53	18	6.93	6	4.05
S o ing status	S S A								
Smo er	1	607	6.35	179	5.83	659	6.36	206	5.75
E smo er	2	495	8.15	166	7.92	557	7.96	224	7.55
Never smo ed	3	1 132	8.76	319	8.12	1 247	8.76	441	7.91
Self assessed									
Happiness	APP								
Unha y	1	48	5.85	16	6.53	52	5.78	18	6.83
a y	2	1 403	7.79	402	7.56	1 514	7.92	517	7.30
very ha y	3	783	8.38	246	7.34	897	8.07	336	7.33
C ild s age ears	AGE 1								
0	1	165	3.11	92	4.00	351	3.99	270	4.76
1	2	308	6.87	208	7.44	337	7.67	233	8.27
2	3	382	8.48	196	8.48	392	8.90	200	8.98
3	4	467	8.54	125	8.31	471	8.78	125	8.31
4	5	580	8.62	28	8.87	580	8.62	28	8.87
5	6	332	9.14	15	5.98	332	9.14	15	5.98
All c ildren		**2 234**	**.9**	**4**	**.45**	**2 4 3**	**.93**	**8 1**	**.30**

A2 NUMBER OF BREASTFED CHILDREN, PERCENTAGE OF CHILDREN WEANED BY SPECIFIC DURATION, AND SUMMARY MEASURES OF DURATION OF BREASTFEEDING (IN MONTHS) — FIRST REPORTED CHILD

				Children weaned by specific duration (months)						*Summary measures[1] of duration of breastfeeding (months)*					
			Cen-sored[2]	*3*	*6*	*9*	*12*	*18*	*24*	*Mean*	*Q1*	*Q2*	*Q3*	*TM*	*Q3–Q1*
Characteristics of women/child	Code	no.	%	%	%	%	%	%	%	%	%	%	%	%	%
Age group (years)	AGEB														
18–24	1	296	19.3	35.3	62.6	75.4	84.2	95.5	97.0	5.78	2.78	4.13	8.88	4.98	6.10
25–34	2	1 663	8.2	18.7	40.1	62.2	76.9	92.8	96.5	8.21	3.55	6.92	11.49	7.22	7.94
35+	3	504	7.1	10.6	27.6	44.4	61.1	85.4	92.5	10.80	5.07	9.94	13.90	9.71	8.82
Age group (years) at birth of child	AGEMCH1														
18–24	1	814	8.0	26.3	51.7	71.7	84.4	95.7	97.4	6.86	3.80	5.58	9.67	6.16	5.87
25–34	2	1 410	9.3	15.8	35.3	55.9	71.1	90.2	95.4	9.08	3.94	8.04	12.45	8.12	8.51
35+	3	239	13.8	12.4	29.0	43.7	60.1	85.5	92.3	10.93	4.89	9.98	14.21	9.76	9.33
Marital status	MARSTATA														
Married	1	2 216	9.4	17.9	38.8	58.4	73.0	91.1	95.5	8.74	3.66	7.29	12.25	7.62	8.58
Sep.+Div.+Wid.	2	131	2.3	20.7	43.2	67.3	84.6	94.3	98.4	7.43	3.33	6.49	10.70	6.75	7.37
Never married	3	116	15.5	36.8	61.7	81.8	89.1	96.0	•	5.63	2.56	3.76	8.00	4.52	5.44
Place of residence	URC														
Capital city	1	1 507	9.2	19.2	41.0	62.0	76.3	92.0	95.6	8.36	3.51	6.83	11.63	7.20	8.11
Other urban	2	687	9.2	20.2	41.7	59.9	74.5	91.3	96.4	8.37	3.41	6.95	12.06	7.34	8.65
Rural	3	269	10.4	14.0	31.0	48.6	63.3	89.4	94.6	9.82	4.40	9.23	12.86	8.93	8.46
Country of birth	COBB														
Australia	1	1 900	8.9	18.7	40.3	59.6	74.1	92.1	96.1	8.53	3.57	7.01	12.12	7.43	8.55
Other Oceania	2	79	7.6	10.3	35.4	55.6	69.5	83.9	89.8	9.95	4.17	7.77	12.78	8.12	8.60
Europe+USSR+Amer.	3	327	9.8	18.7	34.8	57.9	75.3	90.3	96.1	8.66	3.68	7.52	11.94	7.66	8.26
Middle East+Asia	4	122	11.5	31.4	56.3	75.8	81.6	92.3	96.1	6.67	3.02	4.62	8.70	5.24	5.68
Other	5	35	20.0	11.7	31.3	56.2	70.8	86.1	86.1	9.97	4.70	8.43	12.57	8.53	7.88
Year of arrival in Australia	YOARRA														
Australian born	1	1 900	8.9	18.7	40.3	59.6	74.1	92.1	96.1	8.53	3.57	7.01	12.12	7.43	8.55
Before 1980	2	311	7.7	19.3	36.3	58.6	74.1	87.6	94.5	8.95	3.59	7.50	12.13	7.68	8.53
1980–84	3	112	6.3	18.8	37.8	61.6	77.3	92.1	96.1	7.86	3.57	6.86	10.80	7.03	7.23
1985–90	4	140	20.0	21.9	47.7	67.4	77.0	92.2	93.3	7.68	3.21	6.20	10.60	6.55	7.38
Indigenous status	ABORIGA														
Non-Indigenous	1	2 433	9.2	19.0	40.1	60.0	74.6	91.6	95.8	8.51	3.55	6.98	12.06	7.39	8.51
Indigenous	2	30	20.0	13.3	40.7	55.4	59.3	81.7	87.8	9.46	3.57	8.27	13.86	8.49	10.28

For footnotes see end of table.

A2 NUMBER OF BREASTFED CHILDREN, PERCENTAGE OF CHILDREN WEANED BY SPECIFIC DURATION, AND SUMMARY MEASURES OF DURATION OF BREASTFEEDING (IN MONTHS) — FIRST REPORTED CHILD — *continued*

Characteristics of women/child	Code	no.	*Cen-sored*[2]	*Children weaned by specific duration (months)*						*Summary measures*[1] *of duration of breastfeeding (months)*					
				3	*6*	*9*	*12*	*18*	*24*	*Mean*	*Q1*	*Q2*	*Q3*	*TM*	*Q3–Q1*
			%	%	%	%	%	%	%	%	%	%	%	%	%
Highest qualification	HIGHQUAL														
No post school	1	1 282	8.4	22.2	44.7	64.9	78.6	93.1	96.1	7.92	3.23	6.52	11.07	6.84	7.84
Trade/apprent./Ot	2	114	8.8	18.7	47.0	73.1	82.1	94.4		6.92	3.41	6.19	9.32	6.28	5.92
Cert./diploma	3	826	9.6	16.4	37.2	56.0	71.2	90.6	95.5	8.88	3.88	7.66	12.47	7.92	8.59
Bachelors+higher	4	241	13.3	10.6	22.2	40.3	58.9	84.8	93.2	11.13	6.33	10.49	13.67	10.25	7.34
Occupation	OCCB														
Not working	1	1 353	12.8	20.9	41.5	59.7	74.3	91.2	95.3	8.51	3.38	6.91	12.09	7.32	8.72
Manag./Admin.	2	172	5.2	10.5	28.2	51.0	71.2	88.7	95.0	9.59	5.41	8.81	12.41	8.86	7.00
Professional	3	174	8.6	7.5	26.4	45.8	62.2	87.9	93.9	10.62	5.73	9.85	12.99	9.60	7.26
Trade/Plant	4	65	3.1	26.2	52.8	80.3	83.6	96.7	98.4	6.67	3.75	5.56	7.96	5.71	4.21
Clerk/Sale/Serv.	5	590	4.2	18.8	42.2	64.0	77.2	93.5	97.4	8.00	3.48	6.69	11.30	7.04	7.82
Labourer	6	109	4.6	23.1	44.6	64.4	78.1	91.3	94.6	8.07	3.16	6.48	11.38	6.87	8.22
Health status	HLTHSTAT														
Poor	1	26	0.0	23.1	57.7	69.2	73.1	96.2	96.2	6.81	3.08	5.00	12.10	6.30	9.02
Fair	2	214	6.1	24.0	46.6	65.7	79.3	91.8	94.5	8.14	3.07	6.33	10.73	6.62	7.66
Good	3	1 238	8.3	22.0	44.3	64.5	77.1	91.7	95.6	8.03	3.27	6.51	11.49	6.95	8.21
Excellent	4	985	11.5	13.8	32.8	52.5	69.9	91.2	96.2	9.31	4.13	8.60	12.53	8.47	8.40
Use of contraceptive pill	PILL														
Currently using	1	828	8.8	24.7	44.5	67.7	81.2	94.5	97.0	7.51	3.03	6.45	10.61	6.63	7.59
Not using	2	1 635	9.5	16.0	37.8	56.0	71.0	90.1	95.1	9.05	3.82	7.74	12.46	7.94	8.64
Body-mass index	INDEXB														
Underweight	1	508	11.6	18.7	38.8	59.7	73.2	88.7	94.1	8.86	3.61	7.21	12.21	7.56	8.59
Acceptable	2	1 344	9.2	16.7	36.5	57.1	72.6	91.7	96.1	8.81	3.79	7.64	12.29	7.84	8.50
Overweight	3	372	7.8	20.2	44.8	63.1	75.8	92.3	95.8	8.20	3.37	6.54	11.81	7.06	8.44
Obese	4	163	4.9	31.7	58.3	72.4	86.0	96.0	98.4	6.29	3.10	4.50	9.37	5.37	6.27
Not available	5	76	11.8	26.9	50.2	69.0	81.4	91.9	93.9	8.02	3.70	5.93	10.29	6.46	6.59
Alcohol risk(F)	ALCRISKF														
Not applicable	1	1 149	9.7	21.0	43.2	61.4	73.8	91.1	95.4	8.39	3.33	6.75	12.14	7.24	8.81
Low	2	1 211	9.2	16.8	37.5	58.3	74.8	91.9	96.1	8.65	3.78	7.39	12.03	7.65	8.24
Medium	3	85	5.9	20.0	37.9	59.8	72.6	90.0	94.3	8.77	3.53	6.76	12.47	7.38	8.94
High	4	18	0.0	22.2	33.3	72.2	88.9			6.89	3.25	7.50	9.17	6.85	5.92

For footnotes see end of table.

A2 NUMBER OF BREASTFED CHILDREN, PERCENTAGE OF CHILDREN WEANED BY SPECIFIC DURATION, AND SUMMARY MEASURES OF DURATION OF BREASTFEEDING (IN MONTHS) — FIRST REPORTED CHILD — *continued*

Characteristics of women/child	Code	no.	*Censored*[2]	*Children weaned by specific duration (months)*						*Summary measures*[1] *of duration of breastfeeding (months)*					
				3	*6*	*9*	*12*	*18*	*24*	*Mean*	*Q1*	*Q2*	*Q3*	*TM*	*Q3–Q1*
			%	%	%	%	%	%	%	%	%	%	%	%	%
Smoking status	SMOSTAT														
Smoker	1	659	7.9	27.4	53.6	73.0	82.9	94.4	97.2	6.88	3.62	5.01	9.56	5.80	5.94
Ex-smoker	2	557	11.1	16.3	36.3	55.2	73.7	91.9	97.0	8.75	3.89	7.75	12.16	7.89	8.28
Never smoked	3	1 247	9.2	15.6	34.7	55.1	70.2	89.8	94.5	9.29	3.98	8.16	12.57	8.22	8.59
Self-assessed happiness	HAPPY														
Unhappy	1	52	7.7	23.8	56.0	74.8	85.6	97.6	97.6	6.13	3.06	5.03	9.04	5.54	5.98
Happy	2	1 514	7.3	20.7	42.4	62.5	75.7	91.1	95.1	8.46	3.39	6.77	11.81	7.18	8.42
Very happy	3	897	12.7	15.6	35.1	54.6	71.4	92.1	96.9	8.79	3.88	8.17	12.40	8.15	8.52
Child's age (years)	AGEK1														
0	1	351	53.0	28.4	55.9	65.3				3.90	3.50	5.10			
1	2	337	8.6	17.5	40.4	65.0	77.2	92.7	n.a.	7.38	3.60	6.79	10.99	7.04	7.39
2	3	392	2.6	18.9	39.3	56.4	70.2	89.8	94.9	8.61	3.65	7.59	12.56	7.85	8.91
3	4	471	0.8	21.2	36.9	58.0	75.4	90.7	95.3	8.70	3.46	7.37	11.93	7.53	8.48
4	5	580	0.0	14.3	38.1	58.6	74.0	92.4	96.0	8.51	3.74	7.18	12.12	7.55	8.38
5	6	332	0.0	16.6	36.4	58.1	73.2	91.3	95.8	8.95	3.85	7.50	12.24	7.77	8.39
All children		**2 463**	**9.3**	**18.9**	**40.1**	**59.9**	**74.4**	**91.5**	**95.8**	**8.53**	**3.55**	**6.98**	**12.08**	**7.40**	**8.53**

[1] Qs are quartiles. Trimean = .25(Q1 + 2Q2 + Q3).
[2] Cases for whom duration of breast weaning was censored.
Based on LIFETEST SAS procedure for survival analysis.

A3 NUMBER OF BREASTFED CHILDREN, PERCENTAGE OF CHILDREN WEANED BY SPECIFIC DURATION, AND SUMMARY MEASURES OF DURATION OF BREASTFEEDING (IN MONTHS) — SECOND REPORTED CHILD

				Children weaned by specific duration (months)						*Summary measures[1] of duration of breastfeeding (months)*					
			Cen-sored[2]	*3*	*6*	*9*	*12*	*18*	*24*	*Mean*	*Q1*	*Q2*	*Q3*	*TM*	*Q3–Q1*
Characteristics of women/child	Code	no.	%	%	%	%	%	%	%	%	%	%	%	%	%
Age group (years)	AGEB														
18–24	1	78	26.9	32.4	57.6	69.8	79.0	96.5	96.5	6.80	2.82	4.56	10.90	5.71	8.09
25–34	2	662	23.0	17.1	37.6	56.3	74.0	91.7	96.3	8.74	3.80	7.95	12.15	7.96	8.35
35+	3	131	26.0	12.5	27.5	41.9	51.9	91.4	94.7	11.05	5.28	11.38	14.52	10.64	9.24
Age group (years) at birth of child	AGEMCH1														
18–24	1	199	16.6	25.7	49.7	69.3	81.2	97.2	98.2	6.74	3.81	6.02	10.26	6.53	6.44
25–34	2	583	24.4	16.0	35.3	52.2	70.2	90.8	96.2	9.27	3.90	8.69	12.60	8.47	8.70
35+	3	89	36.0	11.7	27.0	42.7	51.3	87.5	90.3	11.91	5.27	11.26	14.85	10.66	9.58
Marital status	MARSTATA														
Married	1	813	24.7	17.3	36.8	53.8	70.1	91.9	95.9	9.14	3.86	8.29	12.65	8.28	8.79
Sep.+Div.+Wid.	2	44	4.5	20.5	48.1	69.5	79.6	92.4	97.5	7.65	3.33	6.27	10.54	6.61	7.21
Never married	3	14	28.6	40.2	68.5					3.71	2.22	4.14	6.31	4.20	4.08
Place of residence	URC														
Capital city	1	519	22.7	19.6	40.1	56.7	70.0	92.8	96.3	8.67	3.54	7.62	12.67	7.87	9.13
Other urban	2	237	26.2	18.0	37.0	55.8	72.3	91.3	96.5	8.85	3.80	7.93	12.40	8.01	8.59
Rural	3	115	23.5	9.1	29.3	47.5	72.3	89.8	94.2	10.46	5.15	9.33	12.37	9.04	7.22
Country of birth	COBB														
Australia	1	699	23.2	17.4	37.7	53.7	71.0	92.6	97.2	8.95	3.82	8.37	12.58	8.29	8.76
Other Oceania	2	26	38.5	8.3	35.9	40.8	46.2	76.9	84.6	10.40	3.93	12.12	12.94	10.28	9.00
Europe+USSR+Amer.	3	105	23.8	17.6	36.2	67.0	76.6	88.6	90.9	8.64	3.82	6.76	11.43	7.19	7.61
Middle East+Asia	4	31	19.4	38.4	53.1	69.3	74.4	94.9	94.9	7.15	2.51	5.18	12.06	6.24	9.54
Other	5	10	40.0	10.0	21.3	37.0	58.0			10.08	7.24	9.62	12.81	9.82	5.57
Year of arrival in Australia	YOARRA														
Australian born	1	699	23.2	17.4	37.7	53.7	71.0	92.6	97.2	8.95	3.82	8.37	12.58	8.29	8.76
Before 1980	2	105	26.7	17.7	37.8	65.4	72.8	87.7	92.6	8.80	3.71	6.74	12.47	7.42	8.76
1980–84	3	35	22.9	23.4	38.6	49.7	58.1	90.7	90.7	9.37	3.26	9.07	12.61	8.50	9.34
1985–90	4	32	28.1	20.1	39.0	63.8	77.8	88.9	88.9	7.75	3.67	7.36	10.44	7.21	6.77
Indigenous status	ABORIGA														
Non-Indigenous	1	860	23.6	17.7	37.8	55.4	71.3	91.9	96.1	8.97	3.80	8.00	12.51	8.08	8.71
Indigenous	2	11	36.4	20.0	40.0	40.0	40.0			10.73	3.25	12.67	16.89	11.37	13.64

For footnotes see end of table.

A3 NUMBER OF BREASTFED CHILDREN, PERCENTAGE OF CHILDREN WEANED BY SPECIFIC DURATION, AND SUMMARY MEASURES OF DURATION OF BREASTFEEDING (IN MONTHS) — SECOND REPORTED CHILD — *continued*

Characteristics of women/child	Code	no.	*Censored*[2]	*Children weaned by specific duration (months)*						*Summary measures*[1] *of duration of breastfeeding (months)*					
				3	*6*	*9*	*12*	*18*	*24*	*Mean*	*Q1*	*Q2*	*Q3*	*TM*	*Q3–Q1*
			%	%	%	%	%	%	%	%	%	%	%	%	%
Highest qualification	HIGHQUAL														
No post school	1	449	21.8	21.8	42.5	60.1	76.6	93.5	96.4	8.25	3.31	6.84	11.59	7.14	8.28
Trade/apprent./Ot	2	35	22.9	14.4	47.6	65.3	87.9			7.12	3.90	6.37	11.29	6.98	7.39
Cert./diploma	3	300	24.7	15.1	35.0	51.8	65.2	89.5	95.2	9.24	4.23	8.67	12.99	8.64	8.75
Bachelors+higher	4	87	31.0	7.3	19.1	37.2	55.9	89.4	95.7	11.37	6.82	10.93	14.62	10.82	7.80
Occupation	OCCB														
Not working	1	533	28.9	18.8	38.6	54.9	70.8	90.8	95.3	9.10	3.62	7.97	12.68	8.06	9.06
Manag./Admin.	2	59	18.6	10.6	26.7	41.5	63.7	90.9	93.5	9.66	5.68	10.14	12.83	9.70	7.15
Professional	3	42	16.7	9.5	34.3	52.0	70.7	93.5	96.7	9.59	4.81	8.83	12.66	8.78	7.85
Trade/Plant	4	22	9.1	18.2	59.1	63.9	74.2	93.1	93.1	7.63	3.21	4.00	12.15	5.84	8.94
Clerk/Sale/Serv.	5	179	14.0	19.3	37.1	59.0	72.8	95.2	99.0	8.08	3.99	7.40	12.26	7.76	8.27
Labourer	6	36	22.2	17.0	38.4	61.1	75.0	87.1		7.87	4.35	6.90	12.00	7.54	7.65
Health status	HLTHSTAT														
Poor	1	10	20.0	50.0	70.0	70.0	70.0			5.50	2.33	4.00	12.17	5.63	9.83
Fair	2	77	14.3	21.0	48.6	66.8	77.9	92.1	97.0	8.09	3.38	6.15	11.09	6.69	7.71
Good	3	430	24.4	18.9	41.9	58.4	72.6	91.2	95.5	8.71	3.61	6.94	12.37	7.47	8.76
Excellent	4	354	25.1	14.7	29.5	48.4	67.5	92.7	96.5	9.42	4.55	9.29	12.89	9.01	8.34
Use of contraceptive pill	PILL														
Currently using	1	327	21.4	21.5	43.6	64.7	82.2	97.6	98.8	7.47	3.39	6.58	10.61	6.79	7.22
Not using	2	544	25.2	15.5	34.3	49.4	64.3	89.0	94.7	9.77	4.05	9.11	13.52	8.95	9.47
Body-mass index	INDEXB														
Underweight	1	169	22.5	19.4	39.3	58.2	72.0	92.0	95.7	8.21	3.59	7.56	12.35	7.77	8.76
Acceptable	2	491	24.0	17.1	37.9	54.8	72.0	91.2	96.1	8.96	3.79	7.94	12.45	8.03	8.66
Overweight	3	132	22.0	17.3	36.3	53.7	67.1	94.8	98.7	8.83	4.36	8.25	12.80	8.42	8.44
Obese	4	54	22.2	21.2	38.0	56.2	71.5	89.9	89.9	9.98	3.37	8.46	12.68	8.24	9.31
Not available	5	25	40.0	14.0	33.6	47.4	62.5	92.5	92.5	8.97	3.77	9.34	14.84	9.32	11.07
Alcohol risk(F)	ALCRISKF														
Not applicable	1	418	23.9	19.2	40.9	55.9	69.2	89.3	94.3	9.19	3.72	7.46	12.83	7.87	9.12
Low	2	417	24.0	16.4	34.6	54.6	73.3	94.3	98.1	8.79	3.86	8.33	12.22	8.18	8.37
Medium	3	30	20.0	13.3	31.6	50.7	58.9	93.5	93.5	9.49	3.81	8.82	14.22	8.92	10.40
High	4	6	16.7	38.6	79.5	79.5				4.48	2.67	4.28	4.89	4.03	2.22

For footnotes see end of table.

A3 NUMBER OF BREASTFED CHILDREN, PERCENTAGE OF CHILDREN WEANED BY SPECIFIC DURATION, AND SUMMARY MEASURES OF DURATION OF BREASTFEEDING (IN MONTHS) — SECOND REPORTED CHILD — *continued*

Characteristics of women/child	Code	no.	*Censored*[2]	*Children weaned by specific duration (months)*						*Summary measures*[1] *of duration of breastfeeding (months)*					
				3	*6*	*9*	*12*	*18*	*24*	*Mean*	*Q1*	*Q2*	*Q3*	*TM*	*Q3–Q1*
			%	%	%	%	%	%	%	%	%	%	%	%	%
Smoking status	SMOSTAT														
Smoker	1	206	13.1	29.3	55.8	70.9	81.9	96.1	98.4	6.60	3.10	5.12	9.62	5.74	6.52
Ex-smoker	2	224	25.9	10.3	30.2	52.0	69.3	95.3	97.2	9.21	5.23	8.66	12.62	8.79	7.38
Never smoked	3	441	27.7	16.1	33.1	49.4	66.6	88.1	94.1	10.05	3.97	9.09	13.78	8.98	9.81
Self-assessed happiness	HAPPY														
Unhappy	1	18	11.1	29.3	58.8	70.5	76.4	94.1		6.10	3.64	5.26	11.76	6.48	8.12
Happy	2	517	22.2	18.6	38.3	55.1	72.4	91.7	95.6	8.88	3.65	7.97	12.33	7.98	8.69
Very happy	3	336	26.8	15.8	35.9	54.6	68.4	92.5	97.0	8.70	4.20	8.26	13.12	8.46	8.93
Child's age (years)	AGEK1														
0	1	270	65.9	18.4	30.7	48.8				5.69	4.06	9.18			
1	2	233	10.7	18.0	40.3	53.6	71.7	92.4	n.a.	8.48	3.74	8.35	12.64	8.27	8.90
2	3	200	2.0	18.0	38.5	55.5	68.5	91.5	96.5	8.57	3.64	8.00	12.81	8.11	9.18
3	4	125	0.0	15.2	41.6	61.6	75.2	93.6	96.0	8.36	4.02	6.88	11.96	7.43	7.94
4	5	28	0.0	10.7	32.1	64.3	78.6	92.9	92.9	9.18	5.00	7.00	11.00	7.50	6.00
5	6	15	0.0	53.3	73.3	80.0	93.3	93.3	93.3	6.17					
All children		**871**	**23.8**	**17.8**	**37.8**	**55.2**	**71.0**	**91.9**	**96.1**	**8.99**	**3.79**	**8.02**	**12.55**	**8.09**	**8.77**

[1] Qs are quartiles. Trimean = .25(Q1 + 2Q2 + Q3).
[2] Cases for whom duration of breastfeeding was censored.
Based on LIFETEST SAS procedure for survival analysis.

A4 UNI ARIA E ANA SIS E RIS EANING E IRS AN SEC N REP R E C I USING E PR P R I NA A AR E N SE EC E ARIAB ES

	First child (N=2463, Censored=229)				*Second child (N=871, Censored=207)*			
Model	*-2 LOG L With Covariates*	*Model Chi-square*	*D.F.*	*p*	*-2 LOG L With Covariates*	*Model Chi-square*	*D.F.*	*p*
Null	30797.454				7741.405			
Age of women	30717.584	79.869	2	0.0001	7724.061	17.344	2	0.0002
Age of women at birth of child	30713.022	84.432	2	0.0001	7713.921	27.484	2	0.0001
arital status	30767.832	29.622	2	0.0001	7733.559	7.846	2	0.0198
Place of residence	30789.082	8.372	2	0.0152	7738.875	2.530	2	0.2822
Country of birth	30785.941	11.513	4	0.0214	7736.001	5.404	4	0.2483
ear of arrival in Australia	30795.642	1.811	3	0.6125	7741.274	0.131	3	0.9879
Aboriginality	30795.242	2.212	1	0.1370	7740.451	0.954	1	0.3287
ighest ualification	30754.192	43.261	3	0.0001	7724.267	17.138	3	0.0007
ccu ation	30772.078	25.375	5	0.0001	7737.523	3.882	5	0.5666
ealth status	30781.130	16.324	3	0.0010	7735.179	6.226	3	0.1011
Use of contrace tive ill	30771.358	26.095	1	0.0001	7718.777	22.628	1	0.0001
Body mass inde	30772.668	24.785	4	0.0001	7739.984	1.421	4	0.8406
Alcohol ris	30795.206	2.248	3	0.5226	7737.446	3.959	3	0.2659
Smo ing status	30742.120	55.333	2	0.0001	7707.956	33.449	2	0.0001
Self assessed ha iness	30788.329	9.125	2	0.0104	7739.425	1.980	2	0.3716
Child s age	30788.163	9.291	5	0.0980	7732.146	9.259	5	0.0992

Note Category 1 for each variable in able A1 is used as the reference category.

A5 RISK RATIOS FOR BREASTFEEDING BASED ON UNIVARIATE PARAMETER ESTIMATES FOR FIRST AND SECOND REPRODUCTIVE CHILDREN

Characteristics of women/child	Code	First child no.	First child Censored	Second child no.	Second child Censored	First child Risk ratio		Second child Risk ratio	
Age years	AGEB								
18 24	1	296	19.3	78	26.9				
25 34	2	1 663	8.2	662	23.0	0.904		0.854	
35	3	504	7.1	131	26.0	0.761	0.019	0.749	
Age years at irth of child	AGE C 1								
18 24	1	814	8.0	199	16.6				
25 34	2	1 410	9.3	583	24.4	0.818	0.001	0.846	0.157
35	3	239	13.8	89	36.0	0.760	0.016	0.748	
Marital status	ARS A A								
arried	1	2 216	9.4	813	24.7				
Se . iv. id.	2	131	2.3	44	4.5	1.109		1.277	0.173
Never married	3	116	15.5	14	28.6	1.361	0.007	1.421	
Place of residence	URC								
Ca ital city	1	1 507	9.2	519	22.7				
ther urban	2	687	9.2	237	26.2	0.954		0.943	
Rural	3	269	10.4	115	23.5	0.826	0.009	0.817	0.112
Countr of irth	C BB								
Australia	1	1 900	8.9	699	23.2				
ther ceania	2	79	7.6	26	38.5	0.824	0.113	0.658	0.114
Euro e USSR Amer.	3	327	9.8	105	23.8	1.012		1.012	
iddle East Asia	4	122	11.5	31	19.4	1.521	0.000	1.394	0.133
ther	5	35	20.0	10	40.0	0.784		1.121	
Indigenous status	AB RIGA								
Non Indigenous	1	2 433	9.2	860	23.6				
Indigenous	2	30	20.0	11	36.4	0.575	0.010	0.537	0.119
Hig est ualification	IG QUA								
No ost school	1	1 282	8.4	449	21.8				
rade a rent. t	2	114	8.8	35	22.9	1.120		1.279	
Cert. di loma	3	826	9.6	300	24.7	0.936	0.195	0.824	0.046
Bachelors higher	4	241	13.3	87	31.0	0.783	0.005	0.665	0.011
Occupation	CCB								
Not wor ing	1	1 353	12.8	533	28.9				
anag. Admin.	2	172	5.2	59	18.6	0.989		1.045	
Professional	3	174	8.6	42	16.7	1.031		1.210	
rade Plant	4	65	3.1	22	9.1	1.168		1.252	
Cler Sale Serv.	5	590	4.2	179	14.0	1.107	0.052	1.114	
abourer	6	109	4.6	36	22.2	1.026		0.826	
Healt status	S A								
Poor	1	26	0.0	10	20.0				
air	2	214	6.1	77	14.3	0.774		0.687	
Good	3	1 238	8.3	430	24.4	0.858		0.637	
E cellent	4	985	11.5	354	25.1	0.814		0.610	
Use of contracepti e pill	PI								
Currently using	1	828	8.8	327	21.4				
Not using	2	1 635	9.5	544	25.2	0.848	0.000	0.677	0.000
Bod - ass inde	IN E B								
Underweight	1	508	11.6	169	22.5				
Acce table	2	1 344	9.2	491	24.0	1.010		0.951	
verweight	3	372	7.8	132	22.0	1.134	0.083	0.936	
bese	4	163	4.9	54	22.2	1.543	0.000	0.935	
Not available	5	76	11.8	25	40.0	1.214	0.160	0.747	
Alco ol ris F	A CRIS								
Not a licable	1	1 149	9.7	418	23.9				
ow	2	1 211	9.2	417	24.0	1.046		1.126	0.172
edium	3	85	5.9	30	20.0	0.937		0.912	
igh	4	18	0.0	6	16.7	0.994		1.268	

continued

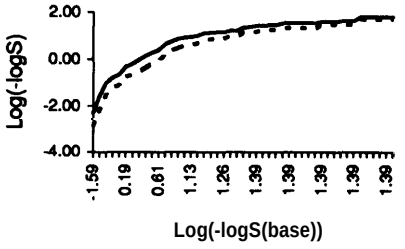
A5 RIS RA I S EANING BASE N U I ARIA E A AR E ANA SIS IRS AN SEC N REP R E C I REN — *continued*

Characteristics of women/child	Code	*First child* no.	*First child* Censored	*Second child* no.	*Second child* Censored	*First child* Risk ratio		*Second child* Risk ratio	
S o ing status	S S A								
Smo er	1	659	7.9	206	13.1				
E smo er	2	557	11.1	224	25.9	0.808	0.001	0.705	0.003
Never smo ed	3	1 247	9.2	441	27.7	0.774	0.000	0.653	0.000
Self-assessed appiness	APP								
Unha y	1	52	7.7	18	11.1				
a y	2	1 514	7.3	517	22.2	0.809	0.181	0.926	
ery ha y	3	897	12.7	336	26.8	0.817		1.008	
C ild s age ears	AGE 1								
0	1	351	53.0	270	65.9				
1	2	337	8.6	233	10.7	0.916		1.335	0.030
2	3	392	2.6	200	2.0	0.833	0.061	1.234	0.125
3	4	471	0.8	125	0.0	0.856	0.110	1.513	0.006
4	5	580	0.0	28	0.0	0.901		1.130	
5	6	332	0.0	15	0.0	0.869	0.178	2.131	0.010

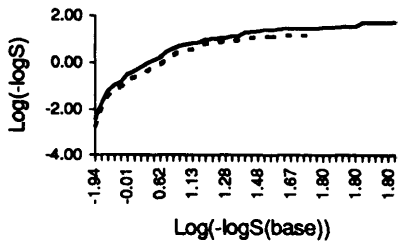
reference category used in the model.
Note *p* values for significant levels u to 20 only are given. he blan in the *p* column indicates that the ris ratio value was not significant u to 20 level.

Goodness of fit of the model		
2 G Null	30797.454	7741.405
2 G odel	30553.214	7628.304
odel Chi s uare	244.239	113.101
	41	41
	0.0001	0.0001

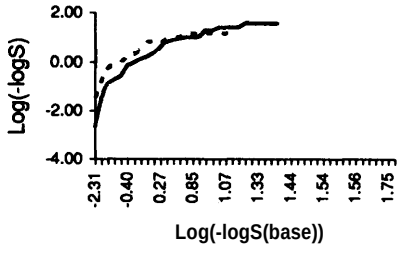
Age of women



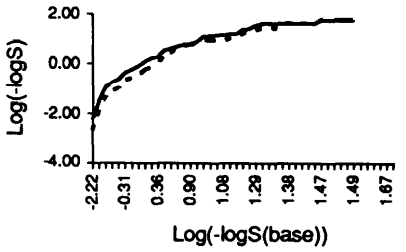
Age of women at birth of child



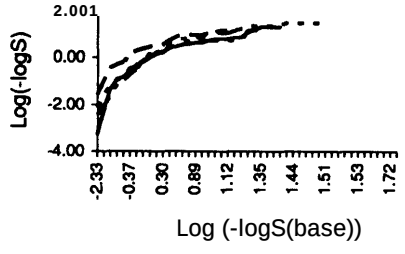
Marital status of women



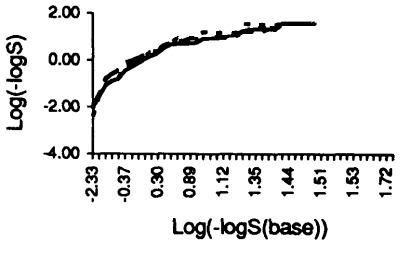
Urban-rural residence of women



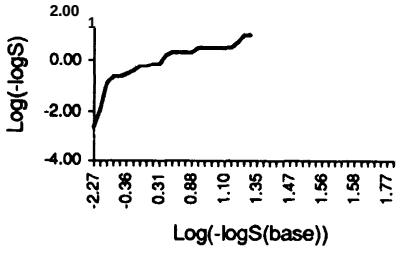
Country of birth of women



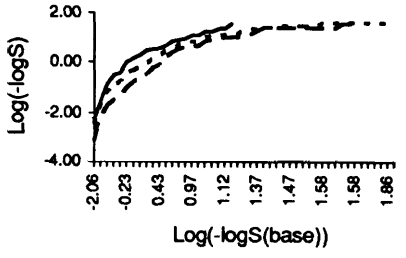
Year of arrival in Australia



Indigenous status of women

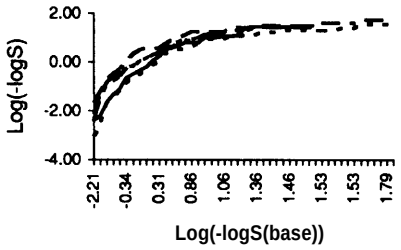


Education of women

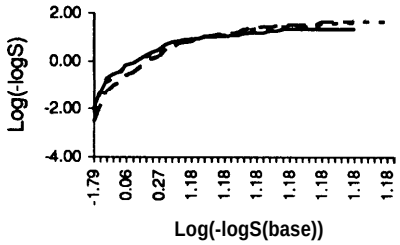


CHARTS Al: LOG(-LOGS) CURVES BY CHARACTERISTICS OF WOMEN
FIRST REPORTED CHILD — *continued*

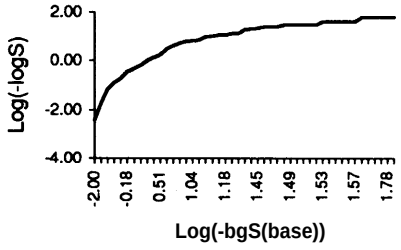
Occupation of women



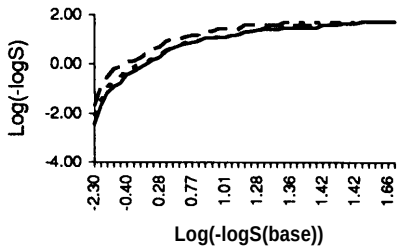
Health status of women



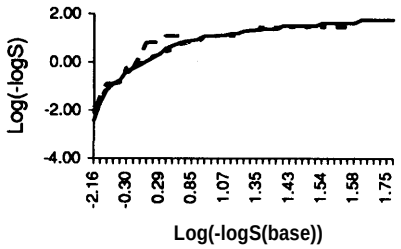
Current use of pill by women



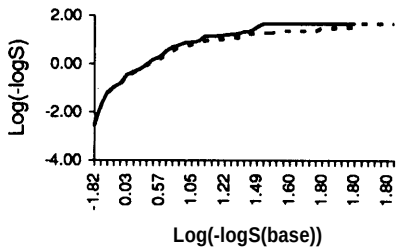
Body-mass index of women



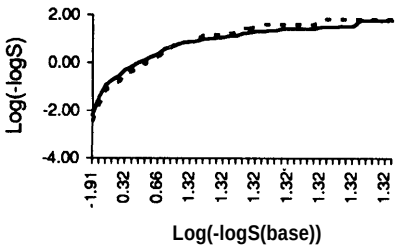
Alcohol risk for women



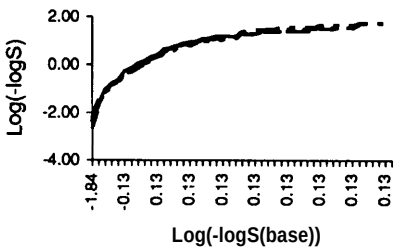
Smoking status of women



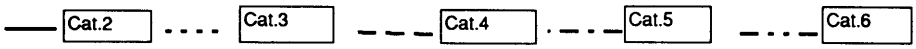
Happiness of women



Age of breast-fed child (years)



Note : For details of the various categories, refer to Table T1. Base category is plotted on the X axis. Other categories are plotted on the Y axis as follows:



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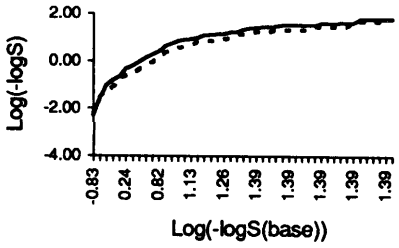
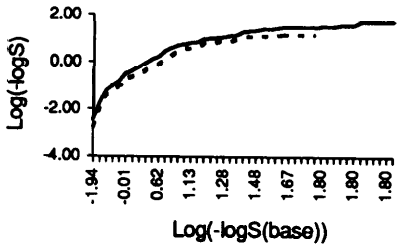
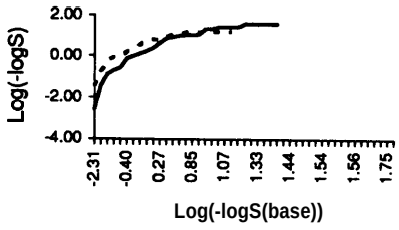
Age of women



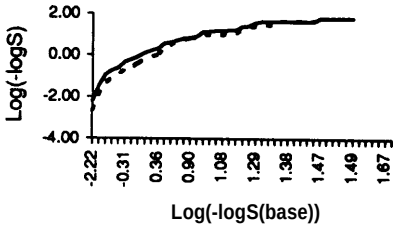
Age of women at birth of child



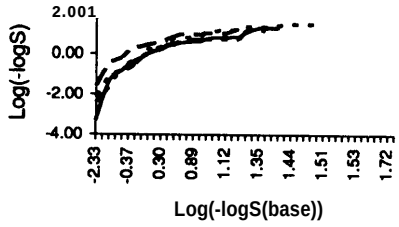
Marital status of women



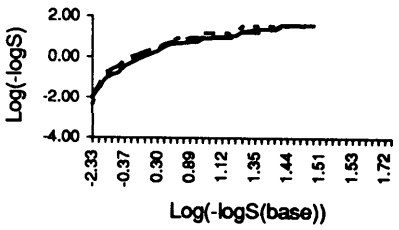
Urban-rural residence of women



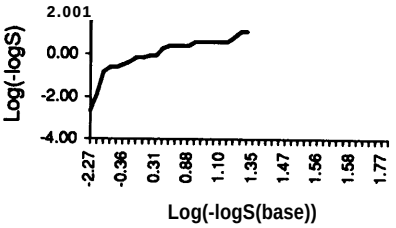
Country of birth of women



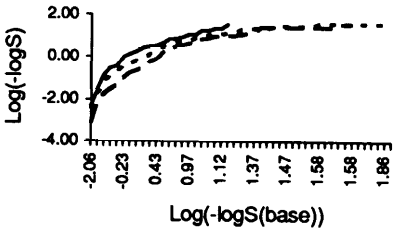
Year of arrival in Australia



Indigenous status of women

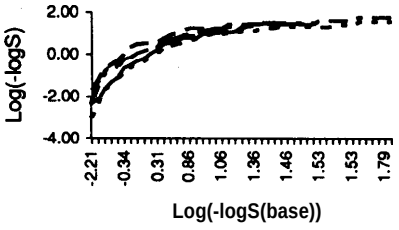


Education of women

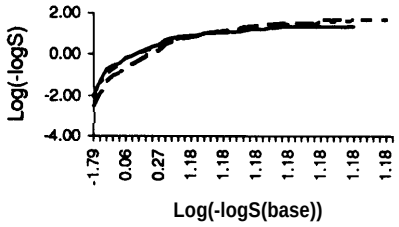


C AR S A2 G GS CUR ES B C ARAC ERIS ICS EN
IRS REP R E C I *continued*

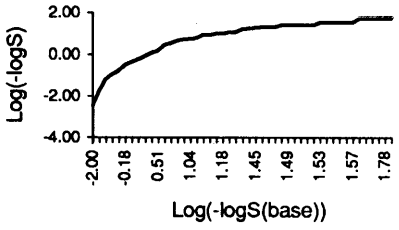
ccu ation of women



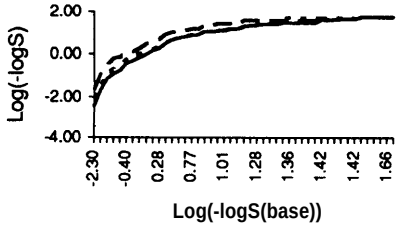
ealth status ofwomen



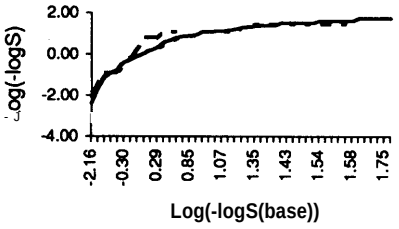
Current use of pill by women



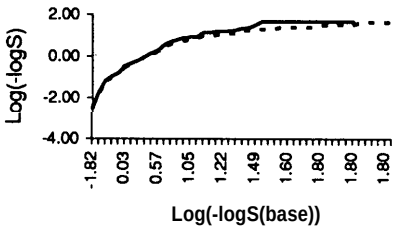
Body-mass index of women



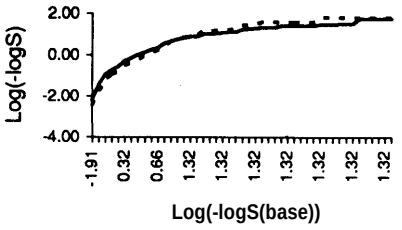
Alcohol risk for women



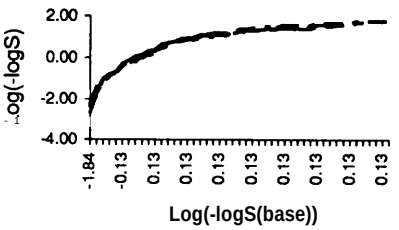
Smoking status of women



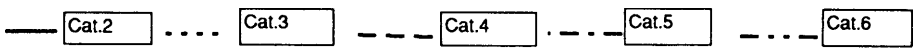
Happiness of women



Age of breast-fed child (years)



Note : For details of the various categories, refer to Table T1. Base category is plotted on the X axis. Other categories are plotted on the Y axis as follows:



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