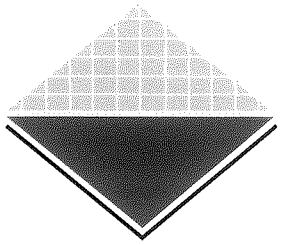

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Population indicators of needs for disability services: an exploration

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Contents

Population indicators of needs for disability services: an exploration[1]

Abstract

The rapid increase in reported prevalence of disability and handicap during the 1980s has evoked concern over the possible implications for disability services. This paper examines the variations in prevalence of disability, handicap and severe handicap, reported in three population surveys over a period of twelve years, using standardisation to control for the effect of changes in population age structure. A decomposition is applied to clarify the relative contributions of changes in population age structure and reported age-specific prevalence rates to the overall reported prevalence of disability. The analysis suggests that the age standardised prevalence of severe handicap has remained fairly steady since 1981. Between 1981 and 1993 increases in reported prevalence of severe handicap were mainly due to population ageing. A possible increase in multiple areas of handicap is suggested by the increases in mean number of total reported areas of handicap per person and in proportions of people reporting specific areas of handicap. The implications of these findings for service planning are explored.

1 Introduction

This paper is a preliminary study of population indicators of needs for disability services. Information on the overall measurement of prevalence of disability and handicap is presented, and also a preliminary analysis of different components of disability and handicap.

According to the 1993 Australian Bureau of Statistics (ABS) survey on disability, ageing and carers (ABS 1993a), it appears that the marked increase in reported overall prevalence of disability and handicap in the 1980s levelled out in the early 1990s. Do the survey data reflect a real picture of the prevalence of disability? What were the major factors relevant to the reported changes?

The stability in the overall prevalence of disability and handicap between 1988 and 1993 mask substantial variations of prevalence in relation to sex, severity of handicap and area of handicap. People may have a handicap or limitation in more than one area; the reported number of areas of handicap may vary greatly between sexes and over time, while the overall level of handicap remains constant. These variations have important implications for disability services planning in terms of describing and understanding the structure of the population needing disability services. It is therefore desirable to investigate the variations of prevalence not only in terms of the overall prevalence of the whole

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[1] An earlier version of the paper was presented at the Seventh National Conference of the Australian Population Association, Canberra, 21–23 September 1994. Helpful comments from Dr Ching Choi, Dr John Donovan, and Ms Joanne Maples are gratefully acknowledged. The views expressed in the paper are not necessarily those of the Australian Institute of Health and Welfare.

population, but also in the changes in the patterns of different components of disability and handicap.

The present study consists of two major parts. The first part analyses the trends in the prevalence levels and patterns of disability and handicap over the last decade. The second part explores the relationship of some major factors to changes in reported overall prevalence rates of disability and handicap. A preliminary discussion of population indicators of needs for disability services is incorporated in the data analysis, discussion and conclusion.

2 Data and methodology

The main data sources for this paper are compiled and estimated figures from published and unpublished data tables, from ABS surveys of disability and handicap in 1981, 1988 and 1993, and from some studies on the 1981 and 1988 surveys (ABS 1982, 1989, 1990a, 1990b, 1993a; Mathers 1991).

One major aim of the three surveys was to identify as broadly as possible persons with a disability and handicap. ABS surveys asked a series of screening questions on limitations, restrictions, impairments and health conditions about each respondent. These questions are generally comparable among all the three surveys except for some complementary disabling conditions which were added in the 1993 survey. In this paper the estimates for 1993 data were made by using definitions consistent with the 1981 and 1988 survey screening questions except where otherwise indicated. In other words, persons identified only by the new 1993 screening questions were excluded for comparison with 1981 and 1988 data.

In the ABS surveys, disability is defined as the presence of one or more of the limitations, restrictions or impairments (see Appendix A) which had lasted, or were likely to last, for 6 months or more. Handicap is identified where a person has a limitation or restriction in performing certain specific tasks associated with daily living, due to their disability (ABS 1993a: 6). The limitation must be due to a disability in relation to one or more of five areas (self care, mobility, verbal communication, schooling and employment). The survey definitions imply certain value judgements. For instance, a person with loss of sight corrected by glasses was not included as having a disability, whereas a person with loss of hearing corrected by a hearing aid was included as having a disability (ABS 1993a: 53).

In the 1981 and 1988 survey, three levels of severity of handicap (severe, moderate and mild) were determined for each of the three areas of handicap: self care, mobility and verbal communication. These severity levels were based on the person's ability to perform tasks relevant to the three areas and on the amount and type of assistance required (ABS 1990b:43). In the 1993 survey the severe handicap category was further divided into severe handicap and profound handicap. For each area of handicap, the levels of severity are as follows (ABS 1993b: 65):

- *profound handicap*—personal help or supervision always required;
- *severe handicap*—personal help or supervision sometimes required;
- *moderate handicap*—no personal help or supervision required, but the person has difficulty in performing one or more of the tasks;
- *mild handicap*—no personal help or supervision required and no difficulty in performing any of the tasks, but the person uses an aid, or has a mild mobility handicap or cannot easily pick up an object from the floor.

Persons may have a reported handicap in more than one area but the highest level of severity in any of the areas of self care, mobility and verbal communication determines the severity of total handicap. Severity of handicap was not determined for children under age 5 years and for people with only an employment or schooling limitation (ABS 1993b: 66).

According to the surveys, if the 1988 categories of screening questions are used for the 1993 data, the total number of people with a disability in 1993 was 2,920,535, which was 50 per cent (978,270 persons) higher than that for 1981, and 14.8 per cent (377,435 person) higher than that for 1988. Although the reported prevalence of handicap in 1993 seemed to have decreased slightly by comparison to 1988, the number of people reporting handicap was 2,263,077 for 1993, which was an increase of 79 per cent (998,491 persons) from 1981 and a 6.7 per cent (142,577 persons) increase from 1988. Likewise, the rise in the number of people reporting severe handicap was also substantial, from 514,064 in 1981 to 657,400 in 1988 (increased by 28 per cent) and up to 694,246 in 1993, a 6 per cent increase from 1988.

A problem in comparisons using summary population measures (such as changes in total number or in overall prevalence rates of disability and handicap) is that they mask the effects of other related variables, such as age and sex structure of the population. Therefore, two basic approaches were applied in this paper. First, the analysis of changes in the prevalence rates of disability and handicap is based on age-standardised measures for each sex, thus removing the effects of changing age and sex structures of the Australian population. Second, a demographic decomposition method is used to quantify the joint impacts on prevalence levels of disability and handicap of changes in population age and sex structure and changes in age-sex-specific prevalence rates.

3 Levels and trends in reported prevalence of disability and handicap

Developing a perspective on likely future changes in disability prevalence is important for planning for future needs for disability services. This requires a clear understanding of current levels, patterns and causes of disability.

Direct standardisation was used by applying the 1981 and 1988 prevalence rates to the 1993 (standard) population structure, which yielded the expected numbers of persons with a disability and handicap, assuming the population in 1981 and 1988 had the same age and sex composition as those for 1993. When the expected numbers of persons with a disability and handicap are divided by the 1993 total population and multiplied by 100, standardised prevalence rates are obtained.

3.1 Changes in reported prevalence rates of disability and handicap

The data for the three surveys (Table 1) indicate that the reported prevalence rates rose continuously over the three surveys, from 13.3 to 18.0 per cent for disability, 8.6 to 14.2 per cent for handicap and 3.8 to 4.4 for severe handicap. However, when the 1993 data are recoded using categories identical to those used in previous surveys, the rate is 16.6 for disability, and the rates for handicap and severe handicap are almost the same as those for 1988. It is interesting that the more inclusive screening questions in the 1993 survey led to increases in both disability and handicap of 1.4 percentage points. These changes may demonstrate the sensitivities of the reported prevalence rates of disability to the variations in specific definitions and screening questions which were used in the surveys.

A comparison of age-standardised rates shows that after removing the influence of changes in age structure, the differences between the standardised rates of disability over the three surveys were slightly reduced but the general pattern of steady increase remained the same (Table 1). The rates for males have exceeded those for females in each of the three surveys.

The age-standardised prevalence rate of handicap rose markedly between 1981 and 1988 but fell slightly between 1988 and 1993. Again, the use of age-standardisation diminished the extent of changes between the rates of the three surveys, but did not change the general trend. The rates of handicap in 1988 and 1993 for males and females were similar, though the rate for females was slightly higher than that for males in 1981.

As a contrast, the age-standardised rates of severe handicap remained at a quite stable level over the past twelve years (Table 1). Slightly more than 4 per cent of the population reported a severe handicap, and the rates were consistently higher among females than those among males.

Table 1: *Reported prevalence rates of disability and handicap by sex, Australia, 1981, 1988 and 1993*

	Disability			Handicap			Severe handicap		
	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons
Reported rate (%)									
1981 actual data	13.7	12.8	**13.3**	8.5	8.8	**8.6**	3.2	4.4	**3.8**
1988 actual data	16.0	15.2	**15.6**	13.0	13.0	**13.0**	3.4	5.3	**4.3**
1993 actual data	18.4	17.6	**18.0**	14.0	14.4	**14.2**	3.6	5.2	**4.4**
1993 data using 1988 categories(a)	17.4	15.8	**16.6**	12.9	12.8	**12.8**	3.5	5.0	**4.3**
Standardised rate (%)									
1981 data using 1993 age structure	14.5	13.8	**14.1**	9.0	9.6	**9.3**	3.5	5.0	**4.2**
1988 data using 1993 age structure	16.3	15.6	**15.9**	13.3	13.4	**13.3**	3.6	5.5	**4.5**
1993 data using 1993 age structure &1988 categories (a)	17.4	15.8	**16.6**	12.9	12.8	**12.8**	3.5	5.0	**4.3**

Note: (a) These adjusted rates are used as the basis for comparisons in the text, as being more comparable with 1981 and 1988 data.

Source: Australian Bureau of Statistics (ABS) 1982, 1989, 1990a, 1990b; ABS unpublished data; Mathers 1991.

3.2 Age variations in reported prevalence rates

As expected, prevalence rates of disability and handicap increase as people get older. In the two most recent surveys (1988 and 1993), more than 50 per cent of people aged 65 and over reported a disability, over 40 per cent reported a handicap, and around 17 to 19 per cent reported a severe handicap (Table 2).

For people aged 65 and over, the age-standardised rates of disability were about 3 to 4 times those for people at working age (Table 2)[2]. The same comparison for handicap rates shows differences of over 4 times, while the differences for severe handicap rates were about 7 times. The fairly stable rates of severe handicap over the three surveys (found in Table 1) were generally reported by people in all the three broad age groups.

The examination of age patterns gives further insights into the understanding of sex differentials in prevalence rates. The consistently higher overall rates of severe handicap for females compared to males were mainly attributable to the differences occurring among people aged 65 and over, and that the rates for females were about 65 per cent higher than those for males (Table 2).

[2] The standardised rates shown in Table 2 were calculated by applying the same approach as used for the total population to the population in each of the three broad age groups (0–14, 15–64, 65+) respectively.

Table 2: *Reported prevalence rates of disability and handicap by age and sex, Australia, 1981, 1988 and 1993*

	Males				Females				Persons			
	0–14	15–64	65+	Total	0–14	15–64	65+	Total	0–14	15–64	65+	Total
Disability: Reported rate (%)												
1981 actual data	6.3	13.1	41.2	13.7	4.3	11.0	41.9	12.8	5.3	12.1	41.6	13.2
1988 actual data	7.0	14.0	52.8	16.0	5.1	11.8	50.8	15.2	6.0	12.9	51.7	15.6
1993 data using 1988 categories	7.5	14.9	56.1	17.4	5.1	12.2	50.4	15.7	6.3	13.6	52.8	16.6
Standardised rate (%)												
1981 data using 1993 age structure	6.2	13.2	41.9	14.5	4.2	11.0	42.8	13.7	5.2	12.1	42.4	14.1
1988 data using 1993 age structure	6.9	13.9	53.1	16.3	5.1	11.8	51.3	15.6	6.0	12.9	52.1	15.9
1993 data using 1993 age structure &1988 categories	7.5	14.9	56.1	17.4	5.1	12.2	50.4	15.7	6.3	13.6	52.8	16.6
Handicap: Reported rate (%)												
1981 actual data	4.5	7.5	28.5	8.5	2.8	6.7	33.8	8.8	3.7	7.1	31.6	8.6
1988 actual data	6.1	11.2	42.7	13.0	4.3	9.8	44.8	13.0	5.2	10.5	43.9	13.0
1993 data using 1988 categories	6.3	10.6	43.4	12.9	4.3	9.3	43.8	12.7	5.3	9.9	43.6	12.8
Standardised rate (%)												
1981 data using 1993 age structure	4.5	7.5	29.4	9.0	2.8	6.7	34.9	9.6	3.7	7.1	32.5	9.3
1988 data using 1993 age structure	6.1	11.2	43.1	13.2	4.2	9.9	45.3	13.4	5.2	10.6	44.3	13.3
1993 data using 1993 age structure &1988 categories	6.3	10.6	43.4	12.9	4.3	9.3	43.8	12.7	5.3	9.9	43.6	12.8
Severe handicap: Reported rate (%)												
1981 actual data	2.0	2.3	12.3	3.2	1.2	2.5	20.4	4.4	1.6	2.4	17.0	3.8
1988 actual data	2.6	2.3	13.1	3.4	1.9	2.7	22.6	5.3	2.3	2.5	18.6	4.3
1993 data using 1988 categories	2.6	2.4	12.4	3.5	2.0	2.6	20.3	5.0	2.3	2.5	16.9	4.2
Standardised rate (%)												
1981 data using 1993 age structure	2.0	2.4	13.1	3.5	1.2	2.5	21.4	5.0	1.6	2.4	17.8	4.2
1988 data using 1993 age structure	2.6	2.3	13.6	3.6	1.9	2.7	22.8	5.5	2.3	2.5	18.8	4.5
1993 data using 1993 age structure &1988 categories	2.6	2.4	12.4	3.5	2.0	2.6	20.3	5.0	2.3	2.5	16.9	4.2

Source: Australian Bureau of Statistics (ABS) 1982, 1989, 1990a, 1990b; ABS unpublished data; Mathers 1991.

4 Levels and patterns of reported area of handicap

In this section the proportions and numbers of people reporting a handicap in the areas of self care, mobility and verbal communication are examined. The analysis excludes people who are under age 5 or who had a schooling or employment limitation only (many people reporting a handicap may also report a schooling or employment limitation). There are reasons for these exclusions. First, in the surveys people under age 5 and with a disability were all regarded as experiencing a handicap, but were not classified by area of handicap. Second, as mentioned previously, severity of handicap was not determined for children under age 5 and for people with only an employment or schooling limitation. Third, the questions referring to schooling or employment limitations were asked only among certain age groups of the survey population (eg, information on schooling limitation was collected for people aged 5–14 years and those aged 15 years or more still attending school). Fourth, factors affecting the handicap areas of self care, mobility and verbal communication differ greatly from those for the areas of schooling and employment. In the ABS surveys, the identification of handicap and levels of severity in areas of self care, mobility and verbal communication were determined by person's ability to perform special tasks associated with daily living and the amount of personal help or supervision required. However, people who had a 'schooling or employment limitation only' needed no personal help or supervision in their daily living. The limitations and restrictions which they reported in schooling or employment were therefore related to other factors, possibly social and environmental factors.

Indirect standardisation was applied to 1981 and 1988 data as an alternative to direct standardisation, since the age-specific proportions of people reporting a specific area of handicap for the populations (1981 and 1988) being studied are not available, but the total numbers of reported specific areas of handicap are known. The 1993 age-specific proportions of people reporting specific areas of handicap were assumed as the standard and were applied to the 1981 and 1988 populations to obtain the expected number of reported areas of handicap. Thus, the standardised ratio, the ratio of actual number to the expected number, was also calculated for each specific area of handicap for the 1981 and 1988 populations. When this ratio is multiplied by the actual proportion of each specific area of handicap of the standard population (1993), the indirectly standardised proportions for the 1981 and 1988 populations are obtained.

4.1 Changes in proportion of reported area of handicap

Table 3 presents the proportions of people aged 5 and over reporting each specific area of handicap. Mobility is the most frequently reported area of handicap and severe handicap throughout the three surveys, followed by self care and verbal communication. In regard to total persons with a handicap, the age-standardised proportions of people aged 5 and over reporting each of the three areas of handicap were substantially higher in 1988 and 1993 than those in 1981, particularly in the area of mobility. Females generally reported higher

proportions of handicap in areas of self care and mobility and lower proportions in verbal communication than did males.

For people reporting a severe handicap, the proportions of all the three major areas of handicap have been increasing consistently over the past twelve years (Table 3). The 1993 survey suggests that among those who reported a severe handicap, the proportions for females were higher than males in all the reported areas of handicap.

Table 3: ***Proportion of people aged 5 and over reporting specific area of handicap by sex, Australia 1981, 1988 and 1993***

	Handicap			Severe handicap		
	Self care	Mobility	Verbal communication	Self care	Mobility	Verbal communication
Reported proportion (%)						
1981: Persons	4.0	6.8	1.9	2.1	3.3	0.6
1988: Males	5.4	10.1	2.8			
Females	6.6	11.5	2.5			
Persons	6.0	10.8	2.7	2.6	3.7	0.7
1993: Males	5.0	9.8	3.0	2.8	3.3	1.1
Females	6.4	11.0	2.8	4.1	4.9	1.6
Persons	5.7	10.4	2.9	3.4	4.1	1.4
Standardised proportion (%)						
1981: Persons	4.4	7.4	2.1	2.4	3.7	0.6
1988: Males	5.6	10.4	2.9			
Females	6.8	11.9	2.6			
Persons	6.2	11.1	2.7	2.7	3.8	0.8
1993: Males	5.0	9.8	3.0	2.8	3.3	1.1
Females	6.4	11.0	2.8	4.1	4.9	1.6
Persons	5.7	10.4	2.9	3.4	4.1	1.4

Source: Australian Bureau of Statistics (ABS) 1982, 1989, 1990a, 1990b; ABS unpublished data.

4.2 Changes in reported number of areas of handicap

Many people reported having a handicap in more than one area and the number and distribution of areas of handicap varied between sexes and over the period of comparison. Total number of reported areas of handicap has increased over the three surveys (Table 4). The growth in reported areas of verbal communication for severe handicap has accelerated over the three surveys. For persons with a severe handicap, 76,500 reported difficulties in verbal communication in 1981, and the figure was up by 42 per cent over a seven-year period (1981–1988). Moreover, the figure jumped by 108 per cent between 1988 and 1993, within a five-year period (Table 4).

Table 4: *Number of persons with a handicap reporting specific area of handicap by sex, Australia, 1981, 1988 and 1993*

	Handicap					Severe handicap				
	Self care	Mobility	Verbal communication	Mean no. of areas of handicap	Total handicap[a]	Self care	Mobility	Verbal communication	Mean no. of areas of handicap	Total handicap[a]
Reported number										
1981: Persons	544,200	921,600	260,400	1.41	1,225,200	289,200	449,800	76,500	1.59	514,000
1988: Males	405,000	756,800	209,000	1.58	866,900					256,200
Females	503,100	877,300	191,600	1.66	948,100					401,300
Persons	908,100	1,634,100	400,600	1.62	1,815,000	397,800	552,900	109,000	1.61	657,500
1993: Males	408,641	796,455	241,881	1.55	934,773	227,459	269,235	92,438	2.07	284,037
Females	524,816	904,743	230,021	1.66	1,000,278	332,970	398,406	134,066	2.11	410,209
Persons	933,457	1,701,198	471,902	1.61	1,935,051	560,429	667,641	226,504	2.10	694,246
% change in reported number										
1981–1988: Persons	66.9	77.3	53.8	15.1	48.1	37.6	22.9	42.5	1.6	27.9
1988–1993: Males	0.9	5.2	15.7	–2.1	7.8					
Females	4.3	3.1	20.1	0.1	5.5					
Persons	2.8	4.1	17.8	–1.0	6.6	40.9	20.8	107.8	30.0	5.6
1981–1993: Persons	71.5	84.6	81.2	13.9	57.9	93.8	48.4	196.1	32.1	35.1

Note: (a) Children aged less than 5 years and persons who had a schooling or employment limitation only were excluded from the total.

Source: Australian Bureau of Statistics (ABS) 1982, 1989, 1990a, 1990b; ABS unpublished data.

The mean number of total reported areas of handicap per person showed an increase of about 15 per cent for all people with a handicap between 1981 and the two consecutive surveys, though there was little difference between 1988 and 1993 (Table 4). For those with a severe handicap, a jump in the mean number of total areas of handicap was identified in the 1993 survey, which was associated with marked increments in the numbers for all the three areas and particularly the area of verbal communication.

5 Decomposition of the confounding effects of demographic changes and changes in prevalence rates

It has been suggested that trends in reported prevalence of disability and handicap in Australia were jointly affected by a number of factors (Otis and Howe 1991, Mathers 1991, ABS 1993b). This section carries out a demographic decomposition to clarify two leading factors, population aging and rising age specific reported prevalence rates, which explain the trends in reported overall prevalence of disability and handicap. The question arises — what are the other factors which may associate with the two leading elements, especially with the increasing reported rates. The proposed explanations generally consist of two groups of factors: factors related to rising levels of long-term morbidity and factors related to changes in perception of disability (Otis and Howe 1991, Mathers 1991). It is not possible to explore these complex issues in this paper.

Decomposition techniques are used to separate the changes in the reported overall prevalence rates into three components: changes in age structure; changes in age specific reported prevalence rate; interactions and residuals.[3] The decomposition reveals that between 1981 and 1988, changing age specific prevalence rates contributed more than did changing age structure to the increase in the reported overall prevalence rates of disability and handicap (Table 5). Changing age structure contributed 24 per cent of total change in disability prevalence rate and 10 per cent for handicap, whereas the figures for changing age specific prevalence rates were 71 per cent for disability and 86 per cent for handicap.

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[3] The difference between two reported overall prevalence rates (T_1 and T_2) which refers to the same population at two points of time may be decomposed into the following components:

the component due to the effects of differences in age composition of the population during the time period 1 to 2 = $\Sigma R_{i1} (P_{i2} - P_{i1})$;

the component due to the effect of differences in age specific reported prevalence rates during the time period 1 to 2 = $\Sigma P_{i1} (R_{i2} - R_{i1})$; and

the interaction or residual = $\Sigma (R_{i2} - R_{i1})(P_{i2} - P_{i1})$;

where R_{i1} and R_{i2} are the prevalence rates for population aged i at times 1 and 2 respectively; Pi_1 and Pi_2 are the proportions of the population aged i at time 1 and 2 respectively (Pollard 1983).

Table 5: *Decomposition of changes in reported prevalence rate (%) of disability and handicap, Australia, 1981, 1988 and 1993*

	Males			Females			Persons		
	Disability	Handicap	Severe handicap	Disability	Handicap	Severe handicap	Disability	Handicap	Severe handicap
1981–1988									
Effects of changes in age structure	0.57	0.39	0.19	0.56	0.46	0.32	0.55	0.43	0.27
Effects of changes in prevalence rate	1.57	3.93	0.08	1.72	3.60	0.49	1.65	3.77	0.28
Interaction or residual	0.15	0.20	–0.02	0.07	0.11	0.02	0.12	0.16	0.00
Total changes	2.29	4.52	0.25	2.35	4.17	0.83	2.32	4.36	0.55
1988–1993									
Effects of changes in age structure	0.42	0.35	0.13	0.46	0.43	0.23	0.43	0.38	0.19
Effects of changes in prevalence rate	0.95	–0.41	–0.06	0.13	–0.64	–0.48	0.55	–0.52	–0.28
Interaction or residual	0.06	0.02	0.00	–0.02	–0.02	–0.02	0.02	0.00	–0.01
Total changes	1.43	–0.04	0.07	0.57	–0.23	–0.27	1.00	–0.14	–0.10
1981–1993									
Effects of changes in age structure	0.95	0.66	0.33	0.96	0.80	0.55	0.94	0.73	0.46
Effects of changes in prevalence rate	2.48	3.52	0.03	1.84	3.00	0.07	2.19	3.27	0.04
Interaction or residual	0.29	0.29	–0.02	0.13	0.16	–0.05	0.19	0.21	–0.04
Total changes	3.72	4.47	0.34	2.93	3.96	0.57	3.32	4.21	0.46

Source: Australian Bureau of Statistics (ABS) 1982, 1989, 1990a, 1990b; ABS unpublished data; Mathers 1991.

However, the relative contribution of changes in age structure increased when the longer period was considered (1981 to 1993). The comparison of the most recent period, 1988 to 1993, provides a striking contrast—the contribution of changing age structure jumped to account for over 40 per cent of the total increase in disability rate; the overall handicap rate actually declined slightly because of the decline in age specific prevalence rates; the changing age structure still contributed positively to total changes of prevalence rate.

With regard to prevalence rates of severe handicap, the contributions of changes in age structure and age specific prevalence rates to the overall increase seemed to be equally important over the period 1981–1988. Nevertheless, when longer period was considered (1981–1993), the increase in the prevalence rates of severe handicap was almost entirely due to the impact of population aging. During the most recent period (1988–1993), the changing age structure continued to contribute positively to total changes in prevalence rates of severe handicap, even though the age specific prevalence rates actually fell slightly.

The effects of interaction or residual were consistently relatively smaller than the other two components over the three surveys, particularly between 1988 and 1993.

6 Discussion and conclusion

The rapid increase in reported prevalence rates of disability and handicap during the 1980s has evoked concern over the possible implications for Australia's health and community services, particularly disability services.

There is a broad array of services which are of relevance to people with a disability. Formal services may be loosely categorised as:

- income support;
- other disability services, or specialist support services; and
- mainstream or generic services; some mainstream services, for instance employment, education and transport services, contain special components which are directed towards people with a disability.

These formal services are delivered or funded by non-government organisations, by State and by Commonwealth governments. (For further descriptions see eg Australian Institute of Health and Welfare 1993).

Most disability support services and income support services (apart from the age pension) are targeted to people aged under 65.

6.1 Overall prevalence and indications for service resources

This study examined the variations in prevalence rates of disability, handicap and severe handicap, reported in three population surveys over a period of twelve years, using standardisation to control for the effect of changes in population age structure.

The analysis demonstrated that the age-standardised prevalence rates of severe handicap were quite stable during the 1980s and early 1990s, remaining at a level of slightly over 4 per cent for the population overall and 2.5 per cent for people aged 15 to 64. In contrast, the rates of disability and handicap increased substantially between 1981 and 1988, although levelling out between 1988 and 1993.

The consistently higher rates of severe handicap for females than those for males were mainly attributable to the differences occurring between the sexes at ages 65 and over.

When the effect of changing age structure was taken into account, the demographic decomposition enables us to separate the effects on the actual reported prevalence rates of age structure, reported age specific prevalence rates and interaction or residuals. It appears that the influence of changing age specific prevalence rates was greater than or equal to that of the ageing of the population in the early 1980s. However, the influence of changing age specific prevalence rates diminished and actually fell below zero during the late 1980s and early 1990s. In contrast, the positive impact of the changing age structure was evident throughout the twelve year period. The impact of the ageing

population was even greater between 1988 and 1993, particularly on reported overall prevalence rates of severe handicap.

Decomposition analysis thus confirms the finding of age as the dominant factor in changing reported prevalence rates of severe handicap. Between 1981 and 1993 increases in reported prevalence rates of severe handicap were largely accounted for by the ageing of the population rather than by changes in age specific prevalence rates.

This finding also suggests that people's perceptions of severe handicap appear fairly constant over this time, and less likely to be subject to the effects of increasing awareness of disabling conditions and of changing social attitudes to people with a disability. As noted in the discussion of ABS survey definitions, people with a severe handicap are those who sometimes, or always, require personal assistance or supervision in one or more of the activity areas of personal care, mobility or verbal communication. These people are thus a major target population group for many types of service provision.

The findings that the age standardised prevalence rates of severe handicap have remained fairly steady since 1981 and that reported prevalence of severe handicap has increased in line with the ageing of the population have important implications for disability service planners and providers.

For existing disability services which target people with severe levels of handicap and particularly those aged under 65, the implications for forward planning are significant. Overall levels of service provision will need to be planned in the light of currently unmet need[4], and of future projected age- and sex-specific increases in the population. At this stage there is no evidence that further allowances need to be made for increases in age-specific prevalence rates, as these appear to be relatively stable. This conclusion also applies to existing or new disability services being expanded or planned to cover this population. Other clinical information or morbidity trends will need to be reviewed from time to time, as well as survey evidence, to review this tentative conclusion.

For those existing or proposed disability services whose target population does not cover, or is not mainly targeted towards, people with severe levels of handicap, planning will be more complex. There is greater variability across the three surveys, and across the disability types within the surveys, for people with levels of handicap lower than severe. Standardised rates of handicap rose and then slightly declined over the three surveys, while rates of disability rose and then steadied. Variations in age specific prevalence rates, as well as in the age structure of the population, seem to be at work in these changing trends.

The reasons for these variations need to be better understood before future planning implications can be inferred.

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[4] The estimation of currently unmet need is a complex task. A recent beginning was made in a consultancy carried out for the Baume review of the Commonwealth Disability Services Program (ABS 1994). The ABS estimated that over 120,000 people could benefit from the employment services funded by the Disability Services Program, in addition to those already receiving services.

6.2 Related factors and the need for services

People planning services are generally interested in much more than the overall resources needed to provide a large program of services. They are usually planning specific services and are interested in resource allocation to particular groups, areas or service types. Therefore, the purpose of analysis is not only to quantify the aggregate level of demand and provision, but also the structure of demand and provision, and a detailed perspective of specific areas of handicap is essential for indicating specific service requirements.

The analysis in this paper indicated that mobility was the most frequently reported area of handicap and severe handicap throughout the three surveys. Among total persons with a handicap, the age-standardised proportions of people reporting any of the three areas of handicap increased considerably between the 1981 survey and the two consecutive surveys, particularly in mobility area. For people reporting a severe handicap, the proportions rose consistently over the three surveys and in all the three areas of handicap. The rise in the proportion of people reporting any of the three areas of severe handicap possibly signifies a rise in multiple areas of handicap.

The possible rise in multiple areas of handicap is also supported by the finding that the mean number of total reported areas of handicap per person had increased between 1981 and the two following surveys, and these increases were especially great for people reporting a severe handicap.

Further analysis of these findings, differentiating by age and specific disabling conditions would be useful for the indication of need for disability services. Access to more detailed data from the 1993 survey may open up the possibility of exploring more complex indicators of need, reflecting these types of interests.

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Appendix A

The three ABS disability surveys covered both rural and urban areas in all Australian States and Territories and were conducted as two separate components: households and health establishments. In 1981 approximately 33,000 households and 5,300 people in institutions were selected for interview; in 1988 approximately 67,000 households and 6,700 people in institutions were selected for interview; in 1993 approximately 42,000 households and 6,500 people in institutions were selected for interview. Details of these survey procedures were presented in ABS publications (ABS 1982, 1990b, 1993b).

Limitations, restrictions or impairments for disability identification

Persons with a disability were identified in ABS disability surveys if they had one or more of the limitations, restrictions or impairments summarised below (ABS 1993b: 6):

- loss of sight (even when wearing glasses or contact lenses);
- loss of hearing;
- speech difficulties in native languages;
- blackouts, fits, or loss of consciousness;
- slowness at learning or understanding;
- incomplete use of arms or fingers;
- difficulty gripping or holding things;
- incomplete use of feet or legs;
- a restriction in physical activities or in doing physical work;
- a disfigurement or deformity;
- need for help or supervision due to a mental illness;
- long term effects of head injury, stroke or any other brain damage;
- treatment or medication for a long-term condition or ailment and still restricted;
- any other long-term condition resulting in a restriction;

All the 14 categories were applied in the three ABS disability surveys except for the last three items which were expanded only in the 1993 survey.

Areas of handicap

For persons reporting a handicap, the limitation must be due to the disability as identified in the above categories and in relation to one or more of the specific tasks given in the areas of handicap as listed below (ABS 1993b: 7):

Self care: showering, bathing, dressing, eating, using a toilet, bladder or bowel control.

Mobility (profound/severe/moderate): moving away from the home/establishment, moving about the house/establishment, transferring between bed and chair.

Mobility (mild): limitation in walking 200 metres, walking up or down stairs or using public transport.

Verbal communication: understanding or being understood by strangers/family/friends/staff in the person's native language.

Schooling: unable to attend school, attended a special school, attended special classes in an ordinary school, needed time off from school or had difficulty at school because of a disabling condition. This information was collected for persons in households aged 5 to 14 years and those aged over 15 years and still attending school.

Employment: permanently unable to work, restricted in the type of work could do, often needed time off work, restricted in the number of hours could work, would require an employer to make special arrangements, or limited in prospects of obtaining/keeping/changing jobs. This information was collected for persons in households aged 15 years and over, not attending school.