

1 Introduction

1.1 Why this report?

Disability and human functioning are relevant and studied across the policy spectrum of human service systems. Perspectives on functioning and the approach to its measurement vary with the policy focus, the area of functioning or disability that is receiving attention, and the method of measurement chosen. Whole-of-government approaches to disability – for instance, continuity of care policies – require analyses that bridge the boundaries sometimes created by these differing perspectives. This study sets out to bridge some boundaries, by examining some of the interrelationships among components of disability, health conditions and other related factors, as well as some aspects of measurement.

‘Disability’ is an umbrella term for any or all of impairments, activity limitations and participation restrictions, as influenced by environmental factors; disability is defined in the context of health, and health conditions and personal factors are also part of the interactive model (WHO 2001; see more discussion in Section 1.2).

Despite the acknowledged links between health and disability, there has not been a great deal of analysis on how they relate to each other. Disability or aged care policies and programs frequently focus on activity limitations (for instance, limitations in mobility) and participation restrictions (for instance, restrictions in employment); these programs often provide personal assistance, aids or environmental modifications but do not usually delve into the related health condition. Related population analyses focus on ‘disability’ as a summary measure in its own right – for instance, in terms of the numbers of people in the population needing assistance with mobility activities. Health-focused analyses that also look at disability may, in contrast, seek to explain health outcomes (or ‘burdens’ or costs) in terms of ‘disabilities’ attributed, by some means, to specific health conditions. Where multiple health conditions and/or multiple disabilities exist, these analyses pose difficult problems. ‘Disability’ in the population then becomes a complex and constructed summary measure, apportioned among and combined across a range of health conditions.

Whole-of-government approaches to policy and service delivery mirror a ‘whole person’ appreciation of service users, and increasingly require analyses that bridge the health-disability divide in terms of their focus and language. The ‘epidemiological transition’ of the 20th century enlarged the focus of health systems beyond diagnosis of illness and prevention and treatment of acute disease and death. Health systems now also focus on the long-term health status of the population, and on interventions to sustain healthy ageing, minimise chronic disease and its effects, promote rehabilitation, and provide community care. People’s health is thus increasingly conceptualised in terms of their quality of life, what activities they can do, in what areas of life they are able to participate as they wish, and what long-term supports they need for community living. In turn, health information systems must focus on longer term health outcomes, on health status, and on the functional status of people in the population.

Central to progress in these analyses and applications is the question of measurement of disability, and the portability of measures across environments, disciplines, service programs, diseases and other factors affecting disability. The ability to compare, collate or summarise data depends on such portability. For instance, in the aged care field, it is well accepted that it is important to have a broad measure of the need for support or service that

does not vary too much according to disease. Assessment of the need for support focuses on the need for assistance with daily activities.

Functioning and disability and related factors will therefore receive major policy and analytical attention for years to come.

This report sets out to explore Australian data in order to improve our understanding of two broad areas:

- Disability and related factors: What do Australian survey data reveal about the relationship of functioning and disability to health conditions and other related factors? These other factors include the environment of the person, characteristics of the person such as age and sex, other demographic characteristics, and socioeconomic factors.
- Disability and measurement: What measures of disability do we already have, and what does the use of different measures tell us about the relationship of functioning and disability to health conditions and other related factors?

Other studies, both in Australia and internationally, focus on many other aspects of functioning and disability measurement, and on mapping and calibrating the many existing measures in the field. This study does not describe or summarise this very significant international work. Rather, it aims to contribute to these efforts by the analysis of existing Australian data.

What questions does this report set out to answer?

Questions of primary interest include:

- Which diseases are the most strongly associated with severe disability? According to what measure?
- Among people with severe disabilities, what are the most common associated diseases or health conditions?
- What is the relationship between disability, environmental and personal factors as well as health conditions? How does this vary with different measures of 'severity' of disability?

To answer these questions, this report:

- provides prevalence estimates of significant diseases and health conditions associated with disability, and the strength of these associations (Chapter 3)
- estimates the likelihood and severity of disability associated with significant diseases and health conditions; analyse some different measures of severity (Chapters 4 and 5)
- conducts multivariate analyses to explore the relationship between severity of disability, health conditions, and personal and environmental factors (Chapter 6).

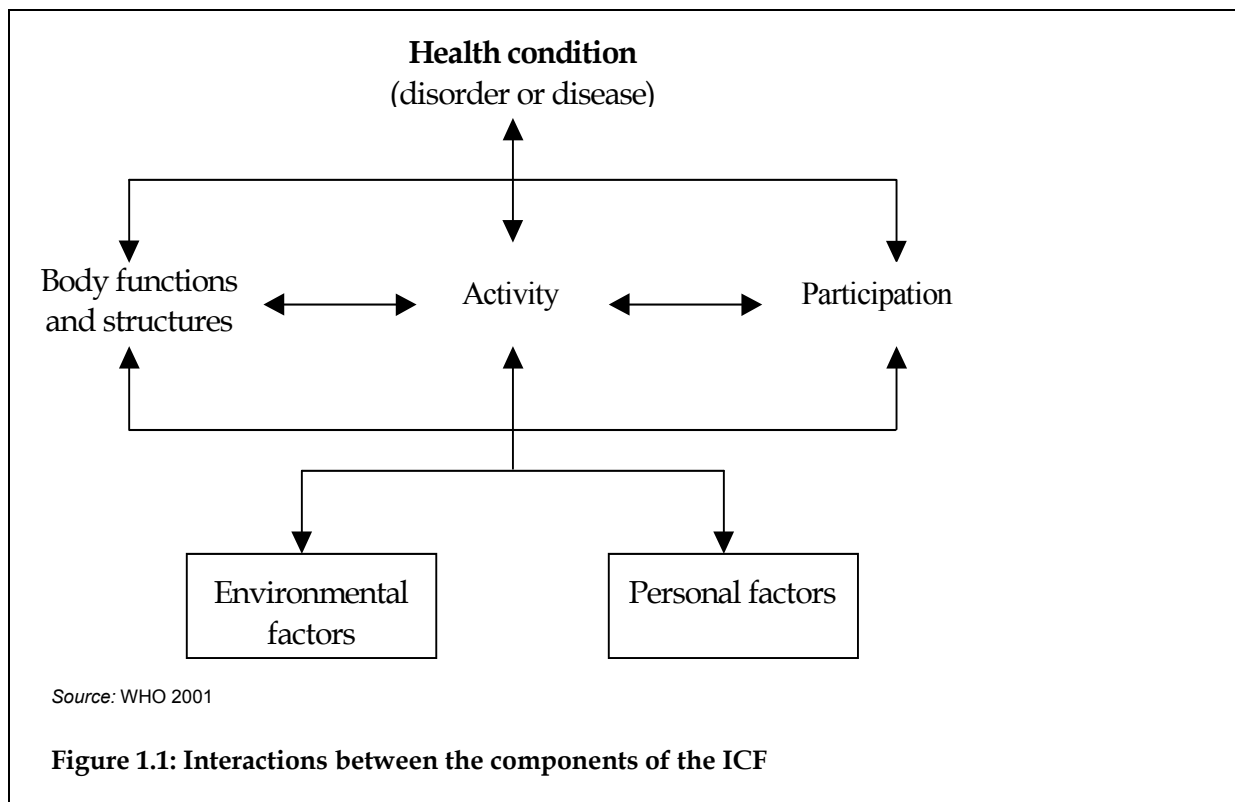
1.2 Background and broad approach

This section presents a brief discussion of definitions of disability and approaches to defining and measuring disability.

Defining disability

In the International Classification of Functioning, Disability and Health (ICF), disability is considered an umbrella term for any or all of the components: impairments, activity limitation and participation restriction, as influenced by environmental factors. Health conditions are a prerequisite (but not a determinant), and personal factors may also influence outcomes. Impairments are 'problems in body function or structure such as significant deviation or loss'. Activity limitations are 'difficulties an individual may have in executing activities'. Participation restrictions are 'problems an individual may experience in involvement in life situations' (WHO 2001:7 – 10). Environmental factors include all the physical and social aspects of the environment that may affect a person's experience of disability, including equipment used or personal assistance provided. Environmental factors may act as facilitators that diminish disability, or barriers that create it.

Disability experience is often complex and multidimensional. It may be related to the body functions and structures of people, the activities they do, the life areas in which they participate, and the factors in their environment that affect these experiences (Figure 1.1; WHO 2001). A person's functioning or disability is considered as a dynamic interaction between the health condition and environmental and personal factors.



'Health condition' is an umbrella term for disease, disorder, injury or trauma. Two persons with the same health condition can have different levels of disability, and two persons with the same level of disability do not necessarily have the same health condition.

Disability does not necessarily equate to poor health. For example, in the early stages of disability associated with paraplegia, the affected person may be considered in poor health and may have a greater need for medical and health care, but once their condition is stable they may enjoy good health.

Disability does not include situations that are not health-related, such as participation restriction solely due to socioeconomic factors. This therefore distinguishes disability from disadvantage or exclusion unrelated to health. However, the presence of disability and the severity of disability are often associated with individuals' socioeconomic environments.

Approaches to measuring severity of disability

To explore the relationship between disability, health conditions and related factors in Australia, two key measurements of disability are important: population estimates of prevalence of disability and measures of severity of disability.

The Australian Institute of Health and Welfare (AIHW) has published a series of reports on the definition and prevalence of different disability groups in Australia. These reports review the existing definitions, data collections and estimates of prevalence relating to some significant disability groups (intellectual, psychiatric, sensory/speech, physical/diverse and acquired brain injury), and provide improved estimates of the size and profile of these groups (e.g. AIHW 2003b).

The present report puts more emphasis on exploring the measurement of 'severity' of disability. Information about severity of disability in the Australian population is of great relevance to policy and service planning. The eligibility criteria for receiving disability-related services and assistance generally include at least one indicator of severity of disability.

'Severity' is used in this report as a term indicating the extent of the impact of disability on a person's life. The severity of disability can be measured in relation to different dimensions of disability, depending on specific purposes. For example, the purpose may be to:

- estimate the potential population needing services and assistance;
- assess eligibility for receiving government income support for disability;
- provide information to facilitate early intervention and disability prevention ; and
- conduct epidemiological studies, or studies on morbidity and disability.

For the first two purposes, the measurements of disability are more likely to concentrate on the activity limitations and participation restrictions (although impairment is often a threshold criterion). For the third or fourth purposes the measurements are often related to problems in body functions and body structures. Corresponding to various purposes, different data have been collected and analysed.

Measures of severity may be constructed on individual components of disability, for instance, extent of impairment as distinct from extent of activity limitation. Alternatively, they may be combined, or conceptualised in an over-arching way, into a 'severity of disability' measure.

Population surveys, to be most useful, will take a number of these purposes into account. This enables a multidimensional and holistic approach to estimating the prevalence of disability and its components, and to measuring the severity of disability. The Australian Bureau of Statistics (ABS) disability survey data provide an opportunity to apply a

multidimensional approach to examining severity of disability associated with specific health conditions based on lived experience of people with a disability in Australia.

The analysis in this report attempts such a multidimensional approach using Australian population survey data, in particular the ABS disability survey data. The relationship between disability, health conditions and related factors is examined. The approach covers epidemiological aspects of disability and also looks, as far as possible, at the social construction of disability and the effects that health conditions place on everyday life of individuals with a disability.

The following sections briefly outline the multidimensional approaches used in this report, including two types of measures of severity of disability and multivariate analysis of severity of disability associated with health conditions. More detailed discussions on methods and data sources are given in Chapter 2.

Disability, severity and relationship to health conditions

Chapters 4 and 5 of this report examine the relationship between disability and health conditions in various ways.

Several analyses focus on the Body Function and Body Structures (and impairment) component of the ICF, estimating:

- the likelihood of 'disability', as defined by the ABS disability survey screening question (Section 4.2)
- the likelihood that each of the selected health conditions is reported as the 'main disabling condition' among other conditions (Section 4.3)
- the mean number of disabling conditions for the selected health conditions (multiple conditions and co-morbidity) (Section 4.4)
- likelihood of various impairments and limitations, for the selected health conditions; (Section 4.4).

The second group of analyses focuses on the Activities and Participation component of the ICF. For each of several selected health conditions, the association with disability is examined by estimating:

- likelihood of severe or profound 'core' activity limitation¹, with a given impairment or health condition (Section 5.2)
- the likelihood of severe or profound core activity limitations associated with each of the selected conditions (Section 5.3)
- the number of core activities in which assistance is needed (Section 5.4)
- the frequency of need for assistance with core activities (Section 5.5)
- the level of restriction in employment (participation restrictions) (Section 5.6).

¹ 'Core' activities are self-care, mobility and communication, so named in the ABS Survey of Disability, Ageing and Carers; more detailed description of this survey and other data sources is given in Chapter 2.

Exploration of other disability-related factors

Environmental and personal factors, in the ICF model, are also recognised as impacting on disability experience. The environment is, in fact, critical to the understanding of disability. A person with some functional impairments (e.g. related to a high level spinal cord injury) may have no activity limitation or participation restriction in an enabling work environment (e.g. with appropriate computing equipment and some personal assistance) or may be completely disabled by an environment that does not include such features.

The use of the measures described above, together with a multivariate analysis of their association with environmental and personal factors on severity of disability, would contribute to a better understanding of the relationship between disability, health conditions and related factors, including implications for services and social and community development in Australia. The ABS disability survey contains some information about environmental and personal factors, although nowhere near the full spectrum of environmental factors recognised by the ICF (products and technology; natural environment and human-made changes to environment; support and relationships; attitudes; services, systems and policies). These survey data are used in an exploratory multivariate analysis to investigate these relationships. The statistical model used is a regression of severity of core activity limitations with disabling conditions, personal and environmental factors. The ICF conceptual framework guides the analytical approach for the regression analysis.

1.3 Structure of the report

Chapter 2 provides background information about the data sources used in the report.

Chapter 3 analyses the data on significant diseases and health conditions in the general population, making comparisons among different data sources and suggesting possible reasons for the differences. Trends in disability are outlined.

Chapters 4 and 5 look at the associations between disability and related health conditions, without specifically considering environmental and other factors. Chapter 4 starts with the estimates of disability prevalence and carries out preliminary analyses on the associations between particular impairments and related diseases or health conditions. Chapter 5 explores different population measures of disability severity (based on activity limitations) and their relationships to health conditions.

Chapter 6 describes and reports the findings of the multivariate analyses examining associations between disability, related health conditions and personal and environmental factors.

Chapter 7 discusses some of the main results of the study and concludes that, while the relationships among disability, health conditions and other factors are complex, holistic analysis demands that we not try to oversimplify the picture.

2 Main data sources and definitions

This chapter provides background information about the data and definitions used in this report. The chapter begins with a brief discussion about two health data sources: the ABS 2001 National Health Survey and the study on the burden of disease and injury in Australia. It then focuses on the primary data source of this report: the ABS 1998 Survey of Disability, Ageing and Carers.

In the National Health Survey and Disability Survey, the ABS collected data about long-term health conditions on the basis of the respondents' self-reported information that may or may not be a result of professional assessments. There may be problems with validity for some reported long-term health conditions.

2.1 ABS 2001 National Health Survey

The national health surveys collect information about the health status of Australians, their use of health services and facilities, and health-related aspects of their lifestyle such as smoking, alcohol consumption and exercise (ABS 1997, 2002). The surveys have been used as a source for the analysis of health and health service use in Australia.

Information most relevant to disability in the national health surveys is the data items about long-term conditions. In the ABS 2001 National Health Survey, a long-term condition is defined as one which, in the respondent's opinion, has lasted, or is expected to last, for six months or more (ABS 2002:122). The ABS has produced three output classifications of the conditions based on the *International Statistical Classification of Diseases and Related Health Problems*, version 10 (ICD-10), ICD-9 (for comparisons) and the *International Classification of Primary Care* (ICPC) (ABS 2002:101). In this report data on long-term conditions coded to the ICD-10 are used.

Data from the 2001 National Health Survey are not appropriate sources for the generation of estimates of disability prevalence. The Health Survey has a limited amount of information reported on the disabilities associated with those conditions and impairments. Hence, the 2001 Health Survey data are used to extract prevalence estimates of long-term conditions for comparison with those derived from the disability surveys and other data sources.

The 2001 National Health Survey covers only people in households and excludes people in hospitals, nursing homes and other institutions. This may contribute to an underestimation of the prevalence of long-term conditions in the Australian population based on these data.

2.2 The study of the burden of disease and injury in Australia

The AIHW's report on the national burden of disease and injury for Australia uses the disability-adjusted life year, or DALY, to measure the total impact of mortality and non-fatal health outcomes in a consistent way across a comprehensive range of diseases and illnesses (AIHW: Mathers et al. 1999). The report provides detailed estimates for Australia of the incidence, prevalence, duration, mortality and disease burden for more than 175 disease and

injury categories. It also attempts to quantify the 'burden' associated with a range of risk factors and health determinants, and with socioeconomic disadvantage.

As was noted in the report, the estimates should be considered as provisional and developmental. Further work is needed to refine the estimates of prevalence of diseases and conditions and to explore how to assess the disability associated with health conditions in the Australian context. There are concerns about the acceptability of some health summary measures such as the DALY, particularly from some groups of people with a disability, with regard to both the underlying concepts, the methods of developing weights and the specific severity weights assigned. The technical application of such measures needs to be subject to further debate within Australia (NHPC 2001:10).

Disability weights have been the subject of considerable debate and critical literature. Weights can be estimated in various ways, and different methods give different results. Some of the techniques used include personal trade-off, or time trade-off; some methods ascertain the preferences of health experts only, some ask the general public and others ask people with lived experience of the condition. A method used in the World Health Organisation (WHO) burden of disease estimates attempts to quantify societal preferences (by aggregating the preferences of various panels of medical and non-medical people) for health states in relation to the 'ideal' of good health of the member of the panels. For example, on the basis of the weights, the panels judge a year with blindness (weight 0.43) to be preferable to a year with paraplegia (weight 0.57), and a year with paraplegia to be preferable to a year with unremitting unipolar major depression (weight 0.76) (AIHW: Mathers et al. 1999:11).

Disability weights have been designed with an emphasis on measuring the effects of diseases and conditions that are more relevant to health care systems rather than the community service system. Some versions of the disability weights, such as the Dutch weights, have incorporated results of some measurements of functional states (AIHW: Mathers et al. 1999).

There is broad debate on the summary measures of the effects of diseases on disability using disability weights as an index (e.g. Bastian 2000; Nygaard 2000; Reidpath et al. 2001). The main criticism of the measures is the assumption that severity of a health condition does not vary according to location and socioeconomic settings. It has been argued that when trying to make assessments of the severity level of a health condition, the degree of severity, even for fairly objective dimensions of a health condition, depends on contextual factors (Nygaard 2000).

Prevalence estimates of long-term conditions from this study are compared with those from the ABS 2001 National Health Survey and ABS 1998 Disability Survey in Chapter 3.

2.3 The ABS 1998 Survey of Disability, Ageing and Carers

The ABS disability surveys are specifically designed to collect comprehensive information about disability in the Australian population (ABS 1999). The surveys cover both rural and urban areas in all states and territories. Data are gathered from both households and cared

accommodation (hospitals, nursing homes and hostels etc.). The surveys provide cross sectional data at four points in time (1981, 1988, 1993 and 1998) over a period of 17 years.²

The objectives of the disability surveys are to:

- measure the prevalence of disability in the Australian population and consequent need for assistance
- provide a demographic and socioeconomic profile of people with a disability and older people compared with the general population
- provide information about informal carers who provide care for people with a disability (ABS 1999).

This section outlines the main relevant survey data items and definitions used for this report. More specific data items relating to particular estimates or measures are presented in relevant chapters.

Long-term health condition

In the ABS 1998 Disability Survey, a long-term health condition is defined as a disease or disorder which has lasted or is likely to last for at least six months; or a disease, disorder or event (e.g. stroke, poisoning, accident etc.) which results in an impairment or restriction which has lasted or is likely to last for at least six months (ABS 1999:69). In other words, people may have a long-term health condition, but not a disability, if the health condition does not result in an impairment or restriction which has lasted or is likely to last for at least six months. Long-term health conditions have been coded to a classification based on the ICD-10 (WHO 1992).

Base 'disability' population defined by the Disability Survey

Section 1.2 discussed definitions of disability conceptualised in the ICF. The operational definition of disability in the ABS 1998 Disability Survey is based on 17 screening questions on impairments and limitations (Box 2.1). A person is considered to have a disability if he/she has at least one of 17 limitations, restrictions or impairments that has lasted, or is likely to last, for at least six months and restricts everyday activities (ABS 1999: 67). The survey definition of disability is relatively broad, aiming to capture a broad range of people who have one or more impairments or limitations, or who have one or more health conditions which restrict everyday life. Thus, the 17 items were used as criteria to create the base 'disability' population with multi-dimensional disability experiences. This base 'disability' population is the starting point for prevalence estimates.

² ABS has conducted the 2003 Survey of Disability, Ageing and Carers but data are not available at the time of preparing this report.

Box 2.1: Areas of impairment, limitation or restriction identified by the ABS

Affirmative responses to any of the following categories, where the limitation, restriction or impairment has lasted or was likely to last for six months or more, 'screen' the person into the ABS survey:

- *loss of sight, not corrected by glasses or contact lenses*
- *loss of hearing, with difficulty communicating or use of aids*
- *speech difficulties (including speech loss)*
- *chronic or recurring pain or discomfort that restricts everyday activities*
- *shortness of breath or breathing difficulties that restrict everyday activities*
- *blackouts, fits, or loss of consciousness*
- *difficulty learning or understanding*
- *incomplete use of arms or fingers*
- *difficulty gripping or holding things*
- *incomplete use of feet or legs*
- *a nervous or emotional condition that restricts everyday activities*
- *restriction in physical activities or in doing physical work*
- *disfigurement or deformity*
- *head injury, stroke or any other brain damage with long-term effects that restrict everyday activities*
- *needing help or supervision because of a mental illness or condition*
- *receiving treatment or medication for any other long-term condition or ailment and still restricted in everyday activities*
- *any other long-term condition that restricts everyday activities.*

This list creates the implicit definition of 'disability' used in the ABS 1998 Survey of Disability, Ageing and Carers (ABS 1999). This creates the base 'disability' population that is the starting point for the prevalence estimates.

The screening questions cover specific impairments that correspond generally to the impairment component of the ICF framework. The screening questions relating to body function impairments are, for instance, 'loss of sight not corrected by glasses or contact lenses', 'loss of hearing' and 'incomplete use of arms or fingers'. The questions also include structure impairments such as 'disfigurement or deformity'.

Two screening questions relate to the activity component of the ICF: 'difficulty gripping or holding things' and 'whether restricted in physical activities or physical work'. The question about 'difficulty gripping or holding things' indicates limitations in performing simple activities that are likely to be associated with specific impairments. The question of 'whether restricted in physical activities or physical work' is much broader, and is likely to 'catch' a broad range of people who may have a disability. Restrictions in physical activity and physical work could be associated with a wide range of impairments.

Two screening questions relate to the environmental factor component of the ICF: 'whether receiving treatment for any long-term conditions or ailments (and still restricted)' and 'need to be helped or supervised in doing things because of a mental illness or condition'.

The screening questions also include two broad items:

- 'head injury, stroke or other brain damage with long-term effects that restrict everyday activities'
- 'any other condition, lasting or likely to last for six months or more, not already mentioned'.

The last item of the screening questions about 'any other long-term condition' allows the survey to collect information that may relate to most ICF domains of body functions and structure which are not covered by other items of the screening questions, as well as conditions that are not related to impairments, activity limitations or participation restrictions.

A follow-up filtering question was also asked, to determine whether the person was 'restricted in everyday activities' for those who reported: 'shortness of breath or difficulty breathing', 'chronic or recurrent pain or discomfort', 'a nervous or emotional condition' and 'any other long-term condition that has lasted or likely to last for six months or more'. Only those people who reported positively to one or more of the above questions and were also restricted in everyday activities were defined by the survey as having a disability.

Activity restrictions and their severity

A 'specific restriction' is defined in the 1998 Disability Survey as a restriction in core activities (self-care, mobility and communication), schooling or employment (Box 2.2). People who were 'captured' into the Disability Survey by the screening questions (defining disability population) and all people aged 60 years or over, were asked about their need for assistance with various daily activities: self-care, mobility, communication, health care, housework, property maintenance, paperwork, meal preparation, transport and guidance. Guidance refers to interacting, making and maintaining relationships, coping with emotions, making decisions, thinking through problems and managing behaviour (children aged under 15 years, people in cared accommodation).

In the 1998 survey four levels of core activity restriction are determined, based on whether a person needs personal assistance with, has difficulty with, or uses aids or equipment for any of the core activities. A person's overall level of core activity restriction is determined by the highest level of restriction the person experienced in any of the core activity areas. Profound core activity restriction refers to a person who is unable to do, or always needs help with, a core activity. Severe core activity restriction refers to a person who sometimes needs help with a core activity, or has difficulty understanding or being understood by family or friends, or who can communicate more easily using sign language or other non-spoken forms of communication.

Box 2.2: ABS 1998 Survey of Disability, Ageing and Carers: activity restrictions and their severity

Specific restrictions are:

- Core activity restrictions
- Schooling or employment restrictions.

Core activities are:

- Self-care – bathing or showering, dressing, eating, using the toilet and managing incontinence
- Mobility – moving around at home and away from home, getting into or out of a bed or chair, and using public transport
- Communication – understanding and being understood by others: strangers, family and friends.

A core activity restriction may be:

- Profound – unable to perform a core activity or always needing assistance
- Severe – sometimes needing assistance to perform a core activity
- Moderate – not needing assistance, but having difficulty performing a core activity
- Mild – having no difficulty performing a core activity but using aids or equipment because of disability.

Source: ABS 1999.

Note: The term 'activity restriction' is equivalent to the ICF concept of 'activity limitation'. The ABS has aligned the terminology of the 2003 survey with the ICF. Throughout this report we use the 1998 survey terminology when referring to the results of the 1998 survey.

People with a severe or profound core activity restriction conform closely to the definition of the target group of disability support services (Services funded under the Commonwealth - State/Territory Disability Agreement, CSTDA). Services provided under the CSTDA are targeted to people who need ongoing support with everyday life activities. The target group is specified as 'people with disabilities':

'people with disabilities' means people with a disability attributable to an intellectual, psychiatric, sensory, physical or neurological impairment or acquired brain injury (or some combination of these) which is likely to be permanent and results in substantially reduced capacity in at least one of the following:

- Self-care/management
- mobility
- communication

and requiring ongoing or episodic support.

The estimated number of people with a severe or profound core activity restriction is generally accepted as a broad indicator of potential need for disability support services in Australia.

Explanatory notes about the terms relating to prevalence estimation and analysis of severity of disability using the ABS Disability Survey are provided in Table 2.1.

Table 2.1: Terms relating to prevalence estimation and analysis of severity of disability using the ABS 1998 Survey of Disability, Ageing and Carers

Terms	Working definition
Long-term health condition	A long-term health condition is defined as a disease or disorder that has lasted or is likely to last for at least six months, or a disease, disorder or event (e.g. stroke, poisoning, accident etc.) that results in an impairment or restriction that has lasted or is likely to last for at least six months (ABS 1999:69).
Disabling condition	A disabling condition is a disease, disorder or event (e.g. stroke, poisoning, accident etc.) that leads to an impairment or restriction that has lasted or is likely to last at six months.
Main disabling condition	If only one disabling condition is reported in the survey, this is recorded as the main disabling condition. If multiple conditions are reported, then the main disabling condition is the one identified as causing the most problems.
All disabling conditions	All disabling conditions reported by or for a person.
Activity	An activity comprises one or more tasks in daily life. In the 1998 Disability Survey tasks have been grouped into ten activities: self-care, mobility, communication, health care, housework, meal preparation, paperwork, property maintenance, transport and guidance.
Core activities	Core activities are self-care, mobility and communication. Questions are asked about several tasks under each of these headings. For instance, bathing, eating and toileting are grouped under self-care.
Severe or profound core activity restrictions	A profound core activity restriction refers to a person who is unable to do, or always needs help with, a core activity task. A severe core activity restriction refers to a person who sometimes needs help with a core activity task, or has difficulty understanding or being understood by family or friends; or can communicate more easily using sign language or other non-spoken forms of communication.
Activity limitations	Activity limitations refers to a person being unable to do, or having a need for assistance, or having difficulty with, at least one of the ten activities, or uses aids and equipment, or has changes made to home environment because of his/her health condition(s).
Participation restrictions	Participation restriction refers to a person being restricted in schooling, employment or social and community participation because of his/her disability.

Sources: ABS 1999; AIHW 2003a.

Disability groups in Australia

In Australia, disabilities are often classified into ‘disability groups’. Disability groups, such as ‘intellectual disability’ and ‘physical disability’, provide a broad categorisation of disabilities based not only on underlying health conditions and impairments but also on activity limitations, participation restrictions and related environmental factors. These groups are generally recognised in the disability field and in legislative and administrative contexts in Australia. Australian disability administrators, peak bodies, people with disabilities and service providers use disability groups as a basis for describing groups of people with similar experiences of disability and patterns of impairments, activity limitations, participation restrictions and related environmental factors (Box 2.3; AIHW 2003a).

It is important to note that disability groupings do not classify people, rather they categorise individuals’ experience in various domains of functioning and disability.

AIHW has recently published a report that provides a broad spectrum of estimates of prevalence of main disability groups that may suit different purposes (AIHW 2003b). For example, the prevalence could be estimated either on the basis of disabling conditions only, or using information combining disabling condition and certain levels/severities of activity

limitations or participation restrictions. This report explores severity of disability in relation to the number of associated conditions and patterns of multiple conditions and disabilities for five main disability groups: 'intellectual', 'psychiatric', 'sensory/speech', 'physical/diverse' and 'acquired brain injury'. The estimates of disability groups in this report use data on either main or all disabling conditions. Survey information about certain levels/severity of activity limitations or participation restriction is not included in the estimation. A full list of impairments and disabling conditions related to specific disability groups is presented in Appendix 1 of the report.

Box 2.3: Disability groups

***Intellectual/learning disability** is associated with impairment of intellectual functions with limitations in a range of daily activities and with restriction in participation in various life areas. Supports may be needed throughout life, the level of support tending to be consistent over a period of time but may change in association with changes in life circumstances.*

***Psychiatric disability** is associated with clinically recognisable symptoms and behaviour patterns frequently associated with distress that may impair personal functioning in normal social activity. Impairments of global or specific mental functions may be experienced, with associated activity limitations and participation restrictions in various areas. Supports needed may vary in range, and may be required with intermittent intensity during the course of the condition. Changes in level of support tend to be related to changes in the extent of impairment, or in the environment.*

***Sensory/speech disability** is associated with impairment of the eye, ear and related structures and of speech, structures and functions. Extent of impairment and activity limitation may remain consistent for long periods. Activity limitations may occur in a various areas, for instance communication and mobility. Availability of a specific range of environmental factors will affect the level of disability experienced by people in this grouping. Once in place, the level of support tends to be relatively consistent.*

***Physical/diverse disability** is associated with the presence of an impairment, which may have diverse effects within and among individuals, including effects on physical activities such as mobility. The range and extent of activity limitation and participation restriction will vary with the extent of impairment as well as with environmental factors. Environmental adjustments and support needs are related to areas of activity limitation and participation restriction, and may be required for long periods. Levels of support may vary with both life changes and extent of impairment. Included in this broad category is the subcategory **Acquired brain injury**, which is used to describe multiple disabilities arising from damage to the brain acquired after birth. It can occur as a result of accident, stroke, brain tumour, infection, poisoning, lack of oxygen, degenerative neurological disease, etc. Effects include deterioration in cognitive, physical, emotional or independent functioning.*

Source: AIHW 2003a.

3 Prevalence of disability and long-term health conditions

To explore the relationship between disability, health condition and other related factors, it is necessary to examine two key measurements of disability: its prevalence and severity. Before examining severity of disability and its relationship to health conditions, this chapter gives an overview of the prevalence estimates of significant health conditions in the Australian population in general, and among people with a disability and those with a severe or profound core activity restriction in particular. Estimates from different data sources are compared, contributing to a better understanding of the discrepancies between disability and health information. The chapter aims to answer a number of questions:

- Which diseases or conditions are the most commonly self-reported long-term health conditions in the Australian population?
- Among people with a disability and those with a severe disability, which are the most commonly associated diseases or conditions respectively?
- Which impairments or limitations are most commonly associated with a disability, or with a severe or profound disability?

The chapter begins with a discussion of the main data sources and then a review of the prevalence estimates of long-term health conditions from these sources. The ABS 1998 Survey of Disability, Ageing and Carers is selected as the primary data source to provide detailed estimates of long-term health conditions and impairments/limitations associated with disability and severe disability. A brief review of recent trends in the prevalence of disability and long-term conditions is also presented.

In the first part of this chapter, prevalence estimates of long-term health conditions from two health data sources are presented and reviewed, and compared with the disability data source. The long-term health conditions selected for this study include most common health conditions associated with each of the main disability groups: intellectual, psychiatric, sensory/speech, physical/diverse and acquired brain injury (AIHW 2003b); and conditions identified as national health priority areas, or of significance to the study of burden of disease and injury in Australia. Conditions selected are thus those that affect the health and wellbeing of significant population groups in Australia.

3.1 Main data sources: some differences

The prevalence estimates in this chapter are calculated in terms of the number of people reporting a specific long-term health condition and/or a percentage of the Australian population.

Differences in survey methods between the 1998 Disability Survey and the 2001 National Health Survey

It is necessary to highlight some main differences between the Disability Survey and National Health Survey (see Chapter 2 for detailed background information and definitions). The ABS Disability Survey is specifically designed to collect comprehensive information about disability in the Australian population. The main purpose of the National Health Survey is to obtain information on the health status of Australians and their use of health services and facilities. These surveys have been mainly used as a source for the analysis of health and health service use differentials in Australia.

In the ABS 1998 Disability Survey, a long-term health condition is defined as 'a disease or disorder which has lasted or is likely to last for at least six months; or a disease, disorder or event (e.g. stroke, poisoning, accident etc.), which produces an impairment or restriction which has lasted or is likely to last for at least six months' (ABS 1999:69). In other words, people may have a long-term health condition but not a disability if the health condition does not result in an impairment or restriction which has lasted or is likely to last for at least six months. Long-term health conditions have been coded to a classification based on the WHO ICD-10 (WHO 1992).

In the ABS 2001 National Health Survey, a long-term condition is defined as one which, in the respondent's opinion, has lasted, or is expected to last, for six months or more (ABS 2002:122). The ABS has produced three output classifications of the conditions based on ICD-10, ICD-9 (for comparison) and the ICPC (ABS 2002:101). In this report, data on long-term conditions coded to the ICD-10 are used.

In the Disability Survey, information about health conditions was collected using the screening questions about impairments and limitations. The screening questions were designed mainly to select a potential population group which may have limitations in, or need for assistance with, activities and participation of various life domains, in particular the core activities (self-care, mobility and communication) and schooling or employment. The range of the long-term conditions collected in the survey was, to some extent, constrained by the scope of the screening questions on specific impairments and certain limitations such as loss of sight or hearing, incomplete use of arms or fingers, speech difficulties and difficulty learning or understanding (Box 2.1, see Chapter 2). Although the last item of the screening questions about 'any other long-term condition' allows the survey to collect information about impairments or health conditions which are not covered by other items of the screening questions, only those who reported an impairment or long-term condition which restricts everyday activities are considered as having a disability. Hence, the long-term health conditions reported in the Disability Survey were those more likely to be associated with an impairment or activity limitations. Unlike the Disability Surveys, the National Health Survey used a general question about any long-term condition, and the conditions recorded in the National Health Surveys are not necessarily associated with disabilities.

The Health Survey covers only people in households and excludes people in hospitals, nursing homes and other institutions. Therefore, the Health Survey underestimates the prevalence of some particular long-term conditions in the Australian population, especially among older Australians. For example, a large proportion of people with dementia are living in institutions.

The study of the burden of diseases and injury in Australia

The main purpose of the study of the burden of disease and injury in Australia was to use the disability-adjusted life year, or DALY, to measure the total impact of mortality and non-fatal health outcomes in a consistent way across a wide range of diseases and illnesses. The study provides detailed estimates for Australia of the incidence and prevalence of various diseases and injury categories. As was noted in the 1999 report, the estimates should be considered as provisional and developmental. Further work is needed to refine the estimates of diseases and conditions (AIHW: Mathers et al. 1999).³

The Australian study on burden of disease and injury used a wide range of data sources for its estimates of diseases and conditions. Definitions of the conditions and method of collections varied (Section 3.4; AIHW: Mathers et al. 1999:203–205).

3.2 Prevalence estimates of long-term conditions—a comparison of three data sources

Estimates based on the ABS 2001 National Health Survey

Data from the 2001 ABS National Health Survey estimated that 14.7 million people, or 78% of the total population, reported one or more long-term conditions (ABS 2002). The most commonly reported long-term conditions were those associated with vision disorders (51% of the total population) and back problems (18%). Other most frequently reported conditions were hearing (14%), arthritis (14%), asthma (12%) and hypertension (10%) (Figure 3.1 and Table 3.1).

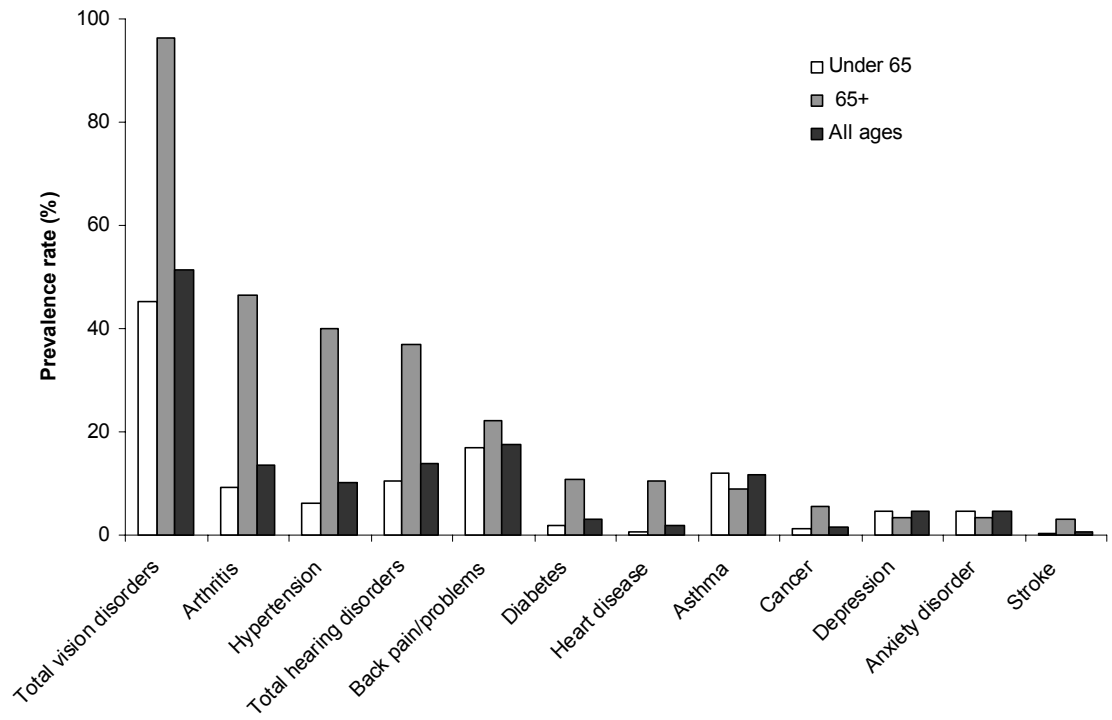
Almost one in ten people reported a long-term condition relating to mental disorders. The most commonly reported mental conditions were depression and anxiety disorders, each affecting about 850,000 people, or 5% of the total population.

The prevalence of most long-term conditions generally was higher at older ages. Almost all people aged 75 or over (99%) reported at least one long-term condition (ABS 2002), mainly because of a large proportion reported vision disorders (Table 3.1). Vision disorders were reported by 96% of people aged 65 or over, as compared with 45% for those aged under 65. Musculoskeletal disorders were more prevalent among people aged 65 or older than those under 65, especially arthritis (47% compared with 9%). Circulatory conditions were also more prevalent among those aged 65 or more, in particular hypertension (40% versus 6%), hearing (37% versus 11%) and heart disease (11% versus 1%).

In contrast, conditions associated with mental and neurological disorders were more prevalent among people aged under 65 (9.9% and 8.0%) than those aged 65 or over (7.2% and 4.6%).

Diabetes and Cancer were more frequently reported by people aged 65 or over (10.8% and 5.6%) than those aged under 65 (1.9% and 1.1%), while asthma was more prevalent among those under 65 (12% versus 8.8% for aged 65 or over).

³ An updated version of the study is to be published in 2005.



Source: Table 3.1.

Figure 3.1: Prevalence rates of selected health conditions, 2001 National Health Survey

Table 3.1: Prevalence of long-term health conditions reported in the ABS 2001 National Health Survey, by age group

	0-65	65+	Total	0-65	65+	Total
	('000)			(%)(a)		
Depression	774.1	74.7	848.9	4.6	3.3	4.5
Anxiety disorder	778.7	74.6	853.3	4.7	3.3	4.5
<i>Total mental disorders^(b)</i>	<i>1,649.4</i>	<i>163.2</i>	<i>1,812.6</i>	<i>9.9</i>	<i>7.2</i>	<i>9.6</i>
Cataract	82.2	279.1	361.3	0.5	12.3	1.9
Glaucoma	67.3	110.2	177.5	0.4	4.9	0.9
Blindness	97.7	69.5	167.2	0.6	3.1	0.9
Loss of vision	328.7	99.2	427.9	2.0	4.4	2.3
<i>Total vision disorders^(b)</i>	<i>7,526.8</i>	<i>2,178.4</i>	<i>9,705.2</i>	<i>45.2</i>	<i>96.4</i>	<i>51.3</i>
Speech difficulties	126.3	*10.6	136.9	0.8	*0.5	0.7
Loss of hearing	1,270.7	742.1	2,012.8	7.6	32.8	10.6
<i>Total hearing disorders^(b)</i>	<i>1,768.4</i>	<i>832.8</i>	<i>2,601.2</i>	<i>10.6</i>	<i>36.8</i>	<i>13.7</i>
Hypertension	1,004.9	904.2	1,909.1	6.0	40.0	10.1
Heart diseases	125.9	238.2	364.1	0.8	10.5	1.9
Stroke	37.3	67.6	104.9	0.2	3.0	0.6
<i>Total circulatory diseases^(b)</i>	<i>1,864.6</i>	<i>1,214.3</i>	<i>3,079.0</i>	<i>11.2</i>	<i>53.7</i>	<i>16.3</i>
Asthma	1,999.0	198.3	2,197.3	12.0	8.8	11.6
<i>Total respiratory diseases^(b)</i>	<i>5,060.6</i>	<i>710.7</i>	<i>5,771.3</i>	<i>30.4</i>	<i>31.4</i>	<i>30.5</i>
Arthritis	1,524.2	1,052.6	2,576.9	9.1	46.6	13.6
Osteoporosis	119.8	180.0	299.8	0.7	8.0	1.6
Back pain/problems	2,835.9	498.0	3,333.9	17.0	22.0	17.6
<i>Total musculoskeletal disorders^(b)</i>	<i>4,619.7</i>	<i>1,439.1</i>	<i>6,058.8</i>	<i>27.7</i>	<i>63.7</i>	<i>32.0</i>
Epilepsy	111.2	*9.2	120.3	0.7	*0.4	0.6
Migraine	1,112.7	57.8	1,170.6	6.7	2.6	6.2
<i>Total neurological disorders^(b)</i>	<i>1,330.0</i>	<i>104.1</i>	<i>1,434.1</i>	<i>8.0</i>	<i>4.6</i>	<i>7.6</i>
Diabetes	310.6	243.7	554.2	1.9	10.8	2.9
High cholesterol	695.5	436.1	1,131.6	4.2	19.3	6.0
Cancer	184.6	126.7	311.3	1.1	5.6	1.6
Total population	16,660.0	2,260.3	18,920.0			

(a) Percentage of the Australian population of that age.

(b) Includes all other conditions in this category so that total is more than the subcomponents.

Note: Estimates marked with * have an associated relative standard error of about 30% and should be used with caution.

Source: AIHW analysis of ABS 2001 National Health Survey expanded confidentialised unit record file from Remote Access Data Laboratory.

Differences in the estimates between the Disability Survey and the National Health Survey

Overall, the number and proportion of people reporting at least one long-term condition in the 2001 National Health Survey were more than two times those of the 1998 Disability Survey: 78% of the total population in the National Health Survey (14.7 million people), compared to about 36% of the total population in the 1998 Disability Survey (6.7 million people) (ABS 2002; Section 4.4: Table 4.3). This is not because Australians have become less well, rather the National Health Survey recorded long-term health conditions that were not necessarily related to disability, whereas the Disability Survey recorded conditions that were more likely to be associated with impairments or activity limitations.

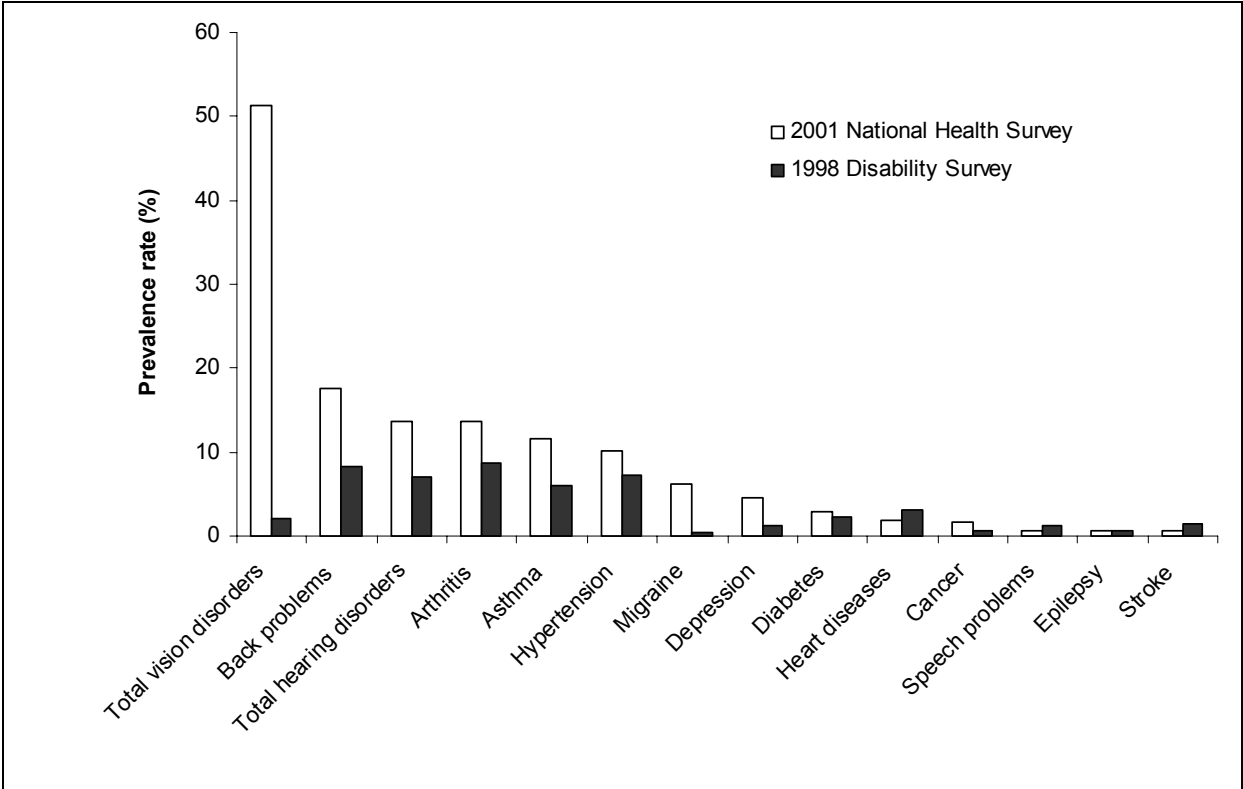
Table 3.2 and Figure 3.2 provide a comparison of the estimates of selected conditions using data available from the confidentialised unit record files of the two surveys. Prevalence rates of most selected conditions were higher for the 2001 National Health Survey than those for the 1998 Disability Survey, especially for vision, back problems, hearing, arthritis, asthma, migraine, depression and hypertension. The rate of vision disorders (51%) recorded in the National Health Survey was extremely high, including any loss of sight (short sightedness or long sightedness) or eye diseases and conditions. This compares to a much lower rate (2%) in the Disability Survey, partly because it excluded people who reported loss of sight corrected by wearing glasses or contact lenses.

The rates of a number of conditions were, nevertheless, higher for the Disability Survey than for the National Health Survey. For example, 3.2% of the total population (589,200 people) reported conditions associated with heart diseases in the Disability Survey, compared to 1.9% (364,100) in the National Health Survey (Table 3.2). About 0.6% people (104,900) in the National Health Survey reported a long-term condition associated with stroke (Table 3.2) and 1.1% (217,500) reported that they had a stroke sometime in their lives (AIHW 2004a:34). In contrast, 282,100 people (1.5%) reported a long-term condition associated with stroke in the Disability Survey.

The relatively lower rates of heart diseases and stroke reported in the National Health Survey is partly because of the exclusion of persons living in institutions, as a substantial proportion of people with those conditions were living in institutions (Table A6.1). The inclusion of a specific screening question in the 1998 Disability Survey to separately identify stroke resulted in an increase in people reporting the condition, in particular among the older population (AIHW 2003b).

The rate of speech problems in the Disability Survey (1.3%) was higher than that of the National Health Survey (0.7%), partly because the Disability Survey also included a specific screening question about speech difficulties.

A number of selected conditions that were highly related to disability were not included in the data file of the National Health Survey, for example dementia, Attention deficit hyperactivity disorder (ADHD), Schizophrenia, Parkinson's disease, paralysis, cerebral palsy, multiple sclerosis, autism and Down syndrome. Most people with dementia were living in institutions (Table A6.1) and they were outside in the scope of the National Health Survey.



Source: Table 3.2.

Figure 3.2: Prevalence rates of selected health conditions, 2001 National Health Survey and 1998 Disability Survey

Table 3.2: Estimates of prevalence of selected long-term conditions: comparisons between the 2001 National Health Survey and the 1998 Disability Survey

Health conditions	2001 National Health Survey			1998 Disability Survey		
	No. ('000)	Prev. rate (%) ^(a)	Rank	No. ('000)	Prev. rate (%) ^(a)	Rank
Total vision disorders	9,705.2	51.3	1	370.4	2.0	8
Back problems	3,333.9	17.6	2	1,554.7	8.3	2
Total hearing disorders	2,601.2	13.7	3	1,315.9	7.1	4
Arthritis	2,576.9	13.6	4	1,608.7	8.6	1
Asthma	2,197.3	11.6	5	1,101.6	5.9	5
Hypertension	1,909.1	10.1	6	1,363.2	7.3	3
Migraine	1,170.6	6.2	7	91.3	0.5	14
Depression	848.9	4.5	8	245.7	1.3	10
Diabetes	554.2	2.9	9	414.0	2.2	7
Heart diseases	364.1	1.9	10	589.2	3.2	6
Cataract	361.3	1.9	11	81.7	0.4	16
Cancer	311.3	1.6	12	123.0	0.7	12
Osteoporosis	299.8	1.6	13	84.7	0.5	15
Glaucoma	177.5	0.9	14	65.0	0.3	17
Speech problems	136.9	0.7	15	244.0	1.3	11
Epilepsy	120.3	0.6	16	105.1	0.6	13
Stroke	104.9	0.6	17	282.1	1.5	9
Total with at least one condition	14,700.0	78.0		6,713.0	36.0	
Total population	18,920.0			18,659.7		

(a) Percentage of the Australian population.

Sources: AIHW analysis of ABS 2001 National Health Survey expanded confidentialised unit record file from Remote Access Data Laboratory and ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Estimates from the study of the burden of disease and injury in Australia—comparison with national survey data

A wide range of data sources was used in the burden of disease study to estimate the prevalence of specific diseases and conditions. The sources were from both overseas and Australia and included disease register data, hospital morbidity data, population survey data and epidemiological studies. These data are combined and adjusted for prevalence estimation. There were also variations in the coverage of the population and reference time for the data collected (AIHW: Mathers et al. 1999:203–205).

Table 3.3 shows the estimates of prevalence of selected diseases or conditions from the burden of disease study. Given the wide range of data sources used for the estimates in the study and the lack of detailed information about the adjustments in the estimates, it is not appropriate to directly compare these estimates with those of the 2001 National Health Survey or the 1998 Disability Survey. However, the overall patterns appear to indicate that many prevalence estimates of the study were generally lower than those of the 2001 National Health Survey but higher than those reported in the 1998 Disability Survey, with the exception of some diseases and conditions.

The reasons for the generally lower estimates of the study than those of the 2001 National Health Survey may be partly attributable to the differences in reference time for the data sources. The study was published in 1999 and the reference time of the data sources for the study was 1996 or earlier.

The burden of disease study aims to estimate prevalence of disease using multiple data sources, not just self-reported survey data sources. Hence, for some conditions, such as diabetes and hypertension, that many people are unaware they have, the estimates of the study would be expected to be higher than the survey estimates.

As discussed previously, the estimates of health conditions in the 1998 Disability Survey were those associated with disabilities. This may contribute to the lower prevalence estimates in the 1998 Disability Survey than those of the study.

The estimates of heart diseases in the study were lower than those in both the 2001 National Health Survey and the 1998 Disability Survey, perhaps largely because hospital morbidity data, which captured admitted patients only, were used for the estimation in the study.

The estimates of ADHD in the study were substantially higher than those in the 1998 Disability Survey. Data on ADHD are not available from the 2001 National Health Survey. High prevalence estimates of ADHD were also reported by one of the three components of the ABS National Survey of Mental Health and Wellbeing, a household survey of children and adolescents aged 4–17 years. The survey results show that the most common disorder was ADHD. An estimated 355,600 children, or 11.2% of those aged 6–17 years, reported ADHD in 1998. Males (250,000, 15.4%) had a higher prevalence of ADHD than females (105,000, 6.8%) (Sawyer et al. 2000). Nevertheless, the survey report suggested that the high prevalence estimates of ADHD be viewed with caution for two reasons (Sawyer et al. 2000). First, the survey interview could not determine whether people identified with ADHD had clinically significant impairment in their social, academic or occupational functioning. Second, the survey focused on only three disorders (the other two are depressive disorder and conduct disorders), therefore it is possible that some children identified as having ADHD had symptoms which would be better classified as another disorder not included in the survey.

On the one hand, estimates from the burden of disease study resulted in higher prevalence than those of the 1998 Disability Survey for some conditions such as dementia, Parkinson's disease, schizophrenia and autism. The estimates for these conditions were not available from the 2001 National Health Survey. On the other hand, estimates from the burden of disease study have also generated lower prevalence than those of the 1998 Disability Survey for conditions such as epilepsy and stroke.

Table 3.3: Estimates of the 1996 prevalence of disease from *The Burden of Disease and Injury in Australia, 1999*

Diseases and health conditions	Prevalence rate per 1,000 population ^(a)		Estimated number ('000)
	Males	Females	
Autism	2.7	0.6	29.7
ADHD	13.8	5.2	173.3
Schizophrenia	0.4	0.3	64.8
Depression	1.8	4.1	538.1
Dementia	5.3	8.3	124.3
Cataract	5.3	13.1	168.8
Glaucoma	7.5	10.4	164.0
Age-related vision disorders	2.5	8.1	97.8
Adult-onset hearing loss	246.6	91.6	3,088.3
Heart diseases			
Rheumatic heart disease	0.1	0.3	3.8
Ischaemic heart disease			
Angina pectoris	9.9	8.4	168.2
Acute myocardial infarction	1.3	0.4	14.9
Inflammatory heart disease	1.6	0.8	21.8
Hypertensive heart disease	0.1	0.4	5.1
Peripheral arterial disease	4.3	2.8	65.0
Stroke	7.4	5.9	121.3
Asthma	58.6	76.0	1,206.1
Chronic obstructive pulmonary disease	19.4	13.0	296.6
Arthritis			
Rheumatoid arthritis	1.9	4.1	55.1
Osteoarthritis	26.5	41.7	625.1
Chronic back pain	33.0	31.0	585.9
Osteoporosis	3.2	13.7	155.2
Parkinson's disease	1.3	2.6	36.4
Multiple sclerosis	0.3	0.6	7.7
Epilepsy	0.4	0.3	6.3
Diabetes			
Type 1 diabetes	0.4	0.4	73.6
Type 2 diabetes	2.7	2.4	469.4

(a) Prevalent cases of disease per 1,000 total male and female population.

(b) Prevalence of cancer has not been estimated in the report (AIHW: Mathers et al. 1999:210).

Source: AIHW: Mathers et al. 1999: Annex Table D.

Discussion—and the need to use one data source

In summary, this section reviewed the prevalence estimates of long-term health conditions from three main data sources. Overall, the National Health Survey tends to generate relatively high prevalence estimates of long-term health conditions. These estimates provide

some information about the most commonly reported long-term health conditions in Australia. Nevertheless, unlike the Disability Survey, those long-term conditions recorded in the National Health Survey are not necessarily associated with a disability. The exclusion of people in institutions in the National Health Survey may contribute to an underestimation of the prevalence of some particular long-term conditions such as stroke and heart diseases and, importantly, dementia. A number of selected conditions that were highly related to disability, in particular severe disability, were not included in the National Health Survey data file.

The Australian study on burden of diseases and injury used a wide range of data sources for its estimates of diseases and conditions. Definitions of the conditions and method of data collections and prevalence estimation varied. Its estimates tended to be between the Disability Survey and National Health Survey in magnitude, but there was no regular pattern.

It is necessary to select one major data source to carry out consistent analyses for this report. The advantage of using one national survey is that it can provide a suite of 'calibrated' estimates based on similar disability concepts, irrespective of causes.

Of the national population surveys, only the ABS Disability Survey is designed specifically to generate a comprehensive national overview of the levels and patterns of disability in Australia. Severity of disability in terms of difficulties in, needs for assistance with, and aids and equipment used for daily activities and participation in employment participations is the main focus of the Disability Survey. The Disability Survey provides the prevalence estimates of long-term conditions which are the most commonly associated with a disability, or with a severe or profound disability. Hence, the 1998 Disability Survey data are used as the main data source for the rest of this chapter to present detailed prevalence estimates of health conditions and impairments/limitations associated with disability and severe disability, and for the analysis of severity of disability in the subsequent chapters of this report.

3.3 Prevalence estimates of health conditions and impairments/limitations associated with disability

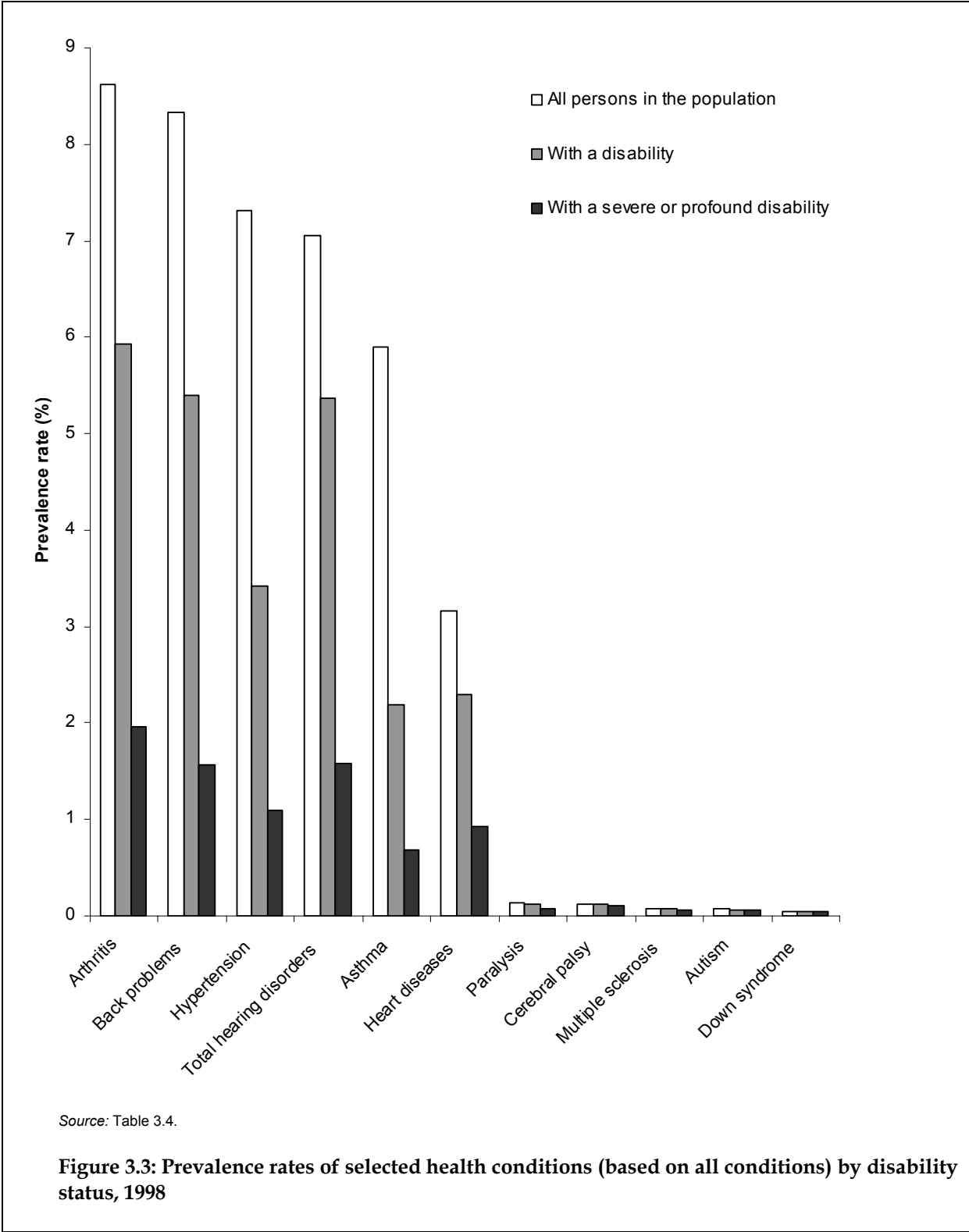
Estimates of prevalence of selected long-term health conditions

At a broad level, according to the 1998 Disability Survey, 6.7 million Australians, or about 36% of the total Australian population, reported at least one long-term health condition (Section 4.4). Some 3.6 million people had a disability (19.4% of the total population); of these, 1.1 million had a severe or profound core activity restriction (6.1% of the total population).

Tables 3.4 ranks the estimated numbers and prevalence rates of the selected long-term conditions reported in the survey by the general population with a condition, people with a disability and those with a severe or profound core activity restriction, respectively. These estimates are based on all conditions reported by the respondents.

The overall pattern indicated that, if only the estimated prevalence of specific conditions rather than severity of disability was considered, some physical conditions, especially musculoskeletal disorders, sensory/speech conditions, hypertension and heart diseases, were the most commonly reported conditions. Conditions relating to intellectual/learning,

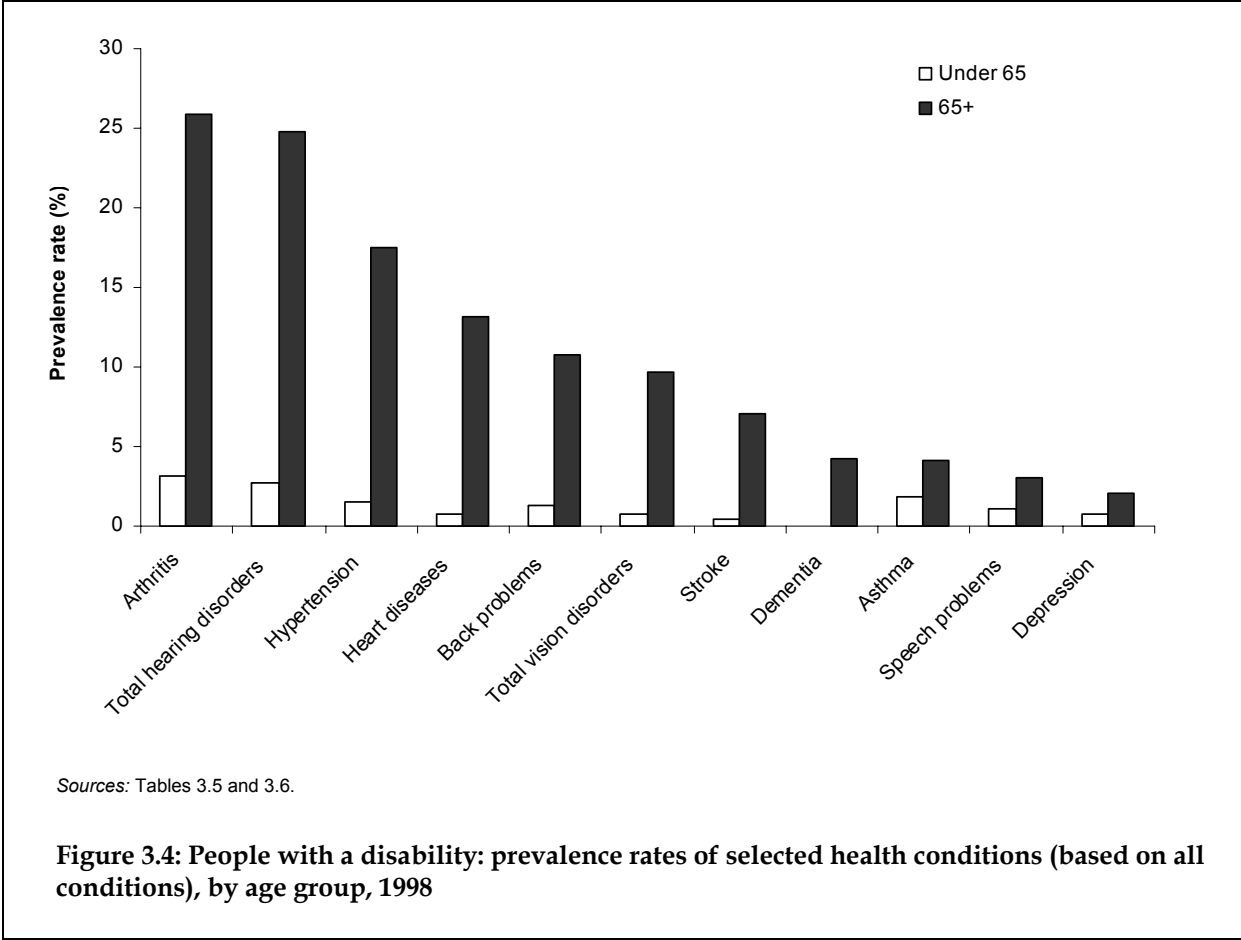
psychiatric and neurological disorders, including some physical conditions, were at the bottom of the rank due to their relatively low frequencies (Figure 3.3).



For the general population, the top six most commonly reported conditions were arthritis, back problems, hypertension, total hearing disorders, asthma and heart diseases. Among

people with a disability, a similar pattern of prevalence was reported, with the exception of asthma which was ranked as the sixth top condition, and heart disease became the fifth top condition. The pattern for people with a severe or profound core activity restriction was also similar to the general population in terms of top, middle and bottom ranks, although speech problems moved into the top five conditions and heart diseases became the sixth top condition (Table 3.4 and Figure 3.3).

There were age variations in these condition patterns.⁴ Back problems led the top five list for people aged under 65 regardless of their disability status, while for people aged 65 and over arthritis was the top condition. Asthma was one of the top five conditions for people aged under 65 regardless of disability status, as compared with heart diseases for those aged 65 or over (tables 3.5 and 3.6, and Figure 3.4).



Among people with a severe or profound core activity restriction, speech problems rather than hypertension were listed in top five conditions for people aged under 65. Heart disease instead of back problems was included in top five conditions for people aged 65 or over.

When only the main conditions are considered, that is, the conditions causing the most problems to the respondent, dementia and stroke were ranked as the third and fourth such conditions among those with a severe or profound core activity restriction (Table A3.1).

⁴ For more discussions about disability and health conditions among older Australians see Chapter 8 of *Australia's Health 2004* (AIHW 2004b).

Table 3.4: People of all ages: prevalence of health conditions (based on all conditions), by disability status, 1998

Health conditions	With a health condition		Health conditions	With a disability		Health conditions	With a severe or profound restriction	
	No. ('000)	Prev. rate ^(a) (%)		No. ('000)	Prev. rate ^(a) (%)		No. ('000)	Prev. rate ^(a) (%)
Arthritis	1,608.7	8.6	Arthritis	1,107.5	5.9	Arthritis	364.9	2.0
Back problems	1,554.7	8.3	Back problems	1,007.1	5.4	Total hearing disorders	295.4	1.6
Hypertension	1,363.2	7.3	Total hearing disorders	1,001.6	5.4	Back problems	291.6	1.6
Total hearing disorders	1,315.9	7.1	Hypertension	638.2	3.4	Hypertension	205.2	1.1
Asthma	1,101.6	5.9	Heart diseases	429.5	2.3	Speech problems	184.2	1.0
Heart diseases	589.2	3.2	Asthma	408.7	2.2	Heart diseases	173.4	0.9
Hearing loss, noise-induced	444.8	2.4	Total vision disorders	349.7	1.9	Total vision disorders	166.7	0.9
Diabetes	414.0	2.2	Hearing loss, noise-induced	330.1	1.8	Stroke	139.2	0.7
Total vision disorders	370.4	2.0	Speech problems	244.0	1.3	Asthma	126.5	0.7
Stroke	282.1	1.5	Diabetes	243.0	1.3	Diabetes	100.1	0.5
Depression	245.7	1.3	Stroke	230.3	1.2	Dementia	95.2	0.5
Speech problems	244.0	1.3	Depression	177.3	1.0	Depression	75.0	0.4
Cancer	123.0	0.7	Dementia	100.3	0.5	Hearing loss, noise-induced	55.0	0.3
Epilepsy	105.1	0.6	Epilepsy	90.9	0.5	Epilepsy	45.9	0.2
Dementia	101.8	0.5	Cancer	84.7	0.5	Cataract	42.4	0.2
Migraine	91.3	0.5	Cataract	79.3	0.4	Osteoporosis	37.5	0.2
Osteoporosis	84.7	0.5	Osteoporosis	72.5	0.4	Cancer	37.3	0.2
Cataract	81.7	0.4	ADHD	60.1	0.3	ADHD	32.5	0.2
ADHD	74.2	0.4	Glaucoma	56.4	0.3	Glaucoma	29.3	0.2
Glaucoma	65.0	0.3	Migraine	55.0	0.3	Parkinson's disease	25.7	0.1
Schizophrenia	36.6	0.2	Parkinson's disease	31.1	0.2	Cerebral palsy	19.3	0.1
Parkinson's disease	34.1	0.2	Schizophrenia	30.5	0.2	Schizophrenia	18.3	0.1
Paralysis	24.5	0.1	Cerebral palsy	22.4	0.1	Paralysis	14.4	0.1
Cerebral palsy	23.1	0.1	Paralysis	22.2	0.1	Migraine	13.8	0.1
Multiple sclerosis	14.4	0.1	Multiple sclerosis	13.4	0.1	Autism	12.4	0.1
Autism	13.0	0.1	Autism	12.4	0.1	Multiple sclerosis	10.6	0.1
Down syndrome	9.9	0.1	Down syndrome	9.9	0.1	Down syndrome	9.1	—
Total	6,713.0	36.0		3,610.3	19.4		1,136.5	6.1

(a) Percentage of the total Australian population. Each column is presented in rank order of prevalence.

Note: The symbol '—' means nil or rounded to zero (including null cells).

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Table 3.5: People aged under 65: prevalence of health conditions (based on all conditions), by disability status, 1998

Health conditions	With a health condition		Health conditions	With a disability		Health conditions	With a severe or profound restriction	
	No. ('000)	Prev. rate ^(a) (%)		No. ('000)	Prev. rate ^(a) (%)		No. ('000)	Prev. rate ^(a) (%)
Back problems	1,243.5	7.6	Back problems	763.0	4.7	Back problems	209.6	1.3
Asthma	976.0	6.0	Arthritis	519.4	3.2	Arthritis	137.3	0.8
Arthritis	807.7	4.9	Total hearing disorders	440.1	2.7	Speech problems	121.5	0.7
Total hearing disorders	652.0	4.0	Asthma	316.6	1.9	Asthma	94.6	0.6
Hypertension	647.9	4.0	Hypertension	242.4	1.5	Total hearing disorders	90.4	0.6
Hearing loss, noise-induced	253.5	1.5	Speech problems	174.7	1.1	Hypertension	67.0	0.4
Diabetes	213.8	1.3	Hearing loss, noise-induced	169.5	1.0	Depression	44.2	0.3
Heart diseases	198.4	1.2	Heart diseases	131.1	0.8	Total vision disorders	36.6	0.2
Depression	189.7	1.2	Total vision disorders	129.4	0.8	Epilepsy	36.4	0.2
Speech problems	174.7	1.1	Depression	129.3	0.8	Diabetes	35.0	0.2
Total vision disorders	143.1	0.9	Diabetes	110.3	0.7	Heart diseases	34.1	0.2
Epilepsy	90.9	0.6	Epilepsy	77.4	0.5	ADHD	32.3	0.2
Stroke	89.4	0.5	Stroke	69.2	0.4	Stroke	31.7	0.2
Migraine	82.9	0.5	ADHD	60.0	0.4	Hearing loss, noise-induced	23.0	0.1
ADHD	74.0	0.5	Migraine	48.7	0.3	Cerebral palsy	18.7	0.1
Cancer	55.6	0.3	Cancer	33.8	0.2	Cancer	13.3	0.1
Schizophrenia	30.8	0.2	Schizophrenia	24.9	0.2	Schizophrenia	13.0	0.1
Osteoporosis	28.8	0.2	Osteoporosis	23.1	0.1	Migraine	12.5	0.1
Cerebral palsy	22.5	0.1	Cerebral palsy	21.8	0.1	Autism	12.4	0.1
Glaucoma	17.3	0.1	Cataract	14.8	0.1	Osteoporosis	9.4	0.1
Paralysis	16.2	0.1	Paralysis	14.7	0.1	Multiple sclerosis	9.4	0.1
Cataract	15.4	0.1	Autism	12.4	0.1	Down syndrome	9.0	0.1
Autism	13.0	0.1	Multiple sclerosis	11.5	0.1	Paralysis	*7.9	—
Multiple sclerosis	12.5	0.1	Glaucoma	11.2	0.1	Cataract	*4.3	—
Down syndrome	9.8	0.1	Down syndrome	9.8	0.1	Parkinson's disease	*4.1	—
Parkinson's disease	*7.6	—	Parkinson's disease	*6.4	—	Glaucoma	*3.5	—
Dementia	*4.0	—	Dementia	*4.0	—	Dementia	**1.8	—

(a) Percentage of the Australian population aged under 65. Each column is presented in rank order of prevalence.

Notes

1. Estimates marked with ** have an associated relative standard error (RSE) of 50% or more. Estimates marked with * have an associated RSE of between 25% and 50%. These estimates should be used with caution.
2. The symbol '—' means nil or rounded to zero (including null cells).

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Table 3.6: People aged 65 and over: prevalence of health conditions (based on all conditions), by disability status, 1998

Health conditions	With a health condition		Health conditions	With a disability		Health conditions	With a severe or profound restriction	
	No. ('000)	Prev. rate ^(a) (%)		No. ('000)	Prev. rate ^(a) (%)		No. ('000)	Prev. rate ^(a) (%)
Arthritis	801.0	35.3	Arthritis	588.0	25.9	Arthritis	227.5	10.0
Hypertension	715.3	31.5	Total hearing disorders	561.5	24.8	Total hearing disorders	205.0	9.0
Total hearing disorders	663.9	29.3	Hypertension	395.8	17.4	Heart diseases	139.3	6.1
Heart diseases	390.8	17.2	Heart diseases	298.4	13.2	Hypertension	138.2	6.1
Back problems	311.1	13.7	Back problems	244.1	10.8	Total vision disorders	130.1	5.7
Total vision disorders	227.3	10.0	Total vision disorders	220.3	9.7	Stroke	107.5	4.7
Diabetes	200.2	8.8	Stroke	161.1	7.1	Dementia	93.4	4.1
Stroke	192.7	8.5	Hearing loss, noise-induced	160.6	7.1	Back problems	82.0	3.6
Hearing loss, noise-induced	191.4	8.4	Diabetes	132.7	5.9	Diabetes	65.1	2.9
Asthma	125.6	5.5	Dementia	96.3	4.2	Speech problems	62.7	2.8
Dementia	97.8	4.3	Asthma	92.1	4.1	Cataract	38.0	1.7
Speech problems	69.4	3.1	Speech problems	69.4	3.1	Hearing loss, noise-induced	32.0	1.4
Cancer	67.4	3.0	Cataract	64.5	2.8	Asthma	32.0	1.4
Cataract	66.3	2.9	Cancer	50.9	2.2	Depression	30.8	1.4
Depression	56.0	2.5	Osteoporosis	49.4	2.2	Osteoporosis	28.1	1.2
Osteoporosis	55.8	2.5	Depression	48.1	2.1	Glaucoma	25.9	1.1
Glaucoma	47.7	2.1	Glaucoma	45.2	2.0	Cancer	24.0	1.1
Parkinson's disease	26.6	1.2	Parkinson's disease	24.7	1.1	Parkinson's disease	21.7	1.0
Epilepsy	14.2	0.6	Epilepsy	13.5	0.6	Epilepsy	9.6	0.4
Migraine	*8.4	*0.4	Paralysis	*7.5	*0.3	Paralysis	*6.5	*0.3
Paralysis	*8.3	*0.4	Migraine	*6.3	*0.3	Schizophrenia	*5.3	*0.2
Schizophrenia	*5.7	*0.3	Schizophrenia	*5.6	*0.2	Migraine	**1.2	**0.1
Multiple sclerosis	**1.9	**0.1	Multiple sclerosis	**1.9	**0.1	Multiple sclerosis	**1.2	**0.1
Cerebral palsy	**0.6	—	Cerebral palsy	**0.6	—	Cerebral palsy	**0.6	—
ADHD	**0.1	—	ADHD	**0.1	—	ADHD	**0.1	—
Down syndrome	**0.1	—	Down syndrome	**0.1	—	Down syndrome	**0.1	—
Autism	—	—	Autism	**0.0	—	Autism	**0.0	—

(a) Percentage of the Australian population aged 65 or over. Each column is presented in rank order of prevalence.

Notes

1. Estimates marked with ** have an associated relative standard error (RSE) of 50% or more. Estimates marked with * have an associated RSE of between 25% and 50%. These estimates should be used with caution.
2. The symbol '—' means nil or rounded to zero (including null cells).

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Estimates of prevalence of specific impairments and limitations

As discussed in Chapter 2, the definition of disability in the ABS 1998 Disability Survey is based on a set of screening questions containing 17 items about impairments, limitations or

restrictions (Box 2.1). Positive responses to any of the 17 categories, where the impairment, limitation or restriction has lasted or is likely to last for six months or more, 'screen' the person into the base 'disability' population. Thus, the 17 screening items were used as criteria to create the base 'disability' population with multidimensional disability experiences.

This section presents estimated frequencies of impairment and limitation based on 15 of the 17 screening items, aiming to answer the question: which impairments or limitations are the most commonly associated with a disability, or with a severe disability? Data from two broad screening questions are excluded. The question relating to 'long-term effects as a result of head injury, stroke or other brain damage' is intended to identify persons who had multiple limitations and restrictions. This question, while an important element in the disability estimation of the survey, does not enable analysis of an associated specific condition. The question about 'any other condition, lasting or likely to last for six months or more, not already mentioned' is non-specific.

Table 3.7 and Figure 3.5 rank the estimated numbers of various types of impairments among people with a disability and also those with a severe or profound core activity restriction. The differences in the estimates between people aged under 65 and those aged 65 or over are compared (Figure 3.6).

For people of all ages:

- The most commonly reported impairments or limitations were 'restriction in physical activities or in doing physical work' and 'chronic or recurrent pain or discomfort'; more than 1.5 million people reported each of these two categories of impairments and limitations respectively.
- These two categories also headed the list for people of all ages with a severe or profound core activity restriction, with 744,900 people reporting restriction in physical activities or in doing physical work and 568,500 reporting chronic or recurrent pain or discomfort.
- For all people with a disability overall, 'receiving treatment or medication for long-term conditions or ailments and still restricted' was the third most frequently reported category (1.1 million). As a specific impairment, loss of hearing was reported by about 1 million people with a disability and ranked fourth.
- Among those with a severe or profound core activity restriction, 'incomplete use of feet or legs' (371,200) and 'difficulty gripping or holding things' (343,300) were the third and fourth most commonly reported categories.
- The impairments that were ranked at the bottom of the list were 'blackouts, fits, or loss of consciousness' and 'disfigurement or deformity'.

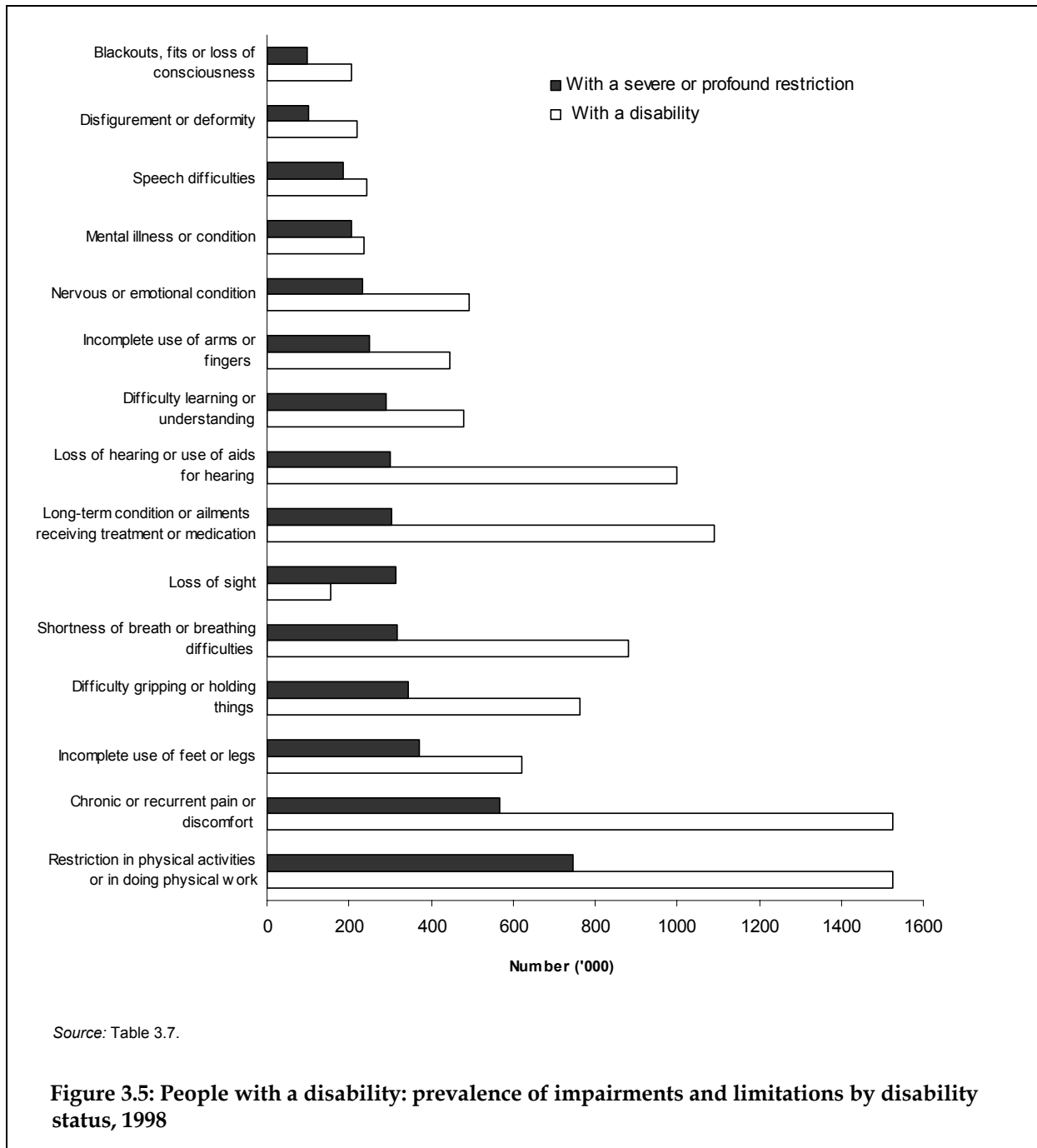
For people aged under 65:

- 'Chronic or recurrent pain or discomfort' led the list for people with a disability, followed by 'restriction in physical activities or in doing physical work'.
- The two categories were also on the top of the list for people with a severe or profound core activity restriction. 'Difficulty learning or understanding things' was the third top category for those under 65, as compared to 'incomplete use of feet or legs' for those aged 65 or over (Figure 3.6).

For people aged 65 or over:

- 'Restriction in physical activities or in doing physical work' and 'receiving treatment or medication for long-term conditions or ailments and still restricted' were the top two impairments and limitations for people with a disability.

- 'Incomplete use of feet or legs' was the third top category for people with a severe or profound core activity restriction (Figure 3.6).



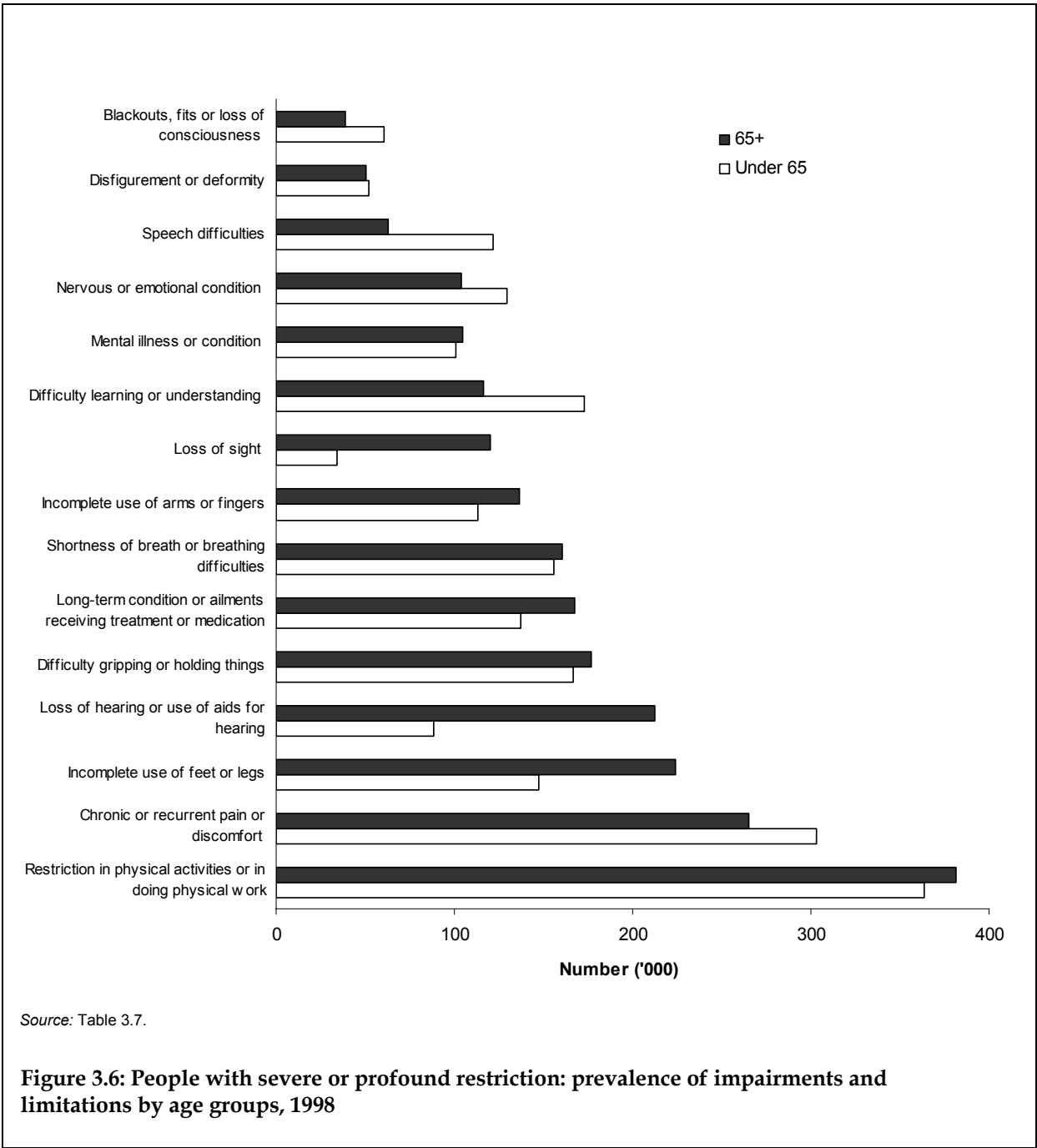


Table 3.7: People with a disability: frequency of impairments and limitations, by age, 1998

	Severe or profound restriction						Disability					
	0-64	Rank	65+	Rank	Total	Rank	0-64	Rank	65+	Rank	Total	Rank
	('000)		('000)		('000)		('000)		('000)		('000)	
Restriction in physical activities or in doing physical work	363.7	1	381.3	1	744.9	1	895.7	2	629.1	1	1,524.8	1
Chronic or recurrent pain or discomfort	303.4	2	265.1	2	568.5	2	966.5	1	557.8	4	1,524.2	2
Incomplete use of feet or legs	147.2	6	223.9	3	371.2	3	289.5	9	332.4	6	621.9	7
Difficulty gripping or holding things	166.3	4	177.0	5	343.3	4	436.4	5	327.3	7	763.6	6
Shortness of breath or breathing difficulties	156.1	5	160.2	7	316.3	5	497.9	4	384.4	5	882.3	5
Long-term conditions or ailments receiving treatment or medication	137.2	7	167.5	6	304.8	6	520.0	3	571.3	2	1,091.3	3
Loss of hearing where communication is restricted, or use of aids for hearing	88.6	12	212.4	4	301.0	7	433.3	6	567.4	3	1,000.7	4
Difficulty learning or understanding things	172.8	3	116.3	10	289.1	8	355.7	7	124.5	11	480.2	9
Incomplete use of arms or fingers	113.4	10	136.7	8	250.1	9	245.7	10	200.7	8	446.3	10
Nervous or emotional condition causing restriction	129.1	8	103.8	12	232.9	10	331.9	8	160.7	10	492.7	8
Mental illness or condition requiring help or supervision	101.2	11	104.9	11	206.0	11	128.4	14	106.7	12	235.2	13
Speech difficulties	121.5	9	62.6	13	184.1	12	173.4	11	68.1	14	241.6	12
Loss of sight (not corrected by glasses or contact lenses)	34.0	15	120.5	9	154.5	13	115.2	15	198.6	9	313.8	11
Disfigurement or deformity	51.6	14	50.5	14	102.2	14	147.0	12	73.0	13	220.0	14
Blackouts, fits or loss of consciousness	60.1	13	38.5	15	98.6	15	146.3	13	58.8	15	205.2	15

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

Main conditions associated with a specific impairment or limitation

In the 1998 Disability Survey, a positive response to each screening question led to a further question to identify the underlying health condition. For example, if a respondent said 'yes' to the questions on speech difficulties, the further question was: 'What is the main condition that causes this speech difficulty?' Survey respondents could report one or more types of impairment or limitations and thus one or more associated main conditions.

It should be emphasised that disability associated with a particular health condition can vary considerably among individuals, and that the associations between health conditions and impairments/limitations are complex. A health condition may be associated with a variety of impairments/limitations and an impairment/limitation may be related to any of the various health conditions. The main condition reported by respondents in the survey may not be sufficient to explain the associated impairment/limitation.

Bearing these issues in mind, the data in Table 3.8, which detail the reported main conditions for each of the related impairments or limitations, was examined.

People with the most commonly reported limitation – 'restriction in physical activities or in doing physical work' – nominated almost all the selected conditions as the main condition, with the exception of vision, hearing and speech disorders (Figure 3.7a). Musculoskeletal disorders, especially back problems (368,400) and arthritis (263,700) were the most frequently reported main conditions, followed by heart disease (102,300), stroke (57,000), asthma (40,800) and dementia (37,000).

The second most frequently reported impairment – 'chronic or recurrent pain or discomfort' – was most often associated with back problems (491,000) and arthritis (448,700), followed by heart disease (43,200) and migraine (28,600) as the 'main condition' (Figure 3.7b).

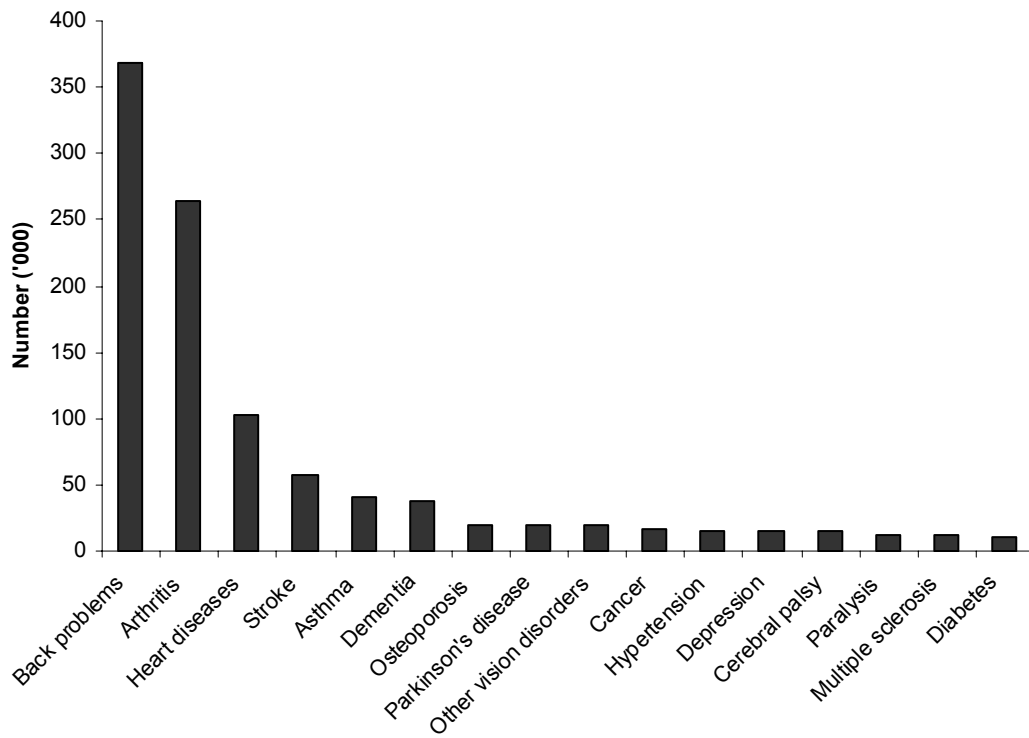
The main conditions most often associated with 'mental illness or condition requiring help or supervision' were dementia (66,900), depression (25,200), schizophrenia (16,900) and ADHD (12,900). 'Nervous or emotional condition causing restrictions' was largely associated with depression (151,300), schizophrenia (20,700) and dementia (16,200). Difficulty learning and understanding things were mostly related to dementia (72,200), ADHD (47,700), stroke (18,300), hearing (12,600) and autism (10,900) (Figure 3.7c).

Loss of sight was primarily related to vision-related diseases and conditions (128,900), cataract (74,800) and glaucoma (36,400), while diabetes (15,200) was also a significant related condition (Figure 3.7d). Loss of hearing was predominately related to hearing conditions, in particular hearing loss due to regular exposure to loud noise (329,600). Speech difficulties were mainly associated with speech impediment (67,200), stroke (29,800), dementia (20,000) and hearing (11,300) (Figure 3.7d).

'Disfigurement or deformity' was largely associated with arthritis (20,100) and back problems (16,500) (Figure 3.7b). Epilepsy (76,600) and diabetes (9,400) were the main conditions associated with blackouts, fits or loss of consciousness.

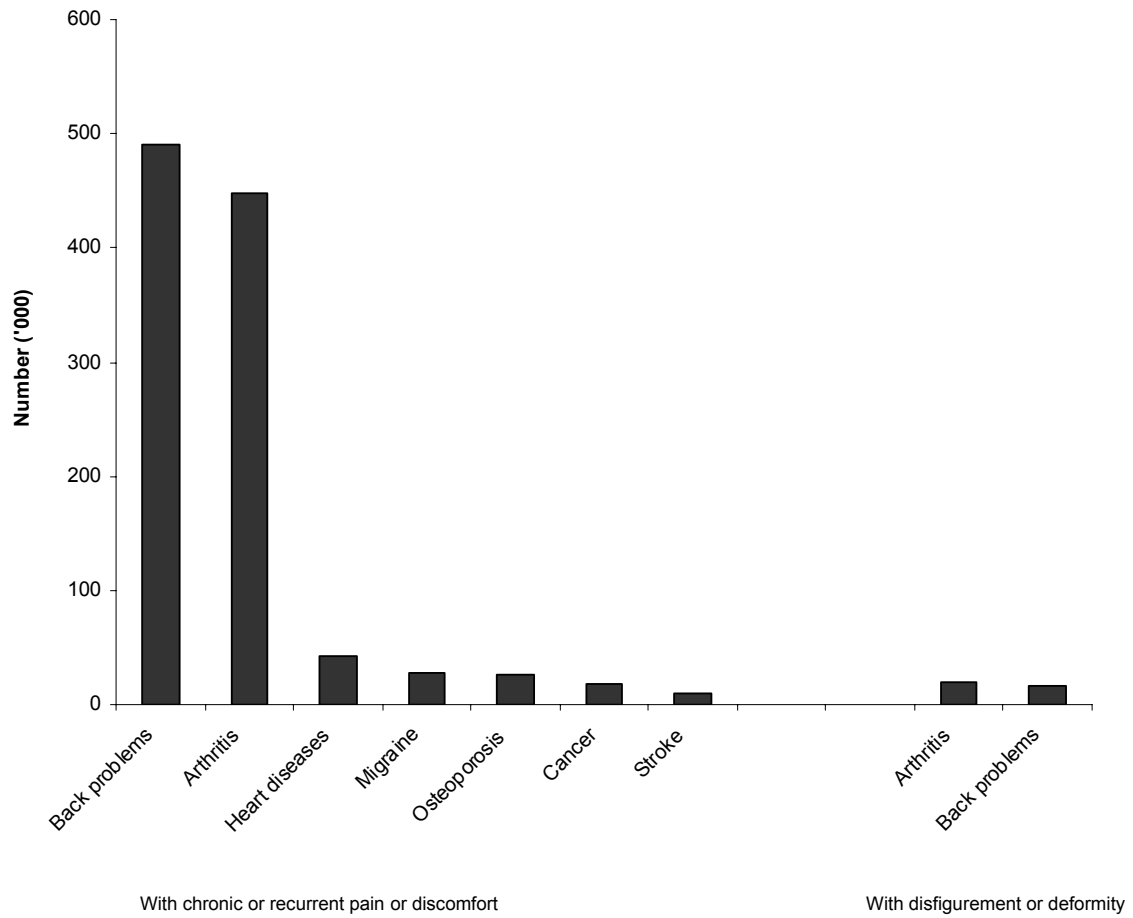
Many conditions were associated with incomplete use of feet, legs, arms or fingers, including arthritis, stroke, back problems, paralysis, cerebral palsy and Parkinson's disease. Dementia was also a main condition causing incomplete use of feet or legs.

A wide range of conditions were reported as the main conditions associated with receiving treatment or medication and still restricted, in particular hypertension (282,000) and heart diseases (106,200). Other conditions included diabetes, arthritis, cancer, asthma, migraine, osteoporosis and glaucoma.



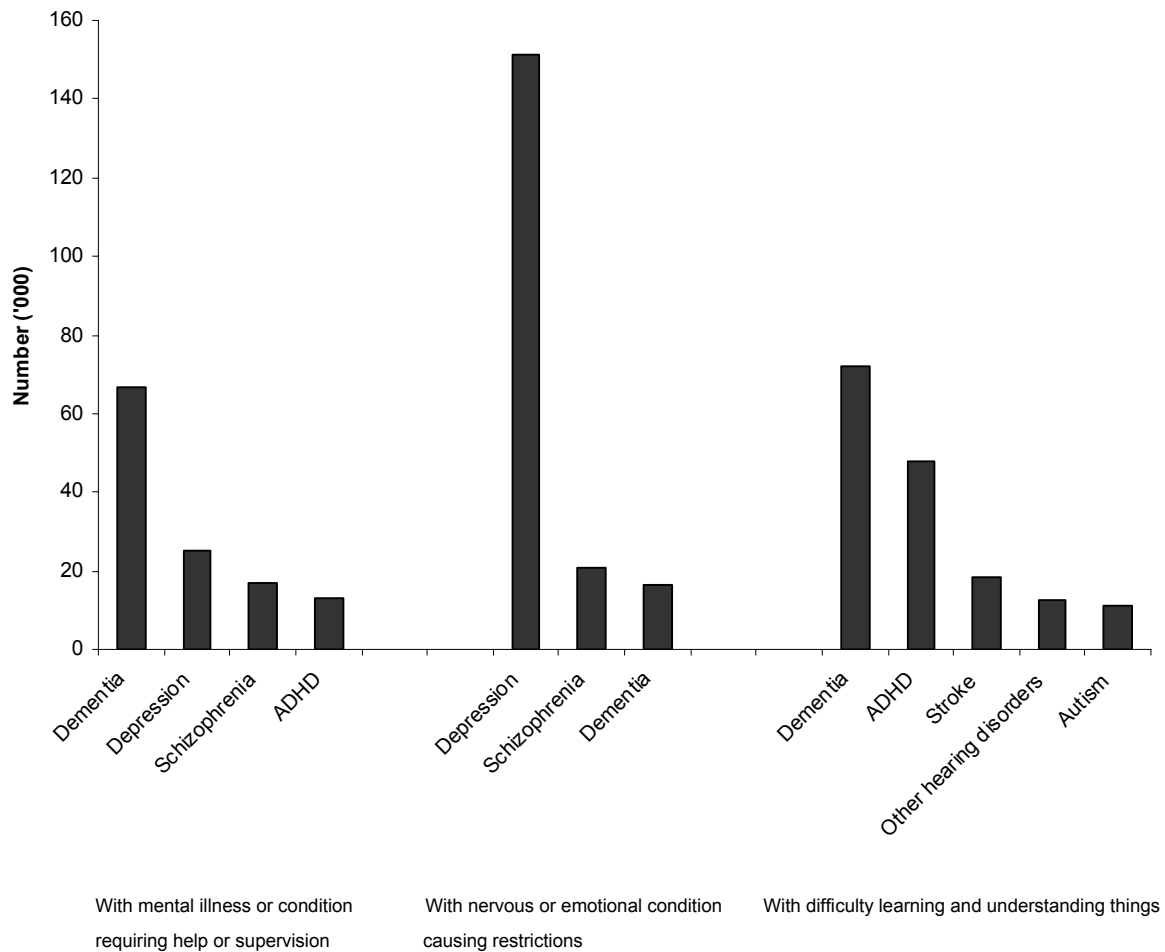
Source: Table 3.8.

Figure 3.7a: People with a disability: prevalence of the most common main conditions associated with restriction in physical activities or in doing physical work



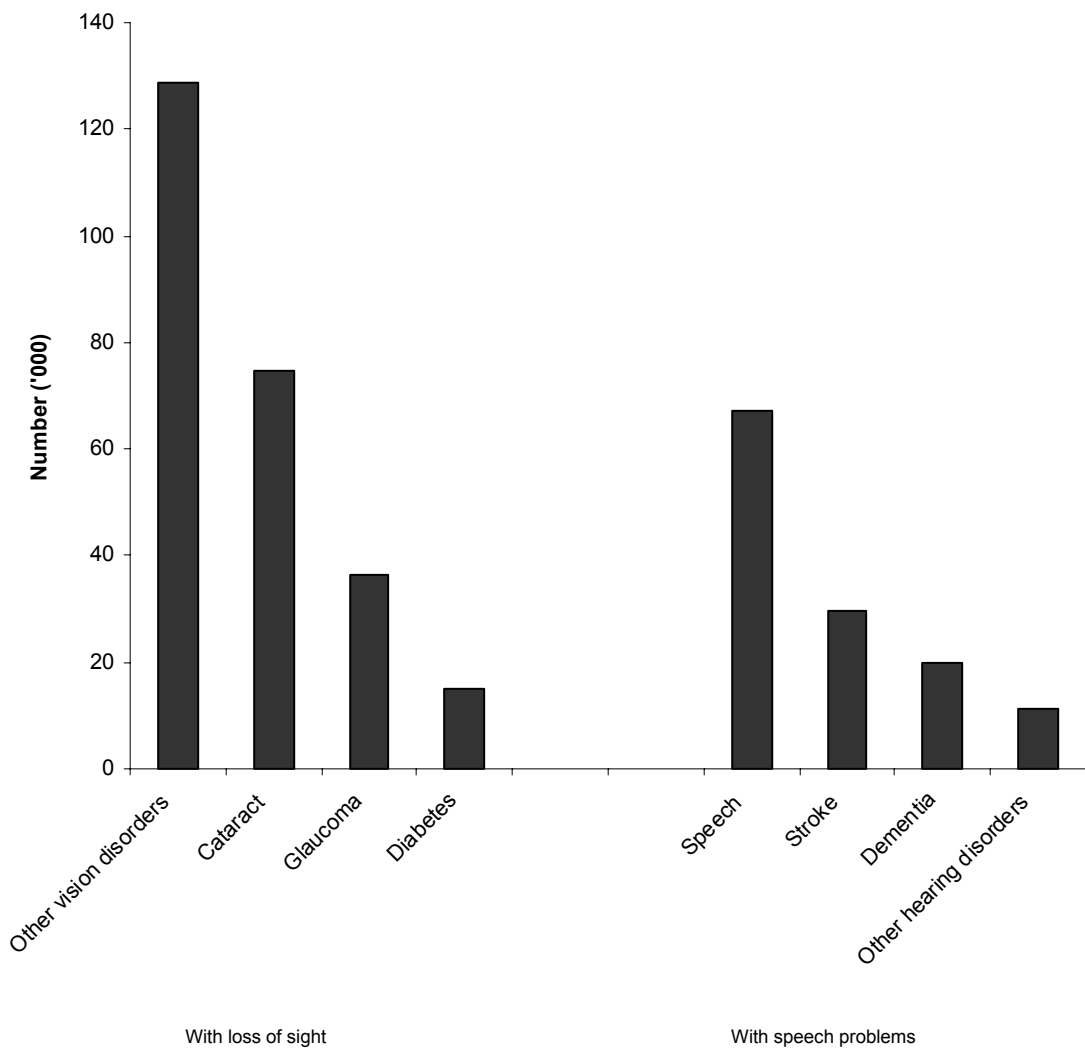
Source: Table 3.8.

Figure 3.7b: People with a disability: prevalence of the most common main conditions associated with chronic or recurrent pain or discomfort and with disfigurement or deformity, respectively, 1998



Source: Table 3.8.

Figure 3.7c: People with a disability: prevalence of the most common main conditions associated with mental illness or condition requiring help or supervision, with nervous or emotional condition causing restrictions and with difficulty learning and understanding things, respectively, 1998



Source: Table 3.8.

Figure 3.7d: People with a disability: prevalence of the most common main conditions associated with loss of sight and with speech problems, respectively, 1998

Table 3.8: People with a disability: main conditions associated with a specific impairment or limitation ('000), 1998

Health conditions	Loss of sight ^(a)	Loss of hearing ^(b)	Speech difficulties	Shortness of breath or breathing difficulties	Chronic or recurrent pain or discomfort	Blackouts, fits or loss of consciousness	Difficulty learning or understanding things
ADHD	**0.6	—	*2.8	—	—	—	47.7
Autism	—	—	*7.4	—	—	**0.4	10.9
Down syndrome	—	**0.1	**2.3	—	—	—	*7.8
Schizophrenia	—	—	**0.7	—	**0.1	—	*8.2
Depression	**0.4	—	**0.3	**0.8	**1.9	—	*4.6
Dementia	**0.7	*2.8	20.0	**0.2	**0.5	**0.4	72.2
Cataract	74.8	—	—	—	—	—	—
Glaucoma	36.4	**0.1	—	—	—	—	**0.1
Other vision disorders	128.9	**0.3	**0.2	**0.6	**2.1	—	**1.7
Hearing loss noise-induced	—	329.6	—	—	—	—	**0.6
Other hearing disorders	**0.8	637.8	11.3	—	**2.2	**1.5	12.6
Speech impediment	—	—	67.2	**0.6	**0.1	—	**0.3
Heart diseases	—	**0.1	**0.6	142.6	43.2	*7.4	**0.2
Stroke	*8.5	*5.4	29.8	*4.1	10.5	*3.8	18.3
Hypertension	**0.4	**0.1	—	22.4	**2.1	*6.9	—
Asthma	—	—	**0.1	358.3	*3.1	**1.4	—
Arthritis	**0.5	**0.5	**0.2	*2.5	448.7	**0.6	—
Back problems	**0.3	—	**0.5	*3.7	491.0	*1.5	**1.1
Osteoporosis	—	**0.2	—	—	26.1	—	—
Parkinson's disease	**0.1	**0.2	*6.7	**0.7	*4.6	**0.2	*2.9
Multiple sclerosis	**2.5	**0.3	*3.6	**1.0	*5.6	—	**1.5
Epilepsy	—	—	*1.0	—	**0.3	76.6	*6.0
Migraine	—	—	—	—	28.6	*3.2	—
Cerebral palsy	—	**0.1	*8.7	**0.5	*3.8	*3.1	*5.3
Paralysis	**0.6	**0.4	**0.7	**0.4	*4.9	**0.7	**0.1
Diabetes	15.2	**0.4	—	*2.9	*5.4	9.4	**0.1
Cancer	*0.4	—	**1.4	9.6	17.3	**1.9	*2.1

(continued)

Table 3.8 (continued): People with a disability: main conditions associated with a specific impairment or limitation ('000), 1998

Impairments	Incomplete use of arms or fingers	Difficulty gripping or holding things	Incomplete use of feet or legs	Nervous or emotional condition causing restriction	Restriction in physical activities or in doing physical work	Disfigurement or deformity	Mental illness or condition requiring help or supervision	Long-term condition or ailments receiving treatment or medication
ADHD	**0.5	**1.2	—	*5.3	**0.9	—	12.9	*2.3
Autism	—	**0.7	—	*3.4	*2.7	—	*7.9	—
Down syndrome	**0.1	**0.1	**0.1	—	*2.8	**0.4	*5.9	—
Schizophrenia	**0.1	**0.1	**0.1	20.7	*6.7	—	16.9	**1.1
Depression	—	**0.1	—	151.3	14.5	—	25.2	*8.9
Dementia	*6.6	*8.5	11.2	16.2	37.0	**1.2	66.9	**0.8
Cataract	—	—	—	—	—	—	—	**0.9
Glaucoma	—	—	—	—	**1.6	—	—	9.3
Other vision disorders	—	**0.2	**0.1	—	19.1	*3.0	**0.2	*4.1
Hearing loss noise-induced	—	—	—	—	—	**0.1	—	**0.7
Other hearing disorders	—	**0.4	**1.0	**0.7	*4.5	—	**0.6	*6.5
Speech impediment	—	—	**0.6	—	—	—	—	—
Heart diseases	**1.0	**1.1	*5.7	**0.1	102.3	—	**0.3	106.2
Stroke	45.1	51.7	49.2	**2.1	57.0	*7.6	*6.2	**2.0
Hypertension	—	—	—	**0.3	15.4	—	—	282.0
Asthma	—	—	—	—	40.8	—	—	25.9
Arthritis	117.7	324.8	167.0	**0.1	263.7	20.1	**0.5	82.8
Back problems	15.7	26.6	46.6	**0.3	368.4	16.5	**1.7	46.1
Osteoporosis	*3.9	*3.6	*8.5	—	19.9	**2.0	**0.1	9.5
Parkinson's disease	10.4	14.1	13.5	**2.5	19.8	**0.8	**1.5	*1.0
Multiple sclerosis	*7.5	10.2	9.2	**1.4	11.4	**0.4	**0.2	—
Epilepsy	**0.1	**1.0	**0.1	**1.2	*5.0	—	**0.9	9.5
Migraine	—	—	—	—	*2.8	—	**0.6	12.4
Cerebral palsy	12.4	12.4	13.1	**0.2	14.5	*5.5	*3.5	**0.2
Paralysis	10.5	9.9	12.6	**0.7	12.6	**2.2	**0.3	—
Diabetes	**0.7	**2.5	*6.3	—	10.3	**0.2	**0.1	97.0
Cancer	**1.7	**2.4	**1.9	—	16.2	*5.2	**0.7	27.2

Notes

1. Estimates marked with ** have an associated relative standard error (RSE) of 50% or more. Estimates marked with * have an associated RSE of between 25% and 50%. These estimates should be used with caution.

2. The symbol '—' means nil or rounded to zero (including null cells).

Source: AIHW analysis of ABS 1998 Survey of Disability, Ageing and Carers confidentialised unit record file.

3.4 Trends in the prevalence of disability and long-term conditions

This section provides a brief overview of recent trends in the prevalence of disability and long-term health conditions and possible explanations for those trends. Exploring the changes in the prevalence and pattern of long-term health conditions can shed light on changes in reported disability prevalence.

Recent trends in the prevalence of long-term conditions

Reported changes by the ABS National Health Surveys

Overall, in Australia the proportion of people reporting one or more 'long-term health conditions' increased from 66% in 1989–90 to 78% in 2001 (ABS 1991, 2002). Table 3.9 presents estimates and standardised rates for selected long-term health conditions reported by the ABS National Health Surveys of 1989–90, 1995 and 2001. The comparisons of the data from the three surveys, where they are comparable, suggest that the reported prevalence of most selected conditions increased in the 1990s and the magnitude of the increases was particularly large for mental conditions. Estimates of several of the selected conditions were higher in 1995 than those in 2001 for some conditions.

These trends in the prevalence of long-term health conditions reported by the National Health Surveys are likely to have resulted from a combination of various factors. Several specific factors should be particularly emphasised (ABS 2003a):

- First, there have been some changes in survey methods over time, especially in the wording of survey questions or associated inclusions, exclusions and prompt cards for specific conditions, which may influence the level of response and thus the estimates of prevalence.
- Second, in the 1995 National Health Survey, after the questions about long-term conditions, respondents were asked about recent actions they had taken for their health and the medical conditions involved. This provided an opportunity for respondents to be reminded about a condition which they had, but had forgotten to previously mention (in which case earlier responses were amended). In contrast, in the 2001 National Health Survey respondents were asked about recent actions taken for illness but were not asked to associate those actions with a specific condition, with the exception of the conditions covered by the National Health Priority Areas. This difference may have resulted in the higher prevalence estimates for some conditions in 1995, while other changes introduced in 2001 may have compensated for this effect for some conditions.
- Third, the significant increases in reported mental disorders may have been affected by heightened awareness and increased acceptance of mental health conditions through public education programs, media campaigns, and improved diagnosis and treatment of those conditions. The Kessler 10 instrument⁵ for measuring psychological distress was

⁵ Kessler Psychological Distress Scale–10 items (K10) is a scale of non-specific psychological distress based on 10 questions about negative emotional states in the preference period (4 weeks) prior to interview. The K10 is generally scored from 10 to 50, with higher scores indicating higher levels of distress; low scores indicate a low level of distress (ABS 2003b)

also asked of all respondents aged 18 years and over in the 2001 survey. This may have also had some influence on the reported prevalence of mental disorders in 2001.

There are other possible factors affecting recent trends in the reported prevalence of long-term health conditions which are not unique in the National Health Surveys. Increasing accessibility and use of health services could play a role in increased reporting of disease presence. Population cohorts who use more health care services are likely to be more knowledgeable about disease (Crimmins & Saito 2000).

Decline in mortality from some major diseases, such as heart disease, stroke and vascular diseases and cancer, has resulted in an increase in the prevalence of those diseases (AIHW 2001a; AIHW: Dunn et al. 2002; Crimmins & Saito 2000).

Table 3.9: Estimates of selected long-term health conditions reported in the ABS 1989-90, 1995 and 2001 national health surveys

Health conditions	Estimated numbers ('000)			Standardised rate (%) ^(a)		
	1989-90	1995	2001	1989-90	1995	2001
Depression	^(c) 46.8	^(c) 147.0	^(c) 839.2	^(c) 0.3	^(c) 0.8	^(c) 4.4
Nervousness/anxiety disorders	^(c) 161.5	^(c) 137.6	^(c) 858.1	^(c) 1.0	^(c) 0.8	^(c) 4.5
Total mental disorders	^(c) 370.7	^(c) 723.3	^(c) 1,775.0	^(c) 2.3	^(c) 4.1	^(c) 9.4
Glaucoma	n.a.	134.2	177.5	n.a.	0.8	0.9
Blindness (complete/partial)	^(b) 124.7	^(b) 185.0	167.2	^(b) 0.8	^(b) 1.1	0.9
Deafness (complete/partial)	^(c) 685.8	^(c) 1,718.5	2,056.1	4.4	10.0	10.9
Hypertension	^(b) 1,210.2	^(b) 1,839.2	^(b) 1,909.1	^(b) 7.9	^(b) 10.7	^(b) 10.1
Heart disease	^(b) 317.4	^(c) 449.5	^(c) 707.7	^(b) 2.1	^(c) 2.6	^(c) 3.8
Stroke	^(c) 28.3	^(b) 103.2	^(b) 103.1	^(c) 0.2	^(b) 0.6	^(b) 0.6
Total circulatory disease	^(c) 2,225.2	^(c) 3,615.0	^(c) 3,184.7	^(c) 14.3	^(c) 20.9	^(c) 16.9
Asthma	^(b) 1,364.8	^(b) 2,002.6	^(b) 2,197.3	^(b) 7.8	^(b) 11.0	^(b) 11.6
Arthritis	^(b) 1,803.4	^(b) 2,633.3	^(b) 2,585.0	^(b) 11.7	^(b) 15.4	^(b) 13.7
Osteoporosis	n.a.	^(c) 247.7	^(b) 299.8	n.a.	^(c) 1.5	^(b) 1.6
Back pain/problems	^(c) 1,895.1	^(c) 902.0	^(c) 3,876.2	^(c) 11.6	^(c) 5.1	^(c) 20.5
Epilepsy	^(b) 79.9	^(b) 117.6	120.3	0.5	0.7	0.6
Migraine	^(c) 578.2	^(c) 226.9	^(c) 1,172.2	^(c) 3.4	^(c) 1.3	^(c) 6.2
Diabetes	^(b) 193.7	^(b) 352.5	^(b) 554.2	^(b) 1.2	^(b) 2.1	^(b) 2.9
High cholesterol	^(c) 383.3	^(c) 881.8	^(c) 1,131.6	^(c) 2.5	^(c) 5.2	^(c) 6.0
Cancer	^(b) 274.2	^(b) 321.1	^(b) 310.4	^(b) 1.8	^(b) 1.9	^(b) 1.6

(a) Age standardised to 2001 National Health Survey benchmark population.

(b) Difficulty to quantify the impact of questionnaire changes between the surveys. Caution should be exercised in comparisons.

(c) Significant inter-survey differences in questionnaire or unexplainable major change in prevalence and not reliable for comparisons.

n.a.= not available.

Source: ABS 2003a.

Reported changes by the ABS disability surveys

A comparison of data from the four ABS disability surveys shows that the overall prevalence of most disabling conditions increased during the period 1981-98 (Table 3.10). There were noticeable increases in the reported prevalence rates of ear diseases, circulatory diseases and

musculoskeletal conditions, and marked increases in intellectual and psychiatric conditions over the period 1993–98. The significant increase in intellectual and psychiatric disabling conditions in the late 1990s was consistent with the patterns of long-term conditions associated with mental disorders reported in the National Health Surveys.⁶

Changes in the prevalence of various diseases and long-term conditions are not consistent and trends in the prevalence of diseases and long-term conditions vary by age, sex and types of disease. However, weighing up various possible factors affecting the reported prevalence, the bulk of evidence appears to indicate an increase in the presence of long-term conditions among the Australian populations, in particular the older population.

Reported changes in some OECD countries

The reported trends in the prevalence of long-term health conditions in Australia are not unique. In the United States, the reported prevalence of some diseases increased in recent years, with the largest increases being in the proportion of people with heart disease and cancer. Increases were also reported in some chronic conditions such as arthritis, osteoporosis and visual conditions. There has also been a decrease in the number of older Americans with no disease and an increase in the proportion of people with multiple conditions (Crimmins & Saito 2000; Freedman & Martin 2000). In France, the reported prevalence rates increased between 1981 and 1991 in almost all the main groups of chronic diseases among older people, in particular the most frequent diseases – cardiovascular and osteoarticular diseases. The proportion of older people with at least one chronic disease also increased, in particular among those aged 70 or over (Robine et al. 1998).

⁶ Intellectual conditions were grouped into mental and behavioural disorders in the 2001 National Health Survey data. 'Difficulty learning and understanding' was listed as one of the 21 conditions in the prompt card for the question about 'any other conditions that have lasted, or are expected to last, for six months or more'.

Table 3.10: People with a disability: prevalence rates (%) of all reported disabling conditions by type of condition, by age groups, 1981, 1988, 1993 and 1998

Year/age	Psychiatric	Intellectual	Diseases of eye	Diseases of ear	Nervous system diseases	Circulatory diseases	Respiratory diseases	Musculoskeletal disorders	All other diseases and conditions
1981									
0-14	0.4	1.1	0.4	1.1	0.8	0.2	0.8	0.5	1.2
15-64	2.3	0.5	0.8	2.9	1.1	1.9	1.0	4.2	2.6
65+	6.0	1.3	8.1	16.2	3.5	13.7	3.1	16.7	10.6
1988									
0-14	0.4	1.2	0.3	1.0	0.9	0.1	1.7	0.4	1.7
15-64	1.8	0.6	0.7	2.9	1.2	1.8	1.2	4.9	3.6
65+	6.3	2.3	8.7	19.6	4.1	16.0	4.1	20.2	17.8
1993									
0-14	0.4	1.7	0.3	1.0	0.7	0.1	2.1	0.3	2.5
15-64	2.2	0.8	0.8	4.0	1.3	2.4	1.9	5.5	5.6
65+	5.9	1.4	8.9	23.3	4.5	24.9	6.7	28.6	26.6
1998									
0-14	0.3	3.6	0.2	1.1	0.6	0.2	2.2	0.2	2.0
15-64	3.4	1.7	0.6	4.7	1.6	3.0	2.2	7.5	6.6
65+	10.5	2.5	8.5	28.9	4.1	30.5	8.1	31.0	29.7

Notes

1. Percentages have been standardised using the age and sex structures of the estimated resident population at March 1998. The estimates from the previous three surveys were adjusted to show the prevalence rates that would have been expected in the 1981, 1988 and 1993 populations, if those populations had the same age and sex structure as the 1998 population.
2. The 1993 and 1998 data were adjusted to the 1981 and 1988 definition of disability.

Sources: AIHW 2003b; AIHW analysis of ABS 1993 and 1998 Surveys of Disability, Ageing and Carers confidentialised unit record files; ABS 1981 Survey of Handicapped Persons unpublished data table; ABS 1988 Survey of Disabled and Aged Persons unpublished data table.

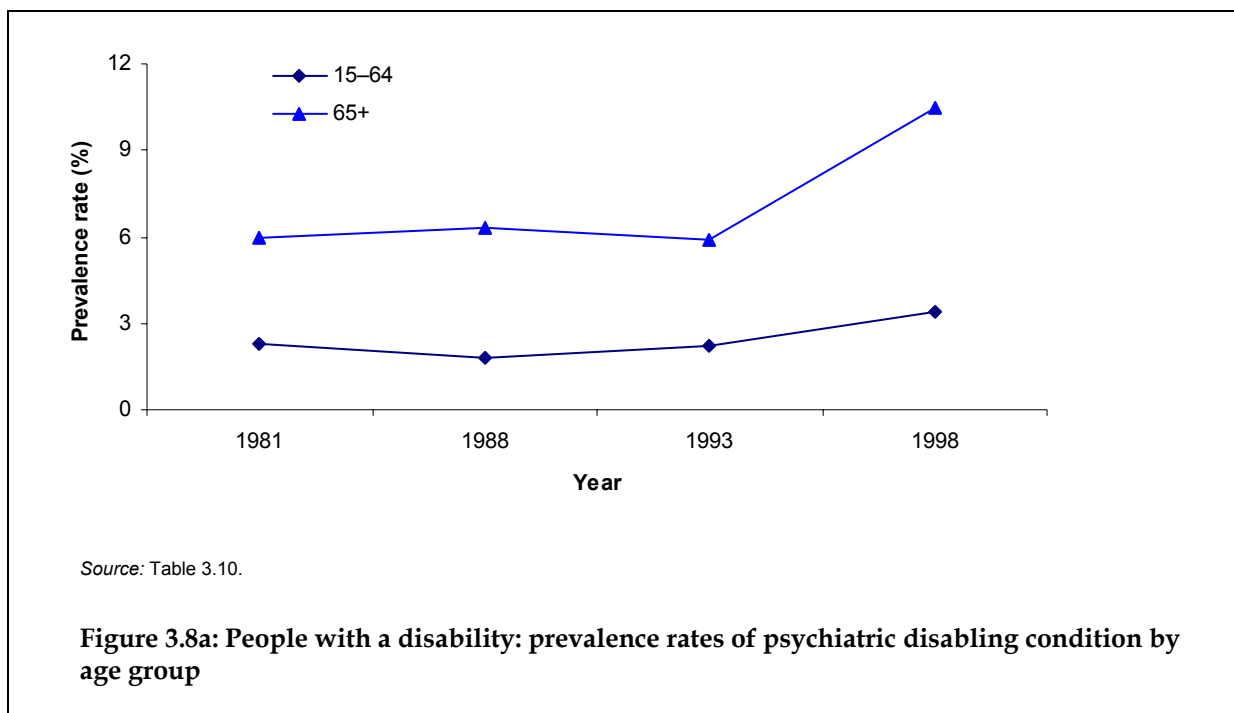
Recent trends in disability prevalence

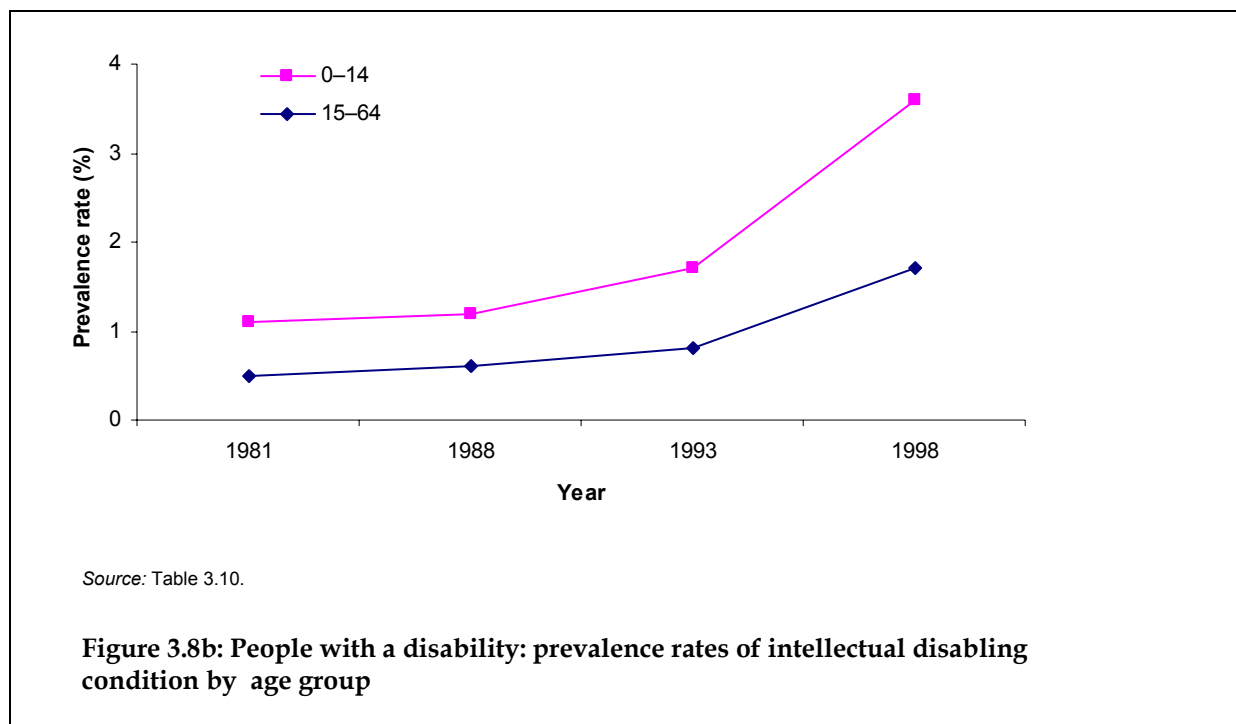
In Australia, there has been a consistent increase in the overall reported rate of disability for almost two decades. The age-standardised rate of disability increased from 15% in 1981 to 19% in 1998 (AIHW 2003b: Table 8.1).

The age-standardised rates of severe or profound restrictions were relatively stable during the 1980s and early 1990s, remaining at around 4% of the Australian population (AIHW: Wen et al. 1995). However, between 1993 and 1998 the rate increased from 4.3% to 5.5% (AIHW 2003b: Table 8.1). This marked increase was largely the result of changes in the 1998 survey methods, which brought more people with a disability into the scope of the survey (AIHW 2001b:267-9; ABS: Davis et al. 2001).

The comparisons of the age-specific prevalence rates of severe or profound core activity restrictions for each of the four ABS disability surveys indicate that the rates for 1998 were higher in most age groups than those for the previous surveys. The increases were particularly marked among children aged 5-14, the older working-age population, and people aged 75 and over (AIHW 2003b: Chapter 8).

There has been a substantial increase in the rates of severe or profound core activity restriction among children, in particular boys. Between 1993 and 1998, the rates for males aged 5-14 increased from 2.7% to 4.9%, more than twice the average increase for males aged 15-64 (AIHW 2003b: Table 8.1). Between 1993 and 1998, the main area of increase in the prevalence of disabling conditions among children of school age was intellectual disabling conditions (from 1.7% to 3.6%) (Table 3.10 and Figure 3.8b). Rises in the reported ADHD was a significant contributing factor to this increase.



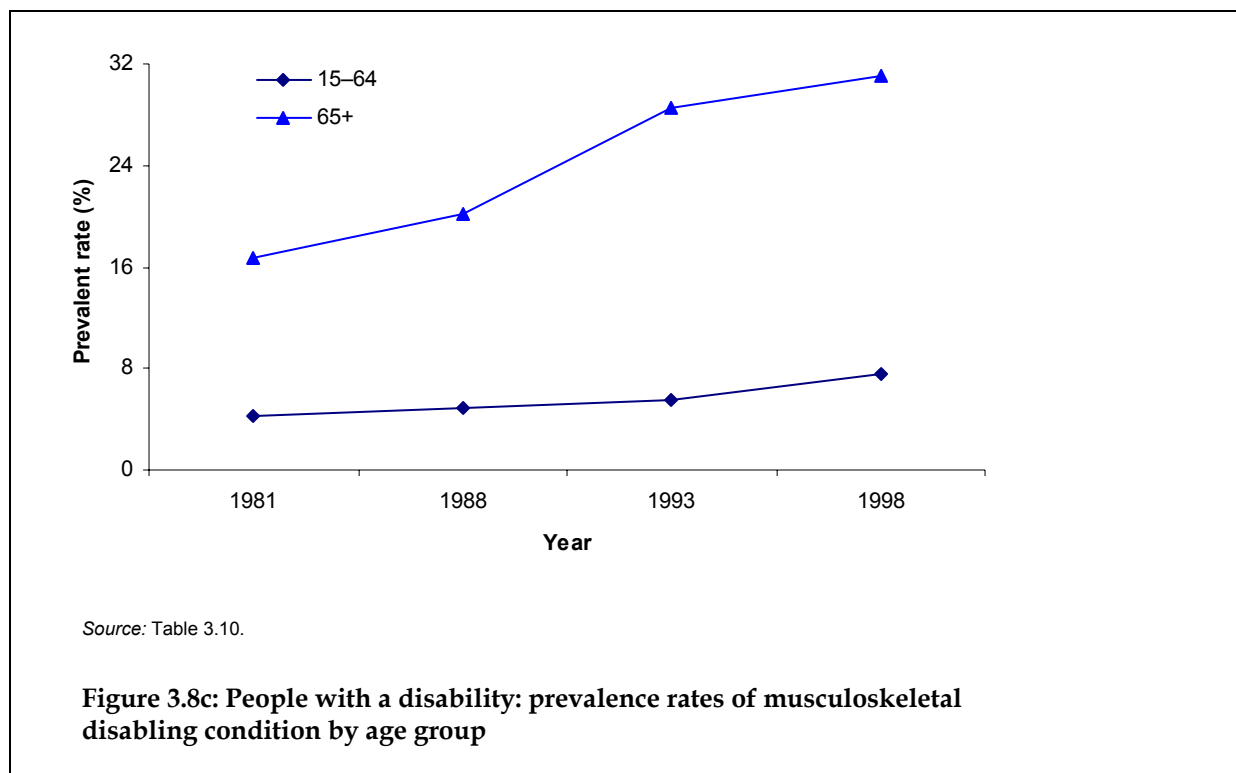


Both higher levels of diagnosis and heightened awareness among parents, educators and health professionals may have contributed to the increase in reporting ADHD. An increase in prescriptions for the most commonly prescribed drugs to treat ADHD may indicate an increase in the diagnosis of the disorder (AIHW 2001b; ABS: Davis et al. 2001).

The change of wording in the screening question from 'slow at learning or understanding' (1993 survey) to 'difficulty learning or understanding' (1998 survey) may have increased reporting of intellectual disability, in particular among males.

Among the working-age population (aged 15–64 years), the age-standardised rate of severe or profound restrictions increased from 2.4% in 1993 to 3.3% in 1998, while the rates had been relatively stable at about 2.2% to 2.4% between 1981 and 1993 (AIHW 2003b: Table 8.1). The increase in 1998 was particularly evident in the older working-age population, especially in the 55–59 age group. This was largely associated with the post-World War 2 baby-boomer population 'bulge'.

There had been a large increase between 1993 and 1998 in the prevalence rate of physical/diverse conditions, in particular musculoskeletal disorders. The age-standardised rate of musculoskeletal conditions for people aged 15–64 with a disability increased from 6% in 1993 to 8% in 1998 (Table 3.10 and Figure 3.8c). Musculoskeletal disorders other than arthritis, particularly back problems and some soft tissue disorders, were most commonly reported for males aged 45–64 and females aged 45–54. The new screening question about chronic pain in the 1998 survey could have contributed considerably to the increase in reporting of these conditions. In 1998 a much higher proportion of the population with these conditions was classified as having a severe restriction than in previous survey years (ABS: Davis et al. 2001).



The ageing of the older population has had a strong impact on disability prevalence among the older population. Compared with the 1981 disability survey, the three later surveys (1988, 1993 and 1998) reported substantially higher rates of disability for the older population. The disability rates for people aged 65 and over increased from 43% in 1981 to over 50% in the later surveys. The rate of severe or profound restrictions for people aged 65 and over increased markedly between 1993 and 1998, from 17.1% to 19.6% (AIHW 2003b).

It has been suggested that about half of the increase in the rate of severe or profound core activity restriction between 1993 and 1998 is due to changes in survey methods and the other half is attributable to population ageing and probably an actual increase in the prevalence among the oldest age groups of the population (ABS: Davis et al. 2001; AIHW 2003b). Changes in the 1998 survey screening question on learning and understanding may have increased the number of people reporting conditions associated with dementia. The separate identification of head injury, stroke and other brain damage may have led to increased reporting of stroke among the older population.

Differences in reported disability trends and implications for survey design

Recently reported declines in disability prevalence among the older population in some OECD countries such as the United States have been the subject of vigorous debate due to the great relevance to social and economic policies (e.g. Robine et al. 1998; Waidmann & Manton 1999; Waidmann & Liu 2000; Manton & Gu 2001; Schoeni et al. 2001). Different trends (increases or decreases) in disability prevalence have been reported among the OECD countries (Jacobzone et al. 2000). A decline in reported disability prevalence occurred at the same time as an increase in the reported prevalence of chronic conditions in some OECD

countries. Increases in chronic conditions were also reported in countries where no decline in disability overall was reported, such as Australia.

A number of issues are crucial for understanding trends in disability prevalence:

- Why has a decline in reported disability prevalence occurred at the same time as an increase in the reported prevalence of chronic diseases in some developed countries?
- Why have different trends (increases and decreases) in disability prevalence been reported among the OECD countries?
- While the cross-national comparison of level of disability prevalence is limited by the differences in survey design and methods, can trends in disability within each country be compared internationally on the basis of the existing survey data?

Variations in survey measures and their effect on disability prevalence are important in identifying the causes affecting the reported disability trends in different countries. A comparison of the United States and Australian surveys indicates that the differences in reported disability trends between the two countries may be affected by whether the presence of any chronic conditions restricting everyday activity are included as part of the survey definition of disability (AIHW 2003b; Wen 2004). Focusing on long-term and severe disability may increase the comparability of disability estimates from different countries, including estimates from time-series data.