Te Rau Hinengaro: The New Zealand Mental Health Survey

Chapter 6: Disability

Kate M Scott

6 Disability

Key results

- Three percent of the population reported days completely out of role due to mental health problems in the past month, with at least 7.8%–8.2% reporting partial role impairment due to mental health problems.

- Mood disorders are associated with more role impairment than anxiety or substance use disorders.

- Experiencing multiple mental disorders at the same time greatly impairs role functioning.

- Mental disorders and chronic physical disorders are generally associated with similar degrees of disability.

- The combination of mental and physical disorders is more disabling than either disorder alone.

6.1 Introduction

6.1.1 Background

The disability associated with the common mental disorders has not always been widely appreciated. Understanding of the substantial impact of mental disorders such as depression increased over the last decade or so with the emergence of findings from key primary care studies in the United States (Wells et al 1989d) and Europe (Ormel et al 1994), and from general population data available at that time (Broadhead et al 1990; Ormel et al 1998). But it was the publication of the Global Burden of Disease study (Murray and Lopez 1996a) which really attracted attention to the disability burden associated with mental disorders.

The Global Burden of Disease study calculated the number of years of healthy life lost due to premature death and the number of years lived with disability for a wide range of physical conditions, diseases and mental disorders. These were integrated into a single measure termed 'disability adjusted life years' (DALYs). The study showed that psychiatric conditions collectively constituted more than 10% of the worldwide sum of DALYs. Ranking of individual conditions in terms of years lived with disability placed unipolar major depression as the lead cause of disability worldwide, with mental disorders and alcohol use making up five of the 10 leading causes of disability.

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Although the extent to which mental disorders contributed to the worldwide burden of disease came as a surprise to many, it is a function of known characteristics of mental disorders: their widespread prevalence in the population, their relatively early onset and their chronicity.

The Global Burden of Disease estimates are based on limited empirical data from a small number of countries. It is one of the goals of the World Mental Health (WMH) Survey Initiative, of which this survey is a part (see 1.7.5), to provide more comprehensive information on the cross-national prevalence of mental disorders and the disability associated with them. Therefore, disability has been measured in more than one way in the WMH surveys.

Two approaches to measuring disability have been used. One of these was to ask respondents about the disruption in functioning they experience in relation to particular disorders. The results from these disorder-specific 'interference with life' questions are presented in chapter 3.

The second approach to measuring disability was to use a 'generic' measure; that is, a measure that is not specific to a particular disorder. The WMH Survey Initiative version of the World Health Organization (WHO) Disability Schedule (WMH WHO-DAS) was developed from a preliminary version of WHO-DAS II (Rehm et al 1999) for use in the WMH surveys. The results from this measure (which is described in 6.1.2), are presented in this chapter. The WMH WHO-DAS questionnaire asked people about their role functioning and health-related disability generally. This provides an estimate of disability for the individual, so it can provide a picture of the disability experienced by those with more than one disorder.

6.1.2   Disability measure: WMH WHO-DAS

The results presented in this chapter are from a multidimensional measure of disability: the WMH WHO-DAS. The WMH WHO-DAS was administered as a generic section asking about disability in the past 30 days. Everyone allocated to the long form of the interview was administered the WMH WHO-DAS, which meant people with psychiatric problems and some people without such problems responded (see 12.4.2).

The measurement and definition of disability have been controversial. The 'medical model' of disability views disability as a problem within the individual, caused by disease or injury. The 'social model', by contrast, views it as a social construction, caused by an unaccommodating social environment (Bickenbach et al 1999).

One important feature of the WHO-DAS-II and the WMH variant is that they are based on a conceptual model of disability that attempts to synthesise these opposing approaches: the World Health Organization's 2001 International Classification of Functioning, Disability and Health (ICF). This framework classifies impairments and their impact on individual capacities (activities) and performance (participation). It takes into account the contextual factors, both personal and environmental, that affect how an individual experiences disability. In keeping with this approach, the WMH WHO-DAS profiles functioning across six domains:

- understanding and communicating
- getting around
- self-care
- getting along with others
- household and work activities (role impairment)
- participation in society.

The first three domains reflect the key ICF dimension of activity limitations, and the second three reflect the other key dimension of participation.

In this chapter, the WMH WHO-DAS was scored to produce subscale scores for five domains.

- *Role impairment (role):* four items measuring the extent to which the participant was completely unable to work or carry out their normal activities, or had to cut back on the amount or quality of what was achieved, or had to apply extreme effort to perform at their usual level due to physical health, mental health or substance use problems.

- *Understanding and communicating (cognitive):* four items recording difficulties with concentration, understanding, memory and learning.

- *Getting around (mobility):* three items measuring difficulties with standing for at least 30 minutes, moving around inside the house and walking distances of about 1 kilometre.

- *Self-care (self-care):* three items recording difficulties with washing the body, getting dressed and staying by oneself for a few days.

- *Getting along with others (social):* five items measuring difficulties in starting and maintaining conversation, dealing with unknown people, forming and maintaining friendships, and controlling emotions around people.

All domains are scored on a 0–100 scale, with higher scores representing greater disability, using a scoring formula that weights the number of days the individual reports disability out of the past 30 days by the severity of disability reported in a given domain.

One caveat should be borne in mind when reviewing the results below. The WMH WHO-DAS is an entirely self-reported measure of disability. Its validity, therefore, is reduced for those individuals or conditions with limited insight, denial or cognitive impairment that may affect the accuracy of the self-reported data (McKibben 2004).

6.2   Role impairment in the general population

Table 6.1 shows the results for each of the four questions that make up the role impairment domain of the WMH WHO-DAS.

The proportion of the population that reported 1–5 or 6 or more days completely out of role was 13.1% (9.2% plus 3.9%); 20.7% reported days when the amount accomplished was cut down, 15.8% reported days when quality was reduced and 19.4% reported days when role performance took extreme effort. A smaller proportion of the population reported days completely out of role due to mental health problems (3.0%), with at least 7.8%–8.2% reporting impaired role performance due to mental health problems. Presumably, much of the impairment due to non-mental health problems is the result of the high prevalence of relatively minor physical ailments such as colds and influenza.

Table 6.1: Distribution of the number of days in the past month[1] with role impairment due to health problems, in total and specifically attributed to mental health problems[2,3]

Type of impairment	Cause	Days with impairment in past 30 days % in each category (95% CI)		
		Zero days	One to five days	Six or more days
Days completely out of role	All health	86.9 (85.7, 87.9)	9.2 (8.4, 10.2)	3.9 (3.4, 4.5)
	Mental health	96.9 (96.5, 97.3)	2.3 (2.0, 2.8)	0.7 (0.5, 1.0)
Days cut down amount accomplished	All health	79.3 (77.9, 80.7)	13.0 (11.9, 14.1)	7.7 (6.9, 8.6)
	Mental health	92.2 (91.3, 93.0)	6.3 (5.6, 7.1)	1.5 (1.2, 1.8)
Days cut back on quality[4]	All health	84.3 (83.0, 85.4)	10.1 (9.1, 11.1)	5.7 (5.0, 6.5)
Days it took extreme effort	All health	80.6 (79.2, 81.9)	12.5 (11.4, 13.6)	6.9 (6.2, 7.8)
	Mental health	91.7 (90.8, 92.5)	6.6 (5.9, 7.5)	1.6 (1.4, 2.0)

1   Past 30 days.

2   Mental health problems included those resulting from the use of alcohol or drugs.

3   Assessed in the subsample who did the long form of the interview, see 12.4.2.

4   This question did not ask the respondent to specify whether the impairment was due to mental health problems.

6.3   Role impairment among people with mental disorders

6.3.1   Role impairment by number of mental disorders

Table 6.2 shows the mean scores for the role impairment domain. These scores integrate days out of role with days of partially impaired performance (the scoring system gives greater weight to days completely out of role). For example, an individual reporting three full days out of role, plus nine days of cutting down out of the past 30 days, would score 25.

As expected, there was a strong pattern of increasing role impairment with increasing number of mental disorders. People with one disorder scored 14.1, more than twice the impairment score of 6.3 among those with no disorder. People with three or more disorders scored 42.0, three times the score of those with one disorder.

Although in theory the WMH WHO-DAS scores range from 0 to 100, it is unusual for people to have scores at the upper end of the scale, because few people would report 30 days out of 30 completely out of role due to health problems. Therefore, a score of 42 on this scale indicates a substantial level of role impairment. Not all of the impairment among those with three or more disorders was attributed to mental health problems, but more than two-thirds (29.3 out of 42.0) of the 'all health' score was. The

table shows that as the number of mental disorders increases, the proportion of role impairment attributed to mental health problems also increases.

Table 6.2: Role impairment in past month[1] in total, and attributed to mental health problems, by number of one-month mental disorders

Number of one-month mental disorders[2,3]	Mean role impairment domain score (95% CI)	
	All health[4]	**Attributed to mental health**[5]
No disorder	6.3 (5.7, 7.0)	0.8 (0.7, 1.0)
One disorder	14.1 (12.3, 15.9)	5.1 (4.0, 6.2)
Two disorders	21.0 (16.9, 25.2)	11.2 (8.4, 14.0)
Three or more disorders	42.0 (34.3, 49.7)	29.3 (21.6, 37.1)

1   Past 30 days.

2   DSM-IV CIDI 3.0 disorders with hierarchy, see 12.4.1.

3   Assessed in the subsample who did the long form of the interview, see 12.4.2.

4   Role impairment score calculated from the four role impairment items (see Table 6.1): the sum of days out of role plus half of days cut down on amount and a quarter of days cut back on quality or took extreme effort, divided by 30 and multiplied by 100. Scores range from 0 to 100; the higher the score, the greater the impairment.

5   Role impairment score calculated from the three items that allow attribution to mental health problems: the sum of days out of role plus half of days cut down on amount and half of days of extreme effort, divided by 30 and multiplied by 100. Scores range from 0 to 100; the higher the score, the greater the impairment.

6.3.2   Role impairment by type of mental disorder

Table 6.3 allows comparison of the degree of role impairment experienced by people with different mental disorders. Such comparisons are often complicated by some disorders being more likely to have comorbid (co-occurring) disorders (see 5.2.1) than others, so it can be unclear whether the impairment reported is a function of the specified disorder or its possible comorbidities.

Table 6.3: Role impairment in past month,[1] by one-month single and comorbid disorders[2,3]

Disorder group	Mean role impairment domain score % (95% CI)	
	All health[4]	**Attributed to mental health[5]**
No disorder	6.3 (5.7, 7.0)	0.8 (0.7, 1.0)
Single disorder		
Any anxiety disorder	12.8 (10.9, 14.7)	4.0 (2.9, 5.2)
Any mood disorder	23.2 (16.9, 29.5)	11.3 (6.6, 16.0)
Any substance use disorder	12.8 (7.1, 18.5)	5.9 (2.7, 9.1)
Comorbid disorders		
Disorders comorbid within a group[6]	22.0 (17.1, 26.9)	11.8 (8.4, 15.3)
Disorders comorbid across groups[7]	34.8 (28.9, 40.8)	23.4 (17.8, 29.1)
Total population	7.7 (7.0, 8.3)	1.7 (1.5, 1.9)

1   Past 30 days.

2   DSM-IV CIDI 3.0 disorders with hierarchy, see 12.4.1.

3   Assessed in the subsample who did the long form of the interview, see 12.4.2.

4   Role impairment score calculated from the four role impairment items (see Table 6.1): the sum of days out of role plus half of days cut down on amount and a quarter of days cut back on quality or took extreme effort, divided by 30 and multiplied by 100. Scores range from 0 to 100; the higher the score, the greater the impairment.

5   Role impairment score calculated from the three items that allow attribution to mental health problems: the sum of days out of role plus half of days cut down on amount and half of days of extreme effort, divided by 30 and multiplied by 100. Scores range from 0 to 100; the higher the score, the greater the impairment.

6   For example, two or more anxiety disorders.

7   For example, an anxiety disorder and a mood disorder.

Table 6.3 helps to clarify the picture by comparing anxiety, mood and substance use disorders among people with only the specified disorder and no comorbid disorder. The key feature that emerges from these results is that mood disorders are associated with more role impairment than anxiety or substance use disorders. People with a single mood disorder had a mean role impairment score of 23.2, which is nearly double the score of people with anxiety (12.8) or substance use disorder (12.8). The scores attributable to mental health indicate that people with single mental disorders attributed about a third (4.0 out of 12.8 for anxiety disorders) to a half (11.3 out of 23.2 for mood disorders) of their role impairment to mental health.

Table 6.3 also provides a comparison of comorbid disorders: disorders comorbid within a group and disorders comorbid across groups. While this suggests that across-group comorbidity is more impairing than within-group comorbidity, this is largely a function of the fact that those with multiple mood disorders were few in number relative to those with multiple anxiety disorders; in contrast, the majority of those with across-group comorbidity had a mood disorder (which, as noted above, is associated with higher levels of impairment than other disorder groups).

6.4 Types of disability associated with mental disorders and chronic physical conditions

Table 6.4 broadens the picture provided so far for role impairment by adding in the other disability domains. It puts the results for mental disorders in perspective by making comparisons across mental and physical disorders. The table reports both unadjusted scores and scores adjusted for age and sex. The adjustment provides the scores that would occur if the age and sex distribution of those with the disorder in question (eg, any anxiety disorder) matched the age and sex distribution of those without that disorder (see 12.10.2). This allows a comparison of scores across mental and physical disorders, which generally differ in age structure (mental disorders having a younger age structure than physical disorders) and may differ in sex distribution as well.

Table 6.4: WMH WHO-DAS domain scores associated with one-month mental disorders[1] and chronic physical conditions[2]

	Mean disability domain scores[3] (95% CI)									
	Role impairment		Mobility		Self-care		Social		Cognitive	
	Unadjusted	Adjusted for age and sex	Unadjusted	Adjusted for age and sex	Unadjusted	Adjusted for age and sex	Unadjusted	Adjusted for age and sex	Unadjusted	Adjusted for age and sex
Mental disorder group										
Any anxiety disorder	17.7 (15.8, 19.6)	18.2 (16.3, 20.2)	6.2 (5.1, 7.3)	7.1 (6.0, 8.2)	1.8 (1.3, 2.4)	2.1 (1.5, 2.6)	2.6 (2.0, 3.1)	2.6 (2.0, 3.1)	3.9 (3.2, 4.6)	3.9 (3.2, 4.6)
Any mood disorder	30.3 (25.6, 34.9)	30.9 (26.2, 35.5)	8.8 (6.5, 11.2)	9.9 (7.6, 12.2)	2.6 (1.4, 3.8)	2.8 (1.6, 4.0)	4.0 (2.9, 5.1)	4.0 (2.9, 5.1)	7.2 (5.5, 8.8)	7.2 (5.5, 8.8)
Any substance use disorder	21.0 (15.6, 26.5)	22.6 (17.1, 28.1)	3.6 (1.8, 5.4)	5.9 (4.0, 7.7)	0.8 (0.1, 1.4)	1.2 (0.4, 1.9)	2.2 (1.0, 3.4)	2.2 (1.0, 3.5)	4.3 (2.8, 5.8)	4.3 (2.9, 5.7)
Any mental disorder	18.0 (16.2, 19.7)	18.7 (16.9, 20.4)	6.0 (5.0, 6.9)	7.0 (6.0, 8.0)	1.7 (1.2, 2.1)	1.9 (1.4, 2.4)	2.4 (1.9, 2.8)	2.4 (1.9, 2.8)	3.7 (3.1, 4.3)	3.7 (3.1, 4.3)
Physical condition										
Chronic pain[4]	13.9 (12.5, 15.4)	13.8 (12.4, 15.2)	7.5 (6.4, 8.6)	6.7 (5.8, 7.7)	1.6 (1.1, 2.2)	1.5 (1.0, 2.0)	1.0 (0.7, 1.2)	1.0 (0.8, 1.3)	1.6 (1.3, 1.9)	1.7 (1.4, 2.0)
Cardiovascular[5]	18.7 (14.5, 22.9)	17.2 (13.0, 21.4)	14.2 (10.6, 17.7)	10.4 (7.1, 13.7)	4.1 (2.0, 6.3)	3.5 (1.5, 5.5)	0.9 (0.5, 1.3)	1.1 (0.6, 1.5)	2.2 (1.3, 3.0)	2.4 (1.5, 3.2)
Respiratory conditions[6]	10.7 (9.0, 12.3)	10.7 (9.1, 12.3)	5.1 (3.9, 6.3)	5.3 (4.1, 6.5)	1.1 (0.6, 1.6)	1.1 (0.7, 1.6)	0.9 (0.5, 1.3)	0.9 (0.5, 1.3)	1.5 (1.0, 2.0)	1.5 (1.0, 2.0)
Diabetes	14.9 (10.4, 19.4)	13.3 (9.0, 17.7)	10.7 (6.8, 14.6)	7.8 (4.0, 11.7)	3.8 (1.4, 6.3)	3.3 (0.9, 5.7)	1.2 (0.5, 1.8)	1.2 (0.6, 1.9)	2.0 (0.8, 3.2)	2.1 (0.9, 3.3)
Cancer	15.7 (11.8, 19.6)	13.8 (9.9, 17.6)	10.9 (7.0, 14.7)	7.4 (3.9, 10.9)	3.4 (0.8, 6.1)	2.8 (0.3, 5.3)	1.0 (0.5, 1.4)	1.0 (0.6, 1.5)	1.7 (0.9, 2.6)	1.8 (0.9, 2.6)
Any physical condition	11.2 (10.1, 12.2)	11.0 (9.9, 12.0)	5.8 (5.0, 6.6)	5.0 (4.3, 5.6)	1.3 (0.9, 1.7)	1.1 (0.8, 1.5)	0.7 (0.6, 0.9)	0.8 (0.6, 1.0)	1.3 (1.1, 1.5)	1.4 (1.1, 1.6)
Any mental disorder (in absence of physical condition)	10.6 (8.0, 13.2)	11.1 (8.4, 13.8)	1.1 (0.6, 1.7)	2.5 (1.8, 3.3)	0.6 (0.1, 1.2)	0.9 (0.3, 1.5)	1.9 (1.1, 2.6)	1.8 (1.1, 2.6)	2.5 (1.5, 3.5)	2.5 (1.5, 3.5)
Any physical condition (in absence of mental disorder)	9.5 (8.4, 10.6)	9.0 (8.0, 10.1)	5.3 (4.4, 6.2)	4.2 (3.6, 4.9)	1.1 (0.7, 1.6)	0.9 (0.6, 1.3)	0.4 (0.3, 0.6)	0.5 (0.3, 0.6)	0.8 (0.6, 1.1)	0.9 (0.6, 1.1)
Any mental disorder and any physical condition	21.7 (19.5, 23.8)	22.0 (19.8, 24.2)	8.4 (7.1, 9.8)	9.1 (7.7, 10.4)	2.2 (1.6, 2.8)	2.3 (1.7, 3.0)	2.6 (2.0, 3.2)	2.6 (2.0, 3.2)	4.2 (3.5, 5.0)	4.3 (3.5, 5.0)
No mental disorder or physical condition	2.4 (2.0, 2.9)	2.9 (2.4, 3.5)	0.7 (0.4, 1.0)	1.7 (1.3, 2.2)	0.1 (0.0, 0.1)	0.3 (0.1, 0.4)	0.1 (0.1, 0.2)	0.1 (0.0, 0.2)	0.2 (0.1, 0.2)	0.2 (0.1, 0.3)

1　DSM-IV CIDI 3.0 disorders with hierarchy, see 12.4.1.
2　Assessed in the subsample who did the long form of the interview, see 12.4.2.
3　Scores range from 0 to 100; the higher the score, the greater the disability.
4　Chronic pain: arthritis or rheumatism; chronic back or neck problems; frequent or severe headaches; any other chronic pain.
5　Cardiovascular disease: stroke; heart attack; heart disease.
6　Respiratory conditions: asthma; chronic obstructive pulmonary disease; emphysema; other chronic lung disease.

6.4.1　Understanding WMH WHO-DAS scores

A glance at Table 6.4 shows that the role impairment scores are generally higher than the other domain scores. This is partly due to the nature of that domain: role impairment is a more general form of disability than the more specific components of functioning the other domains measure. But it is also because the scoring for the role impairment domain differs from the scoring for the other four domains. The four domains of mobility, self-care, and social and cognitive functioning are scored by measuring the severity of disability and multiplying the result by the number of days in the past 30 the individual reported experiencing the disability.

High scores on these four domains are rare. For example, someone reporting mild impairment in a given domain on five out of 30 days would have a score of about 2 for that domain. Someone reporting moderate impairment on five out of 30 days would have a score of about 6. Someone reporting moderate impairment on 15 out of 30 days would have a score of about 25.

6.4.2   Results

In the comparison between mental disorders (any anxiety, any mood, any substance use), mood disorders again appear to be associated with more disability, on all domains, than anxiety or substance use disorders, although it is not clear from Table 6.4 whether all of the differences across the disorder groups are statistically significant. Looking at the four domains other than role impairment, self-care problems are the least associated with mental disorders (with a score for any mental disorder of 1.9), and mobility appears the most affected (with a score of 7.0). However, when one looks down the table to the category of mental disorder in the absence of comorbid physical disorder, which has a score for mobility of only 2.5, it becomes clear the mobility impairment associated with mental disorders in the top part of the table is probably a function of comorbid physical disorders (it may well be the case that for a number of people mood disorders are secondary to a physical disorder).

Among the physical disorders, cardiovascular disease was generally associated with greater impairment than the other conditions. Diabetes was the next most disabling of those shown. In comparing the four specific domains, physical disorders were associated with most impairment in the mobility domain, followed by self-care.

In the comparison between mental and physical disorders several results are of note. In comparing people with any mental disorder with people with any physical condition, without excluding comorbid conditions, mental disorders appear to be associated with more disability. However, after excluding comorbid conditions, mental and physical disorders appear similarly disabling, although physical disorders are associated with more disability in the mobility domain and mental disorders are associated with more disability in the social and cognitive domains, as might be expected.

Lastly, in observing the scores associated with the category of any mental *plus* any physical condition, it is clear mental–physical comorbidity more than doubles the disability associated with mental disorders or physical disorders alone.

6.5   Conclusions

It is difficult to compare these findings directly with those of other studies because there is so much variability in the research literature in the way disability is measured, what other variables are controlled for, and which disorders are compared. Results from the WMH WHO-DAS in its current form are only just starting to be published; this New Zealand study is one of the first.

One of the key findings in this chapter, that mood disorders are strongly associated with disability, certainly has a long history in the literature, having been observed in primary care samples (Ormel et al 1999; Ormel et al 1994; Von Korff et al 1992; Wells et al 1989d) and general population samples (Broadhead et al 1990; Kruijshaar et al 2003; Sanderson and Andrews 2002; Surtees et al 2003).

In this study, it was found that mood disorders are more disabling than anxiety or substance use disorders. Whether this is supported by earlier research is not clear-cut. Some have found this to be the case (Bijl and Ravelli 2000; Sanderson and Andrews 2002); while others have not (eg, Ormel et al 1994; Surtees et al 2003). The European component of the WMH surveys found identical disability scores for mood disorders and anxiety disorders (Alonso et al 2004c), in contrast to the results reported here. However, despite the similarities in methodology there were still important differences between the European study and the New Zealand study that probably account for this discrepancy. One of these is that this New Zealand study has reported impairment associated with one-month mental disorders, while the European group reported impairment associated with 12-month mental disorders. Mood disorders such as major depression do not always last 12 months, so WMH WHO-DAS scores estimated for the past month for those with '12-month disorder' will not always provide a full picture of the disability associated with mood disorders.

The finding that mental disorders are at least as disabling as physical disorders, and that the combination of the two is most disabling, is well established in the research literature (Hays et al 1995; Ormel et al 1998; Surtees et al 2003; Wells et al 1989d). The data presented in the previous chapter show that comorbidity is common. One of the main themes to emerge from this chapter is that comorbidity, either of mental disorders or of mental and physical disorders, is associated with higher levels of disability than single disorders.