

Prevalence and Severity of Mental Health–Related Disability and Relationship to Diagnosis

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Objective: Psychiatric disability has been defined largely from measures that focus on serious mental illness. This practice may have led to substantial underestimation of the total impact of mental disorders on community health. In this study a generic measure of mental health–related disability was used to examine disabilities attributable to various common mental disorders. **Methods:** Data were drawn from the Australian National Survey of Mental Health and Wellbeing, a household survey of 10,641 adults that assessed participants for 14 *DSM-IV* disorders with use of the Composite International Diagnostic Interview. Screening instruments were used to identify likely cases of *ICD-10* personality disorder, neurasthenia (an undifferentiated somatoform disorder), and psychosis. Mental health disability was assessed with the Medical Outcomes Study 12-item Short Form (SF-12) mental health summary scale, which was administered to all participants. **Results:** Disability was significantly greater among participants with a current psychiatric diagnosis, and disability varied by type of disorder. Diagnosis remained a strong predictor of disability after sociodemographic factors and physical illness were controlled for. Disorders found to be independently associated with disability were depression, panic disorder, agoraphobia, social phobia, generalized anxiety disorder, alcohol dependence, and drug dependence. **Conclusions:** Substantial proportions of persons with mental disorders that are not usually classified as major mental disorders reported moderate and severe disability. A generic measure of mental health–related disability was able to detect variations in disability among persons with different diagnoses. Although such a measure is not as sensitive as a disorder-specific measure developed for use in psychiatric populations, it can facilitate comparison of disability across common mental disorders. (*Psychiatric Services* 53:80–86, 2002)

Disability and quality of life are increasingly recognized as crucial factors in assessing mental health (1). Although psychiatry has a long history of measuring functional impairment, these measurements have often been made with

instruments designed specifically for use with psychiatric populations (2), particularly persons with serious mental illness (3–5). Limiting the concept of psychiatric disability to the more severe—and often less common—disorders may substantially underesti-

mate the total impact of mental disorders on the health of the community. Furthermore, as funding for mental health services continues to be threatened (6), measuring health outcomes in ways that are not comparable across various mental disorders or with other areas of health may mean that mental health is sidelined in the competition for resources.

An alternative to psychiatry-specific measures are the so-called generic measures of health status (1,7), which purportedly can be used across all areas of health care. Studies that have used generic measures have raised awareness in the general medical community of the importance of mental disorders as a cause of ill health (8–15). But can generic measures inform comparisons of disability associated with various mental disorders? The few available studies suggest that the proportion of individuals who are disabled (16) and the severity of disability (17) vary according to the type of mental disorder and that after comorbidity and sociodemographic factors are controlled for, not all mental disorders are uniquely associated with disability (8,13,14,18). None of these studies investigated disability among persons with a current *DSM-IV* diagnosis in a community sample. Furthermore, most studies covered a limited range of disorders and, in the case of some disorders, used small samples.

In this study we examined the Medical Outcomes Study 12-item Short Form (SF-12) (19) as a generic measure of disability and well-being across all the major *DSM-IV* mental

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disorders. The SF-12 provides a mental health summary scale and thus was the most appropriate to our aim of investigating the comparative uses of generic measures in mental health. Specifically, we compared the prevalence and severity of disability associated with a large number of mental disorders in a cross-sectional community sample. We also examined the correlates and the importance of a diagnosis of a mental disorder in self-reported mental health disability and investigated which mental disorders were independently associated with disability after sociodemographic factors and comorbidity were controlled for.

Methods

Sample

The Australian National Survey of Mental Health and Wellbeing (20) was a nationally representative household survey of mental disorders among adults. A stratified multistage and multiarea survey of private dwellings included individuals who were 18 years of age or older and who normally lived in private households. Persons in hospitals, nursing homes, jails, and other public facilities and those who lived in remote and sparsely settled parts of the country were excluded. A total of 13,624 dwellings were initially selected, and one adult in each dwelling was randomly selected as a potential respondent. A total of 10,641 people participated in the survey, for a response rate of 78 percent.

Participants were interviewed in their homes between May and August 1997 by experienced survey administrators from the Australian Bureau of Statistics who were trained to reliably administer the diagnostic interview. The interview was fully computerized. The interviewers asked the questions and entered the respondents' answers directly into the computer program. The participants received comprehensive written and spoken information about the purpose and nature of the interview. The study was conducted in compliance with the Federal Census Act of Australia.

The sample was weighted to match the age and sex distribution of the Australian population: the participants' mean age was 45 years, and 51

percent were women. Sixty-five percent of the participants were married, 63 percent were currently employed, and 48 percent had a college or university education. Most resided in a metropolitan area (73 percent) and were born in Australia (75 percent). Thus the sample was representative of the Australian adult population.

Diagnostic assessment

The survey incorporated the computerized version of the Composite International Diagnostic Interview, version 2.1, a fully structured diagnostic interview with good reliability and validity (21). Participants were asked questions about symptoms pertaining to *DSM-IV* diagnoses of affective, anxiety, or substance use disorders during the previous 12 months. These symptom responses are assessed against the diagnostic criteria to generate diagnoses (21). Drug use disorders included abuse of and dependence on cannabis, sedatives, amphetamines, or opioids. However, the rates of use for individual drugs were too few for their numbers to be presented separately. Drug and alcohol abuse entail abuse without dependence.

We were concerned only with current diagnoses—those for which the participants had experienced symptoms in the previous four weeks—because disability was assessed over a four-week period. *DSM-IV* exclusion rules were not applied. Screening instruments were used to identify likely cases of the nine *ICD-10* personality disorders (22), psychosis (23), and neurasthenia (24), which is included under *DSM-IV* undifferentiated somatoform disorders (25). Physical disorders were assessed with a self-report yes-or-no checklist for 12 common chronic conditions: asthma, chronic bronchitis, anemia, high blood pressure, heart problems, arthritis, kidney disease, diabetes, cancer, stomach or duodenal ulcer, chronic gallbladder or liver problems, and hernia or rupture (26).

Measures of disability

Participants completed three measures that assessed disability during the previous month: the SF-12, the Brief Disability Questionnaire (BDQ) (10), and the number of disability

days. The 12 items on the SF-12 are summarized in two weighted summary scales—mental health and physical health; lower scores indicate more severe disability. The items related to mental health cover limitations to usual activities and emotional state. We report only the results of the mental health summary scale, which has adequate test-retest reliability ($r=.76$) and sensitivity to recovery from depression (19). The SF-12's parent measure, the SF-36, has been shown to have good psychometric properties and has been used successfully in outpatient psychiatric settings (6). The BDQ's five-item role functioning subscale (27) was used in this study for comparisons with mental health disability. The number of disability days is a summary measure of the total number of days in the previous four weeks in which activities could not be performed or had to be scaled down because of ill health (8).

Analysis

All proportions and mean scores represent weighted values to account for the probability of an individual household member's being selected and to comply with the age and sex distribution of the Australian adult population. Although familiar statistical procedures—linear regression and logistic regression—were used to analyze the data, the complex sampling strategy required the use of specialized software to perform the statistical analysis and to estimate standard errors. This software takes into account the variability within and across the geographical sampling units from which the survey respondents were randomly selected. Without such software, variance in statistical estimates can be underestimated, which could result in statistically significant findings that would not otherwise have been significant. Variances in these estimates—proportions, odds ratios, and nonstandardized regression coefficients—were thus estimated with use of the *SUDAAN* software package for survey analysis, version 7.5.3 (28).

The prevalence of disability was obtained by categorizing individual scores on the SF-12 mental health

Table 1

Severity of disability as measured by the mental health summary scale of the Medical Outcomes Study 12-item Short Form among persons in a community sample with current diagnoses of mental disorders

Current mental disorder	Level of disability (%)			
	None (score of 50 or higher)	Mild (score of 40 to 49)	Moderate (score of 30 to 39)	Severe (score below 30)
No mental disorder	77	17	3	3
Any mental disorder	32	24	24	20
Any affective disorder	6	19	30	45
Mild depression	7	25	31	37
Moderate depression	7	13	27	53
Severe depression	4	4	30	62
Dysthymia	6	19	33	42
Any anxiety disorder	20	22	25	33
Social phobia	15	28	29	28
Panic disorder	15	16	29	40
Agoraphobia	37	18	23	22
Generalized anxiety disorder	12	16	30	42
Obsessive-compulsive disorder	22	20	28	30
Posttraumatic stress disorder	12	22	33	33
Any substance use disorder ^a	47	21	17	15
Alcohol abuse without dependence	68	13	12	7
Alcohol dependence	45	23	17	15
Drug dependence	35	25	25	15
Any personality disorder	32	26	22	20
Somatoform disorder	10	23	32	35
Psychosis	30	10	43	17

^a Includes drug abuse. The prevalence of this disorder was too low (.3 percent) for the distribution to be presented individually.

summary scale into four levels of disability: no disability, represented by a score of 50 or higher; mild disability, 40 to 49; moderate disability, 30 to 39; and severe disability, a score below 30. This classification was considered useful because the SF-12 score is not readily interpretable.

These four levels of disability were adapted by collapsing a nine-level categorization used by Ware and colleagues (29) to help interpret the mental health summary scale—9 to 29, then seven five-level increments (30 to 34, 35 to 39, and so forth), and then 65 to 74. The validity of the four levels of disability was investigated by comparing them with five disability-related variables: presence of any current mental disorder as opposed to none, presence of two or more mental disorders as opposed to one or none, consultation with a mental health specialist—a psychiatrist, a psychologist, a social worker, a counselor, a nurse, or a mental health team—as

opposed to no consultation, significant difference in mean BDQ score as opposed to no significant difference, and any disability days as opposed to no disability days.

We calculated unadjusted odds ratios by using logistic regression for the dichotomous variables to assess the simple relationship between disability levels and the related variables; significance was assessed with the Wald chi square statistic. The significance of differences in BDQ scores was determined with planned contrasts. These analyses were used to determine whether an increasing level of disability was mirrored by increases in the five disability-related variables. Significance was controlled at .05 by dividing by the number of disability variable comparisons (.05 divided by 5=.01).

Disability related to each disorder was first examined through mean scores and bivariate regression coefficients from bivariate linear regres-

sions. These coefficients predict differences in SF-12 scores between persons who have a particular disorder and those who do not have that disorder. We then conducted a hierarchical linear regression to examine the correlates of disability in the entire community sample and the strength of the association between disability and diagnosis when other factors were controlled for. This analysis also provides the predicted difference in SF-12 scores for each diagnosis but controls for the influence of sociodemographic variables and co-occurring mental and chronic physical conditions.

The variables were entered in three steps; the third step determined the importance of the *DSM-IV* diagnosis in predicting disability when the previously entered variables were controlled for. The statistical comparisons were with persons who did not have a particular disorder; for the multivariate hierarchical regression, significance was set at .05 or less.

Results

Prevalence and severity

The distribution of disability level by current mental disorder is summarized in Table 1. Of the participants who did not meet the criteria for one of the mental disorders included in the survey, only 7 percent had moderate or severe disability; however, 43 percent of participants with any current disorder had moderate or severe disability.

The level of disability varied substantially by diagnosis. Disability was particularly prominent among participants who had an affective disorder, panic disorder, posttraumatic stress disorder, or generalized anxiety disorder. For all types of disorders there were some participants without disability; the lowest proportion of persons without disability was for those who had affective disorders—6 percent; the highest was for those who had substance use disorders—47 percent.

Table 2 shows the relationship between level of disability and the five disability-related variables—presence of any current mental disorder, presence of two or more disorders, consultation with a mental health specialist, number of disability days, and

Table 2

Relationship between levels of disability, as measured by the mental health summary scale of the Medical Outcomes Study 12-item Short Form, and other indicators of disability in a community sample^a

Level of disability	Presence of any current mental disorder ^b		Presence of two or more mental disorders ^c		Consultation with a mental health specialist ^d		Any disability days ^e		BDQ score ^f	
	Odds ratio	95% CI	Odds ratio	95% CI	Odds ratio	95% CI	Odds ratio	95% CI	Mean	SE
None	1.0		1.0		1.0		1.0		.6	0
Mild	3.7	3–4.5	5.4	3.5–8.2	4.8	2.8–8.1	2.5	2.2–2.8	1.4	.1
Moderate	10.2	8.6–12.1	22.6	17–30	9.3	6.5–13.3	5.0	3.9–6.4	2.5	.1
Severe	31.8	25–40	69.7	47–103	18.3	12–27	8.7	6.9–10.8	3.7	.2

^a All comparisons were with persons without a disability and were significant at $p < .001$; odds ratios were calculated from separate logistic regression models.

^b $\chi^2=1,451$, $df=3$

^c $\chi^2=818$, $df=3$

^d At least one consultation for a mental health problem in the previous year with a psychiatrist, a psychologist, a social worker, a drug and alcohol counselor, another type of counselor, a nurse, or a mental health team; $\chi^2=290$, $df=3$

^e $\chi^2=678$, $df=3$

^f Brief Disability Questionnaire role functioning subscale; no disability compared with mild disability, $t=-17.46$, $df=30$, $N=9,396$; no disability compared with moderate disability, $t=-18.84$, $df=30$, $N=8,421$; no disability compared with severe disability, $t=-18.78$, $df=30$, $N=8,010$

mean BDQ score. The strength of the associations were greater at more severe disability levels, which suggests that the categories represent distinct levels of severity. Participants who scored below 30 on the SF-12, indicating severe disability, were highly likely to have one or more mental disorders, independently of a specific diagnosis, and to have consulted with a mental health professional. Participants with moderate disability were five times as likely and participants with severe disability were almost nine times as likely as those without a disability to report any disability days; for these participants, BDQ scores indicated more severe disability.

Disability by diagnosis

In Table 3 the mean SF-12 mental health summary scores are listed, along with the predicted difference in disability between participants who had a diagnosis of a particular mental disorder and those who did not. Persons with no current psychiatric diagnosis had a mean score in the “no disability” range. Linear regression analyses showed that participants with all *DSM-IV* disorders except alcohol abuse had significantly higher disability scores. In addition, participants who had any of the other disorders identified by the various screening instruments—personality disorder, so-

matiform disorder, and psychosis—were significantly more likely to report disability.

Correlates of disability

The correlates of disability, the importance of diagnosis in predicting disability, and the unique association of individual disorders with disability were investigated with use of a hierarchical linear regression model of the predictors of SF-12 mental health summary scores in the entire sample, as shown in Table 4.

Sociodemographic factors and co-occurring physical conditions were significantly associated with more severe disability. However, the strongest predictor by far was the presence of any mental disorder, which accounted for 18.8 percent of the variance after sociodemographic factors and physical conditions were controlled for. Mental disorders that had a strong independent relationship with disability included mild, moderate, and severe depression and generalized anxiety disorder. Disorders for which a moderate but independent relationship with disability was observed included panic disorder, agoraphobia, and alcohol dependence. A smaller—but still significant—unique association was found for social phobia and drug dependence. Dysthymia, obsessive-compulsive disorder,

posttraumatic stress disorder, and alcohol and drug abuse were not independent predictors of disability.

Discussion

The generic SF-12 measure demonstrated variation in the proportions of people who reported mild, moderate, or severe disability. All mental disorders except alcohol abuse were significantly associated with some disability, although not all associations were significant after comorbid conditions—both physical and mental—were taken into account. We have extended the work of another population-based study (30) that showed a relationship between disability and depression and generalized anxiety disorder that was independent of comorbidity and sociodemographic factors by showing that this relationship exists for other anxiety disorders—panic disorder, agoraphobia, and social phobia—and substance dependence. In general, a diagnosis of a mental disorder was the strongest predictor of disability in our study after sociodemographic factors and physical illness were taken into account.

The finding from other studies of a strong independent association between depression and disability (13, 14, 18, 30, 31) was replicated in our study. An item of the SF-12 that di-

Table 3

Mean scores of a community sample on the mental health summary scale of the Medical Outcomes Study 12-item Short Form (SF-12), by diagnosis, and predicted difference in disability between people with and without that diagnosis^a

Current diagnosis	Prevalence ^b			SF-12 score ^c		Predicted difference in disability ^d	
	N	%	SE	Mean	SE	b	SE
No mental disorder	9,902			53.5	.1		
Any mental disorder	1,439	12.9	.4	41.9	.4	-11.58	.44
Any affective disorder	450	3.5	.2	32.3	.5	-20.41	.52
Mild depression	191	1.5	.1	34.4	.8	-17.81	.82
Moderate depression	107	.8	.1	31.6	1.1	-20.53	1.08
Severe depression	111	.8	.1	28.3	.8	-23.89	.81
Dysthymia	110	.9	.1	32.1	1.4	-20.02	1.39
Any anxiety disorder	620	5.3	.4	37.8	.8	-15.00	.83
Social phobia	166	1.4	.2	37.6	1.1	-14.55	1.10
Panic disorder	112	.9	.1	34.6	1.6	-17.52	1.57
Agoraphobia	98	.8	.1	42.7	1.5	-9.38	1.10
Generalized anxiety disorder	335	2.8	.3	33.9	.9	-18.63	.86
Obsessive-compulsive disorder	64	.5	.1	38.0	3.5	-14.10	3.48
Posttraumatic stress disorder	105	.9	.1	35.3	1.2	-16.79	1.18
Any substance use disorder	369	3.4	.2	45.5	.7	-6.53	.73
Alcohol abuse without dependence	70	.7	.1	50.1	2.5	-1.91	2.51
Alcohol dependence	192	1.7	.1	45.1	1.2	-6.99	1.19
Drug abuse without dependence	39	.3	.1	47.4	2.0	-4.63	1.99
Drug dependence	98	.9	.2	43.1	1.3	-8.92	1.33
Any personality disorder	564	5.3	.3	42.0	.6	-10.56	.57
Somatoform disorder	140	1.2	.2	34.6	1.3	-17.58	1.24
Psychosis	50	.4	.1	39.7	1.1	-12.31	1.14

^a All comparisons were significant at $p < .001$ except alcohol abuse, which was not significant, and drug abuse, which was significant at $p < .05$.

^b N represents the raw number in the population sample; the proportion represents the weighted prevalence for the Australian population.

^c Possible scores range from 9 to 74, with lower scores representing more severe disability.

^d The difference (b) was estimated by linear regression analysis. Negative values indicate more severe disability; the higher the value, the more severe the disability compared with individuals without the disorder.

rectly assesses depressive symptoms—“Have you felt down-hearted and blue?”—may have artificially inflated this association. A study that used the SF-12 in a primary care setting (31) showed a highly significant association between probable depression and disability when the summary scale was used. However, a smaller—but also highly significant—relationship was found for the social and role functioning items of the SF-12, excluding the depression item. Thus use of the depression item of the SF-12 seems to overstate an existing relationship between depression and disability; it does not artificially create a relationship.

The association between anxiety disorders and disability in our study

and in others (11,15,30,32) was genuine and was not solely due to comorbidity, given that most anxiety disorders were uniquely associated with disability. Unlike Olfson and associates (14), whose study was limited by a small sample, we found independent relationships between disability and generalized anxiety disorder—as did Kessler and associates (30)—and between disability and panic disorder. Posttraumatic stress disorder and obsessive-compulsive disorder were not found to be independently related to disability in either our study or the study by Olfson and associates (14). Evidence from a population-based study (9) also suggests that after comorbidity is taken into account, obsessive-compulsive disorder is only

moderately disabling compared with depression and panic disorder.

In our study, alcohol dependence without abuse was independently associated with disability. These findings replicate those of a study that used the SF-36 in a primary care setting (33). Similarly, drug dependence without abuse was independently associated with disability. These results clarify earlier reports from primary care settings (13,14) by showing that dependence—but not abuse—is the disabling component of both alcohol and drug use disorders.

Our data for psychosis, personality disorders, and somatoform disorder are useful, because few community surveys have included these disorders. The association of somatoform disorder with disability was comparable to that of depression. Personality disorders and psychosis were associated with milder—but nonetheless significant—disability. It is possible that general measures of functioning are not sensitive to the large deficits observed among persons who have serious mental illnesses (34). Alternatively, the less severe disability scores of participants with psychosis could reflect the fact that these participants constituted a small and atypical subsample. This explanation is supported by the results of a recent epidemiological survey (17) in which schizophrenia was found to be the most disabling disorder. Furthermore, improvements in scores on SF-36 subscales have been observed among persons with psychosis, bipolar disorder, and depressive disorders, reflecting the change observed on psychiatry-specific measures (35).

One of the limitations of this study was that disability and the symptoms on which diagnosis was based were entirely self-reported, which could have contributed to the strong overlap between the two. However, if that were so, there would be no reason to suspect that this effect would operate differentially by disorder—it would be similar across all the disorders. The data in Table 1 show that this was not the case. Furthermore, in a community survey by Bassett and associates (16), in which both diagnosis and disability were assessed by psychiatrists, persons with affective disorders

and anxiety disorders reported worse functioning than those with substance use disorders. These findings are similar to those of our study.

More generally, the validity of self-reported health status among persons with chronic mental illness has been both questioned (34) and supported (36). Self-report is often the only option for epidemiological surveys (7) and in busy clinical settings because of time and resource constraints. The inclusion of the consumer's perspective (1) is an equally important justification for the continued use of self-report measures, particularly given that these measures appear to provide valid information that is different from that provided through observer-rated measures (36). Future epidemiological studies could supplement self-report measures with lay interviewer-rated measures, as was done by Leon and associates (37). The lack of a standard measure of disability encourages a broad range of perspectives (16); self-reported generic measures represent one such perspective (1).

Our finding that the prevalence and severity of disability vary by diagnosis suggests that the SF-12 is sensitive to differences in disability across types of mental disorder. However, our study was cross-sectional only. Future research should focus on the sensitivity of generic measures such as the SF-12 to changes in mental health status, because demonstration of the effectiveness of treatment is crucial to maintaining funding for mental health services (6).

The results of this study indicate that focusing only on disability that is associated with serious mental illness might result in substantially underestimating the impact of mental disorders on the health of the community. If the alleviation of disability is considered a goal of treatment (1), then depression and anxiety disorders in particular should be a primary focus of policy initiatives: both disorders are disabling, but both can be treated cost-effectively (38,39). Finally, users of the SF-12 mental health summary scale should be particularly concerned about individuals with scores below 30, because these persons are severely disabled and should not go untreated.

Table 4

Results of hierarchical linear regression to determine the significance of psychiatric diagnosis in predicting scores on the mental health summary scale of the Medical Outcomes Study 12-item Short Form^a

Blocks of variables entered in three steps	Change in disability score associated with each variable ^b			Percent of variance explained by each block of variables	
	B	SE	p<	sr ^{2†}	p<
1. Sociodemographic characteristics				.046	.001
Age in years (versus 18 to 24)					
25 to 34	.28	.46			
35 to 44	-.04	.72			
45 to 54	.98	.68			
55 to 64	2.52	.56	.001		
65 and older	4.81	.55	.001		
Sex, female	-.80	.16	.001		
Marital status (versus married)					
Widowed, separated, or divorced	-.45	.43			
Never married	-.64	.35			
No college or university education	.05	.19			
Employment status (versus employed)					
Unemployed less than 12 months	-1.33	.94			
Unemployed more than 12 months	-2.05	.81	.05		
Not in the labor force	-1.14	.27	.001		
Type of urban center (versus metropolitan area)					
Regional center (population 10,000 to 100,000)	.40	.29			
Rural area (population less than 10,000)	.84	.22	.001		
Migration status (versus nonimmigrant)					
English-speaking country other than Australia	-.28	.35			
Non-English-speaking country	-1.09	.28	.001		
2. Any chronic physical condition	-1.62	.22	.001	.013	.001
3. Mental disorder				.188	.001
Mild depression	-14.02	.97	.001		
Moderate depression	-13.79	1.32	.001		
Severe depression	-14.76	1.15	.001		
Dysthymia	-2.63	2.92			
Panic disorder	-5.02	1.80	.01		
Agoraphobia	-3.39	1.18	.01		
Social phobia	-2.62	1.16	.05		
Generalized anxiety disorder	-10.02	1.00	.001		
Obsessive-compulsive disorder	-3.56	1.81			
Posttraumatic stress disorder	-2.70	1.77			
Alcohol abuse without dependence	-1.10	2.36			
Alcohol dependence	-2.22	.74	.01		
Drug abuse without dependence	-3.14	2.11			
Drug dependence	-2.87	1.26	.05		

^a The analysis controlled for sociodemographic factors, physical illness, and comorbidity. $R^2 = .247$, $p < .001$

^b Negative values indicate more severe disability; the higher the value, the more severe the disability compared with individuals without the disorder.

[†] Semipartial correlation

Conclusions

To measure only disabilities that are associated with serious mental illness is to underestimate the burden experienced by people who have mental disorders. Although a generic measure of psychiatric disability does not

have the sensitivity and comprehensiveness of psychiatry-specific measures, its use can facilitate comparison both within psychiatry and across other areas of health care, helping to maintain mental health as a public health priority. ♦

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