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Impairment in Role Functioning in Mental and Chronic Medical Disorders in the United States: Results from the National Comorbidity Survey Replication

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Abstract

This study presents national data on the comparative role impairments of common mental and chronic medical disorders in the general population. These data come from the National Comorbidity Survey Replication, a nationally representative household survey. Disorder-specific role impairment was assessed with the Sheehan Disability Scales (SDS), a multidimensional instrument that asked respondents to attribute impairment to particular conditions. Overall impairment was significantly higher for mental than chronic medical disorders in 74% of pairwise comparisons between the two groups of conditions, and severe impairment was reported by a significantly higher portion of persons with mental disorders (42.0%) than chronic medical disorders (24.4%). However, treatment was provided for a significantly lower proportion of mental (21.4%) than chronic medical (58.2%) disorders. Although mental disorders were associated with comparable or higher impairment than chronic medical conditions in all domains of function, they showed different patterns of deficits; whereas chronic medical disorders were most likely to be associated with impairment in domains of work and home functioning, mental disorders were most commonly associated with problems in social and close relations domains. Comorbidity between chronic medical and mental disorders significantly increased the reported impairment associated with each type of disorder. The results indicate a serious mismatch between the high degree of impairment and low rate of treatment for mental disorders in the United States. Efforts to reduce disability will need to address mental disorders' disproportionate burden, distinct patterns of deficits, and the potentially synergistic impact of comorbid mental and chronic medical disorders.

Keywords

Impairment; Disability; Disease burden; Epidemiology; National Comorbidity Survey-Replication

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INTRODUCTION

Chronic conditions have long been known to be an important cause of disability,[1, 2] and disability, in turn, is an important contributor to both the clinical and financial burden of chronic conditions.[3, 4] Recent years have seen trends towards rising rates of disability in working-aged populations in the United States, which appears to be due to a combination of increasing prevalence of chronic illnesses and growing impairment among persons with those conditions.[5–7] Understanding the intersection between disability and chronic illnesses is consequently taking on increasing importance in US health policy.[8]

Within this broader array of chronic conditions, it is particularly important to understand the role of mental disorders as contributors to disability. These disorders' early onset, high prevalence, and impact on cognitive and social functioning might be expected to make them important causes of disability.[9] Indeed, functional impairment is one of the core criteria used in the DSM-IV to define psychiatric disorders.[10, 11] At the same time, there is a long history of confusion and skepticism among the general public and policymakers about the degree to which mental disorders are real, disabling, and treatable.[12–14]

In response to these concerns, several clinical and population-based studies have compared the burden associated with mental disorders compared to chronic medical conditions. Studies of individuals from clinical and employee populations have found that mental disorders are associated with as much overall impairment as, and higher social and role dysfunction than, chronic medical conditions.[15, 16] Research from national population surveys has found that mental disorders account for approximately one-third of all disability in the United States[17] and that mental disorders rank among the most burdensome of all conditions both at the individual and population levels.[18] Indeed, a recent population-based US study using the assessment methods of the Global Burden of Disease Study[19] concluded the two conditions with the highest overall disease burden in the US population were both mental disorders (alcohol use disorders and major depression).[20]

We are aware of only one population-based US study comparing disability across multiple mental and chronic medical conditions that used a diagnostic instrument to assess mental disorders.[21] That study used days of role impairment as the marker for disability, and used statistical simulations to ascribe the relative level of disability to different conditions. The results indicated that mental disorders account for more than half as many days out of role as all chronic medical conditions at the population level.

The current study seeks to build on early studies by assessing the relative role impairment associated with commonly occurring mental disorders in comparison to commonly occurring chronic medical disorders in the United States. The study uses nationally representative general population data obtained from the National Comorbidity Survey Replication,[22] including an assessment of chronic medical disorders based on a chronic conditions checklist, an assessment of mental disorders based on a fully structured research diagnostic interview, and an assessment of role impairment based on a commonly used multi-dimensional assessment scale that asked respondents to attribute impairment to particular conditions. The results will help improve understanding of both the prevalence and characteristics of role impairment associated with a wide range of mental and chronic medical disorders in the United States.

MATERIALS AND METHODS

Sample

Data come from the National Comorbidity Survey Replication (NCS-R),[23, 24] a nationally representative survey of the prevalence and correlates of mental disorders that included a

parallel assessment of chronic medical disorders for purposes of studying comorbidity and comparative role impairments. The NCS was based on a multi-stage clustered area probability sample of the US adult household population. Interviews were carried out face-to-face in the homes of respondents. The response rate was 70.9%. The survey sample closely reflects the census population distribution on a wide range of socioeconomic variables, and weights were used to correct for discrepancies in those distributions.[23] A probability sub-sample of hard-to-recruit pre-designated respondents was selected for a brief telephone non-respondent survey, the results of which were used to weight the main sample for non-response bias. The Human Subjects Committees of Harvard Medical School and the University of Michigan both approved these recruitment and consent procedures.

The NCS-R interview schedule was divided into two parts. Part I was administered to the full sample of 9282 respondents to assess core mental disorders. Part II was administered to a probability sub-sample of 5692 respondents that included all Part I respondents with a core mental disorder plus a roughly 25% probability sub-sample of other Part I respondents. Part II assessed chronic physical disorders, risk factors, and costs of illness. The Part II sample is the focus of the current report. This sample was weighted to adjust for differential probabilities of selection within households, over-sampling of Part I respondents with mental disorders, differential non-response, and residual discrepancies between the sample and the US population on the cross-classification of basic demographic and geographic variables. For purposes of the current report, the sample was also weighted to adjust for seasonal variation in sample size. More details about the NCS-R sample design are reported elsewhere.[23]

Measures

Chronic medical disorders were assessed with a standard chronic condition checklist based on the one used in the US National Health Interview Survey.[25, 26] Such checklists have been shown to yield more complete and accurate reports than estimates derived from responses to open-ended questions.[27] In addition, methodological studies have documented moderate to good concordance between such reports and medical records in developed countries.[28–31] The ten disorders considered here are: asthma, cancer, cardiovascular (hypertension, other heart disease), diabetes, musculoskeletal (arthritis, chronic back/neck pain), chronic headaches, other chronic pain disorders, and ulcer. Consistent with the NHIS methodology, respondents were asked to report whether they had each of the symptom-based disorders in the past 12-months (e.g. headaches). For each of the silent disorders (e.g. hypertension). they were asked and to say whether a doctor ever told them they had the condition and, if so, whether they continued to have that disorder in the past 12 months. Separate analyses were conducted among persons stratified by treatment status (i.e. whether the person saw a medical doctor at least once in the past 12 months for the disorder). Acknowledging that persons with different conditions may have varying thresholds for obtaining treatment,[32] this approach provides a method for minimizing the potential bias associated with differences in case identification approaches between mental and general medical disorders.

Mental disorders were assessed with Version 3.0 of the World Health Organization (WHO) Composite International Diagnostic Interview (CIDI),[33] a fully structured lay-administered interview designed to generate research diagnoses of commonly occurring DSM-IV mental disorders.[34] The three classes of disorders considered are anxiety disorders (panic disorder, generalized anxiety disorder, specific phobia, social phobia, post-traumatic stress disorder), mood disorders (major depressive disorder or dysthymia, bipolar disorder), and impulse-control disorders (intermittent explosive disorder, adult attention-deficit/hyperactivity disorder, oppositional-defiant disorder). Only disorders present in the past 12 months are considered in this report. Generally good concordance has been found between CIDI diagnoses of anxiety and depressive disorders and independent clinical assessment.[35] CIDI diagnoses of

impulse-control disorders have not been validated. Treatment of mental disorders was defined as getting any mental health care in the past 12 months, either in the primary care setting or from specialty services. Self-report data about presence-absence of any treatment have been shown in previous methodological studies to have generally good concordance with archival health care utilization records.[36]

Role impairment was assessed with the Sheehan Disability Scales (SDS).[37] The SDS asks respondents separately for each condition to think about the one month in the past twelve when the focal condition was most severe. Respondents were then asked to us a 0-to-10 visual analogue scale to rate how much the disorder interfered with each of four domains during that month. The four domains are home ("your home management, like cleaning, shopping, and taking care of the house"), work ("your ability to work"), social ("your social life"), and close relationships ("your ability to form and maintain close relationships with other people"). Response categories on the visual analogue scale were labeled *no interference* (0), *mild* (1–3), *moderate* (4–6), *severe* (7–9), and *very severe interference* (10). A global SDS score was also created by assigning each respondent the highest SDS domain score reported across the four domains. Previous research has shown that SDS scores are significantly associated with independent objective indicators of impairment, including a validated[38] measure of days out of role[21] and a diary-based measure of moment-in-time work performance.[39] Consistent with these earlier results, we found a strong and consistent gradient between severity of Sheehan scores (both physical and mental) and mean days out of role in the NCS-R (results available from the authors on request), speaking to the validity of the SDS.

The SDS scales were administered separately for each of the ten mental disorders and for one chronic medical disorder selected randomly from among all the chronic medical disorders reported by the respondent as being in existence during the 12 months before interview. Each observation in the data file for the chronic medical disorders was weighted by the number of such disorders reported in order to adjust for between-person variation in probability of selection of individual disorders as a function of number of disorders reported.

Statistical Analysis

A separate observational record was created for each 12-month physical disorder for which SDS ratings were obtained (i.e., one for each respondent who reported one or more such disorders) as well as for each 12-month mental disorder reported by each respondent. Respondent weights were applied to each observational record and, in the case of chronic medical disorders an additional weight was applied for differential probability of selection of the disorder. Domain-specific and global SDS means, proportions rated severe or very severe (henceforth referred to as severe), and the standard errors of these estimates were then calculated separately for each disorder. Significance tests were computed to test for the significance of pair-wide differences in SDS means and proportions rated severe across all pairs of disorders. Between-disorder comparisons were also made to determine whether SDS ratings are systematically different for chronic medical than mental disorders. All these analyses were then replicated in sub-samples of treated and untreated conditions. All significance tests adjusted for gender, age cohort, marital status and education, as well as for the clustering and weighting of observations using the jackknife repeated replications pseudo-replication simulation method.[40] Significance was consistently evaluated at the.05 level with two-sided tests.

RESULTS

Prevalence and treatment of chronic medical and mental disorders

A total of 58.5% of respondents reported one or more of the 10 chronic medical disorders surveyed in the study, while 24.8% met criteria for one or more of the 10 mental disorders. (Table 1) The most common chronic medical disorders reported were arthritis (27.3%), hypertension (19.2%), and back/neck pain (19.0%); the most common mental disorders were specific phobia (9.2%), major depression (7.6%), and social phobia (7.2%). Chronic medical disorders were more than twice as likely to be treated as mental disorders (58.2% vs. 21.3%).

Role impairment due to chronic medical and mental disorders

Considerable variability exists across disorders in mean level of impairment and in the proportion of cases reported to cause severe impairment (i.e. a Sheehan Score in the range 7–10.) (Tables 2 and 3) Headaches, back-neck pain, and other chronic pain disorders are the most impairing chronic medical disorders, with 42.4% of headaches, 36.0% of back-neck pain, and 51.8% of other chronic pain disorders said to cause severe impairment in at least one of the four SDS role domains. Bipolar disorder, major depression, and post-traumatic stress disorder (PTSD) are the most impairing mental disorders, with 70.1% of bipolar disorder, 64.2% of depression, and 62.9% of PTSD said to cause severe impairment in at least one of the four SDS role domains.

When considered in the aggregate, the mean SDS impairment scores across all mental disorders are significantly higher than those across all chronic medical disorders in each of the four SDS domains. (Table 2) In addition, a significantly higher proportion of mental disorders (42.0%) than chronic medical disorders (24.4%) are associated with severe role impairment in one or more SDS domains. The overall impairment score of the mental disorder is significantly higher than the score of the chronic medical disorder in 74 of the 100 pair-wise comparisons between each of the 10 mental disorders and each of the 10 chronic medical disorders. In only three comparisons, specific phobia versus chronic pain (χ^2=19.8, p<0.001), versus back and neck pain (χ^2=68.6, p<0.001), and versus headaches (χ^2=72.2, p<0.001), is the global impairment score of a mental disorder significantly lower than that of a chronic medical disorder. The Mann-Whitney Test for pair-wise differences indicated that overall, mental disorders are significantly more impairing than the chronic medical disorders. (z = 3.0, p =.003). (More detailed results available on request)

These results were also replicated using within-person analysis that focused on single individuals who were asked to rate severity of impairment associated both a physical disorder and one or more mental disorders. Within-person analysis is useful because it corrects for the possibility that people with mental disorders exaggerate the extent of their actual impairments, as any such general tendency would be controlled by asking the same person to report on impairments associated with both physical and mental disorders. There were 26 pairs that had 30 or more respondents reporting. The mental disorder was rated as more impairing than the chronic medical disorder on the Global Sheehan Score in 15 (57.0%) of these comparisons, versus 10 (38.5%) in which the chronic medical disorder was rated as more disabling. (Full results available on request).

A significantly higher proportion of the mental than chronic medical disorders are associated with severe impairment in three of the four SDS domains: home functioning (22.9% vs. 17.5%), social functioning (29.7% vs. 8.2%), and functioning in close relationships (26.6% vs. 5.5%). There is no significant aggregate difference between mental and chronic medical disorders, in comparison, in the prevalence of severe impairment in work functioning (20.5% vs. 18.9%). Chronic medical disorders are associated with a highest proportion of severe impairment in

the work (18.9%) and home (17.5%) domains than in the social (8.2%) and close relationships (5.5%) domains. Mental disorders, in comparison, are associated with somewhat higher proportions of severe impairment in the social (29.7%) and close relationship (26.6%) domains than in the work (20.5%) and home (22.9%) domains. These broad patterns are generally consistent across specific chronic medical and mental disorders and hold both for mean impairment and for the proportion of cases classified as severely impaired.

Treated versus untreated disorders

In an effort to explore the implications of the fact that mental disorders were assessed by self-report while the chronic medical disorders that can be detected only by medical examination are based on respondent reports of medical diagnoses, the analyses described above were all replicated separately in the sub-samples of treated and untreated disorders. (Table 4). For both mental and chronic medical disorders, treated disorders were about twice as likely as untreated disorders to be associated with severe impairment, suggesting that treatment is a proxy for severity of the underlying disorders. However, across all disorders and SDS domains, mental disorders were associated with significantly higher impairment than chronic medical conditions both among treated cases (χ^2_1=156.3, p <.001) and among untreated cases (χ^2_1=183.1, p <.001). This pattern was generally consistent across SDS domains and for both mean impairment and the proportion rated severe disability. (More detailed results available on request)

The role of comorbidity

The Sheehan Disability Scale asks respondents to identify the impairment resulting from particular conditions, thus it is not possible to examine how any particular pair of conditions combine to produce overall impairment. Therefore, to examine the potential impact of comorbidity, regression analyses examined how concurrent conditions were associated with report of severe disability due to an index condition, adjusting for potential confounders. For instance, if a respondent had diabetes, these analyses examined how a comorbid diagnosis of depression influenced the report of severe role impairment resulting from the diabetes.

In the aggregate, each additional comorbid mental disorder was found to be associated with a statistically significant increased relative-odds (95% confidence interval in parentheses) of 1.3 (1.2–1.4) of a given chronic medical disorder being classified severely impairing (χ^2_1=30.6, p<.001). The aggregate association between each additional comorbid chronic medical disorder and the relative-odds of a mental disorder being classified severely impairing, in comparison, is a statistically significant 1.2 (1.1–1.3; χ^2_1=16.0, p<.001). (More detailed results available on request)

DISCUSSION

This study provides nationally-representative data quantifying the prevalence and characteristics of role impairment associated with a wide range of mental and chronic medical disorders. Three main findings build on and extend previous data on the relative burden of mental and chronic medical disorders in the United States. First, the findings document that the mental disorders considered here are significantly more impairing than the commonly occurring chronic medical disorders considered in the comparisons. This is true overall as well as for the vast majority of the 100 pair-wise disorder comparisons in the total sample as well as separately among treated cases and separately among untreated cases. Second, the findings document that mental disorders have somewhat different cross-domain profiles of role impairment than the chronic medical disorders, with the impairments of mental disorders significantly greater than those for the chronic medical disorders in the domains of home, social, and close relationships, but not in the domain of work. Third, the findings document that

comorbidity between chronic medical and mental disorders plays an important role in the impairments associated with both types of disorder.

Before discussing these findings, it is important to address two major study limitations. First, the NCS-R relied on self-report to quantify the degree of impairment associated with the disorders considered here. As noted above in the section on measurement, this concern is somewhat mitigated by the fact that within the NCS-R, we found a strong and consistent gradient between severity of Sheehan scores and mean days out of role for mental (r=0.59) and chronic medical (r=0.61) disorders (full results available from the authors on request). Also, within-person medical-mental comparisons in the sub-sample of respondents who both had one or more chronic medical disorders and one or more mental disorders yielded results very similar to those found in the total sample. This is an important finding because it shows that elevated perceptions of impairment associated with having the mental disorder do not account for physical-mental differences as within-person analyses should control for any such individual differences. Finally, as noted above, comparable results have been reported in studies that used other validated indicators of impairment.[21, 39]

Second, while a structured diagnostic instrument was used to identify mental disorders, chronic medical conditions were identified via self-report, raising the possibility that lower validity of diagnostic assessment for the chronic medical disorders than the mental disorders might have biased results against finding high impairment associated with the chronic medical disorders. It is noteworthy in this regard that previous studies have shown that patient-reported diagnoses of chronic medical disorders have generally been found to correlate well with physician diagnosis in methodological studies aimed at validating the data reported in chronic conditions checklists.[31] Furthermore, the consistency of the study findings across both treated and untreated individuals provides further support for the validity of the relative differences in role impairment between mental and chronic medical conditions.

With these methodological considerations as a backdrop, it is noteworthy that data on the high burden of mental disorders, particularly estimates from the World Health Organization's Global Burden of Disease Study,[41] have been embraced by mental health advocates and policymakers as evidence that mental disorders are more burdensome than most chronic medical disorders.[42, 43] The current study further documents the high relative impairment, as well as the low treatment rates, associated with mental disorders in the United States. Coupled with data on the favorable cost-effectiveness of treatments for mental disorders,[44] these findings suggest that mental disorders warrant prioritization in discussions about healthcare resource allocation in the United States. Consistent with this thinking, the Institute of Medicine has ranked both major depression and serious mental illnesses as among the highest priority conditions for US quality improvement initiatives based on evidence of burden and treatment cost-effectiveness.[45] It is likely that a more broad-based analysis would lead other commonly-occurring mental disorders to be added to this list.

Our current results support the notion that while both mental and chronic medical disorders lead to considerable impairment, that they do so via different pathways. Chronic medical disorders commonly limit ability to perform basic physical tasks such as activities of daily living, which in turn may impede work and home functioning. Consistent with this mechanism and with previous literature,[46] a detailed inspection of our results shows that chronic pain disorders are associated with particularly high levels of work impairment. Mental disorders, in comparison, have their greatest adverse effects on social functioning and close relationships. The latter are high-order functions that are commonly dysregulated by emotional problems.[43] This finding is consistent with data from clinical populations, where disproportionate impairments due to mental disorders have been documented in the areas of social and interpersonal role functioning.[16, 47] Problems in these domains may be less easily seen and

quantified than the deficits resulting from chronic medical disorders, resulting in a substantial "invisible" societal burden.[48]

Finally, the findings reported here highlight the importance of comorbidity in impairment. Previous studies have documented the fact that increasing numbers of comorbid conditions are associated with increasing likelihood and severity of disability.[2, 17] The current study adds to this literature by demonstrating that having a second category of condition may increase the impairment associated with any single index disorder, with a synergistic effect between mental and chronic medical disorders. Individuals who suffer from only a single class of disorder may be still be able to function by relying on other intact domains of functioning to make up for deficits in a single domain. The presence of morbidity across different classes of disorders, though, may reduce this compensatory capacity, resulting in a higher level of impairment for the index disorder than in the absence of comorbidity. The importance of comorbidity is further highlighted by the fact that many of the most disabling conditions in this survey, such as chronic pain syndromes, may both be exacerbated by, and also be a risk factor for, mental symptomatology.

The first conclusion of the 2003 President's New Freedom Commission on Mental Health was that mental health is essential to overall health.[49] The current study presents clear and convincing evidence to support that assertion. Furthermore, the results indicate a serious mismatch between the high degree of impairment and low rate of treatment for mental disorders in the United States. Efforts to reduce disability will need to address mental disorders' disproportionate burden, distinct patterns of deficits, and the potentially synergistic impact of comorbid mental and chronic medical disorders on impairment.

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Table 1

Twelve-month estimated prevalence and treatment of the disorders (n = 5692)

	Prevalence			Percent treated		
	%	(se)	(n)[a]	%	(se)	(n)[b]
I. Chronic medical disorders						
Arthritis	27.3	(0.9)	(1588)	47.9	(3.1)	(272)
Asthma	11.6	(0.6)	(751)	38.5	(4.6)	(111)
Back/neck pain	19.0	(0.8)	(1313)	62.5	(3.2)	(306)
Cancer	6.6	(0.5)	(383)	32.0	(5.4)	(55)
Chronic Pain	6.7	(0.4)	(506)	60.4	(7.3)	(106)
Diabetes	6.1	(0.4)	(340)	91.8	(2.2)	(104)
Headaches	12.7	(0.6)	(969)	49.7	(2.9)	(189)
Heart Disease	5.0	(0.4)	(315)	62.0	(6.7)	(63)
High Blood Pressure	19.2	(0.6)	(1061)	83.8	(2.6)	(339)
Ulcer	2.4	(0.2)	(180)	63.8	(8.5)	(38)
Any chronic medical disorder	58.5	(0.9)	(3569)	58.2*	(1.7)	(1583)
II. Mental disorders						
ADHD[c]	4.1	(0.3)	(181)	33.1	(4.4)	(62)
Bipolar disorder	2.9	(0.2)	(261)	32.5	(2.3)	(86)
Major depression	7.6	(0.3)	(730)	33.7	(1.4)	(244)
Generalized anxiety disorder	4.1	(0.3)	(390)	32.9	(2.5)	(128)
Intermittent explosive disorder	4.3	(0.4)	(380)	17.0	(2.2)	(70)
Oppositional-defiant disorder	0.6	(0.1)	(55)	29.0	(8.4)	(16)
Panic Disorder	2.8	(0.2)	(260)	35.3	(2.9)	(89)
Post-traumatic stress disorder	3.6	(0.3)	(324)	34.3	(2.9)	(115)
Social Phobia	7.2	(0.3)	(666)	24.1	(1.4)	(168)
Specific Phobia	9.2	(0.5)	(842)	18.3	(1.8)	(163)
Any Mental Illness	24.8	(0.8)	(2233)	21.4	(0.9)	(498)

*Significantly different from the percent for any mental disorders at the.05 level, two-sided test

[a]The unweighted numbers of respondents with the disorders. Note that the ratios of these numbers to the total sample size generally do not equal the prevalence estimates, as the latter are based on the weighted data.

[b] The unweighted numbers of respondents in treatment for the disorders. Note that ratios of these numbers to the numbers of respondents with the disorders generally do not equal the estimates of the percent in treatment, as the latter are based on the weighted data.

[c] ADHD: Attention-deficit/hyperactivity disorder

Table 2

Mean scores for each disorder in each SDS domain

	Global Score		Work		Home		Social		Close Relations	
	mean	(se)	mean	(se)	mean	(se)	mean	(se)	mean	(se)
I. Chronic medical disorders										
Arthritis	3.4	(0.2)	2.6	(0.2)	3.0	(0.2)	1.3	(0.1)	0.9	(0.1)
Asthma	1.8	(0.2)	1.3	(0.2)	1.5	(0.2)	0.8	(0.2)	0.5	(0.1)
Back/neck pain	4.9	(0.2)	4.0	(0.2)	4.1	(0.2)	1.8	(0.2)	1.2	(0.1)
Cancer	1.9	(0.4)	1.6	(0.3)	1.5	(0.3)	1.1	(0.3)	0.9	(0.3)
Chronic Pain	5.6	(0.6)	5.0	(0.6)	4.4	(0.6)	2.8	(0.6)	1.4	(0.3)
Diabetes	3.5	(0.7)	2.8	(0.7)	2.8	(0.6)	1.7	(0.5)	1.4	(0.4)
Headaches	5.4	(0.2)	4.3	(0.2)	4.4	(0.3)	3.5	(0.3)	2.8	(0.3)
Heart Disease	3.4	(0.6)	2.8	(0.6)	2.6	(0.6)	1.2	(0.3)	0.6	(0.2)
High Blood Pressure	1.3	(0.1)	1.0	(0.1)	1.0	(0.1)	0.5	(0.1)	0.4	(0.1)
Ulcer	2.8	(0.6)	2.0	(0.6)	1.9	(0.5)	1.6	(0.5)	1.1	(0.5)
Any chronic medical disorder	3.4*	(0.1)	2.7*	(0.1)	2.8*	(0.1)	1.5*	(0.1)	1.1*	(0.1)
II. Mental disorders										
ADHD[a]	5.3	(0.2)	3.6	(0.3)	3.6	(0.2)	3.4	(0.3)	3.4	(0.2)
Bipolar disorder	7.6	(0.2)	5.2	(0.2)	5.8	(0.2)	6.2	(0.2)	6.0	(0.2)
Major depression	7.1	(0.1)	4.7	(0.1)	5.3	(0.1)	5.8	(0.2)	5.1	(0.1)
Generalized anxiety disorder	6.8	(0.2)	4.2	(0.2)	4.3	(0.2)	5.6	(0.2)	5.0	(0.2)
Intermittent explosive disorder	4.9	(0.2)	2.3	(0.2)	2.7	(0.2)	3.5	(0.2)	3.9	(0.2)
Oppositional-defiant disorder	5.4	(0.5)	3.5	(0.5)	3.2	(0.6)	4.4	(0.4)	4.5	(0.4)
Panic Disorder	5.8	(0.3)	3.9	(0.3)	3.9	(0.3)	4.3	(0.3)	3.9	(0.3)
Post-traumatic stress disorder	6.9	(0.2)	4.5	(0.3)	4.6	(0.2)	5.4	(0.4)	5.4	(0.2)
Social Phobia	5.1	(0.1)	3.0	(0.1)	2.2	(0.1)	4.4	(0.1)	3.7	(0.1)
Specific Phobia	3.3	(0.1)	1.9	(0.1)	2.0	(0.1)	2.1	(0.1)	1.8	(0.2)
Any Mental Illness	5.4	(0.1)	3.4	(0.1)	3.6	(0.1)	4.2	(0.1)	3.9	(0.1)

*Significantly different from the mean for any mental disorder at the.05 level, two-sided test

[a]ADHD: Attention-deficit/Hyperactivity disorder

Table 3

The prevalence of a severe impairment[a] rating for each disorder on each SDS domain

	Any Domain		Work		Home		Social		Close Relations	
	%	(se)	%	(se)	%	(se)	%	(se)	%	(se)
I. Chronic medical disorders										
Arthritis	22.7	(2.5)	16.3	(2.3)	17.5	(2.6)	6.4	(1.3)	4.4	(0.9)
Asthma	9.5	(2.0)	5.5	(1.6)	6.1	(2.2)	3.0	(1.0)	0.3	(0.2)
Back/neck pain	36.0	(3.3)	28.4	(3.1)	25.8	(2.6)	7.9	(1.3)	4.7	(1.0)
Cancer	14.0	(3.7)	10.9	(3.3)	12.2	(3.6)	5.1	(2.9)	3.9	(2.8)
Chronic Pain	51.8	(7.4)	45.1	(7.6)	35.1	(6.3)	20.4	(6.3)	11.2	(2.3)
Diabetes	27.4	(8.0)	24.4	(8.1)	18.0	(6.7)	14.2	(6.6)	7.2	(4.1)
Headaches	42.4	(3.7)	32.0	(3.6)	30.2	(3.8)	23.0	(3.1)	19.4	(3.2)
Heart Disease	26.7	(7.3)	20.3	(6.5)	18.6	(7.1)	6.3	(2.6)	1.9	(1.1)
High Blood Pressure	6.7	(1.2)	5.4	(1.1)	4.0	(1.1)	0.8	(0.5)	1.2	(0.6)
Ulcer	12.8	(4.5)	6.0	(3.2)	9.3	(4.3)	5.0	(2.0)	3.6	(1.6)
Any chronic medical disorder	24.4*	(1.0)	18.9	(1.1)	17.5*	(1.1)	8.2*	(0.8)	5.5*	(0.6)
II. Mental disorders										
ADHD[b]	36.5	(4.0)	22.6	(3.9)	14.3	(2.2)	18.2	(3.2)	16.5	(3.1)
Bipolar disorder	70.1	(3.1)	37.2	(3.7)	44.6	(3.7)	50.0	(2.9)	49.1	(3.2)
Major depression	64.2	(2.5)	31.8	(2.3)	39.5	(2.4)	48.2	(2.2)	38.4	(1.9)
Generalized anxiety disorder	60.4	(2.8)	29.3	(2.7)	29.5	(2.5)	45.7	(3.0)	36.5	(2.7)
Intermittent explosive disorder	36.5	(2.8)	12.2	(2.2)	14.2	(2.2)	21.7	(2.8)	26.0	(3.1)
Oppositional-defiant disorder	34.7	(6.6)	25.4	(7.4)	22.2	(6.8)	23.7	(4.3)	21.0	(4.7)
Panic Disorder	50.9	(4.1)	28.1	(3.5)	27.4	(3.4)	33.8	(4.2)	27.5	(3.9)
Post-traumatic stress disorder	62.9	(3.7)	33.2	(4.0)	33.8	(3.3)	45.6	(5.6)	44.6	(4.6)
Social Phobia	36.0	(1.8)	15.3	(1.3)	10.9	(1.2)	28.5	(1.5)	22.8	(1.7)
Specific Phobia	18.0	(1.9)	9.0	(1.1)	7.8	(1.1)	10.3	(1.5)	8.1	(1.3)
Any Mental Illness	42.0	(1.2)	20.5	(1.0)	22.9	(1.0)	29.7	(1.1)	26.6	(1.0)

*Significantly different from the percent for any mental disorder at the.05 level, two-sided test

[a]An SDS score in the range 7–10

[b] ADHD: Attention-deficit/Hyperactivity disorder

Table 4

Mean scores and percent rated severely impaired for overall chronic medical and mental disorders in each SDS domain by treatment status

	Global		Work		Home		Social		Close Relations	
I. Mean scores										
A. Chronic medical disorders										
	mean	(se)	mean	(se)	mean	(se)	mean	(se)	mean	(se)
Treated	4.0*	(0.1)	3.3*	(0.1)	3.4*	(0.1)	1.9*	(0.1)	1.4*	(0.1)
Untreated	2.5*	(0.1)	1.8*	(0.1)	2.0*	(0.1)	1.0*	(0.1)	0.7*	(0.1)
Overall	3.4*	(0.1)	2.7*	(0.1)	2.8*	(0.1)	1.5*	(0.1)	1.1*	(0.1)
B. Mental disorders										
	mean	(se)	mean	(se)	mean	(se)	mean	(se)	mean	(se)
Treated	7.1*	(0.1)	5.1*	(0.2)	5.0*	(0.2)	6.0*	(0.2)	5.5*	(0.2)
Untreated	5.0*	(0.1)	2.9*	(0.1)	3.2*	(0.1)	3.7*	(0.1)	3.5*	(0.1)
Overall	5.4*	(0.1)	3.4*	(0.1)	3.6*	(0.1)	4.2*	(0.1)	3.9*	(0.1)
C. Comparisons of chronic medical vs. mental disorder means										
	χ^2_1	(p)	χ^2_1	(p)	χ^2_1	(p)	χ^2_1	(p)	χ^2_1	(p)
Treated	156.3	(<.001)	25.3	(<.001)	24.2	(<.001)	258.7	(<.001)	291.2	(<.001)
Untreated	183.1	(<.001)	24.2	(<.001)	46.3	(<.001)	283.1	(<.001)	493.7	(<.001)
Overall	183.0	(<.001)	10.0	(.002)	24.6	(<.001)	362.2	(<.001)	770.7	(<.001)
II. Percent rated severely impaired										
A Chronic medical disorders										
	%	(se)	%	(se)	%	(se)	%	(se)	%	(se)
Treated	31.5*	(1.5)	25.4*	(1.7)	22.6*	(1.5)	10.7*	(1.2)	7.5*	(1.0)
Untreated	14.3*	(1.5)	9.4*	(1.4)	10.0*	(1.3)	4.7*	(1.0)	2.6*	(0.5)
Overall	24.4*	(1.0)	18.9	(1.1)	17.5*	(1.1)	8.2*	(0.8)	5.5*	(0.6)
B. Mental disorders										
	%	(se)	%	(se)	%	(se)	%	(se)	%	(se)

	Global		Work		Home		Social		Close Relations	
Treated	65.7*	(2.2)	39.6*	(2.9)	40.0*	(2.7)	52.7*	(1.7)	44.4*	(1.9)
Untreated	35.4*	(1.5)	15.3*	(0.8)	18.2*	(1.1)	23.4*	(1.3)	21.7*	(1.3)
Overall	42.0*	(1.2)	20.5	(1.0)	22.9*	(1.0)	29.7*	(1.1)	26.6*	(1.0)
C. Comparisons of chronic medical vs. mental disorder means										
	χ^2_1	(p)	χ^2_1	(p)	χ^2_1	(p)	χ^2_1	(p)	χ^2_1	(p)
Treated	89.8	(<.001)	5.7	(.017)	16.9	(<.001)	140.1	(<.001)	149.6	(<.001)
Untreated	88.0	(<.001)	5.0	(.025)	14.4	(<.001)	57.9	(<.001)	112.7	(<.001)
Overall	68.3	(<.001)	0. 0	(.898)	5.2	(.022)	139.3	(<.001)	186.2	(<.001)

*Significant difference between chronic medical and mental disorders at the.05 level, two-sided test. All analyses adjust for gender, age cohort, marital status and education.

[a]An SDS score in the range 7–10