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*J Clin Psychiatry*. Author manuscript; available in PMC 2012 January 1.

Published in final edited form as:
*J Clin Psychiatry*. 2011 January ; 72(1): 43–50. doi:10.4088/JCP.09m05094blu.

# Health-related quality of life across the anxiety disorders

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## Abstract

**Objective—**Although clinical studies have documented that specific anxiety disorders are associated with impaired psychosocial functioning, little is known regarding their comparative effects on health-related quality of life within a general population. The current analysis compares health-related quality of life in a U.S. community-dwelling sample of adults with DSM-IV social anxiety disorder (SAD), generalized anxiety disorders (GAD), panic disorder (PD), and specific phobia (SP).

**Method—**Face-to-face survey of a U.S. nationally representative sample of over 43,000 adults aged 18 years and older residing in households and group quarters. Prevalence of DSM-IV anxiety disorders and relative associations with health-related quality of life indicators were examined.

**Results—**Roughly 9.8% of respondents met diagnostic criteria for at least one 12-month DSM-IV anxiety disorder which, relative to the non-anxiety-disordered general population, were each associated with lower personal income, increased rates of 12-month physical conditions, and greater numbers of Axis I and Axis II DSM-IV psychiatric conditions. After adjusting for socio-demographic and clinical correlates including other anxiety disorders, GAD was associated with significant decrements in the SF-12 Mental Component Summary score. In similar models, GAD and to a lesser extent PD were significantly associated with impairment in social functioning, role emotional, and mental health SF subscales.

**Conclusion—**GAD, followed by PD, appears to exact significant and independent tolls on health-related quality of life. Results underscore the importance of prompt and accurate clinical identification and improving access to effective interventions for these disorders.

Anxiety disorders are the most prevalent class of mental health disorders[1] and collectively impose a substantial public health burden on society. Evidence of the burden of anxiety disorders is portrayed in reports of high health care utilization and costs,[2–5] losses of worker productivity,[6] elevated rates of general medical disorders,[7] frequent comorbid mental disorders,[1,8–13] and increased risk of suicide attempts and suicidal ideation.[14–16] Anxiety disorders are also associated with impaired health-related quality of life.[17] Yet epidemiologic surveys document long delays in treatment seeking[18] and low rates of treatment among individuals with anxiety disorders.[19]

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**Disclosures**: Dr. Blanco has received research support from Somaxon, Pfizer and GlaxoSmithKline. Dr. Olfson has received grants from AstraZeneca and Eli Lilly & Company, has worked as a consultant for Pfizer and AtraZeneca, and has served on a speaker's bureau for Janssen. Drs. Comer, Grant, Hasin and Turner and Ms. Liu report no competing interests. Dr. Blanco had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

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Health-related quality of life is a broad concept that spans self-perceived mental and physical disability as well as social and role functioning. As measured by the Short Form (SF) Health Survey,[20–21] the adverse effects of medical conditions on health-related quality of life have been extensively documented with regards to arthritis, back pain, cancer, cardiovascular disease, stroke, pulmonary disease, HIV/AIDS, hypertension, depression, and other disorders.[22] Decrements in health-related quality of life predict hospitalization and mortality across various populations.[23–25]

Empirical work examining health-related quality of life in anxiety disorders reveals associations with disability in major life roles, relationship impairments, decreased mental health, reduced vitality, and poor physical functioning.[17] Relative to non-anxiety-disordered counterparts, individuals with social anxiety disorder (SAD), generalized anxiety disorder (GAD), panic disorder (PD), and specific phobia (SP) each score lower on the SF Health Survey

Importantly, research on quality of life of adults with anxiety disorders has been primarily conducted with patients receiving primary care[26–29] or specialty mental health services,[30–35] or has treated health-related quality of life as unidimensional,[36] and thus may not accurately capture the public health burden of these disorders. Research focused on single anxiety disorders[37–43] does not directly inform questions concerning disability across anxiety disorders or difficult issues concerning clinical priorities. General population research examining quality of life across a range of anxiety disorders has been limited. Saarni and colleagues[44] reported generalized anxiety disorder and social phobia as associated with the largest loss of quality-adjusted life-years among the anxiety disorders, but their survey was conducted in an ethnically homogenous population and respondents below the age of 30 were excluded.

The current analysis assesses the absolute and comparative severity of impairment in health-related quality of life across four common anxiety disorders: SAD, GAD, PD, SP, in a U.S. nationally representative adult community sample. We also determine the extent to which each anxiety disorder has a distinctive pattern of impaired health-related quality of life after accounting for demographic and clinical correlates.

## METHODS

### Sample

The 2001–2002 National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) is a nationally representative survey of randomly drawn household and group home U.S. residents aged 18 years and older.[45–46] Face-to-face interviews were conducted with 43,093 respondents. The overall survey response rate was 81%. Blacks, Hispanics, and young adults (aged 18–24 years) were over-sampled with adjustments for nonresponse and oversampling. Weighted data were then adjusted to be representative of the US civilian population based on the 2000 Census.

### Measures

The Alcohol Use Disorder and Associated Disabilities Interview Schedule—DSM-IV Version (AUDADIS-IV)[47] was used to generate diagnoses. The AUDADIS-IV is a structured diagnostic interview designed for lay interviewers, developed to advance measurement of substance use and mental disorders in large-scale surveys. Modules assess the common DSM-IV anxiety disorders (GAD, PD, SAD, SP), mood disorders (major depressive disorder, dysthymia, bipolar I, bipolar II), substance use disorders (alcohol abuse disorder, alcohol dependence disorder, drug abuse disorder, drug dependence disorder), and personality disorders (avoidant, dependent, obsessive-compulsive, paranoid, schizoid,

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histrionic, antisocial personality disorders). For each disorder, symptom endorsements, duration, associated impairment, and disorder-specific rule-outs are collected to assess DSM-IV criteria.

The AUDADIS-IV has demonstrated good retest reliability in the diagnosis of Diagnostic and Statistical Manual, Fourth Edition (DSM-IV) disorders in the general population,[48] comparable to or exceeding reliabilities found for the Diagnostic Interview Schedule (DIS), World Health Organization Composite International Diagnostic Interview (WHO-CIDI), and University of Michigan Composite International Diagnostic Interview (UM-CIDI).[49–51] In addition, the survey was used to collect demographic information and self-reported medical conditions. Respondents were asked whether they were informed by a health professional in the past 12 months that they had arteriosclerosis, hypertension, cirrhosis of the liver, non-cirrhosis liver disease, angina pectoris, tachycardia, myocardial infarction, other heart disease, stomach ulcer, gastritis, and/or arthritis.

**DSM-IV Disorders—**On the basis of DSM-IV criteria, respondents were classified as meeting each of the four target anxiety disorders (SAD, GAD, PD, SP). DSM-IV SAD was diagnosed by the presence of a marked and persistent fear of one or more social or performance situations in which the respondent is exposed to unfamiliar people or to the possible scrutiny of others. Diagnosis required that exposure to the feared situation(s) almost invariably provoked anxiety and that the respondent recognized that the fear is excessive or unreasonable, and that social anxiety is associated with avoidance of the feared situations or endures them with intense anxiety or distress. DSM-IV GAD was diagnosed when excessive and uncontrollable anxiety and worry were present more days than not for at least six months, accompanied by at least three of six symptoms of muscle tension, hyperactivity, or impaired concentration, as outlined by DSM-IV.

DSM-IV PD was diagnosed when the respondent endorsed a recurrence of unexpected discrete periods of intense fear or discomfort, during which times four or more DSM-IV panic symptoms developed abruptly and reached a peak within ten minutes. In accordance with DSM-IV, symptoms had to be accompanied by either a persistent concern about having additional attacks, worry about the implications of the attacks, or significant behavioral change related to the attacks. DSM-IV specific phobia (SP) was diagnosed when the respondent endorsed the presence of a marked or persistent fear that was cued by the presence or anticipation of a specific object or situation. Exposure to the feared object or situation had to invariably provoke an immediate and excessive or unreasonable anxiety response, and the respondent had to recognize that the fear was excessive or unreasonable. For each anxiety disorder, diagnosis required the DSM-IV clinical significance criterion in addition to sufficient symptom endorsements. The AUDADIS-IV also evaluated all potential diagnostic rule-outs in accordance with DSM-IV (e.g., symptoms due to direct physical effects of a substance or general medical condition, or better accounted for by another mental disorder). Respondents meeting criteria for a given anxiety disorder in the year preceding the interview were classified as having 12-month diagnosis of that disorder.

In addition to the DSM-IV anxiety disorders, the AUDADIS-IV evaluated several other DSM-IV Axis I disorders: major depressive disorder, bipolar I, bipolar II, alcohol abuse disorder, alcohol dependence disorder, drug abuse disorder, and drug dependence disorder. Respondents meeting criteria for a given disorder in the year preceding the interview were classified as having 12-month diagnosis of that disorder. Reliability estimates associated with DSM-IV mood and anxiety disorders as measured by the AUDADIS-IV range from fair to good ($0.40 \leq$ kappas $\leq 0.70$).[48,52]

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AUDADIS-IV assessment of DSM-IV Axis II diagnoses has been described in detail elsewhere.[52] Diagnoses assessed include avoidant, dependent, obsessive-compulsive, paranoid, schizoid, histrionic, and antisocial personality disorders. Reliability estimates associated with DSM-IV Axis II disorders as measured by the AUDADIS-IV range from fair to good (0.40 ≤ kappas ≤ 0.70).[48]

**Health-related quality of life—**The NESARC used the SF-12v2, a short efficient version of the SF Health Survey.53 It is a brief measure of functional health status, well-being and life quality. Over 700 publications document the favorable psychometric properties of the SF and/or its utility assessing disease burden.54[–56] We used the social functioning (SF), role limitations due to emotional problems (RE), and mental health (MH) indices, as well as Physical Component Summary (PCS) and Mental Component Summary (MCS) scales.

### Analytic Strategy

The 12-month prevalence estimates of the four anxiety disorders were first determined with 95% confidence intervals (95% CI). Respondents with each of the anxiety disorders and none of the anxiety disorders were examined with respect to demographic characteristics (sex, race/ethnicity, marital status, income, education, nativity, age), clinical correlates (12-month medical conditions, mean number of 12-month Axis I and II disorders), and health-related quality of life subscale scores. Regression procedures examined associations between each anxiety disorder and demographic and clinical characteristics, with no anxiety disorder entered as the reference group. An adjusted 0.01 α-level was adopted to reduce the probability of Type I error. To assess the independence of associations between each DSM-IV anxiety disorder and quality of life, general linear multiple regressions were conducted with SF-12v2 subscale scores as dependent variables. A series of linear regressions were conducted to determine the contribution of each anxiety disorder in predicting SF-12v2 scores. For each subscale, two models were assessed for each anxiety disorder. The first model controlled for respondent age, sex, nativity, insurance, race/ethnicity, marital status, income, medical conditions, and the number of comorbid psychiatric diagnoses other than anxiety disorders. The second model controlled for those variables as well as the presence of the other anxiety disorders. Due to the complex sampling of the NESARC, all analyses, including variance estimation procedures, were conducted using SUDAAN.[57]

## RESULTS

### Prevalence and socio-demographic characteristics

The 12-month prevalence estimate of any of the four DSM-IV anxiety disorders was 9.8%. The 12-month prevalence estimates of the four target DSM-IV anxiety disorders ranged from SP (7.1%) to GAD (2.1%). Compared to respondents without anxiety disorders, significantly higher proportions of female, lower-income, and US-born respondents, as well as lower proportions of older respondents, met 12-month criteria for each of the DSM-IV anxiety disorders (Table 1). In addition, as compared to respondents without anxiety disorders, a higher proportion of white and Native American respondents met 12-month criteria for DSM-IV SAD and PD respectively, a lower proportion of African American respondents met 12-month criteria for DSM-IV PD, and a lower proportion of Asian respondents met 12-month criteria for DSM-IV PD and SP. As compared to respondents without anxiety disorders, lower proportions of married respondents met 12-month criteria for DSM-IV GAD.

### Clinical correlates

Table 2 presents data on clinical correlates associated with 12-month DSM-IV SAD, GAD, PD, SP, and no anxiety disorder. Several self-reported medical conditions were associated

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with the anxiety disorders. As compared to respondents without anxiety disorders, higher proportions of respondents diagnosed with each of the 12-month DSM-IV anxiety disorders reported being diagnosed with hypertension, angina pectoris, tachycardia, stomach ulcer, gastritis, and arthritis. In addition, as compared to respondents without anxiety disorders, higher proportions of respondents diagnosed with 12-month DSM-IV GAD reported being diagnosed with non-cirrhosis liver disease and non-myocardial infarction heart disease. Similar findings held with respect to 12-month DSM-IV PD for non-myocardial infarction heart disease. Moreover, respondents with 12-month DSM-IV anxiety disorders evidenced greater numbers of 12-month non-anxiety-disorder DSM-IV Axis I and Axis II diagnoses.

### Health-related quality of life

Table 3 presents the health-related quality of life associated with 12-month DSMIV SAD, GAD, PD, and SP, as well as with no anxiety disorder. Each anxiety disorder was associated with significantly poorer social functioning, mental health, and greater role limitations due to emotional problems than respondents without anxiety disorders. In addition, 12-month DSM-IV anxiety disorders were each associated with significantly poorer overall mental and physical well-being (i.e., mental and physical component summary scores).

Regression analyses examined associations between DSM-IV anxiety disorders and quality of life after accounting for socio-demographic and clinical correlates of disorder. Table 4 presents the unadjusted and adjusted associations between 12-month anxiety disorders and overall quality of life component scores. All four DSM-IV anxiety disorders evidenced significant associations with the mental component summary score. After adjusting for socio-demographic and clinical correlates, a significant positive association was observed for GAD and a significant negative association was observed for SP. These associations were retained in the full model.

All four DSM-IV anxiety disorders exhibited significant associations with the physical component summary score, though none of these associations persisted after controlling for the socio-demographic and clinical covariates.

All four DSM-IV anxiety disorders predicted impaired social functioning and all but SAD retained this association after adjusting for socio-demographic and clinical correlates (Table 5). After additionally adjusting for the presence of other anxiety disorders, GAD, PD, and SP each remained significantly associated with social functioning. A similar pattern was observed with respect to associations of the anxiety disorders with role functioning related to emotional problems and with mental health.

## CONCLUSIONS

The present study provides estimates of health-related quality of life across the common DSM-IV anxiety disorders in a nationally representative US adult sample. These findings add to the empirical literature that portrays the burden of anxiety disorders.[2–6] Roughly one in ten adult U.S. adults met diagnostic criteria for at least one 12-month DSM-IV anxiety disorder. In relation to the non-anxiety-disordered general population, these adults tend to have lower personal income, increased rates of 12-month physical conditions, and greater numbers of other psychiatric disorders. Adults with anxiety disorders also tend to report poorer social functioning, role functioning, mental health, and overall mental and physical well-being. When considered in the context of standardized norms for the SF-12v2 from the National Survey of Functional Health Status,[53] individuals with DSM-IV SAD, GAD, and PD exhibit considerably poorer overall mental well-being, but not physical well-being, than individuals with cancer, diabetes, heart disease, arthritis, hypertension, and a host of other chronic physical conditions. These findings underscore the magnitude of the burden of

disease associated with anxiety disorders. Clinical efforts to redress problems of individuals affected by DSM-IV anxiety disorders should include health-related quality of life assessments to detect cases, identify treatment targets, and evaluate treatment effectiveness.

Among the anxiety disorders under study, GAD emerged as the most impairing. During the course of one year, approximately 2% of adults meet GAD criteria. As a group, they were at significantly increased risk of impaired social and role functioning, mental health, and overall physical and mental well-being. Notably, overall mental well-being for individuals with 12-month GAD was almost two standard deviations below that identified for "healthy" individuals (i.e., those with no chronic conditions) in the National Survey of Functional Health Status.[53] Even after accounting for several potentially confounding socio-demographic and clinical correlates—correlates that may also represent outcomes of psychiatric disorders—GAD retained significant negative associations with all quality of life indices, with the exception of physical well-being. This observation builds on previous clinical work with relatively small samples that has documented poor quality of life among patients with GAD[26,37,42] and brings a renewed sense of urgency to efforts to improve treatment access for this disorder. Contrary to the assertion of individuals with GAD as the "worried well,"[58] the present findings suggest individuals with GAD experience occupational and personal dissatisfaction as well as social and economic disadvantage.

Consistent with previous work[30,39,41,59–61] SAD was related to impaired social and role functioning, mental health, and overall physical and mental well-being. Because the most impaired cases of SAD frequently present with comorbid avoidant personality disorder,[62–63] accounting for potentially confounding DSM-IV Axis II disorders might substantially attenuate associations between SAD and quality of life indicators. In the current study, however, all relationships between SAD and quality of life indicators became non-significant after adjusting for socio-demographic and clinical correlates, and their level of significance did not change after adjusting for psychiatric comorbidity. This suggests that most of the impairment associated with SAD is concentrated in areas related to relationships and work achievement and in community samples is not mediated by the co-occurrence of other psychiatric disorders.

Panic disorder appears to fall between the less impairing SAD and the more impairing GAD. Consistent with previous work conducted on smaller and more selected samples,[64–67] 12-month PD predicted impaired social and role functioning, mental health, and overall physical and mental well-being. Failure to retain a significant relationship with physical well-being is consistent with the work of Sherbourne and colleagues,[67] who found self-reported physical well-being of selected PD outpatients to be closer to that of the general population than that of individuals with chronic physical conditions. In contrast, individuals with PD exhibited considerably poorer overall mental well-being (mean=43.8) than individuals drawn from the National Survey of Functional Health Status with a number of chronic physical conditions—conditions including cancer (47.1), diabetes (47.3), heart disease (48.3), and arthritis (47.1).[53] The poor social and role functioning observed may reflect the high rates of behavioral and situational avoidance that are common in PD.[68,69]

Specific phobia was associated with significant, though considerably less impaired health-related quality of life than the other anxiety disorders. Surprisingly, however, after accounting for socio-demographic and clinical correlates, associations between SP and social functioning, role functioning, mental health, and overall mental well-being actually predicted improved quality of life. The relationship between SP and poor quality of life may actually be better accounted for by co-occurring conditions than by the specific phobia. The current findings suggest a suppression effect,[70] in which an apparent positive association



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between SP on quality of life is suppressed by associations of SP with correlates that have negative associations with quality of life.

Individuals with anxiety disorders, relative to the non-anxiety-disordered population, reported substantially higher prevalence of co-morbid medical conditions. Among the anxiety disorders, medical co-morbidities were particularly high among individuals with GAD and PD. Although the mechanisms and direction of these associations remain unclear and it is not possible to draw causal inferences from cross sectional associations, these anxiety disorders may increase the risk of developing or maintaining some general medical disorders in vulnerable individuals. For example, gastric secretions associated with chronic worry in GAD may promote peptic ulceration.[71] Alternatively, some general medical conditions may increase in the risk of specific anxiety disorders.

Prevalence rates for the DSM-IV anxiety disorders are somewhat lower than those estimated in the NCS-Replication,[72] and resemble those reported in European epidemiologic work.[73] Inclusion of the clinical significance and the substance-induced exclusion criteria in the NESARC anxiety disorder definitions may have contributed to lower rate estimates in the NESARC than the NCS-R. Also, a GAD duration criterion of 1 month or more was applied in the NCS-R rather than 6 months as specified by the DSM-IV.

This analysis has several limitations. The cross-sectional design does not permit causal inferences about DSM-IV anxiety disorders and quality of life. In addition, associations between anxiety disorders and quality of life could have been inflated by shared method variance (e.g., self-report data). Moreover, systematic survey non-response (i.e., people with greater impairment having a higher refusal rate) could have led to biased quality of life estimates, although the overall response rate for the survey was excellent and weighting procedures help to correct for non-response bias. Further, the first wave of the NESARC did not assess PTSD and OCD, precluding examination of associations of these disorders with health-related quality of life. Finally, the analysis is limited to anxiety disorders and does not address mood or other common disorders.

In this large nationally representative sample of U.S. adults, several of the DSM-IV anxiety disorders are strongly associated with decrements in social functioning, role functioning, and mental health. These observations document the heavy toll of the common anxiety disorders. Given the availability of effective interventions for anxiety disorders[74–78] and documented long-delays and low treatment rates,[18–19] the current findings underscore, within the U.S. context, the critical importance of accelerating the flow of affected individuals into treatment, improving clinical recognition of anxiety disorders, reducing financial barriers to effective mental health care, and maintaining a clinical focus on improving health-related quality of life.

## Acknowledgments

**Funding/Support:** This study is supported by NIH grants AA000449 (Dr. Grant, Principal Investigator, NESARC), DA019606, DA020783, DA023200 and MH076051 (Dr. Blanco), T32 MH016434 (Dr. Comer), U18 HS016097 (Dr. Olfson), AA014223 (Dr. Hasin), a grant from the Mental Health Initiative (MINT) Foundation (Dr. Comer), a grant from the American Foundation for Suicide Prevention (Dr. Blanco) and the New York State Psychiatric Institute (Drs. Blanco, Olfson, and Hasin).

## REFERENCES

1. Kessler RC, Chiu WT, Demler O, Walters EE. Prevalence, severity, and comorbidity of 12-month DSM-IV disorders in the National Comorbidity Survey Replication. Arch Gen Psychiatry 2005;62:617–627. [PubMed: 15939839]

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2. Greenberg PE, Sisitsky T, Kessler RC, Finkelstein SN, Berndt ER, Davidson JRT, Ballender JC, Fyer AJ. The economic burden of anxiety disorders in the 1990s. J Clin Psychiatry 1999;60:427–435. [PubMed: 10453795]
3. Kessler, RC.; Greenberg, PE. The economic burden of anxiety and stress disorders. In: Davis, K., editor. Neuropsychopharmacology: The fifth generation of progress. The American College of Neuropsychopharmacology and Lippincott Williams & Wilkins; Baltimore, MD: 2002.
4. Rice DP, Miller LS. Health economics and cost implications of anxiety and other mental disorders in the United States. Br J Psychiatry 1998;173:4–9. [PubMed: 9850201]
5. Wittchen H-U. Generalized anxiety disorder: Prevalence, burden, and cost to society. Depress Anxiety 2002;16:162–171. [PubMed: 12497648]
6. Kessler RC, Frank RG. The impact of psychiatric disorders on work loss days. Psychol Medicine 1997;27:861–873.
7. Zaubler TS, Katon W. Panic disorder and medical comorbidity: A review of the medical and psychiatric literature. Bull Menninger Clin 1996;60:A12–A38. [PubMed: 8857425]
8. Brady EU, Kendall PC. Comorbidity of anxiety and depression in children and adolescents. Psychol Bull 1992;111:244–255. [PubMed: 1557475]
9. Compton WM, Thomas YF, Stinson FS, Grant BF. Prevalence, correlates, disability, and comorbidity of DSM-IV drug abuse and dependence in the United States: Results from the National Epidemiologic Survey on Alcohol and Related Conditions. Arch Gen Psychiatry 2007;64:566–576. [PubMed: 17485608]
10. Conway KP, Compton W, Stinson FS, Grant BF. Lifetime comorbidity of DSM-IV mood and anxiety disorders and specific drug use disorders: Results from the National Epidemiologic Survey on Alcohol and Related Conditions. J Clin Psychiatry 2006;67:247–257. [PubMed: 16566620]
11. Grant BF, Hasin DS, Blanco C, Stinson FS, Chou SP, Goldstein RB, Dawson DA, Smith S, Saha TD, Huang B. The epidemiology of social anxiety disorder in the United States: Results from the National Epidemiologic Survey on Alcohol and Related Conditions. J Clin Psychiatry 2005;66:1351–1361. [PubMed: 16420070]
12. Grant BF, Hasin DS, Stinson FS, Dawson DA, Ruan WJ, Goldstein RB, Smith SM, Saha TD, Huang B. Prevalence, correlates, co-morbidity, and comparative disability of DSM-IV generalized anxiety disorder in the USA: Results from the National Epidemiologic Survey on Alcohol and Related Conditions. Psychol Medicine 2005;35:1747–1759.
13. Kessler RC, Stang PE, Wittchen H-U, Ustun TB, Roy-Burne PP, Walers EE. Lifetime panic-depression comorbidity in the National Comorbidity Survey. Arch Gen Psychiatry 1998;55:801–808. [PubMed: 9736006]
14. Kessler RC, Borges G, Walters EE. Prevalence and risk factors of lifetime suicide attempts in the National Comorbidity Survey. Arch Gen Psychiatry 1999;56:617–626. [PubMed: 10401507]
15. Pilowsky DJ, Olfson M, Gameroff MJ, Wickramaratne P, Blanco C, Feder A, Gross R, Neria Y, Weissman MM. Panic disorder and suicidal ideation in primary care. Depress Anxiety 2006;23:11–16. [PubMed: 16245304]
16. Weissman MM, Klerman GL, Markowitz JS, et al. Suicidal ideation and suicide attempts in panic disorder and attacks. N Engl J Med 1989;321:1209–1214. [PubMed: 2797086]
17. Mendlowicz MV, Stein MB. Quality of life in individuals with anxiety disorders. Am J Psychiatry 2000;157:669–682. [PubMed: 10784456]
18. Wang PS, Berglund P, Olfson M, Pincus HA, Wells KB, Kessler RC. Failure and delay in initial treatment contact after first onset on mental disorders in the National Comorbidity Survey Replication. Arch Gen Psychiatry 2005;62:603–613. [PubMed: 15939838]
19. Kessler RC, Zhao S, Katz SJ, Kouzis AC, Frank RG, Edlund M, Leaf P. Past-year use of outpatient services for psychiatric problems in the National Comorbidity Survey. Am J Psychiatry 1999;156:115–123. [PubMed: 9892306]
20. Ware, JE.; Kosinski, M.; Keller, SK. SF-36 Physical and Mental Health Summary Scales: A User's Manual. The Health Institute; Boston, MA: 1994.
21. Ware, JE.; Kosinski, M.; Keller, SK. How to Score the SF-12 Physical and Mental Health Summary Scales. Second edition. The Health Institute, New England Medical Center; Boston, MA: 1995.

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22. Turner-Bowker, DM.; Bartley, PJ.; Ware, JE. SF-36 Health Survey & SF Bibliography: Third Edition (1988–2000). QualityMetric Inc; Lincoln, RI: 2002.
23. Dorr DA, Jones SS, Burns L, Donnelly SM, Brunker CO, Wilcox A, Clayton PD. Use of health-related, quality-of-life metrics to predict mortality and hospitalizations in community-dwelling seniors. J Am Geriatrics Society 2006;54:667–673.
24. Earlam S, Glover C, Fordy C, Burke D, Allen-Mersh TG. Relation between tumor size, quality of life, and survival in patients with colorectal liver metastases. J Clin Oncology 1996;14:171–175.
25. Mainio A, Tuunanen S, Hakko H, Niemela A, Koivukangas J, Rasanen P. Decreased quality of life and depression as predictors for shorter survival among patients with low-grade gliomas: A follow-up from 1990 to 2003. Eur Arch Psychiatry and Clin Neuroscience 2006;256:516–521.
26. Jones GN, Ames SC, Jeffries SK, Scarinci IC, Brantley PJ. Utilization of medical services and quality of life among low-income patients with generalized anxiety disorder attending primary care clinics. Int J Psychiatry in Medicine 2001;31:183–198.
27. Olfson M, Fireman B, Weissman M, Leon AC, Sheehan DV, Kathol RG, Hoven C, Farber L. Mental disorders and disability among patients in a primary care group practice. Am J Psychiatry 1997;154:1734–1740. [PubMed: 9396954]
28. Ormel J, VonKorff M, Ustun TB, Pini S, Korten A, Oldehinkel T. Common mental disorders and disability across cultures. Results from the WHO Collaborative Study on Psychological Problems in General Health Care. JAMA 1994;272:1741–1748. [PubMed: 7966922]
29. Stein MB, Roy-Byrne PP, Craske MG, Bystritsky A, Sullivan G, Pyne JM, Katon W, Sherbourne CD. Functional impact and health utility of anxiety disorders in primary care outpatients. Med Care 2005;43:1164–1170. [PubMed: 16299426]
30. Antony MM, Roth D, Swinson RP, Huta V, Devins GM. Illness intrusiveness in individuals with panic disorder, obsessive-compulsive disorder, or social phobia. J Nerv Ment Dis 1998;186:311–315. [PubMed: 9612449]
31. Eng W, Coles ME, Heimberg RG, Safren S. Domains of life satisfaction in social anxiety disorder: Relation to symptoms and response to cognitive-behavioral therapy. J Anxiety Disord 2005;19:143–156. [PubMed: 15533701]
32. Hambrick JP, Turk CL, Heimberg RG, Schneier FR, Liebowitz MR. The experience of disability and quality of life in social anxiety disorder. Depress Anxiety 2003;18:46–50. [PubMed: 12900952]
33. Massion AO, Warshaw MG, Keller MB. Quality of life and psychiatric morbidity in panic disorder and generalized anxiety disorder. Am J Psychiatry 1993;150:600–607. [PubMed: 8465877]
34. Norton GR, McLeod L, Guertin J, Hewitt PL, Walker JR, Stein MB. Panic disorder or social phobia: Which is worse? Behav Res Ther 1996;34:273–276. [PubMed: 8881097]
35. Rodriguez BF, Bruce SE, Pagano ME, Keller MB. Relationships among psychosocial functioning, diagnostic comorbidity, and the recurrence of generalized anxiety disorder, panic disorder, and major depression. J Anxiety Disord 2005;19:752–766. [PubMed: 16076422]
36. Sanderson K, Andrews G. Prevalence and severity of mental health-related disability and relationship to diagnosis. Psychiatric Serv 2002;53:80–86.
37. Grant BF, Hasin DS, Stinson FS, Dawson DA, Goldstein RB, Smith S, Huang B, Saha TD. The epidemiology of DSM-IV panic disorder and agoraphobia in the United States: Results from the National Epidemiologic Survey on Alcohol and Related Conditions. J Clin Psychiatry 2006;67:363–374. [PubMed: 16649821]
38. Henning ER, Turk CL, Mennin DS, Fresco DM, Heimberg RG. Impairment and quality of life in individuals with generalized anxiety disorder. Depress Anxiety 2007;2007;24:342–349. [PubMed: 17091478]
39. Kessler RC, DuPont RL, Berglund P, Wittchen H-U. Impairment in pure and comorbid generalized anxiety disorder and major depression at 12 months in two national surveys. Am J Psychiatry 1999;156:1915–1923. [PubMed: 10588405]
40. Kessler RC, Stein MB, Berglund P. Social phobia subtypes in the National Comorbidity Survey. Am J Psychiatry 1998;155:613–619. [PubMed: 9585711]
41. Markowitz JS, Weissman MM, Ouellette R, Lish JD, Klerman GL. Quality of life in panic disorder. Arch Gen Psychiatry 1989;46:984–992. [PubMed: 2684086]

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42. Stein MB, Kean YM. Disability and quality of life in social phobia: Epidemiologic findings. Am J Psychiatry 2000;157:1606–1613. [PubMed: 11007714]
43. Stein MB, Heimberg RG. Well-being and life satisfaction in generalized anxiety disorders: Comparison to major depressive disorder in a community sample. J Affect Disord 2004;79:161–166. [PubMed: 15023490]
44. Saarni SI, Suvisaari J, Sintonen H, Pirkola S, Koskinen S, Aromaa A, Lonnqvist J. Impact of psychiatry disorders on health-related quality of life: General population survey. Brit J Psychiatry 2007;190:326–332. [PubMed: 17401039]
45. Grant, BF.; Kaplan, K.; Shepard, J.; Moore, T. Source and Accuracy Statement for Wave 1 of the 2001–2002 National Epidemiologic Survey on Alcohol and Related Conditions. National Institute on Alcohol Abuse and Alcoholism; Bethesda, MD: 2003.
46. Grant BF, Stinson FS, Dawson DA, Chou SP, Dufour MC, Compton W, Pickering RP, Kaplan K. Prevalence and co-occurrence of substance use disorders and independent mood and anxiety disorders: Results from the National Epidemiologic Survey on Alcohol and Related Conditions. Arch Gen Psychiatry 2004;61:807–816. [PubMed: 15289279]
47. Grant, BF.; Dawson, DA. The Alcohol Use Disorder and Associated Disabilties Interview Schedule-IV (AUDADIS-IV). National Institute on Alcohol Abuse and Alcoholism; Rockville, MD: 2000.
48. Grant BF, Dawson DA, Stinson FS, Chou PS, Kay W, Pickering R. The Alcohol Use Disorder and Associated Disabilities Interview Schedule-IV (AUDADIS-IV): reliability of alcohol consumption, tobacco use, family history of depression and psychiatric diagnostic modules in a general population sample. Drug and Alcohol Dependence 2003;71:7–16. [PubMed: 12821201]
49. Wittchen H-U. Reliability and validity studies of the WHO Composite International Diagnostic Interview (CIDI): a critical review. J Psychiatr Res 1994;28:57–84. [PubMed: 8064641]
50. Wittchen H-U, Kessler R, Zhao S, Abelson J. Reliability and clinical validity of the UM-CIDI DSM-III-R generalized anxiety disorder. J Psychiatr Research 1995;29:95–110. [PubMed: 7666382]
51. Wittchen H-U, Zhao S, Abelson L, Kessler R. Reliability and procedural validity of the UM-CIDI DSM-III-R phobic disorders. Psychol Med 1996;26:1169–1177. [PubMed: 8931163]
52. Grant BF, Hasin DS, Stinson FS, Dawson DA, Chou SP, Ruan WJ, Pickering RP. Prevalence, correlates, and disabilitiy of personality disorders in the United States: results from the national epidemiologic survey on alcohol and related conditions. J Clin Psychiatry 2004;65:948–958. [PubMed: 15291684]
53. Ware, JE.; Kosinski, M.; Turner-Bowker, DM.; Dandek, B. How to score Version 2 of the SF-12 Health Survey. QualityMetric; Lincoln, RI: 2005.
54. Manocchia, M.; Bayliss, MS.; Connor, J.; Keller, SD.; Shiely, J-C.; Tasai, C., et al. SF-36 Health Survey Annotated Bibliography: Second Edition (1988–1996). The Health Assessment Lab; Boston, MA: 1998.
55. Ware JE, Gandek B. Overview of the SF-36 Health Survey and the International Quality of Life Assessment (IQOLA) project. Journal of Clinical Epidemiology 1998;51:903–912. [PubMed: 9817107]
56. Ware, JE.; Snow, KK.; Kosinski, M.; Gandek, B. SF-36 Health Survey Manual and Interpretation Guide. The Health Assessment Lab; The Health Institute: Boston, MA: 1993.
57. Research Triangle Institute. Software for Survey Data Analyses (Version 9.01). RTI; Research Triangle Park, NC: 2004.
58. Dugas, MJ.; Robichaud, M. Cognitive-Behavioral Treatment for Generalized Anxiety Disorder: From Science to Practice. Routledge; New York, NY: 2006.
59. Safren SA, Heimberg RG, Brown EJ, Holle C. Quality of life in social phobia. Depress Anxiety 1997;4:126–133. [PubMed: 9166641]
60. Schneier FR, Heckelman LR, Garfinkel R, Campeas R, Fallon BA, Gitow A, Street L, Del Bene D, Liebowitz MR. Functional impairment in social phobia. J Clin Psychiatry 1994;55:322–331. [PubMed: 8071299]

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61. Wittchen H-U, Fuetsch M, Sonntag H, Muller N, Liebowitz M. Disability and quality of life in pure and comorbid social phobia. Findings from a controlled study. Eur Psychiatry 2000;15:46–58. [PubMed: 10713802]

62. Holt CS, Heimberg RG, Hope DA. Avoidant personality disorder and the generalized subtype of social phobia. J Abnorm Psychol 1992;101:318–325. [PubMed: 1583226]

63. Hummelen B, Wilberg T, Pedersen G, Karterud S. The relationship between avoidant personality disorder and social phobia. Comp Psychiatry 2007;48:348–356.

64. Candilis PJ, Mclean R, Otto MW, Manfro GG, Worthington JJ, Penava SJ, Marzol PC, Pollack MH. Quality of life in patients with panic disorder. J Nerv Ment Dis 1999;187:429–434. [PubMed: 10426463]

65. Ettigi P, Meyerhoff AS, Chirban JT, Jacobs RJ, Wilson RR. The quality of life and employment in panic disorder. J Nerv Ment Dis 1997;185:368–372. [PubMed: 9205422]

66. Hollifield M, Katon W, Skipper B, Chapman T, Ballenger JC, Mannuzza S, Fyer AJ. Panic disorder and quality of life: Variables predictive of functional impairment. Am J Psychiatry 1997;154:766–772. [PubMed: 9167503]

67. Sherbourne CD, Wells KB, Judd LL. Functioning and well-being of patients with panic disorder. Am J Psychiatry 1996;153:213–218. [PubMed: 8561201]

68. Craske MG, Sanderson WC, Barlow DH. The relationships among panic, fear, and avoidance. J Anx Dis 1987;1:153–160.

69. White KS, Brown TA, Somers TJ, Barlow DH. Avoidance behavior in panic disorder: The moderating influence of perceived control. Behav Res Ther 2006;44:147–157. [PubMed: 16300725]

70. MacKinnon DP, Krull JL, Lockwood CM. Equivalence of the mediation, confounding and suppression effect. Prevention Science 2000;1:173–181. [PubMed: 11523746]

71. Goodwin RD, Stein MB. Generalized anxiety disorder and peptic ulcer disease among adults in the United States. Psychosomatic Medicine 2002;64:862–866. [PubMed: 12461190]

72. Kessler RC, Berglund P, Demler O, Jin R, Merikangas KR, Walters EE. Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. Arch Gen Psychiatry 2005;62:593–602. [PubMed: 15939837]

73. ESEMeD/MHEDEA 2000 Investigators. Prevalence of mental disorders in Europe: Results from the European Study of the Epidemiology of Mental Disorders (ESEMeD) project. Acta Psychiatrica Scandinavica 2004;109(Suppl. 420):21–27.

74. McHugh RK, Otto MW, Barlow DH, Gorman JM, Shear MK, Woods SW. Cost efficacy of individual and combined treatments for panic disorder. J Clin Psychiatry 2007;68:1038–1044. [PubMed: 17685740]

75. Barlow, DH. The nature and treatment of anxiety and panic. 2nd Ed.. NY: Guilford: 2004. Anxiety and its disorders.

76. Heimberg, RG.; Turk, CL.; Mennin, DS. Generalized anxiety disorder: Advances in research and practice. NY:Guilford: 2004.

77. Rickels K, Zaninelli R, McCafferty J, Bellew K, Iyengar M, Sheehan D. Paroxetine treatment of generalized anxiety disorder: A double-blind, placebo-controlled study. Am J Psychiatry 2003;160:749–756. [PubMed: 12668365]

78. Stein MB, Liebowitz MR, Lydiard RB, Pitts CD, Bushnell W, Gergel I. Parozetine treatment of generalized social phobia (social anxiety disorder): A randomized controlled trial. JAMA 1998;280:708–713. [PubMed: 9728642]

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### Table 1

Demographic and socioeconomic characteristics of individuals with 12-month DSM-IV social anxiety disorder, generalized anxiety disorder, panic disorder, specific phobia, and no anxiety disorder in a US nationally representative sample

| | **Social Anxiety Disorder** | | **Generalized Anxiety Disorder** | | **Panic Disorder** | | **Specific Phobia** | | **No Anxiety Disorder** | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **N=1,140** | | **N=894** | | **N=929** | | **N=3,073** | | **N=39,289** | |
| | **2.8% (2.5–3.0)** | | **2.1% (1.9–2.3)** | | **2.2% (2.0–2.4)** | | **7.1% (6.6–7.7)** | | **91.2% (90.7–91.7)** | |
| | **%** | **95% CI** | **%** | **95% CI** | **%** | **95% CI** | **%** | **95% CI** | **%** | **95% CI** |
| Sex[a] | | | | | | | | | | |
| Male | 36.7 | 33.4–40.2 | 29.3 | 25.5–33.6 | 28.8 | 25.2–32.7 | 30.6 | 28.6–32.7 | 49.2 | 48.6–49.9 |
| Female | 63.3 | 59.8–66.6 | 70.7 | 66.4–74.6 | 71.2 | 67.3–74.8 | 69.4 | 67.3–71.4 | 50.8 | 50.1–51.4 |
| Race/Ethnicity[b] | | | | | | | | | | |
| White | 77.5 | 73.9–80.8 | 75.3 | 71.2–79.1 | 77.1 | 73.2–80.6 | 74.7 | 71.9–77.2 | 70.6 | 67.2–73.8 |
| Black | 8.0 | 6.4–10.0 | 10.1 | 8.0–12.7 | 7.8 | 6.2–9.7 | 11.2 | 9.8–12.9 | 11.1 | 9.8–12.5 |
| Native Americans | 2.8 | 1.7–4.5 | 2.7 | 1.7–4.5 | 4.6 | 3.0–6.9 | 2.4 | 1.8–3.3 | 2.0 | 1.8–2.4 |
| Asian | 3.4 | 2.1–5.4 | 2.4 | 1.3–4.2 | 1.5 | 0.8–2.8 | 2.5 | 1.8–3.5 | 4.5 | 3.5–5.8 |
| Hispanic | 8.3 | 6.5–10.5 | 9.4 | 6.9–12.7 | 9.1 | 6.7–12.4 | 9.2 | 7.4–11.3 | 11.8 | 9.4–14.6 |
| Education | | | | | | | | | | |
| <High School | 17.4 | 14.9–20.3 | 17.2 | 14.3–20.6 | 17.9 | 15.1–21.1 | 15.9 | 14.2–17.8 | 15.7 | 14.7–16.8 |
| High School | 32.3 | 28.7–36.2 | 32.7 | 28.7–36.9 | 28.1 | 24.6–31.9 | 29.1 | 27.1–31.2 | 29.3 | 28.1–30.4 |
| College | 50.3 | 46.2–54.3 | 50.1 | 45.9–54.3 | 54.0 | 49.9–58.0 | 55.0 | 52.6–57.3 | 55.0 | 53.7–56.3 |
| Annual Income[c] | | | | | | | | | | |
| 0–19,000 | 55.9 | 51.9–59.8 | 60.1 | 56.0–64.1 | 63.4 | 59.4–67.1 | 54.9 | 52.1–57.6 | 46.6 | 45.4–47.8 |
| 20–34,000 | 21.2 | 18.3–24.3 | 20.4 | 17.2–24.0 | 18.0 | 15.2–21.2 | 22.3 | 20.4–24.2 | 22.7 | 22.0–23.5 |
| 35–69,000 | 17.5 | 14.5–20.9 | 15.7 | 13.0–18.8 | 15.3 | 12.5–18.6 | 17.5 | 15.6–19.6 | 22.3 | 21.5–23.1 |
| >70,000 | 5.5 | 4.0–7.7 | 3.8 | 2.5–5.8 | 3.3 | 2.1–5.2 | 5.3 | 4.4–6.4 | 8.4 | 7.6–9.2 |
| Marital Status[d] | | | | | | | | | | |
| Married | 57.7 | 54.2–61.1 | 51.6 | 47.5–55.6 | 55.4 | 52.4–59.5 | 60.9 | 58.7–63.0 | 61.9 | 60.9–62.8 |
| Widowed | 18.0 | 15.7–20.4 | 27.8 | 24.7–31.2 | 23.0 | 20.1–26.3 | 18.8 | 17.4–20.3 | 17.3 | 16.8–17.7 |
| Never Married | 24.4 | 21.2–27.9 | 20.6 | 17.5–24.1 | 21.0 | 17.8–24.6 | 20.3 | 18.5–22.2 | 20.9 | 20.0–21.8 |

| | Social Anxiety Disorder | | Generalized Anxiety Disorder | | Panic Disorder | | Specific Phobia | | No Anxiety Disorder | |
|---|---|---|---|---|---|---|---|---|---|---|
| | N=1,140 | | N=894 | | N=929 | | N=3,073 | | N=39,289 | |
| | 2.8% (2.5–3.0) | | 2.1% (1.9–2.3) | | 2.2% (2.0–2.4) | | 7.1% (6.6–7.7) | | 91.2% (90.7–91.7) | |
| | % | 95% CI | % | 95% CI | % | 95% CI | % | 95% CI | % | 95% CI |
| Nativity[e] | | | | | | | | | | |
| US-born | 90.6 | 87.8–92.9 | 91.9 | 88.9–94.1 | 93.4 | 90.3–95.6 | 91.5 | 89.8–93.0 | 84.9 | 81.5–87.7 |
| Foreign-born | 9.4 | 7.1–12.2 | 8.1 | 5.9–11.2 | 6.6 | 4.5–9.7 | 8.5 | 7.0–10.2 | 15.1 | 12.3–18.5 |
| Age[f] | | | | | | | | | | |
| 18–29 | 24.8 | 21.7–28.3 | 21.7 | 18.6–25.3 | 23.1 | 19.8–26.9 | 24.5 | 22.6–26.6 | 21.6 | 20.9–22.4 |
| 30–44 | 34.2 | 30.5–38.1 | 37.9 | 34.0–42.0 | 37.6 | 33.8–41.7 | 33.0 | 31.0–35.1 | 30.8 | 30.1–31.4 |
| 45–64 | 31.7 | 28.6–35.0 | 32.3 | 28.6–36.4 | 32.9 | 29.2–36.9 | 32.2 | 30.4–34.1 | 30.9 | 30.2–31.5 |
| 65+ | 9.3 | 7.7–11.2 | 8.0 | 6.3–10.1 | 6.3 | 4.7–8.4 | 10.3 | 9.1–11.5 | 16.7 | 16.1–17.4 |

[a] Sex distributions are significantly associated with social anxiety disorder, generalized anxiety disorder, panic disorder, and specific phobia (reference group = no anxiety disorder) (p<.01)

[b] Race/Ethnicity distributions are significantly associated with social anxiety disorder, panic disorder, and specific phobia (reference group = no anxiety disorder) (p<.01)

[c] Annual Income distributions are significantly associated with social anxiety disorder, generalized anxiety disorder, panic disorder, and specific phobia (reference group = no anxiety disorder) (p<.01)

[d] Marital status distribution significantly associated with generalized anxiety disorder (reference group = no anxiety disorder) (p<.01)

[e] Nativity distributions are significantly associated with social anxiety disorder, generalized anxiety disorder, panic disorder, and specific phobia (reference group = no anxiety disorder) (p<.01)

[f] Age distributions are significantly associated with social anxiety disorder, generalized anxiety disorder, panic disorder, and specific phobia (reference group = no anxiety disorder) (p<.01)

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## Table 2

Clinical correlates of individuals with 12-month DSM-IV social anxiety disorder, generalized anxiety disorder, panic disorder, specific phobia, and no anxiety disorder in a US nationally representative sample

| | **Social Anxiety Disorder** | | **Generalized Anxiety Disorder** | | **Panic Disorder** | | **Specific Phobia** | | **No Anxiety Disorder** | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **N=1,140** | | **N=894** | | **N=929** | | **N=3,073** | | **N=39,289** | |
| | **2.8% (2.5–3.0)** | | **2.1% (1.9–2.3)** | | **2.2% (2.0–2.4)** | | **7.1% (6.6–7.7)** | | **91.2% (90.7–91.7)** | |
| | **%** | **95% CI** | **%** | **95% CI** | **%** | **95% CI** | **%** | **95% CI** | **%** | **95% CI** |
| 12-month medical conditions[a] | | | | | | | | | | |
| Arteriosclerosis | 1.3 | 0.7–2.2 | 3.1 | 2.0–4.8 | 1.9 | 1.0–3.4 | 1.4 | 1.0–2.0 | 1.6 | 1.4–1.8 |
| Hypertension | 24.6 | 21.5–27.9 | 26.8 | 23.2–30.6 | 24.6 | 21.3–28.1 | 21.8 | 20.0–23.8 | 18.1 | 17.3–18.9 |
| Cirrhosis of the liver | 0.3 | 0.1–0.7 | 0.2 | 0.1–0.5 | 0.7 | 0.3–1.6 | 0.5 | 0.2–1.2 | 0.2 | 0.1–0.3 |
| Other liver disease | 0.9 | 0.5–1.7 | 2.3 | 1.3–3.8 | 1.7 | 1.0–2.9 | 1.1 | 0.7–1.6 | 0.5 | 0.4–0.6 |
| Angina pectoris | 6.9 | 5.3–8.8 | 10.8 | 8.3–13.8 | 11.6 | 9.2–14.5 | 6.2 | 5.2–7.5 | 3.5 | 3.3–3.8 |
| Tachycardia | 8.1 | 6.3–10.3 | 11.3 | 8.7–14.6 | 13.8 | 11.2–17.0 | 7.2 | 6.2–8.4 | 3.6 | 3.3–3.9 |
| Myocardial infarction | 0.4 | 0.1–1.0 | 1.9 | 1.0–3.4 | 1.8 | 1.0–3.1 | 0.8 | 0.5–1.2 | 0.9 | 0.8–1.0 |
| Other heart disease | 3.9 | 2.9–5.3 | 5.6 | 3.9–7.9 | 5.7 | 4.2–7.8 | 3.6 | 2.9–4.5 | 2.6 | 2.4–2.9 |
| Stomach ulcer | 5.6 | 4.3–7.4 | 9.1 | 6.9–11.9 | 9.9 | 7.8–12.4 | 4.6 | 3.8–5.6 | 2.2 | 2.0–2.4 |
| Gastritis | 8.1 | 6.3–10.4 | 11.8 | 9.4–14.9 | 12.7 | 10.4–15.3 | 7.7 | 6.6–9.0 | 3.9 | 3.7–4.2 |
| Arthritis | 22.2 | 19.3–25.4 | 29.3 | 25.6–33.4 | 27.8 | 24.5–31.3 | 22.4 | 20.6–24.3 | 16.6 | 15.8–17.5 |
| 12-month psychiatric diagnoses[b] | Mean | 95% CI | Mean | 95% CI | Mean | 95% CI | Mean | 95% CI | Mean | 95% CI |
| # of Axis I diagnoses[+] | 1.5 | 1.4–1.6 | 2.0 | 1.9–2.1 | 1.9 | 1.7–2.0 | 1.0 | 0.9–1.0 | 0.3 | 0.3–0.4 |
| # of Axis II diagnoses[++] | 1.4 | 1.3–1.5 | 1.4 | 1.2–1.5 | 1.1 | 1.0–1.3 | 0.8 | 0.7–0.8 | 0.2 | 0.2–0.2 |

[a] Distributions of 12-month psychiatric diagnoses are significantly associated with social anxiety disorder, generalized anxiety disorder, panic disorder, and specific phobia (reference group = no anxiety disorder) ($p<.01$)

[b] Distributions of 12-month psychiatric diagnoses are significantly associated with social anxiety disorder, generalized anxiety disorder, panic disorder, and specific phobia (reference group = no anxiety disorder) ($p<.01$)

[+] Major Depressive, Bipolar I, Bipolar II, Alcohol Abuse, Alcohol Dependence, Drug Abuse, Drug Dependence, Social Anxiety, Generalized Anxiety, Panic Disorder and/or Specific Phobia; Note: For each column, calculation does not include diagnosis indicated at top of column

[++] Avoidant, Dependent, Obsessive-Compulsive, Paranoid, Schizoid, Histrionic, and/or Antisocial Personality Disorders

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**Table 3**

Health-related quality of life among individuals with 12-month DSM-IV social anxiety disorder, generalized anxiety, panic disorder, specific phobia, and no anxiety disorder in a US nationally representative sample

| | Social Anxiety Disorder | Generalized Anxiety Disorder | Panic Disorder | Specific Phobia | No Anxiety Disorder |
|---|---|---|---|---|---|
| | **Mean (95% CI)** | **Mean (95% CI)** | **Mean (95% CI)** | **Mean (95% CI)** | **Mean (95% CI)** |
| SF-12v2 | | | | | |
| Physical Component Summary | 49.2** (48.4–50.1) | 47.1** (45.9–48.2) | 46.5** (45.5–47.5) | 49.1** (48.5–49.7) | 50.7 (50.4–50.9) |
| Mental Component Summary | 43.8** (42.8–44.8) | 37.9** (36.8–39.0) | 41.5** (40.4–42.6) | 48.2** (47.7–48.7) | 52.8 (52.6–52.9) |
| Social Functioning | 45.0** (43.9–46.1) | 40.0** (38.7–41.2) | 42.7** (41.7–43.8) | 48.5** (47.9–49.0) | 52.0 (51.9–52.2) |
| Role Emotional | 44.8** (43.7–45.8) | 39.1** (37.8–40.3) | 42.0** (40.7–43.2) | 48.1** (47.6–48.7) | 51.2 (51.1–51.4) |
| Mental Health | 43.8** (42.9–44.8) | 38.1** (37.0–39.2) | 40.9** (39.9–42.0) | 47.5** (47.1–48.0) | 52.6 (52.4–52.8) |

Note. Higher scores indicate greater health-related quality of life

** Value differs from respective value associated with no anxiety disorder ($p < .01$)

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**Table 4**

Unadjusted and adjusted[1,2] associations between 12-month DSM-IV anxiety disorders and mental and physical components of quality of life in a US nationally representative sample

| | Mental Component Summary (Unadjusted) | | | | Mental Component Summary (Adjusted[1]) | | | | Mental Component Summary (Adjusted[2]) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | β | 95% CI | | p | β | 95% CI | | P | β | 95% CI | | P |
| Social Anxiety Disorder | −8.8 | −9.9 | −7.8 | <0.0001 | −0.2 | −1.1 | 0.7 | 0.64 | −0.2 | −1.04 | 0.65 | 0.64 |
| Generalized Anxiety Disorder | −14.8 | −16.0 | −13.7 | <0.0001 | −5.0 | −6.1 | −4.0 | <0.0001 | −4.7 | −5.8 | −3.6 | <0.0001 |
| Panic Disorder | −11.1 | −12.2 | −10.0 | <0.0001 | −1.3 | −2.3 | −0.2 | 0.02 | −0.9 | −2.0 | 0.2 | 0.09 |
| Specific Phobia | −4.5 | −5.0 | −4.0 | <0.0001 | 2.3 | 1.9 | 2.8 | <0.0001 | 2.1 | 1.6 | 2.5 | <0.0001 |

| | Physical Component Summary (Unadjusted) | | | | Physical Component Summary (Adjusted[1]) | | | | Physical Component Summary (Adjusted[2]) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | β | 95% CI | | p | β | 95% CI | | P | β | 95% CI | | P |
| Social Anxiety Disorder | −1.4 | −2.2 | −0.5 | .002 | 0.5 | −0.2 | 1.2 | 0.15 | 0.5 | −0.2 | 1.2 | 0.15 |
| Generalized Anxiety Disorder | −3.5 | −4.7 | −2.4 | <0.0001 | 0.1 | −1.0 | 1.1 | 0.87 | 0.1 | −0.1 | 1.1 | 0.88 |
| Panic Disorder | −4.2 | −5.1 | −3.2 | <0.0001 | −0.7 | −1.6 | 0.2 | 0.10 | −0.8 | −1.6 | 0.1 | 0.09 |
| Specific Phobia | −1.6 | −2.1 | −1.0 | <0.0001 | −0.2 | −0.7 | 0.3 | 0.38 | −0.2 | −0.7 | 0.3 | 0.33 |

[1] Adjusted associations control for sex, race, nativity, age, insurance, income, marital status, # Axis I diagnoses, # Axis II diagnoses, and 9 medical conditions (arteriosclerosis, hypertension, cirrhosis of the liver, other liver disease, angina pectoris, tachycardia, myocardial infarction, other heart disease, stomach ulcer, gastritis, arthritis)

[2] Adjusted associations control for all variables in[1], as well as for the presence of the other three anxiety disorders

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**Table 5**

Unadjusted and adjusted[1,2] associations between 12-month DSM-IV anxiety disorders and social functioning, role functioning, and mental health, in a US nationally representative sample

| | Social Functioning (Unadjusted) | | | | Social Functioning (Adjusted[1]) | | | | Social Functioning (Adjusted[2]) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | β | 95% CI | | P | β | 95% CI | | P | β | 95% CI | | P |
| Social Anxiety Disorder | −6.9 | −8.0 | −5.9 | <0.0001 | −0.5 | −1.4 | 0.4 | 0.23 | −0.5 | −1.4 | 0.4 | 0.24 |
| Generalized Anxiety Disorder | −12.0 | −13.3 | −10.8 | <0.0001 | −4.3 | −5.6 | −3.0 | <0.0001 | −4.1 | −5.4 | −2.8 | <0.0001 |
| Panic Disorder | −9.2 | −10.3 | −8.2 | <0.0001 | −1.5 | −2.6 | −0.5 | 0.005 | −1.2 | −2.28 | −0.19 | 0.02 |
| Specific Phobia | −3.5 | −4.1 | −3.0 | <0.0001 | 1.4 | 0.9 | 1.9 | <0.0001 | 1.2 | 0.7 | 1.7 | <0.0001 |

| | Role Emotional (Unadjusted) | | | | Role Emotional (Adjusted[1]) | | | | Role Emotional (Adjusted[2]) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | β | 95% CI | | P | β | 95% CI | | P | β | 95% CI | | P |
| Social Anxiety Disorder | −6.4 | −7.4 | −5.4 | <0.0001 | −0.1 | −1.0 | 0.8 | 0.85 | −0.1 | −0.97 | 0.81 | 0.85 |
| Generalized Anxiety Disorder | −12.1 | −13.4 | −10.9 | <0.0001 | −4.6 | −5.9 | −3.4 | <0.0001 | −4.4 | −5.6 | −3.1 | <0.0001 |
| Panic Disorder | −9.2 | −10.5 | −8.0 | <0.0001 | −1.6 | −2.7 | −0.4 | <0.01 | −1.2 | −2.4 | −0.1 | 0.03 |
| Specific Phobia | −3.1 | −3.6 | −2.5 | <0.0001 | 1.9 | 1.5 | 2.4 | <0.0001 | 1.7 | 1.2 | 2.2 | <0.0001 |

| | Mental Health (Unadjusted) | | | | Mental Health (Adjusted[1]) | | | | Mental Health (Adjusted[2]) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | β | 95% CI | | p | β | 95% CI | | P | β | 95% CI | | P |
| Social Anxiety Disorder | −8.5 | −9.5 | −7.6 | <0.0001 | 0.4 | −0.5 | 1.3 | 0.37 | 0.4 | −0.5 | 1.3 | 0.36 |
| Generalized Anxiety Disorder | −14.3 | −15.4 | −13.2 | <0.0001 | −4.1 | −5.1 | −3.0 | <0.0001 | −3.8 | −4.9 | −2.7 | <0.0001 |
| Panic Disorder | −11.4 | −12.5 | −10.4 | <0.0001 | −1.3 | −2.4 | −0.3 | 0.01 | −1.0 | −2.1 | 0.0 | 0.05 |
| Specific Phobia | −4.9 | −5.4 | −4.4 | <0.0001 | 2.0 | 1.5 | 2.5 | <0.0001 | 1.8 | 1.3 | 2.3 | <0.0001 |

[1] Adjusted associations control for sex, race, nativity, age, insurance, income, marital status, # Axis I diagnoses, # Axis II diagnoses, and 9 medical conditions (arteriosclerosis, hypertension, cirrhosis of the liver, other liver disease, angina pectoris, tachycardia, myocardial infarction, other heart disease, stomach ulcer, gastritis, arthritis)

[2] Adjusted associations control for everything in[1] as well as for the presence of the other three anxiety disorders