

**Manuscripts in press for the Supplement issue on Mental Health, International Journal of Public Health (using 2007 BRFSS K-6 data)**

- State-based differences in psychological distress and treatment.
- Rural-Urban Variations in Psychological Distress
- Relationships Between Serious Psychological Distress and the Use of Health Services in the United States
- Serious Psychological Distress and its Associations with Body Mass Index
- Intimate Partner Violence, Sexual Violence, and Reported Serious Psychological Distress
- Association between diagnosed diabetes and serious psychological distress among U.S. adults
- Psychological distress, use of rehabilitation services, and disability status among noninstitutionalized US adults aged 35 years and older who have cardiovascular conditions, 2007
- Psychological distress in association with self-reported hypertension and hypercholesterolemia in U.S. noninstitutionalized adults aged 35 years and older, 2007
- Serious psychological distress among adults with and without disabilities.
- Psychological distress and mental health treatment among persons with and without active duty military experience
- Patterns of Smoking Behaviors and Serious Psychological Distress
- Psychological distress and fair/poor health among adults with arthritis: State-specific prevalence and correlates of general health status
- Modifiable Characteristics of a Healthy Lifestyle in U.S. Older Adults with or without Serious Psychological Distress, 2007 Behavioral Risk Factor Surveillance System.
- Activity Limitation, Chronic Disease, and Co-Morbid Serious Psychological Distress in US Adults



### Example publications using PHQ-8 (from PubMed)

[Kroenke K, Strine TW, Spitzer RL, Williams JB, Berry JT, Mokdad AH.](#) 

The PHQ-8 as a measure of current depression in the general population. J Affect Disord. 2008 Aug 25. [Epub ahead of print]

**BACKGROUND:** The eight-item Patient Health Questionnaire depression scale (PHQ-8) is established as a valid diagnostic and severity measure for depressive disorders in large clinical studies. Our objectives were to assess the PHQ-8 as a depression measure in a large, epidemiological population-based study, and to determine the comparability of depression as defined by the PHQ-8 diagnostic algorithm vs. a PHQ-8 cutpoint  $\geq 10$ . **METHODS:** Random-digit-dialed telephone survey of 198,678 participants in the 2006 Behavioral Risk Factor Surveillance Survey (BRFSS), a population-based survey in the United States. Current depression as defined by either the DSM-IV based diagnostic algorithm (i.e., major depressive or other depressive disorder) of the PHQ-8 or a PHQ-8 score  $\geq 10$ ; respondent sociodemographic characteristics; number of days of impairment in the past 30 days in multiple domains of health-related quality of life (HRQoL). **RESULTS:** The prevalence of current depression was similar whether defined by the diagnostic algorithm or a PHQ-8 score  $\geq 10$  (9.1% vs. 8.6%). Depressed patients had substantially more days of impairment across multiple domains of HRQoL, and the impairment was nearly identical in depressed groups defined by either method. Of the 17,040 respondents with a PHQ-8 score  $\geq 10$ , major depressive disorder was present in 49.7%, other depressive disorder in 23.9%, depressed mood or anhedonia in another 22.8%, and no evidence of depressive disorder or depressive symptoms in only 3.5%. **LIMITATIONS:** The PHQ-8 diagnostic algorithm rather than an independent structured psychiatric interview was used as the criterion standard. **CONCLUSIONS:** The PHQ-8 is a useful depression measure for population-based studies, and either its diagnostic algorithm or a cutpoint  $\geq 10$  can be used for defining current depression.

[Strine TW, Mokdad AH, Dube SR, Balluz LS, Gonzalez O, Berry JT, Manderscheid R, Kroenke K.](#) The association of depression and anxiety with obesity and unhealthy behaviors among community-dwelling US adults. Gen Hosp Psychiatry. 2008 Mar-Apr;30(2):127-37.

**OBJECTIVE:** The aim of this study was to examine the extent to which depression and anxiety are associated with smoking, obesity, physical inactivity and alcohol consumption in the US population using the Patient Health Questionnaire 8 (PHQ-8) and two questions on lifetime diagnosis of anxiety and depression. **METHODS:** Data were analyzed in 38 states, the District of Columbia and two territories using the 2006 Behavioral Risk Factor Surveillance

System (n=217,379), a large state-based telephone survey. RESULTS: Overall, adults with current depression or a lifetime diagnosis of depression or anxiety were significantly more likely than those without each diagnosis to smoke, to be obese, to be physically inactive, to binge drink and drink heavily. There was a dose-response relationship between depression severity and the prevalence of smoking, obesity and physical inactivity and between history of depression (never depressed, previously depressed, currently depressed) and the prevalence of smoking, obesity, physical inactivity, binge drinking and heavy drinking. Lifetime diagnosis of depression and anxiety had an additive association with smoking prevalence. CONCLUSION: The associations between depression, anxiety, obesity and unhealthy behaviors among US adults suggest the need for a multidimensional and integrative approach to health care.

Mussell M, Kroenke K, Spitzer RL, Williams JB, Herzog W, Löwe B. Gastrointestinal symptoms in primary care: prevalence and association with depression and anxiety. *J Psychosom Res.* 2008 Jun;64(6):605-12. Epub 2008 Apr 28.

OBJECTIVE: Results from general population studies suggest a relationship between gastrointestinal (GI) symptoms, depression, and anxiety. However, no primary care study has investigated this issue. This study investigates the prevalence of GI symptoms in primary care and their association with depression and anxiety. METHOD: Within a cross-sectional survey, 2091 consecutive patients from 15 primary care clinics in the United States completed self-report questionnaires regarding GI symptoms [15-item Patient Health Questionnaire (PHQ-15)], anxiety [seven-item Generalized Anxiety Disorder Scale (GAD-7)], and depression (PHQ-8). Of those, 965 randomly selected patients additionally underwent a criterion standard diagnostic telephone interview (Structured Clinical Interview for DSM-IV) for the most common anxiety disorders. RESULTS: A total of 380 [18% (95% CI, 16.3% to 19.3%)] patients reported to be substantially bothered by at least one GI symptom in the previous 4 weeks. The prevalence of severe levels of depression (PHQ-8 score  $\geq$  15) was nearly fivefold in patients with GI symptoms compared to patients without GI symptoms (19.1% vs. 3.9%;  $P < .001$ ), and the prevalence of severe levels of anxiety (GAD-7 score  $\geq$  15) was nearly fourfold in patients with GI symptoms compared to patients without GI symptoms (19.4% vs. 5.6%;  $P < .001$ ). Similarly, with each additional GI symptom, the odds for an interview-based diagnosis of specific anxiety disorders increased significantly: For example, compared to patients with no GI symptom, the odds ratio (OR) (95% CI) for generalized anxiety disorder in patients with one GI symptom was 3.7 (2.0 to 6.9); in patients with two GI symptoms, OR=6.5 (3.1 to 13.6); and in patients with three GI symptoms, OR=7.2 (2.7 to 18.8). CONCLUSION: GI symptoms are associated significantly with depression and anxiety in primary care. It is suggested to screen as a routine for anxiety and depression in patients with GI symptoms and, if indicated, to initiate specific treatment.



[Löwe B, Spitzer RL, Williams JB, Mussell M, Schellberg D, Kroenke K.](#)

Depression, anxiety and somatization in primary care: syndrome overlap and functional impairment. *Gen Hosp Psychiatry*. 2008 May-Jun;30(3):191-9.

**OBJECTIVE:** To determine diagnostic overlap of depression, anxiety and somatization as well as their unique and overlapping contribution to functional impairment. **METHOD:** Two thousand ninety-one consecutive primary care clinic patients participated in a multicenter cross-sectional survey in 15 primary care clinics in the United States (participation rate, 92%). Depression, anxiety, somatization and functional impairment were assessed using validated scales from the Patient Health Questionnaire (PHQ) (PHQ-8, eight-item depression module; GAD-7, seven-item Generalized Anxiety Disorder Scale; and PHQ-15, 15-item somatic symptom scale) and the Short-Form General Health Survey (SF-20). Multiple linear regression analyses were used to investigate unique and overlapping associations of depression, anxiety and somatization with functional impairment. **RESULTS:** In over 50% of cases, comorbidities existed between depression, anxiety and somatization. The contribution of the commonalities of depression, anxiety and somatization to functional impairment substantially exceeded the contribution of their independent parts. Nevertheless, depression, anxiety and somatization did have important and individual effects (i.e., separate from their overlap effect) on certain areas of functional impairment. **CONCLUSIONS:** Given the large syndrome overlap, a potential consideration for future diagnostic classification would be to describe basic diagnostic criteria for a single overarching disorder and to optionally code additional diagnostic features that allow a more detailed classification into specific depressive, anxiety and somatoform subtypes.

[Nau DP, Aikens JE, Pacholski AM.](#) Effects of gender and depression on oral medication adherence in persons with type 2 diabetes mellitus. *Gend Med*. 2007 Sep;4(3):205-13.

**BACKGROUND:** In a range of chronic conditions including diabetes, it has been observed that depressive symptoms may be associated with nonadherence to medications. **OBJECTIVE:** The objective of the study was to determine the main effects, and interactive effect, of depression and gender on patients adherence to oral diabetes medications. **METHODS:** A cross-sectional design was employed, in which persons with type 2 diabetes mellitus completed a questionnaire regarding medication use behaviors, depressive symptoms (measured by the 8-item Patient Health Questionnaire [PHQ-8]), health beliefs, and demographics. A 2x2 factorial analysis of variance was used to determine the effects of gender and depression on medication adherence after adjusting for age, education, self efficacy, social support, and number of doses of diabetes medications. **RESULTS:** Of the 391 respondents who completed the questionnaire, 73 (18.7%) were categorized as having depression (ie, PHQ-8 score>0). Overall, women (n=196) had a mean (SD) score of 6.10 (6.19) on the PHQ-8, and men (n=195) had a lower

score of 4.62 (5.28) ( $t=2.75$ ;  $P<0.01$ ). There was a significant main effect of depression, but not gender, on patients' adherence to diabetes medications in that those who were categorized as depressed had significantly worse adherence to diabetes medications ( $F=4.82$ ;  $P=0.03$ ). Additionally, there was a significant "gender x depression" interaction effect on adherence ( $F=5.93$ ;  $P=0.01$ ). Men with depression had mean adherence scores that indicated more nonadherence than did men without depression (9.44 [3.45] vs 7.47 [2.50], respectively), but adherence varied little between women with depression and women without depression (7.83 [2.69] vs 7.55 [2.58], respectively). **CONCLUSIONS:** The association between depression and medication adherence appears to be stronger in men than in women. Clinicians should be cognizant of the potential effect of depression on self-care for diabetes, particularly in men with depressive symptoms.

[Fan AZ, Strine TW, Jiles R, Mokdad AH.](#) Depression and anxiety associated with cardiovascular disease among persons aged 45 years and older in 38 states of the United States, 2006. *Prev Med.* 2008 May;46(5):445-50. Epub 2008 Feb 20.

**OBJECTIVE:** To highlight the close association of cardiovascular disease (CVD) with depression and anxiety in US non-institutionalized adults and examine the sociodemographic correlates of depression and anxiety among CVD survivors. **METHOD:** The data were obtained from 38 states which administered an Anxiety and Depression Module as part of the 2006 Behavioral Risk Factor Surveillance System. CVD was assessed with three questions on coronary heart disease and stroke. Adjusted prevalence ratios (APRs) were obtained after adjustment for demographic characteristics using SUDAAN 9.0. **RESULTS:** The prevalence of a CVD history was 15.3% among studied population (sample size  $n=129,499$ ). Persons with a CVD history were more likely than those without to experience current depression (15.8% versus 7.1%, APR [95% CI]=1.69 [1.54-1.85]), to have a lifetime diagnosis of depressive disorders (22.3% versus 15.1%, APR [95% CI]=1.56 [1.45-1.67]) or anxiety disorders (16.6% versus 10.0%, APR [95% CI]=1.46 [1.37-1.54]). CVD survivors with low education attainment or minority background were less likely to receive a diagnosis of depression though their experience of depression was comparable with or higher than their counterparts. **CONCLUSION:** CVD is associated significantly with depression and anxiety. Disparities exist among CVD survivors on the diagnosis of depression and anxiety.

# Mental Illness and Stigma Module

Kessler 6 variable names:

- Nervous (MISNERVS)
- Hopeless (MISHOPLS)
- Restless/fidgety (MISRSTLS)
- Depressed (MISDEPRD)
- Everything is an effort (MISEFFRT)
- Worthless (MISWTLES)

Other variable names:

- # of days mental health condition or emotional problem keep you from doing your work or other usual activities. (MISNOWRK)
- Taking medicine or receiving treatment from a doctor or other health professional for any type of mental health condition or emotional problem. (MISTMNT)
- Treatment can help people with mental illness lead normal lives. (MISTRHLP)
- People are generally caring and sympathetic to people with mental illness. (MISPHLPF)

## Algorithm

- Scoring of individual items is based on a scale of between 0 and 4 points, according to increased frequency of the problem.
- Points are scored across 6 items.
- Total K6 score ranges between 0 to 24.
- Respondent with a score of  $\geq 13$  is considered to have **serious psychological distress (SPD)**.

Response		Points
All (1)	=	4 points
Most (2)	=	3 points
Some (3)	=	2 points
A little (4)	=	1 point
None (5)	=	0 points

- Both continuous (total score) and dichotomous scales (SPD) can be used based upon research need.

