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Assessing Anxiety and Depression: A Comparison of National Health Interview Survey Measures

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Abstract

Objective—This report examines differences across two different sets of measures used to assess anxiety and depression in the National Health Interview Survey (NHIS).

Methods—Data from the 2019 NHIS were used to examine agreement between the seven-item Generalized Anxiety Disorder scale (GAD–7) and the eight-item Patient Health Questionnaire depression scale (PHQ–8) with questions developed by the Washington Group on Disability Statistics (WG) to assess symptoms or feelings of anxiety (WG–ANX) and depression (WG–DEP), respectively, on a sample of adults who responded to both sets of questions. Categorical variables for anxiety and depression were created for each question set using recommended cutoffs. Prevalence estimates of anxiety and depression using the different question sets, the relationship between the different questions, and how the different question sets relate to sociodemographic characteristics and mental health treatment are presented.

Results—A high level of agreement was observed for both the anxiety and depression measures (about 90% each), in part reflecting the large percentage of adults being categorized into the lowest categories for all measures. When differences occurred, a larger percentage of adults were categorized higher on WG–ANX than GAD–7, and a larger percentage of adults were categorized higher on PHQ–8 than WG–DEP. Relationships between sociodemographic characteristics and categorizations of anxiety and depression were generally consistent across the two measures. Receipt of mental health treatment was more common as the severity of symptoms or level of anxiety or depression increased in both sets of measures.

Conclusion—This report examined adults' responses to two different sets of measures for both anxiety and depression, with comparable findings across assessment approaches.

Keywords: generalized anxiety disorder • patient health questionnaire • Washington Group on Disability Statistics • mental health • psychological functioning

Introduction

Mental health and psychological functioning are core components of health. Deficiencies in one or both adversely affect well-being by reducing a person's ability to fully participate in all aspects of life (1). High-quality information on mental health and psychological functioning informs understanding of these important aspects of health and the need, availability, and effectiveness of services received (2).

Different approaches are used to obtain information on mental health and psychological functioning in population-based surveys. One approach is to measure nonspecific psychological distress through a self-administered questionnaire, thereby obtaining information that can serve as a proxy for the presence of a mental health disorder. For example, the Kessler Psychological Distress Scale (K10) and its short form (K6) ask respondents how frequently they experience various emotional states indicative of general distress (3).

Another approach is to use question batteries designed to capture symptoms or behaviors consistent with diagnostic criteria for specific conditions that can be diagnosed by a mental health professional. For example, the World

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Health Organization's Composite International Diagnostic Interview (CIDI) is a structured interview used to generate diagnoses for syndromes such as major depressive episodes, generalized anxiety disorder, simple phobia, social phobia, agoraphobia, and panic attacks—all consistent with the definitions and criteria of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM) and the *International Classification of Diseases* (ICD) (4). CIDI can require over an hour to administer. Shorter question batteries are available. For example, the seven-item Generalized Anxiety Disorder scale (GAD–7) measures symptoms of generalized anxiety disorder (5) in the past 2 weeks and is used as a screening tool and severity measure in clinical settings and for the general population (6,7). The eight-item Patient Health Questionnaire depression scale (PHQ–8) is used to measure symptoms of depression in the past 2 weeks (8) and is used in a similar way as GAD–7.

The assessment of psychological functioning is also a core component of disability ascertainment question sets and is focused on functional difficulties that may impact full participation in society. For example, the Washington Group on Disability Statistics (WG), a City Group chartered by the United Nations Statistical Commission to improve the quality of disability statistics, has developed disability question sets for use worldwide to enhance international comparability of disability data and statistics (9,10). Rather than focusing on impairments or disease states, the questions address difficulties in functioning across a range of core domains and are designed to identify people who are at greater risk of experiencing limited or restricted participation in society than the general population. Questions on the frequency and intensity of feelings of anxiety (WG–ANX) and depression (WG–DEP) are included in the WG question sets.

While the three types of questions used to measure mental health and psychological functioning use different approaches and have different objectives, there are similarities in the questions used to achieve these objectives. For example, most include questions about the frequency of specific feelings or emotions. Differences in objectives, however, led to the inclusion of several related measures in the National Health Interview Survey (NHIS). This report focuses on the GAD–7, PHQ–8, WG–ANX, and WG–DEP measures included in the 2019 NHIS. NHIS also includes the K6 scale periodically, but it was not included in 2019 and will not be discussed further in this report.

GAD–7, PHQ–8, WG–ANX, and WG–DEP in NHIS

In 2019, the NHIS questionnaire content was redesigned to better meet the needs of data users. The redesigned NHIS includes an increased focus on mental health, with the inclusion of the GAD–7 and PHQ–8 scales every 3 years (2019, 2022, and so on). WG questions, including those on anxiety and depression, were first incorporated into NHIS in 2010 and have remained part of the annual survey content through the redesign. Additional questions relevant to mental health, including mental health treatment, are asked annually. The GAD–7, PHQ–8, and WG questions each have associated analytic guidelines for identifying the target population. Each of these measures provides insight on psychological functioning, so it is important to understand both the similarities and differences in the estimates each set produces. For more details about NHIS' redesign, visit: https://www.cdc.gov/nchs/nhis/2019_quest_redesign.htm.

The analysis presented in this report compares prevalence rates obtained from GAD–7 with those from WG–ANX and PHQ–8 with those from WG–DEP. It further describes the level of agreement between the two approaches using the recommended guidelines for each question set. Different levels of agreement would be obtained if other algorithms for combining the questions or identifying cut points were used, and algorithms that maximize agreement could be developed, but doing so was not the objective of this report.

As previous research has identified relationships between both anxiety and depression and sociodemographic characteristics (11,12), this analysis also presents percent distributions of sex, age, race and Hispanic origin, education, and family income as a percentage of the federal poverty level (FPL) in each of the response categories for each of the two anxiety and two depression measures. This report examines whether the relationship between these sociodemographic variables and reporting symptoms or feelings of anxiety and depression differs across the two measurement approaches.

As previous research also found a relationship between the receipt of mental health treatment and the presence of anxiety and depression symptoms (13), this analysis will describe the relationship between the receipt of mental health treatment and severity of anxiety and depression, and how receipt varies with the level of agreement between the two measures of anxiety and depression. Importantly, indicators of mental health treatment should not be considered an external validation of the anxiety and depression measures as the nature of the relationship between symptoms and treatment is not straightforward. While people with more severe symptoms might be more likely to seek and receive treatment, the cross-sectional relationship is complicated by any reduction in symptoms that treatment is intended to achieve. If treatment were universally and completely successful, people reporting the most severe symptoms of anxiety and depression would be the least likely to report receiving treatment. As the relationship between symptoms and treatment is affected by the impact of treatment, receipt of treatment alone cannot be used as an indicator of validity of the anxiety and depression measures described in this analysis.

NHIS data provide an opportunity to compare the two different question sets and provide a better understanding of key similarities and differences between the measures. Prevalence estimates of anxiety and depression using the different question sets, the relationship between the different measures, and how the different measures are related to sociodemographic characteristics and mental health treatment are presented.

Methods

Data source

Data used in this report come from the Sample Adult component of the 2019 NHIS (14). NHIS is an annual multipurpose health survey conducted by the National Center for Health Statistics (NCHS). It serves as a primary source of health data on the civilian noninstitutionalized population of the United States, providing information on health status, health-related behaviors, and health care access and use. The cross-sectional survey collects data continuously throughout the year, with an annual data file release. Estimates from this file, when accounting for the complex survey design of NHIS, are representative of the civilian noninstitutionalized population.

NHIS interviews are primarily conducted in person, in the respondent's home, but some interviews are conducted over the phone. First, a household respondent provides basic demographic information about all individuals living in the household. Next, one adult (the "Sample Adult") and one child (the "Sample Child") are randomly selected to be the subjects of more detailed health interviews, which include questions about family demographics (such as food security and income). The Sample Adult responds for themselves unless a mental or physical condition prevents a self-response, in which case a knowledgeable adult serves as a proxy respondent. The final response rate for the Sample Adult interview in 2019 was 59.1%.

For further information about the 2019 NHIS sample design and questionnaire, refer to the survey description documentation (14).

Measures

GAD–7

The GAD–7 scale was developed based on the most correlated items from a 13-item scale that included nine items from the criteria for GAD in the *Diagnostic and Statistical Manual for Mental Disorders, Fourth Edition* (DSM–IV) (15) and four items from existing anxiety scales (3). Higher scores on the GAD–7 are associated with poorer functioning in multiple domains, as well as increased disability days and health care use (5).

The seven questions inquire about anxiety disorder symptoms that the Sample Adult may have been bothered by in the previous 2 weeks (see Table A for question wording). The response options, "not at all," "several days," "more than half the days," and "nearly every day," are each scored from 0 to 3 points, respectively, and then added for a total score. Sample Adults with two or more GAD–7 questions answered as "refused" or "don't know," or whose answers were not ascertained, were not included in this analysis (resulting in 2.4% missing data).

According to the scale's creators, adults can be placed into four mutually exclusive anxiety symptom severity categories based on their total score (5). Adults with scores of 0–4 are categorized as having "none or minimal" anxiety symptoms, while those with scores of 5–9, 10–14, or 15–21 are categorized as having "mild," "moderate," or "severe" anxiety symptoms, respectively.

PHQ–8

The PHQ–8 scale is a diagnostic and severity measure for current depressive disorders derived using the nine-item criteria for depressive disorders in DSM–IV. It is an abbreviated version of the nine-item PHQ–9 scale (16) that excludes the question about thoughts of death and self-injury, an indicator of possible suicide risk. Similar to how GAD–7 is used to screen for generalized anxiety disorder (7,17), PHQ–8 is used in clinical settings and population-based studies to screen for symptoms indicative of clinically significant depression and to assess the severity of depressive disorders (7). Adults with scores above the PHQ–8 threshold had a higher number of impairment days in multiple health-related quality of life domains (7).

The PHQ–8 scale includes eight questions about depressive disorder symptoms that the Sample Adult may have been bothered by in the previous 2 weeks (see Table B for question wording). The response options, "not at all," "several days," "more than half the days," and "nearly every day," are each scored from 0 to 3 points, respectively, and then added for a total score. Sample Adults with two or more

Table A. Question and response set wording for Generalized Anxiety Disorder–7 scale and Washington Group anxiety indicator

GAD–7		WG–ANX	
Question wording	Response set	Question wording	Response set
Over the last two weeks, how often have you been bothered by the following problems… Would you say not at all, several days, more than half the days, or nearly every day? 1. Feeling nervous, anxious, or on edge? 2. Not being able to stop or control worrying? 3. Worrying too much about different things? 4. Trouble relaxing? 5. Being so restless that it's hard to sit still? 6. Becoming easily annoyed or irritable? 7. Feeling afraid as if something awful might happen?	1. Not at all 2. Several days 3. More than half the days 4. Nearly every day	How often do you feel worried, nervous, or anxious? Would you say daily, weekly, monthly, a few times a year, or never? Thinking about the last time you felt worried, nervous, or anxious, how would you describe the level of these feelings? Would you say a little, a lot, or somewhere in between?	1. Daily 2. Weekly 3. Monthly 4. A few times a year 5. Never 1. A little 2. A lot 3. Somewhere in between a little and a lot

NOTES: GAD–7 is Generalized Anxiety Disorder–7 scale. WG–ANX is Washington Group anxiety indicator.

SOURCE: National Center for Health Statistics, National Health Interview Survey, 2019.

Table B. Question and response set wording for Patient Health Questionnaire–8 scale and Washington Group depression indicator

PHQ–8		WG–DEP	
Question wording	Response set	Question wording	Response set
Over the last two weeks, how often have you been bothered by… Would you say not at all, several days, more than half the days, or nearly every day? 1. Little interest or pleasure in doing things? 2. Feeling down, depressed, or hopeless? 3. Trouble falling or staying asleep, or sleeping too much? 4. Feeling tired or having little energy? 5. Poor appetite or overeating? 6. Feeling bad about yourself, or that you are a failure, or have let yourself or your family down? 7. Trouble concentrating on things, such as reading the newspaper or watching television? 8. Moving or speaking so slowly that other people could have noticed? Or the opposite, being so fidgety or restless that you have been moving around a lot more than usual?	1. Not at all 2. Several days 3. More than half the days 4. Nearly every day	How often do you feel depressed? Would you say daily, weekly, monthly, a few times a year, or never? Thinking about the last time you felt depressed, how depressed did you feel? Would you say a little, a lot, or somewhere in between?	1. Daily 2. Weekly 3. Monthly 4. A few times a year 5. Never 1. A little 2. A lot 3. Somewhere in between a little and a lot

NOTES: PHQ–8 is Patient Health Questionnaire–8 scale. WG–DEP is Washington Group depression indicator.

SOURCE: National Center for Health Statistics, National Health Interview Survey, 2019.

PHQ–8 questions answered as "refused" or "don't know," or whose answers were not ascertained, were not included in this analysis (resulting in 2.3% missing data).

According to the scale's creators, adults can be placed into four mutually exclusive depression symptom severity categories based on their total score (7). Adults with scores of 0–4 are categorized as having "none or minimal" depression symptoms, while those with scores of 5–9, 10–14, or 15–24 are categorized as having "mild," "moderate," or "severe" depression symptoms, respectively.

WG–ANX and WG–DEP

The WG questions reflect advances in the conceptualization of disability and use the *International Classification of Functioning, Disability and Health* (ICF) (2) as a conceptual model (9). Rather than focusing on impairments or disease states, the questions address difficulties in functioning across a range of core domains and are designed to identify people who are at greater risk of experiencing limited or restricted participation in society than the general population. Question testing has shown that WG questions produce internationally comparable data (18).

The affect domain of the WG Short Set–Enhanced and Extended Set on Functioning (19,20) includes questions on feelings of anxiety and depression to help capture psychological functioning. These questions, however, are not designed to identify clinical cases of anxiety and depression, but rather the likely impact of anxiety and depression as measured on two dimensions: frequency and intensity. The frequency question asks the Sample Adult how often they feel "worried, nervous, or anxious," or "depressed," with response options of "daily," "weekly," "monthly," "a few times a year," and "never." The intensity question asks about the level of feelings during the last experience, with response options of "a little," "a lot," and "somewhere in between a little and a lot." While the WG questions ask about frequency and intensity, GAD–7 and PHQ–8 only ask about frequency in the last 2 weeks. Sample Adults who answered "never" to feelings of anxiety or depression, and who also indicated that they do not take prescription medication for these feelings, were not asked the intensity question. Sample Adults who were missing a response on either the frequency or intensity question (not including appropriate skips) were not included in this analysis (2.1% missing for WG–ANX and 2.1% missing for WG–DEP). See Table A for question wording for the WG–ANX indicator and Table B for the WG–DEP indicator.

Using the WG guidance for creating the WG–ANX and WG–DEP indicators, adults can be placed into four mutually exclusive categories of no, low, medium, or high based on their responses to the frequency and intensity questions (Figure 1) (21). While WG does not assign text labels to the four numeric categories, to ease reporting, labels indicating category placement on the continuum of severity are assigned as follows for this report: Sample Adults who indicated "daily" to frequency and "a lot" to intensity were classified as having "high" anxiety or depression; Sample Adults who indicated "daily" to frequency and "somewhere in between a little and a lot" to intensity, or who indicated "weekly" to frequency and "a lot" to intensity were classified as having "medium" anxiety or depression; Sample Adults who indicated "a few times a year" or "never" to the frequency question were classified as having "no" anxiety or depression, regardless of their response to the intensity question; and all remaining combinations of frequency and intensity were classified as "low" anxiety or depression.

Sociodemographic characteristics

Sociodemographic characteristics include sex, age group (18–44, 45–64, 65 and over), race and Hispanic origin (Hispanic, non-Hispanic White, non-Hispanic Black, and non-Hispanic other), education (high school or less,

Figure 1. Scoring algorithm for Washington Group anxiety and depression indicators

Intensity	Frequency: Daily	Weekly	Monthly	A few times a year	Never
Not asked	Not applicable				No
A little	Low	Low	Low	No	No
In between	Medium	Low	Low	No	No
A lot	High	Medium	Low	No	No

NOTE: Adults who responded "never" to the frequency question were not asked the intensity question if they were not taking medication for feelings of anxiety or depression; these sample adults were categorized as "no."
SOURCE: Washington Group on Disability Statistics.

some college or associate's degree, or bachelor's degree or higher), and family income as a percentage of FPL (less than 100%, 100%–199%, 200%–399%, or 400% or more). Family income as a percentage of FPL was calculated using NHIS imputed income files when family income was missing (22).

Mental health treatment

Mental health treatment outcomes included receiving counseling or therapy from a mental health professional in the past 12 months and taking prescription medication for mental health in the past 12 months. Sample Adults were asked separately if they took prescription medication for feelings of anxiety, feelings of depression, or to help with any other emotions or with their concentration, behavior, or mental health. Those who responded positively to any of these questions were considered as having taken medication for their mental health in the past 12 months.

A second composite measure of Sample Adults who reported either receiving counseling or therapy from a mental health professional or having taken medication for mental health in the past 12 months was created to indicate receipt of any mental health treatment in the past 12 months. Question wording can be found in Table C.

Statistical analysis

The first set of analyses examines anxiety measures (GAD–7 and WG–ANX). The second set examines depression measures (PHQ–8 and WG–DEP). The same structure and sequence of analyses were used for both anxiety and depression.

The first step for both was calculating the percent distribution of adults across the four categories of each measure (for GAD–7 and PHQ–8: none or minimal symptoms, mild symptoms, moderate symptoms, or severe symptoms and for WG–ANX and WG–DEP: no, low, medium, or high) (Figures 2 and 7).

Second, a crosstabulation of the two measures was created (2.8% missing) (Figures 3 and 8). Given that there are similarities in the clinical meaning or risk of participation limitation across some of the categories, the lowest two categories on each of the two sets of measures were collapsed (none or minimal and mild symptoms for GAD–7 and PHQ–8, no and low on WG–ANX and WG–DEP) to simplify the presentation of findings (Figures 4 and 9). Crosstabulations are color coded for clarity: Adults with comparable categorizations between measures are gray; adults who scored higher on GAD–7 versus WG–ANX, or PHQ–8 versus WG–DEP, are red; and adults who scored higher on WG–ANX versus GAD–7, or WG–DEP versus PHQ–8, are blue. Agreement was calculated as the percentage of adults who were in comparably ranked categories; that is, those falling on the diagonal (none or minimal symptoms versus no, mild symptoms versus low, moderate symptoms versus medium, or severe symptoms versus high). The percentage of adults who scored higher on one measure versus the other was also calculated.

Third, percent distribution by sociodemographic characteristics was estimated for the collapsed three categories for each measure. Chi-square statistics were used to determine if distributions of selected sociodemographic characteristics differed across the categories of each of the question sets (Tables 1 and 2), and patterns of association were examined as well as whether the associations were similar between measures.

Fourth, the prevalence of adults who received mental health treatment in the past 12 months was estimated for each of the three collapsed categories for each

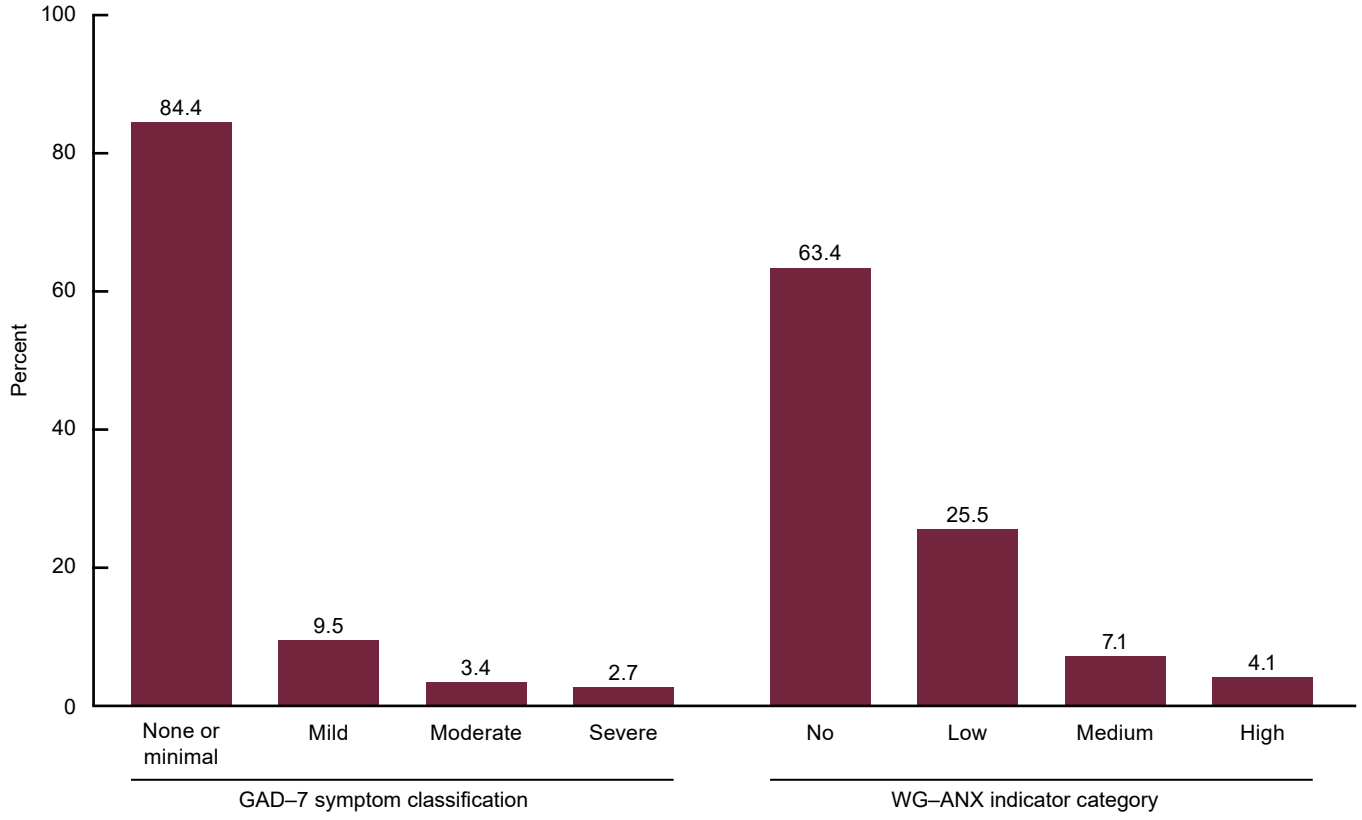
Table C. Question and response set wording for mental health treatment measures

Question wording	Response set
Do you take prescription medication for these feelings?[1]	1. Yes 2. No
Do you take prescription medication for depression?[2]	1. Yes 2. No
During the past 12 months, did you take prescription medication to help you with any other emotions or with your concentration, behavior, or mental health?[3]	1. Yes 2. No
During the past 12 months, did you receive counseling or therapy from a mental health professional such as a psychiatrist, psychologist, psychiatric nurse, or clinical social worker?	1. Yes 2. No

[1]Follows the question, "How often do you feel worried, nervous or anxious? Would you say daily, weekly, monthly, a few times a year, or never?"
[2]Follows the question, "How often do you feel depressed? Would you say daily, weekly, monthly, a few times a year, or never?"
[3]This question is not asked if Sample Adults answered yes to taking medication for feeling worried, nervous or anxious or depression.

SOURCE: National Center for Health Statistics, National Health Interview Survey, 2019.

Figure 2. Percent distribution of Generalized Anxiety Disorder–7 symptom classification and Washington Group anxiety indicator category among adults aged 18 and over: United States, 2019



NOTES: GAD–7 is Generalized Anxiety Disorder–7 scale. WG–ANX is Washington Group anxiety indicator. Data are based on household interviews of a sample of the U.S. civilian noninstitutionalized population. Percentages may not add to 100 due to rounding.
SOURCE: National Center for Health Statistics, National Health Interview Survey, 2019.

measure (Figures 5 and 10), testing for both linear and quadratic trends.

Fifth, the percentage of adults who received mental health treatment in the past 12 months was calculated in the collapsed comparison (Figures 6 and 11), comparing those who scored higher on one measure versus the other.

All estimates were performed using Stata SE Version 14.2 (23). All estimates presented in this report are weighted and meet NCHS standards of reliability as specified in "National Center for Health Statistics Data Presentation Standards for Proportions" (24), while accounting for the complex sample design of NHIS. Differences between percentages were evaluated using two-sided significance tests at the 0.05 level. Trends by mental health treatment across measure categories were evaluated using orthogonal polynomials in logistic regression.

Results

Anxiety

Prevalence

Figure 2 presents the distribution of anxiety symptoms among adults in the past 2 weeks based on the GAD–7 symptom categorization. In total, 84.4% of adults were categorized as having none or minimal anxiety symptoms, 9.5% were categorized as having mild anxiety symptoms, 3.4% were categorized as having moderate anxiety symptoms, and 2.7% were categorized as having severe anxiety symptoms.

Figure 2 also presents the distribution of adults by WG–ANX categorization. In total, 63.4% of adults were categorized as having no anxiety, 25.5% were categorized as having low anxiety, 7.1% were categorized as having medium anxiety, and 4.1% were categorized as having high anxiety.

Agreement

Figure 3 explores the extent to which GAD–7 and WG–ANX classified the same adults into comparable ranked categories (such as none or minimal anxiety symptoms on GAD–7 and no anxiety on WG–ANX). About 68% of adults were classified into comparable categories as indicated by the color gray, with the highest agreement seen between adults in the none or minimal anxiety symptoms GAD–7 category and the no anxiety WG–ANX category (61.3%), followed by adults who were in the mild anxiety symptoms GAD–7 category and the low anxiety WG–ANX category (4.4%), adults in the severe anxiety symptoms GAD–7 category and the high anxiety WG–ANX category (1.4%), and finally adults in the moderate anxiety symptoms GAD–7 category and the medium anxiety WG–ANX category (1.2%).

In Figure 4, the lowest two GAD–7 and WG–ANX categories are combined, resulting in about 90% of adults being classified into comparable categories and indicated by gray color coding. The highest agreement was seen between adults in the none or minimal or mild symptoms GAD–7 category and the no or low WG–ANX category (87.3%), followed by the severe symptoms GAD–7 category and the high WG–ANX category (1.4%) and the moderate symptoms GAD–7 category and the medium WG–ANX category (1.2%).

In total, 2.4% of adults were categorized higher on the GAD–7 scale (indicated by the color red) and 7.7% were categorized higher on the WG–ANX indicator (indicated by the color blue). Most of these inconsistencies reflect differences of only one ordinal category (for example, moderate anxiety symptoms on GAD–7 but high anxiety on WG–ANX). However, of the 2.7% of adults who were categorized as having severe anxiety symptoms on GAD–7, 18.5% reported no or low anxiety on WG–ANX (0.5% in total), and of the 4.1% of adults who were categorized as having high anxiety on WG–ANX, 39.0% reported none or minimal or mild anxiety symptoms on GAD–7 (1.6% in total).

Sociodemographics

Table 1 displays the percent distribution of selected sociodemographic characteristics of adults within each GAD–7 and WG–ANX category and associated chi-square tests of independence. Significant chi-squares were observed for all variables except race and Hispanic origin for GAD–7, and all chi-squares were significant for WG–ANX. The patterns of relationships are generally as expected and the distribution by sex, age, race and Hispanic origin, education, and family income are similar and of comparable effect size for corresponding GAD–7 and WG–ANX categories.

Mental health treatment

Figure 5 presents the percentage of adults who received mental health treatment in the past 12 months based on their GAD–7 and WG–ANX responses.

Figure 3. Percent distribution of adults aged 18 and over, by Generalized Anxiety Disorder–7 symptom classification and Washington Group anxiety indicator category: United States, 2019

GAD–7 symptom classification	WG–ANX indicator category			
	No	Low	Medium	High
	Percent (95% confidence interval)			
None or minimal	[1]61.3 (60.6–62.1)	[2]19.8 (19.3–20.4)	[2]2.6 (2.4–2.8)	[2]0.6 (0.5–0.7)
Mild	[3]1.6 (1.5–1.8)	[1]4.4 (4.2–4.7)	[2]2.4 (2.2–2.7)	[2]1.0 (0.9–1.1)
Moderate	[3]0.2 (0.2–0.3)	[3]0.9 (0.8–1.0)	[1]1.2 (1.1–1.4)	[2]1.1 (0.9–1.2)
Severe	[3]0.2 (0.1–0.3)	[3]0.3 (0.2–0.4)	[3]0.8 (0.7–1.0)	[1]1.4 (1.2–1.6)

[1]Comparable categorization between Generalized Anxiety Disorder–7 scale (GAD–7) and Washington Group anxiety indicator (WG–ANX).
[2]Higher categorization on WG–ANX.
[3]Higher categorization on GAD–7.
NOTES: Data are based on household interviews of a sample of the U.S. civilian noninstitutionalized population. Percentages may not add to 100 due to rounding.
SOURCE: National Center for Health Statistics, National Health Interview Survey, 2019.

Figure 4. Percent distribution of adults aged 18 and over, by collapsed Generalized Anxiety Disorder–7 symptom classification and Washington Group anxiety indicator category: United States, 2019

GAD–7 symptom classification	WG–ANX indicator category			
	No	Low	Medium	High
	Percent (95% confidence interval)			
None or minimal	[1]87.3 (86.8–87.7)		[2]5.0 (4.7–5.3)	[2]1.6 (1.4–1.8)
Mild				
Moderate	[3]1.1 (1.0–1.3)		[1]1.2 (1.1–1.4)	[2]1.1 (0.9–1.2)
Severe	[3]0.5 (0.4–0.6)		[3]0.8 (0.7–1.0)	[1]1.4 (1.2–1.6)

[1]Comparable categorization between Generalized Anxiety Disorder–7 scale (GAD–7) and Washington Group anxiety indicator (WG–ANX).
[2]Higher categorization on WG–ANX.
[3]Higher categorization on GAD–7.
NOTE: Data are based on household interviews of a sample of the U.S. civilian noninstitutionalized population.
SOURCE: National Center for Health Statistics, National Health Interview Survey, 2019.

Receipt of mental health treatment increased with increasing anxiety severity and level on both GAD–7 and WG–ANX. Receipt of mental health treatment was lowest for adults categorized as having none or minimal or mild anxiety symptoms on GAD–7 (16.5%), increasing to 57.2% among adults categorized as having moderate symptoms and 66.7% among adults categorized as having severe symptoms.

Similarly, the percentage of adults receiving mental health treatment in the past 12 months on WG–ANX was lowest among those categorized as having no or low anxiety (14.6%), increasing to 52.1% among adults categorized as having medium anxiety and 62.9% among adults categorized as having high anxiety.

Figure 6 shows the percentage and corresponding confidence intervals of adults who received mental health treatment in the past 12 months across the collapsed crosstabulations, showing agreement between GAD–7 and WG–ANX categories.

Among comparable categories (colored gray), the percentage of adults receiving mental health treatment increased as symptom severity and level of anxiety increased, ranging from 13.9% among adults categorized as having none or minimal or mild anxiety symptoms on GAD–7 and no or low anxiety on WG–ANX, up to 71.9% among adults who were categorized as having severe symptoms on GAD–7 and high anxiety on WG–ANX. About 59% of adults categorized as having moderate symptoms on GAD–7 and medium anxiety on WG–ANX reported receiving mental health treatment in the past 12 months.

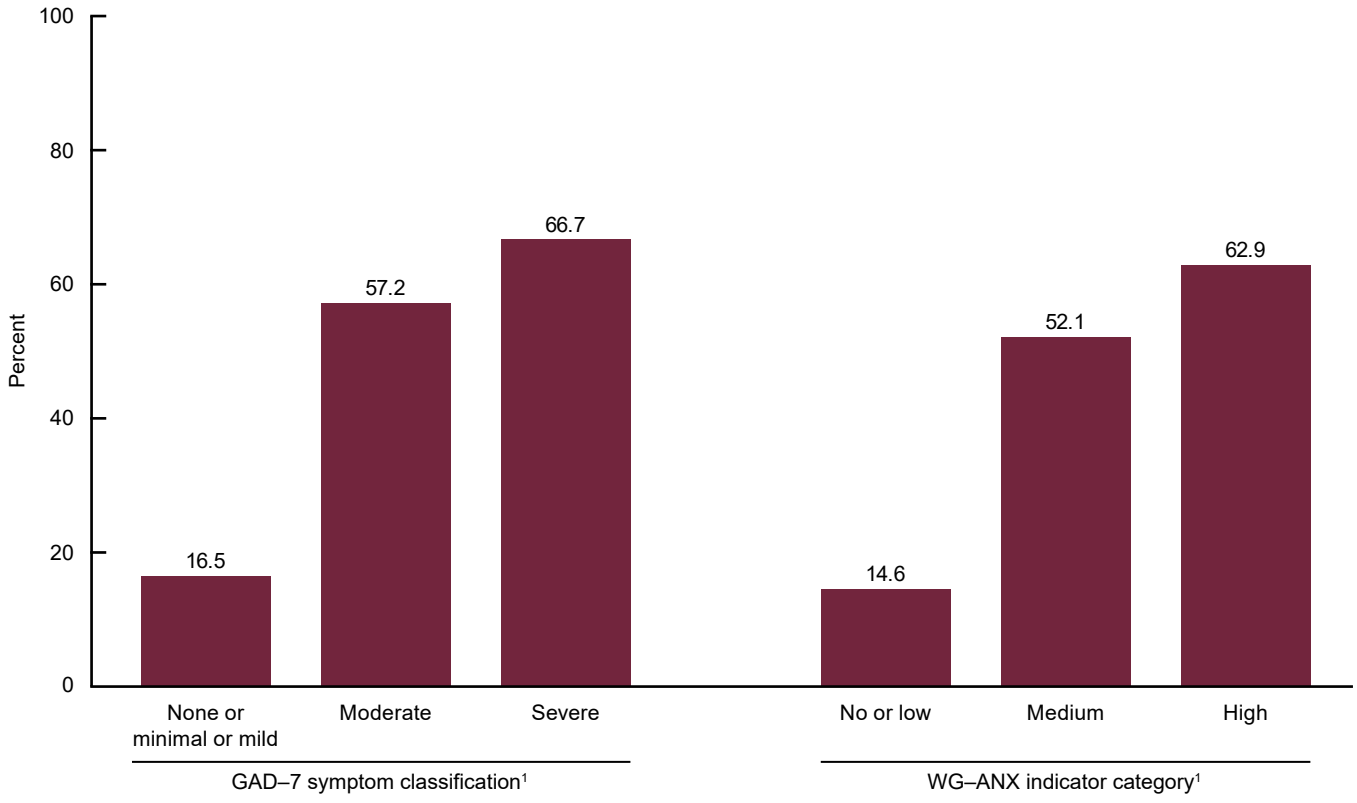
The receipt of mental health treatment ranged from 46.3%–62.7% among adults who were categorized higher on GAD–7 (colored red), compared with 48.8%–66.6% among adults who were categorized higher on WG–ANX (colored blue). In total, 54.3% of adults who were categorized higher on GAD–7 (average for the combined red areas) received mental health treatment in the past 12 months, compared with 52.0% of adults who were categorized higher on WG–ANX (average for the combined blue areas). This difference was not statistically significant.

Depression

Prevalence

Figure 7 presents the percent distribution of depression symptoms among adults in the past 2 weeks based on their PHQ–8 symptom categorization. In total, 81.5% of adults were categorized as having none or minimal depression symptoms, 11.5% were categorized as having mild depression symptoms, 4.2% were categorized as having moderate depression symptoms, and 2.8% were

Figure 5. Percentage of adults aged 18 and over who received any mental health treatment in the past 12 months, by collapsed Generalized Anxiety Disorder–7 symptom classification and Washington Group anxiety indicator category: United States, 2019



[1]Significant linear trend ($p < 0.05$).
NOTES: GAD–7 is Generalized Anxiety Disorder–7 scale. WG–ANX is Washington Group anxiety indicator. Data are based on household interviews of a sample of the U.S. civilian noninstitutionalized population.
SOURCE: National Center for Health Statistics, National Health Interview Survey, 2019.

categorized as having severe depression symptoms in the past 2 weeks.

Figure 7 also presents the percent distribution of adults by WG–DEP categorization. In total, 83.6% of adults were categorized as having no depression, 11.7% were categorized as having low depression, 2.8% were categorized as having medium depression, and 1.9% were categorized as having high depression.

Agreement

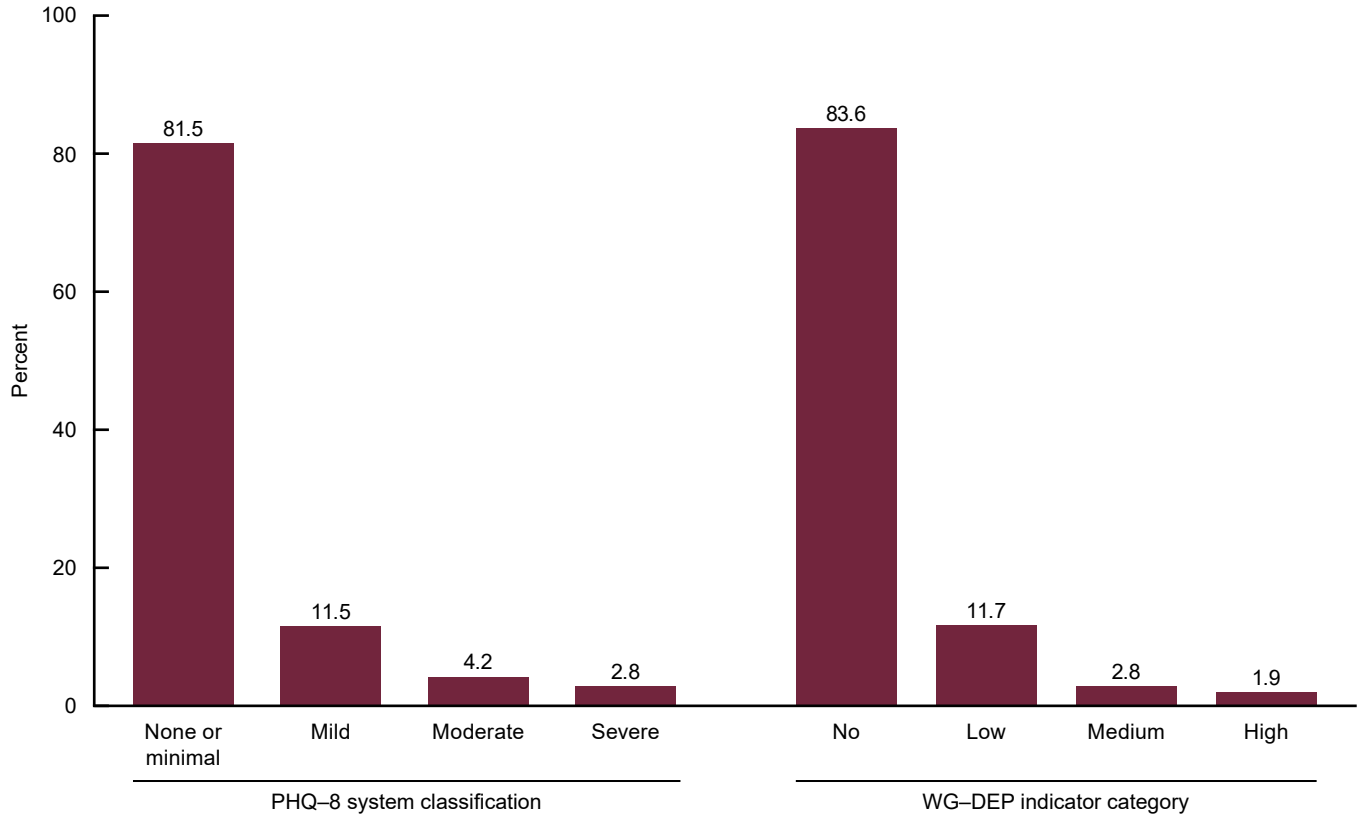
Figure 8 explores the extent to which PHQ–8 and WG–DEP classified the same adults into comparable ranked categories (such as none or minimal depression symptoms on PHQ–8 and no depression on WG–DEP). About 81% of adults were classified into comparable categories as indicated by the color gray, with the highest agreement seen between

Figure 6. Percentage of adults aged 18 and over who received any mental health treatment in the past 12 months, by collapsed Generalized Anxiety Disorder–7 symptom classification and Washington Group anxiety indicator category: United States, 2019

GAD–7 symptom classification	WG–ANX indicator category		
	No or low	Medium	High
	Percent (95% confidence interval)		
None or minimal or mild	[1]13.9 (13.4–14.5)	[2]48.8 (45.7–51.8)	[2]52.2 (46.4–57.9)
Moderate	[3]46.3 (39.9–52.8)	[1]59.0 (52.3–65.4)	[2]66.6 (60.4–72.4)
Severe	[3]58.4 (47.0–69.1)	[3]62.7 (54.5–70.4)	[1]71.9 (65.9–77.3)

[1]Comparable categorization between Generalized Anxiety Disorder–7 scale (GAD–7) and Washington Group anxiety indicator (WG–ANX).
[2]Higher categorization on WG–ANX.
[3]Higher categorization on GAD–7.
NOTES: Data are based on household interviews of a sample of the U.S. civilian noninstitutionalized population. In total, 54.3% of adults categorized higher on GAD–7 than WG–ANX received mental health treatment in the past 12 months compared with 52.0% of adults categorized higher on WG–ANX. This difference was not statistically significant at $p < 0.05$ via logistic regression.
SOURCE: National Center for Health Statistics, National Health Interview Survey, 2019.

Figure 7. Percent distribution of Patient Health Questionnaire–8 symptom classification and Washington Group depression indicator category among adults aged 18 and over: United States, 2019



NOTES: PHQ–8 is Patient Health Questionnaire–8 scale. WG–DEP is Washington Group depression indicator. Data are based on household interviews of a sample of the U.S. civilian noninstitutionalized population.
SOURCE: National Center for Health Statistics, National Health Interview Survey, 2019.

adults in the none or minimal depression symptoms PHQ–8 category and the no depression WG–DEP category (75.8%), followed by adults who were in the mild depression symptoms PHQ–8 category and the low depression WG–DEP category (3.9%), adults in the severe depression symptoms PHQ–8 category and the high depression WG–DEP category (0.9%), and finally adults in the moderate depression symptoms PHQ–8 category and the medium depression WG–DEP category (0.8%).

In Figure 9, the lowest two categories of the PHQ–8 and WG–DEP categorizations are collapsed, resulting in 93% of adults being classified into comparable categories as indicated by the color gray. The highest agreement was seen between adults in the none or minimal or mild symptoms PHQ–8 category and the no or low WG–DEP category (91.3%), followed by the severe symptoms PHQ–8 category and the high WG–DEP category (0.9%), and the moderate symptoms PHQ–8 category and the medium WG–DEP category (0.8%).

In total, 4.8% of adults were categorized higher on the PHQ–8 scale, indicated by the color red, and 2.2% of adults were categorized higher on the WG–DEP indicator, indicated by the color blue. Most of these inconsistencies reflect differences of only one ordinal category (for example, moderate depression symptoms on PHQ–8 but high depression on WG–DEP). However, of the 2.8% of adults categorized as having severe depression symptoms on PHQ–8, 39.3% reported no or low depression on WG–DEP (1.1% in total), and of the 1.9% of adults categorized as having high depression on WG–DEP, 26.3% reported none or minimal or mild depression symptoms on PHQ–8 (0.5% in total).

Sociodemographics

Table 2 displays the percent distribution of selected sociodemographic characteristics within each PHQ–8 and WG–DEP category and the associated chi-square tests of independence. Significant chi-squares were observed for all variables except age for PHQ–8, and all chi-squares were significant for WG–DEP. The relationship patterns are generally as expected and the

Figure 8. Percent distribution of adults aged 18 and over, by Patient Health Questionnaire–8 symptom classification and Washington Group depression indicator category: United States, 2019

PHQ–8 symptom classification	WG–DEP indicator category			
	No	Low	Medium	High
	Percent (95% confidence interval)			
None or minimal	[1]75.8 (75.1–76.4)	[2]5.3 (5.0–5.6)	[2]0.4 (0.3–0.4)	[2]0.1 (0.1–0.2)
Mild	[3]6.4 (6.1–6.8)	[1]3.9 (3.6–4.2)	[2]0.9 (0.7–1.0)	[2]0.4 (0.3–0.5)
Moderate	[3]1.1 (0.9–1.2)	[3]1.8 (1.6–2.0)	[1]0.8 (0.7–0.9)	[2]0.5 (0.4–0.6)
Severe	[3]0.3 (0.3–0.4)	[3]0.8 (0.6–0.9)	[3]0.8 (0.7–0.9)	[1]0.9 (0.8–1.0)

[1]Comparable categorization between Patient Health Questionnaire–8 scale (PHQ–8) and Washington Group depression indicator (WG–DEP).
[2]Higher categorization on WG–DEP.
[3]Higher categorization on PHQ–8.
NOTES: Data are based on household interviews of a sample of the U.S. civilian noninstitutionalized population. Percentages may not add to 100 due to rounding.
SOURCE: National Center for Health Statistics, National Health Interview Survey, 2019.

Figure 9. Percent distribution of adults aged 18 and over, by collapsed Patient Health Questionnaire–8 symptom classification and Washington Group depression indicator category: United States, 2019

PHQ–8 symptom classification	WG–DEP indicator category			
	No	Low	Medium	High
	Percent (95% confidence interval)			
None or minimal	[1]91.3 (90.9–91.7)		[2]1.2 (1.1–1.4)	[2]0.5 (0.4–0.6)
Mild				
Moderate	[3]2.9 (2.7–3.2)		[1]0.8 (0.7–0.9)	[2]0.5 (0.4–0.6)
Severe	[3]1.1 (1.0–1.2)		[3]0.8 (0.7–0.9)	[1]0.9 (0.8–1.0)

[1]Comparable categorization between Patient Health Questionnaire–8 (PHQ–8) and Washington Group depression indicator (WG–DEP).
[2]Higher categorization on WG–DEP.
[3]Higher categorization on PHQ–8.
NOTE: Data are based on household interviews of a sample of the U.S. civilian noninstitutionalized population.
SOURCE: National Center for Health Statistics, National Health Interview Survey, 2019.

distribution by sex, race and Hispanic origin, education, and family income are similar and of comparable effect size for corresponding PHQ–8 and WG–DEP categories.

Mental health treatment

Figure 10 presents the percentage of adults receiving mental health treatment based on their PHQ–8 and WG–DEP responses. The receipt of mental health treatment was lowest for adults categorized as having none or minimal or mild depression symptoms on PHQ–8 (15.8%), increasing to 59.7% among adults categorized as having moderate symptoms and 71.8% among adults categorized as having severe symptoms.

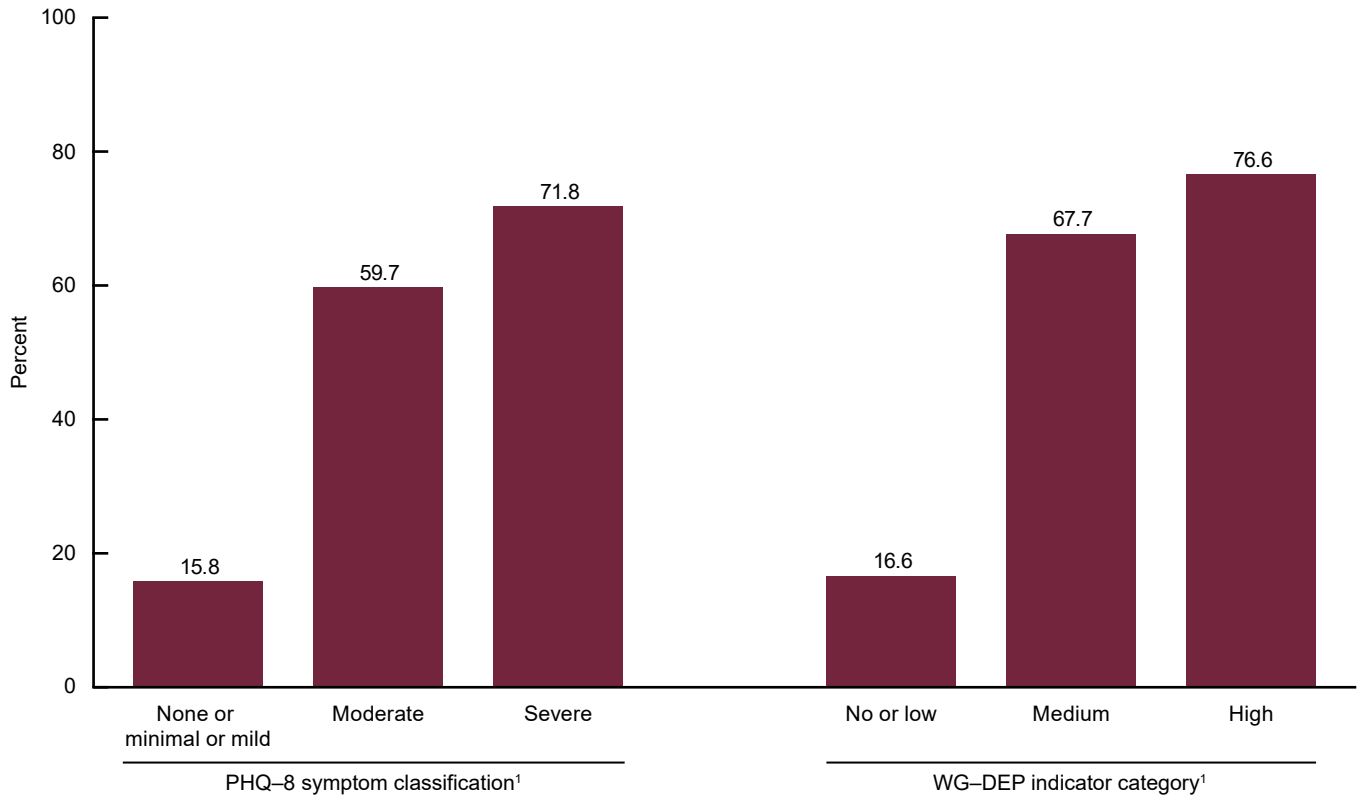
Similarly, the percentage of adults receiving mental health treatment in the past 12 months on WG–DEP was lowest among those categorized as having no or low depression (16.6%), increasing to 67.7% among adults categorized as having medium depression and 76.6% among adults categorized as having high depression.

Figure 11 shows the percentage (and corresponding confidence intervals) of adults who received mental health treatment in the past 12 months across the collapsed crosstabulations, showing agreement between PHQ–8 and WG–DEP categories. Receipt of mental health treatment increased with increasing depression severity or level on PHQ–8 and WG–DEP, except for medium depression on WG–DEP.

Among comparable categories (colored gray) the percentage of adults receiving mental health treatment increased as symptom severity and level of depression increased, ranging from 14.9% among adults categorized as having none or minimal or mild depression symptoms on PHQ–8 and no or low depression on WG–DEP, up to 82.8% among adults categorized as having severe symptoms on PHQ–8 and high depression on WG–DEP. About 75% of adults categorized as having moderate depression symptoms on PHQ–8 and medium depression on WG–DEP received any mental health treatment in the past 12 months (75.3%).

The receipt of mental health treatment ranged from 52.5%–71.5% among adults who were categorized higher on PHQ–8 (indicated by the color red), compared with 60.2%–76.9% among adults who were categorized higher on WG–DEP (indicated by the color blue). In total, 57.9% of adults who were categorized higher on PHQ–8 (average for the red areas combined) received mental health treatment in the past 12 months, compared with 64.8% of adults who were categorized higher on WG–DEP (average for the blue areas combined). This difference was statistically significant.

Figure 10. Percentage of adults aged 18 and over who had received any mental health treatment in the past 12 months, by collapsed Patient Health Questionnaire-8 symptom classification and Washington Group depression indicator category: United States, 2019



[1]Significant linear trend ($p < 0.05$).
NOTES: PHQ–8 is Patient Health Questionnaire–8 scale.WG–DEP is Washington Group depression indicator. Data are based on household interviews of a sample of the U.S. civilian noninstitutionalized population.
SOURCE: National Center for Health Statistics, National Health Interview Survey, 2019.

Figure 11. Percentage of adults aged 18 and over who received any mental health treatment in the past 12 months, by collapsed Patient Health Questionnaire–8 symptom classification and Washington Group depression indicator category: United States, 2019

PHQ–8 symptom classification	WG–DEP indicator category		
	No or low	Medium	High
	Percent (95% confidence interval)		
None or minimal or mild	[1]14.9 (14.4–15.4)	[2]60.2 (54.0–66.1)	[2]64.9 (55.3–73.4)
Moderate	[3]52.5 (48.4–56.6)	[1]75.3 (67.8–81.6)	[2]76.9 (67.5–84.2)
Severe	[3]62.5 (56.3–68.3)	[3]71.5 (63.5–78.3)	[1]82.8 (77.5–87.1)

[1]Comparable categorization between Patient Health Questionnaire–8 scale (PHQ–8) and Washington Group depression indicator (WG–DEP).
[2]Higher categorization on WG–DEP.
[3]Higher categorization on PHQ–8.
NOTES: Data are based on household interviews of a sample of the U.S. civilian noninstitutionalized population. In total, 57.9% of adults categorized higher on PHQ–8 than WG–DEP received mental health treatment in the past 12 months compared with 64.8% of adults categorized higher on WG–DEP. This difference was statistically significant at $p < 0.05$ via logistic regression.
SOURCE: National Center for Health Statistics, National Health Interview Survey, 2019.

Discussion

The redesigned NHIS provides an opportunity to examine participants' responses to two sets of measures for both anxiety and depression. Although the Washington Group Extended Set on Functioning had previously appeared in NHIS, 2019 was the first year the GAD–7 and PHQ–8 scales were also asked of the Sample Adult. The majority of adults were categorized in the lowest possible category for both measures, indicating none or minimal anxiety or depression symptoms (on GAD–7 and PHQ–8, respectively) and no anxiety or depression (on WG–ANX and WG–DEP, respectively). When collapsing the bottom two categories of each measure, about 90% agreement was observed for both anxiety and depression measures. When disagreement occurred, a larger percentage of adults were categorized higher on WG–ANX than GAD–7 for anxiety, while more adults were categorized higher on PHQ–8 than WG–DEP for depression. However, categorization of adults in the highest category on one measure but in the lowest on the other was uncommon, occurring among only 2.1% of adults for anxiety measures and 1.6% of adults for depression measures after collapsing the two lowest categories of all measures.

Minimal differences in the nature of the relationships between sociodemographic characteristics and categorizations of anxiety and depression using the two measures were observed.

Receipt of mental health treatment was more common as the severity of symptoms or level of anxiety or depression increased in both sets of measures. While adults who were categorized higher on GAD–7 were similarly likely to have received mental health treatment in the past 12 months when compared with adults who were categorized higher on WG–ANX, adults who were categorized higher on PHQ–8 were less likely to have received mental health treatment in the past 12 months when compared with adults who were categorized higher on WG–DEP.

The intent of this analysis was to compare responses to two methods of obtaining information on anxiety and depression. The analysis found high agreement and similar results between the two approaches, although some differences occurred as noted. Without some form of external validation, it is not possible to explain the causes of the observed differences between the GAD–7 scale and the WG–ANX indicator or the differences between the PHQ–8 scale and the WG–DEP indicator. Nor is it possible to provide clear guidance on when each measure should be used. However, the results obtained suggest that each of the two approaches tap into the same underlying construct, anxiety or depression.

Scales that assess the same construct do not necessarily obtain the same responses, for several possible reasons. First, it is possible that the observed discordance between GAD–7 and WG–ANX and PHQ–8 and WG–DEP was affected by the placement of the questions in the questionnaire. The GAD–7 and PHQ–8 scales are asked after WG–ANX and WG–DEP, and also a set of questions on mental health care treatment and chronic pain. The WG–ANX and WG–DEP indicators follow a set of questions on preventive screening and physical and other therapeutic care. The placement of the two question sets in the interview could affect response patterns. Second, it is possible that respondents reflected on different time periods when answering the two sets of questions. While GAD–7 and PHQ–8 ask the respondent to think about how they were feeling over the past 2 weeks, WG–ANX and WG–DEP do not provide any such instruction. The inclusion of both "daily" and "a few times a year" in the response options, which are read as part of the question, may result in some respondents reflecting on a period of time greater than 2 weeks.

Finally, it is possible that the similarity between questions may frustrate respondents who feel they have already answered questions on this topic area or may lead some respondents to overthink the questions and assume the survey must be asking about something else. A respondent's own recall of previous answers given may also impact their responses to subsequent questions. It is not possible to determine if any of these processes affected the results presented.

Collecting information on mental health and psychological functioning can be challenging. For many physical health conditions, there are laboratory or other clinical tests that inform decisions

regarding diagnosis. For mental health and psychological functioning, however, information is typically obtained from the individual using question sets or other types of interviews. Even when the question set has been validated against clinical diagnoses, if the subject does not understand the intent of the question, is unwilling to respond, or has difficulties providing the needed information, a determination of mental health functioning will likely be incorrect. This is particularly of concern for population-based surveys where interviewers may not be well trained in obtaining the needed information and the nature of the interview interaction can influence the way information is shared.

Conclusions

This report compares two assessments of anxiety and depression using data from the nationally representative NHIS. The findings suggest comparable results are obtained across assessment approaches. A major strength of NHIS is the ability to explore these differences by various subgroups, as well as the ability to explore associations of anxiety and depression with a series of health care and health-related outcomes.

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Table 1. Percent distribution of demographic characteristics of adults, by Generalized Anxiety Disorder–7 symptom classification and Washington Group anxiety indicator category: United States, 2019

Selected demographic characteristics	GAD–7[1]			WG–ANX[2]		
	None or minimal or mild	Moderate	Severe	No or low	Medium	High
	Percent (95% confidence interval)					
Sex[3,4]						
Male	49.3 (48.6–50.0)	34.4 (30.9–38.1)	34.4 (30.5–38.4)	49.8 (49.1–50.6)	37.2 (34.7–39.9)	35.4 (32.3–38.7)
Female	50.7 (50.0–51.4)	65.6 (61.9–69.1)	65.6 (61.6–69.5)	50.2 (49.4–50.9)	62.8 (60.1–65.3)	64.6 (61.3–67.7)
Age group (years)[3,4]						
18–44	45.7 (44.8–46.5)	52.7 (48.9–56.5)	50.3 (46.0–54.6)	45.2 (44.4–46.1)	53.6 (51.0–56.2)	50.4 (47.0–53.8)
45–64	32.9 (32.3–33.6)	33.8 (30.3–37.4)	35.5 (31.6–39.4)	33.0 (32.4–33.7)	32.0 (29.7–34.5)	35.0 (31.9–38.2)
65 and over	21.4 (20.8–22.0)	13.5 (11.4–15.9)	14.2 (11.4–17.5)	21.7 (21.1–22.3)	14.4 (12.7–16.1)	14.6 (12.4–17.1)
Race and Hispanic origin[4]						
Hispanic	16.5 (15.7–17.4)	14.9 (12.2–18.0)	15.5 (12.1–19.5)	16.9 (16.1–17.8)	13.3 (11.4–15.4)	13.3 (10.6–16.5)
Non-Hispanic White	63.3 (62.3–64.3)	68.5 (64.6–72.1)	63.9 (59.4–68.2)	62.5 (61.5–63.6)	70.7 (68.1–73.1)	68.7 (65.2–72.1)
Non-Hispanic Black	11.7 (11.0–12.4)	10.6 (8.2–13.4)	12.3 (9.6–15.3)	11.8 (11.1–12.5)	9.9 (8.2–11.8)	12.0 (9.7–14.5)
Non-Hispanic other	8.5 (7.9–9.2)	6.0 (4.3–8.1)	8.3 (6.1–11.1)	8.7 (8.1–9.4)	6.1 (5.0–7.4)	6.0 (4.5–7.7)
Education[3,4]						
High school or less	38.9 (38.0–39.8)	46.9 (43.2–50.7)	51.9 (47.7–56.1)	39.0 (38.2–39.9)	40.8 (38.1–43.6)	49.4 (45.9–52.8)
Some college or associate's degree	31.0 (30.3–31.8)	35.6 (32.1–39.3)	34.4 (30.3–38.6)	30.9 (30.2–31.6)	34.8 (32.2–37.4)	32.6 (29.4–36.0)
Bachelor's degree or more	30.0 (29.3–30.8)	17.4 (15.0–20.1)	13.7 (11.4–16.3)	30.0 (29.3–30.8)	24.4 (22.2–26.7)	18.0 (15.6–20.7)
Family income as a percentage of FPL[3–5]						
Less than 100% FPL	10.3 (9.8–10.9)	22.3 (19.3–25.5)	25.6 (22.2–29.4)	10.2 (9.6–10.8)	17.0 (15.0–19.1)	22.5 (19.4–25.7)
100%–199% FPL	18.1 (17.4–18.7)	26.4 (23.1–29.9)	28.4 (24.2–32.8)	17.9 (17.3–18.6)	22.4 (20.2–24.9)	29.4 (26.1–32.8)
200%–399% FPL	31.0 (30.3–31.7)	30.1 (26.6–33.9)	29.2 (25.0–33.5)	31.1 (30.4–31.8)	30.2 (27.6–32.8)	27.3 (24.2–30.6)
400% FPL or more	40.6 (39.8–41.5)	21.2 (18.2–24.3)	16.8 (13.6–20.4)	40.8 (39.9–41.7)	30.4 (27.9–33.0)	20.9 (18.0–24.0)

[1]GAD–7 is Generalized Anxiety Disorder–7 scale. Severity of anxiety symptoms was summarized into none or minimal (values 0–4), mild (values 5–9), moderate (values 10–14), and severe (values 15–21).
[2]WG–ANX is Washington Group anxiety indicator.
[3]Chi-square test between GAD–7 categories and selected demographic characteristic is significant at $p < 0.05$.
[4]Chi-square test between WG–ANX categories and selected demographic characteristic is significant at $p < 0.05$.
[5]FPL is federal poverty level. Family income was derived using the U.S. Census Bureau's poverty thresholds for the previous calendar year, which take family size and age into consideration.

NOTE: Estimates are based on household interviews of a sample of the U.S. civilian noninstitutionalized population.

SOURCE: National Center for Health Statistics, National Health Interview Survey, 2019.

Table 2. Percent distribution of demographic characteristics of adults, by Patient Health Questionnaire–8 symptom classification and Washington Group depression indicator category: United States, 2019

Selected demographic characteristics	PHQ–8[1]			WG–DEP[2]		
	None or minimal or mild	Moderate	Severe	No or low	Medium	High
	Percent (95% confidence interval)					
Sex[3,4]						
Male	49.2 (48.4–49.9)	39.1 (35.6–42.6)	36.1 (32.3–40.0)	48.8 (48.1–49.5)	38.2 (34.2–42.3)	40.1 (35.1–45.3)
Female	50.8 (50.1–51.6)	60.9 (57.4–64.4)	63.9 (60.0–67.7)	51.2 (50.5–51.9)	61.8 (57.7–65.8)	59.9 (54.7–64.9)
Age group (years)[4]						
18–44	46.1 (45.3–46.9)	45.0 (41.5–48.5)	43.7 (39.6–47.9)	46.1 (45.3–47.0)	48.5 (44.3–52.8)	37.7 (32.8–42.8)
45–64	32.8 (32.1–33.5)	35.9 (32.6–39.3)	36.6 (32.9–40.5)	32.8 (32.2–33.5)	32.7 (28.9–36.6)	44.1 (38.9–49.3)
65 or over	21.1 (20.5–21.7)	19.1 (16.6–21.7)	19.6 (16.6–23.0)	21.0 (20.5–21.6)	18.8 (16.1–21.8)	18.3 (14.8–22.1)
Race and Hispanic origin[3,4]						
Hispanic	16.5 (15.7–17.4)	15.7 (13.0–18.8)	15.8 (12.5–19.5)	16.6 (15.8–17.5)	13.4 (10.7–16.4)	14.5 (10.8–18.8)
Non-Hispanic White	63.3 (62.2–64.3)	67.1 (63.6–70.5)	65.5 (61.1–69.6)	63.2 (62.1–64.2)	69.0 (64.9–72.8)	65.6 (60.4–70.6)
Non-Hispanic Black	11.6 (10.9–12.3)	12.7 (10.4–15.2)	10.5 (8.1–13.4)	11.6 (11.0–12.3)	11.2 (8.7–14.2)	14.6 (11.3–18.4)
Non-Hispanic other	8.6 (8.0–9.3)	4.5 (3.2–6.1)	8.3 (6.0–11.0)	8.6 (7.9–9.2)	6.4 (4.4–9.1)	5.3 (3.4–7.8)
Education[3,4]						
High school or less	38.8 (37.9–39.6)	47.5 (43.8–51.2)	53.3 (49.2–57.4)	39.0 (38.1–39.8)	49.9 (45.6–54.3)	56.8 (51.8–61.6)
Some college or associate's degree	31.0 (30.3–31.7)	36.4 (32.9–40.0)	33.2 (29.3–37.2)	31.2 (30.5–31.9)	33.9 (30.1–38.0)	30.8 (26.3–35.5)
Bachelor's degree or more	30.2 (29.5–31.0)	16.2 (14.0–18.5)	13.5 (11.3–16.1)	29.9 (29.1–30.7)	16.2 (13.5–19.0)	12.5 (9.9–15.4)
Family income as a percentage of FPL[3–5]						
Less than 100% FPL	10.2 (9.7–10.8)	21.0 (18.2–24.1)	26.8 (23.3–30.5)	10.5 (9.9–11.1)	21.1 (17.8–24.7)	29.6 (24.8–34.8)
100%–199% FPL	17.9 (17.2–18.5)	27.9 (24.6–31.5)	29.6 (25.6–33.8)	18.2 (17.6–18.8)	28.0 (24.2–32.2)	32.0 (26.8–37.6)
200%–399% FPL	31.1 (30.3–31.8)	30.8 (27.6–34.3)	26.9 (23.1–31.0)	30.9 (30.2–31.6)	29.6 (25.6–33.8)	27.9 (23.2–32.9)
400% FPL or more	40.9 (40.0–41.7)	20.2 (17.5–23.1)	16.7 (13.7–20.1)	40.4 (39.5–41.3)	21.3 (18.1–24.9)	10.5 (7.5–14.1)

[1]PHQ–8 is Patient Health Questionnaire–8 scale. Depression symptom severity was summarized into none or minimal (values 0–4), mild (values 5–9), moderate (values 10–14), and severe (values 15–24).
[2]WG–DEP is Washington Group depression indicator.
[3]Chi-square test between PHQ–8 categories and selected demographic characteristic is significant at $p < 0.05$.
[4]Chi-square test between WG–DEP categories and selected demographic characteristic is significant at $p < 0.05$.
[5]FPL is federal poverty level. Family income was derived using the U.S. Census Bureau's poverty thresholds for the previous calendar year, which take family size and age into consideration.

NOTE: Estimates are based on household interviews of a sample of the U.S. civilian noninstitutionalized population.

SOURCE: National Center for Health Statistics, National Health Interview Survey, 2019.

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