

The PHQ-2 as a Screening Tool for Clinical Depression in a Primary Eye-Care Clinic

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ABSTRACT

Purpose: Screening tests for clinical depression, a highly prevalent and often disabling condition, have not been investigated in primary-care eye settings. The purpose of the present study was to determine the percent of patients in an urban primary-care eye clinic who fail the PHQ-2 screening tool. The PHQ-2 is an ultra-short screener consisting of 2 items regarding mood and anhedonia.

Methods: The two-question PHQ-2 was administered (as part of a larger questionnaire that included data on gender, age, and ethnicity) to patients seated in the Primary Care Clinic of the SUNY College of Optometry [University Eye Center] in Manhattan, NY. A total of 739 surveys were completed over a two-month period, with a completion rate of 69%. All surveys were completed anonymously, and unfinished surveys were not included in the final data set.

Results: The demographics collected in this study mirror those of the population that this clinic serves; overall very diverse, with good representation from each age group. Thirteen percent of the sample received a score of 3 or higher, the standard cutoff score for failure of the PHQ-2.

Conclusions: The failure rate on the PHQ-2 in a primary eye-care, urban population approaches that found in general medical practice, suggesting similar rates of clinical depression. Thus, the PHQ-2 may be a beneficial tool for screening for depression, however, it is important to follow-up with a referral to a mental health specialist.

KEYWORDS

depression, dysthymia, PHQ-2, screening, primary eye care

The lifetime prevalence of major depression may be as high as 16%.¹ About 5 -10% of patients in primary care settings suffer from major depression, while dysthymia, a chronic low-grade depression, affects 2 to 4% of this population.² These conditions result in significant suffering, morbidity and mortality.^{3,4} Major depression is a leading cause of disability in adults, and is expected to soon rank second only to heart disease worldwide.^{5,6} The only chronic condition that is more prevalent in general medical practice is hypertension.^{7,8} Depressed patients are more likely to attempt or commit suicide.⁹

Despite the increasing availability of effective treatments,¹⁰⁻¹⁴ both medical and psychological, it is estimated that as few as 22% of patients with major depressive disorder receive appropriate care.¹ Since symptoms may not be apparent to the practitioner during routine primary-care medical encounters, there is great interest in developing screening surveys that can be employed in such settings to effectively screen for this disease.^{4,15-17} To encourage the use of these screening tools in primary-care medical practice, where time constraints make efficiency a major consideration, the trend has been toward the use of shorter instruments, including ultra-short (one-, two-, three- and four-item) surveys.^{3,4,16,18-32}

The most widely studied of the ultra-short screening surveys, the PHQ-2, consists of the first two items of the longer nine-item Patient Health Questionnaire (PHQ-9).^{16,17} The two questions, which are based on symptoms specified by the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV)*, concern mood and anhedonia (Table 1).³³ The PHQ-2 has been studied in various clinical populations, including primary care, geriatric, cardiology, obstetrics-gynecology and general medical.^{4,16,18-27,29-32} The most detailed studies with primary-care populations found sensitivities ranging from 79 – 83% and specificity ranging from 86 – 92%.^{16,23,25} These findings point to its possible utility as a tool for screening patients seeking primary care services.²⁵

Table 1: Patient Health Questionnaire-2 (PHQ-2)

Over the last 2 weeks, how often have you been bothered by any of the following problems?	Not at all	Several days	More than half the days	Nearly every day
a. Little interest or pleasure in doing things	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Feeling down, depressed, or hopeless	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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Few data are available on the prevalence of clinical depression among patients seeking eye care. In a survey of optometric practices, Soroka et al. determined that only 0.41% of optometric patients had a diagnosis of depression, considerably below what would be expected based on the condition's prevalence in the general population and primary-care medical settings.^{34,35} This value, which is based on case histories, does not take into account undiagnosed patients or those unwilling to reveal a diagnosis of depression.

The current study was undertaken to determine the failure rate for the PHQ-2 when administered in a large urban primary-care eye clinic. While the results obtained with a screening device do not indicate the prevalence of clinical depression, they provide a basis for comparison with the findings in other primary-care settings.

METHODS

Subjects and Procedure

Patients seated in the waiting area of the Primary Care Clinic of the SUNY, College of Optometry, University Eye Center (UEC) were individually asked by one of the investigators if they would be interested in completing a short survey. The UEC, which is located in midtown Manhattan, provides eye-care services to a diverse urban population.

If the patient agreed, he/she was given the survey and a consent statement along with an envelope in which to place the survey once it was completed. Both the top and bottom of the one-page survey displayed the statement "DO NOT WRITE OR SIGN YOUR NAME ON THIS FORM." A statement asking the subject to read the accompanying consent prior to completing the survey was also printed on the survey form, as were statements that "answers to the questions on the survey are anonymous" and "no one, including the researchers, will know how you answered the survey questions." The envelopes containing the surveys were subsequently collected by the investigator, who placed them in a bag in the patient's presence. Minimum age for participation in the study was 18 years. The experimental protocol was approved by the SUNY State College of Optometry Institutional Review Board.

A total of 739 surveys were completed over a period of about two months. Based on the final 797 potential subjects who were approached, the survey completion rate was 69%. About 16% refused to take the survey, and 2% of the returned surveys were incomplete. The remaining potential subjects could not complete the survey due to language barriers (6%), disability (1%), because they were called in for their exam (3%) or because they had been dilated and were unable to clearly see the survey items (3%).

Survey Instrument

The survey consisted of 10 items, with the first two from the PHQ-2 (Table 1). Included in the remaining items were questions related to demographics (age, gender and ethnicity). A Likert scale was used for the PHQ-2. Data for each completed survey were entered into an SPSS database for analysis.

RESULTS

Table 2 summarizes the demographic characteristics of our sample, which appear to be representative of the population served by the clinic. Results of the PHQ-2 are given in Table 3, which shows that cutoff values of 2, 3, and 4 gave failure rates of 0.29, 0.13 and 0.07 respectively. A score of 3 or higher is normally considered a failing score.²³

Table 2: Sample demographics

Demographic	Sample (n, %)
Age (y)	
18-30	198 (26.8%)
31-45	156 (21.1%)
46-60	230 (31.1%)
61-75	132 (17.9%)
76 or older	23 (3.1%)
Gender	
Male	264 (35.7%)
Female	474 (64.1%)
Race/Ethnicity	
Asian	69 (9.3%)
Black	227 (30.7%)
Caucasian	278 (37.6%)
Hispanic	117 (15.8%)
Native American	5 (0.7%)
Mixed	43 (5.8%)

Table 3: Frequency distribution of PHQ-2 scores

PHQ-2 Total Score	Frequency	Percent	Cumulative Percent
6	12	1.6	1.6
5	8	1.1	2.7
4	34	4.6	7.3
3*	40	5.4	12.7
2	118	16.0	28.7
1	89	12.0	40.7
0	438	59.3	100.0

*Standard cut-off point

DISCUSSION

A limitation of the current study is that the actual prevalence of clinical depression in the sample was not determined. To do so would have required a structured diagnostic clinical interview of all subjects. The most frequently used of these is the Structured Clinical Interview for DSM-IV (SCID), a lengthy and tedious process that was neither feasible nor appropriate with our sample.³⁶ The PHQ-2 failure rate, however, has been determined in patient samples with a known prevalence of clinical depression. These data may be used to infer the prevalence of clinical depression when the PHQ-2 failure rate is known.^{23,25}

A cutoff score of 3, the standard cutoff score for the PHQ-2, resulted in a 13% failure rate in our sample taken from an urban primary-care eye clinic.^{23,25} In a sample derived from primary-care medical and obstetrics-gynecology clinics that had a 7% prevalence of depression as determined with structured interviews, Kroenke et al. found that 15.2% scored 3 or higher on the PHQ-2.²³ The PHQ-2 failure rates for the primary-care eye sample in the current study and medical/obstetrics-gynecological samples in previous studies are comparable, suggesting a similar prevalence of clinical depression.

The results reported herein point to a considerably higher prevalence of depression amongst optometric patients than might be suspected based on a survey of optometric practices that found 0.41% of patients with this condition.^{34,35} This latter figure reflects reliance on case history to determine if depression is present. The 13% PHQ-2 failure rate found in our sample is similar to that in primary-care medical practices, where 7% of the patients were diagnosed with depression, leading one to suspect that the prevalence in primary-care optometric practices, particularly urban practices with demographics similar to ours, approaches 7%.²³

The practical application of these findings to eye-care is complex. Meta-analysis of two- and three-question screening instruments revealed a negative predictive value as low as 93%, indicating that up to 7% of subjects who pass the test are clinically depressed.²⁸ Of greater practical import is that, despite its relatively high specificity, most of the patients who fail the PHQ-2 will not meet the diagnostic criteria for major depression or dysthymia.²³ Two- and three-question screeners have a positive predictive value of about 0.4, meaning that only four of ten patients who fail the screener are clinically depressed.^{23,28}

If the PHQ-2 was used in isolation to screen for depression, without follow-up, it would result in an unjustifiably high over-referral rate. For this reason, it has been recommended that ultra-short screening instruments should only be administered when failing scores can be followed-up with a diagnostic interview or longer survey of higher specificity, such as the PHQ-9, which has additional items specific to the DSM-IV diagnostic criteria, including items related to suicidal ideations.^{23,28} Patients who fail the more comprehensive screening can then be referred for a mental health evaluation. This two-stage screening may be practicable in eye clinics situated in multidisciplinary settings.

In summary, results with the PHQ-2 screening instrument suggest that the prevalence of clinical depression in the primary-care patient population of an urban eye-care clinic may approach that of medical primary-care settings. The availability of appropriate follow-up, however, is of utmost importance when using this screening tool in eye-care practices. ●

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