

Project Proposal: Depression Screening and Awareness in Primary Care

By: Joseph Miles, PharmD

A review of the societal impact of depression and a case for introducing a simple computer aided screening tool for depression in primary care.

Some numbers on depression:

World Health Organization:

- Depression = leading cause of disability worldwide
- Suicide = ~ 800,000 total deaths annually and the second leading cause of death in people 15-29 years-old
- Depression is untreated in half of affected people
- “Promote public awareness,” “tackle stigma,” and “empower service users.”
- 2 of 3 people with depression present to primary care

<http://www.who.int/mediacentre/factsheets/fs369/en/>

http://apps.who.int/gb/ebwha/pdf_files/WHA65/A65_R4-en.pdf

More numbers for depression

- **Cost: \$23-billion in lost work days (Witters et al, 2013)**
- **Cost: \$43-billion in medical cost (Maurer, 2012)**
- **Cost: \$83-billion in total cost (Halpin, 2007)**



**Managing depression
may become part of
Medicare's Star
Ratings system
(Larrick, 2015)**

Studies for depression screening

- **Palacios and associates, 2016:**
 - depression + cardiovascular disease = premature death
- **Halpin, 2007:**
 - Depression = 4.5 times more likely to suffer a heart attack
- **Pibernik-Okanovic and associates, 2015:**
 - Diabetic patients, once depression was identified, improved both depression symptoms and diabetic condition with minimal clinician interaction.

Depression → dysfunction → worsen life situation
→ increased depression

Why do we *need* to *increase* our awareness of depression?

- **Managing depression is a major goal of Healthy People 2020**
- **United States Preventive Services Task Force (USPSTF) requests every person over 17 years-old to be screened for depression.**
- **Awareness and Screening = identifying unmanaged and treatable cases of depression**
- **Depression is a poor prognosticator for anyone dealing with chronic illness (heart disease, diabetes, etc)**

The hypothesis:

Initiating a computer-aided screening examination in primary care will help identify previously undiagnosed cases of depression.

- Utilizing a simple yet effective computer program will assist accurate depression diagnosis.
 - Computer program will decrease work load on primary care
- The goal, show a statistically significant increase in depression diagnosis compared to a usual-care control group

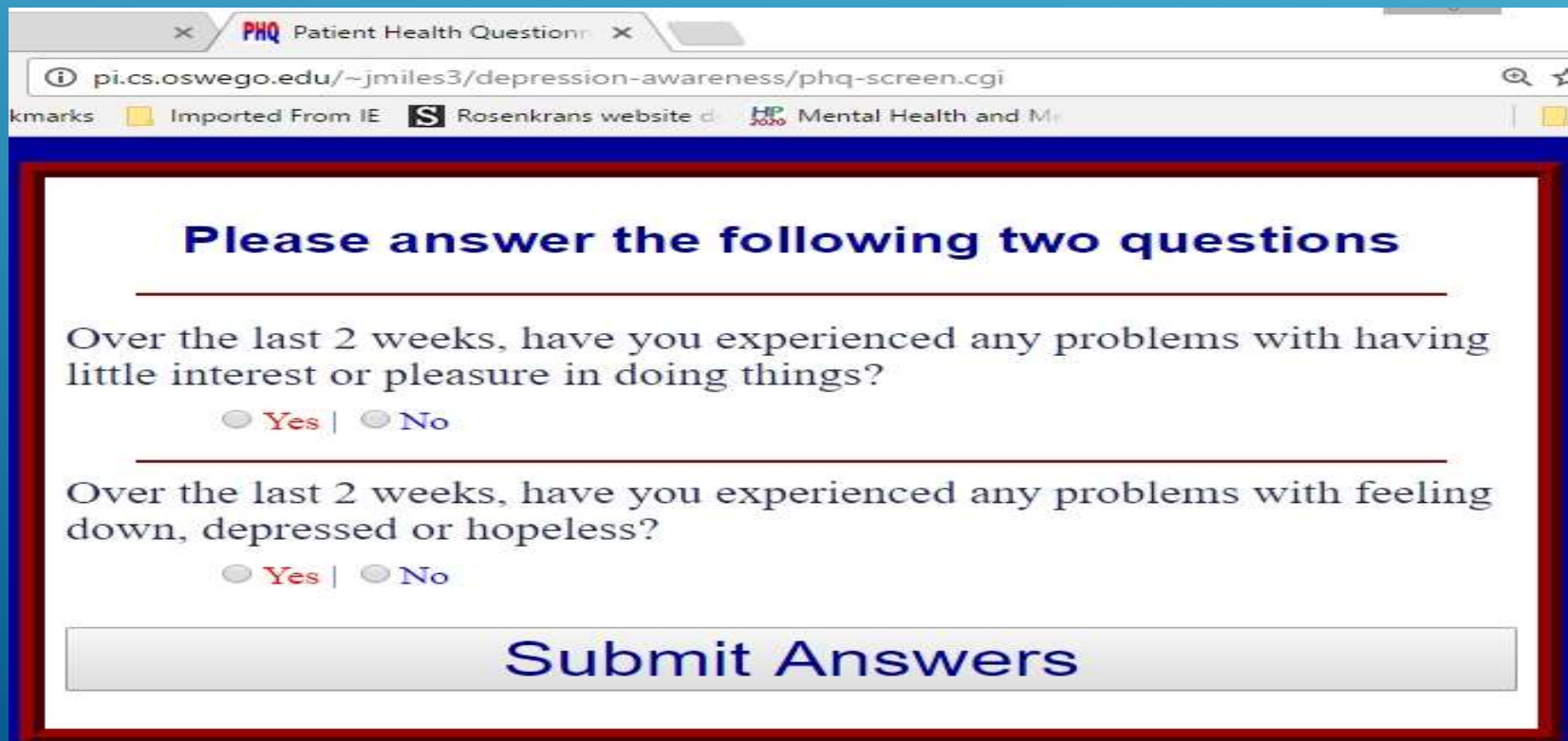
More on the screening program

- **Use Patient Health Questionnaire (PHQ),**
 - **freely distributed by Pfizer.**
 - **Low to no cost of implementation**
- **Written in Python language**
 - **improve scalability and implementation (web based option)**
- **Working prototype:**

<http://pi.cs.Oswego.edu/~jmiles3/depression-awareness>

Patient Health Questionnaire

- PHQ-2, two questions from PHQ that has shown 97.6% sensitivity for screening for “major depression” (Kroenke, Spitzer & Williams, 2003)



The screenshot shows a web browser window with the following content:

- Browser tabs: PHQ Patient Health Questionnaire
- Address bar: pi.cs.oswego.edu/~jmiles3/depression-awareness/phq-screen.cgi
- Bookmarks: Imported From IE, Rosenkrans website, HP Mental Health and M...
- Questionnaire text: **Please answer the following two questions**
- Question 1: Over the last 2 weeks, have you experienced any problems with having little interest or pleasure in doing things?
Options: Yes | No
- Question 2: Over the last 2 weeks, have you experienced any problems with feeling down, depressed or hopeless?
Options: Yes | No
- Submit button: Submit Answers

**PHQ-2 will
be initial
gateway**

PHQ, part 2

- PHQ-9, nine questions from PHQ that has shown 88% specificity for screening for “major depression” (Kroenke, Spitzer & Williams, 2001)

PHQ Patient Health Questionnaire

pi.cs.oswego.edu/~jmiles3/depression-awareness/phq9-screen.cgi

Imported From IE Rosenkrans website Mental Health and M

Please answer the following nine questions

Over the last 2 weeks, how often have you been bothered by any of the following problems?

1. Little interest or pleasure in doing things
 Not at all | Several days | More than half the days | Nearly every day

2. Feeling down, depressed, or hopeless
 Not at all | Several days | More than half the days | Nearly every day

3. Trouble falling or staying asleep, or sleeping too much
 Not at all | Several days | More than half the days | Nearly every day

4. Feeling tired or having little energy
 Not at all | Several days | More than half the days | Nearly every day

5. Poor appetite or overeating
 Not at all | Several days | More than half the days | Nearly every day

6. Feeling bad about yourself — or that you are a failure or have let yourself or your family down
 Not at all | Several days | More than half the days | Nearly every day

7. Trouble concentrating on things, such as reading the newspaper or watching television
 Not at all | Several days | More than half the days | Nearly every day

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
 Not at all | Several days | More than half the days | Nearly every day

9. Thoughts that you would be better off dead or of hurting yourself in some way
 Not at all | Several days | More than half the days | Nearly every day

Submit Answers

Developed by Drs. Robert L. Spitzer, Janet B.W. Williams, Kurt Kroenke and colleagues, with an educational grant from Pfizer Inc.
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Reading PHQ-9

For each question:

- Not at all = 0
- Several days = 1
- More than half of the days = 2
- Nearly every day = 3

Nine questions, so score can range from 0 to 27


PHQ-9 Score	Severity of Depression
0 to 4	Minimal
5 to 9	Mild
10 to 14	Moderate
15 to 19	Moderately Severe
20 to 27	Severe

Medicare Star Ratings, again!

There are many screening tests for depression, but the proposed method for depression screening by Medicare is PHQ-9.

- In order to stay on the good side of Medicare-Medicaid, a provider needs to prove patient improvement within 6-months of diagnosis using PHQ-9 as the measure.

The steps of the proposed study:

- **Create fully functioning screening program**
 - **Consent, exclusions (pregnancy, below 18 years-old, previous depression diagnosis)**
 - **Build system to collect patient information**
 - **Include age, gender, race, marital status, etc**
 - **Comorbid conditions: heart disease, diabetes, etc**
- 

The steps of the proposed study:

- **Enroll primary care physicians (PCPs) to participate in study.**
 - **Ideally, 4 locations and at least 150 patients per location**
- **Educate the staff at the PCP's office**
- **Establish randomizing rules for patients**
 - **'A' days: immediate screening using PHQ**
 - **'B' days: "intend to screen" control**

The steps of the proposed study:

- Using a cut-off score of '5' on PHQ-9 will alert the PCP to screen further for depression and confirm or refute new diagnosis.

Joseph Miles,

Your total score is 5.

This value indicates the possibility for a *mild* case of depression

Your results will be forwarded to Dr. EBunny.

The steps of the proposed study:

- **At 3-months, follow-up and reassess group A patients**
 - **Have group B take the PHQ-9 screening test**
- **Final assessment at 6-month follow-up**
 - **Request qualitative data from participants**
 - **Include both patients and primary care staff**
 - **One important number: patient retention**

Of note:

- **Treatment is not the focus of this study**
 - **Suggest usual best practices for care**
 - **As part of education, various eHealth options could be discussed as a potential tool at the PCP discretion.**

(“Bluepages” and “MoodGym,” Christensen, Griffiths & Jorm, 2004; various other internet based cognitive behavior therapies: Charova, Dorstyn, Tully & Mittag, 2015; Johansson & Anderson, 2012; Meglic et al, 2010; van Straten, Cuijpers & Niels, 2008)

Possible limitations:

- **97.6% sensitive means 24 out of 1000 patients are missed**
 - **This study design relies on the clinician for final diagnosis**
 - **It is not my intent to replace humans with computers!**
- **Thombs and Ziegelstein (2014) submit that there is not enough data to suggest depression screening for all adult patients in primary care**
 - **Essentially, why a study like this needs to be done**

More limitations:

- **Type II error:**
 - **Because the study will cause PCPs to be hyper-aware of depression symptoms, there will be a likelihood for clinicians to find many new-depression diagnoses in group 'B'**
 - **Hopefully, since group 'B' is an "intend to screen" control, the doctors will more naturally give a "usual care" effort for depression diagnosis in group 'B' during the initial assessment**

In Conclusion:

- We are striving to prove that universal screening for depression in primary care can be implemented as a value-added service with only minor interruptions to standard care.
- Reminder from W.H.O.: “Promote public awareness,” “tackle stigma,” and “empower service users.”

Your total score is 0.

This value indicates a *very low* chance of depression

Your results will be forwarded to Dr. PRabbit.

[Start Over](#)

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