Title: Implementing a Monitoring and Feedback Program for Major Depression

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Abstract

Background

Depression is a significant public health concern and deeply affects both the depressed person's life and the lives of their family members. The purpose of this project is to improve the monitoring of patients with major depressive disorders while they are receiving treatment, in order to prevent harm to them and to reduce their current depressive symptoms.

Methods

This project introduced improved provision of care by monitoring the response to treatment of major depression in a psychiatric outpatient clinic using the patient health questionnaire (PHQ-9). A convenience sample of 22 people who presented for psychiatric services were asked if they would be willing to participate in the project. Each patient consented and was given PHQ-9 forms to fill out. The scores of the initial and final PHQ-9 were compared for each patient to evaluate changes of major depression symptoms as response to patient treatment. The project duration was three months.

Results

A paired-samples *t* test was calculated to compare the mean initial PHQ-9 scores to the mean final PHQ-9 scores. The mean on the initial PHQ-9 was 13.27 (*sd* = 5.522), and the mean on the final PHQ-9 was 3.50 (*sd* = 2.445). A significant decrease from the initial to final PHQ-9 scores was found $t(21) = 12.981$, $p < .001$), indicating improvement to symptoms of major depression.

Discussion

The use of PHQ-9 forms at the outpatient clinic for the monitoring of patients with major depression resulted in reduction of the symptoms of major depression in all the study participants

as observed on the PHQ-9 final scores. The PHQ-9 instrument helped clinicians to pinpoint the most worsening symptoms of depression to adjust the treatment. The use of the PHQ-9 during patients follow up showed improvements of targeted symptoms as response to treatment.

Key Words

Major depression, depression screening, depression monitoring, patient health questionnaire, and PHQ-9.

Background

A doctor of nursing practice (DNP) quality improvement project was conducted in an outpatient psychiatric clinic to implement a monitoring feedback program for major depression. Depression is a significant public health concern and deeply affects both the depressed person's life and the lives of their family members. In the United States, depressive disorders affect 19 million American adults, or about 9.5% of the population (Kroenke, 2012). According to Pratt, Brody, and Gu (2011), about one-third of people with severe depressive symptoms take antidepressant medication. While this is a national issue, those who seek treatment may go undertreated and continue to have depressive symptoms. Mathys and Mitchell (2011) have shown that about 50% of patients with depressive disorders experience a remission of symptoms after two trials of antidepressants. Depression can cause both physical and social disability by lowering work performance levels and productivity through absenteeism (Holm & Severinsson, 2012). People with depression are also at high risk for suicide with an estimated 10–15% who attempt suicide (Kroenke, 2012). According to Mrazek, Hornberger, Altar, and Degtiar (2014), the direct and indirect annual costs of treatment-resistant depression were $20,120 per patient and $10,592 for patients whose treatments were effective. However, a patient-centered approach to care can help increase both provider and patient understanding of depression, problem-solving skills , and the ability to manage symptoms (Nunstedt, Nilsson, & Skarseter, 2013). While the impact of depression is significant, patients can achieve normal levels of functioning with appropriate treatment that is adjusted as needed. The provider must acutely be aware of changes in patient symptoms to make such adjustments through continuous monitoring utilizing a reliable depression scale.

A literature review of peer reviewed articles was conducted to ascertain the current

research findings on major depression that can be applied in clinical practice. The patient health questionnaire (PHQ-9) was found to be a useful assessment tool in screening and monitoring. In the study by Chung et al. (2013), the PHQ-9 was used for screening, diagnosing, and monitoring of patients with major depression, and the results showed improvement in the quality of psychiatric services in the management of major depression. Blackwell and McDermott (2014) found that use of the self-administered PHQ-9 facilitated correct diagnosis and treatment of major depression. Yeung et al.'s (2012) study demonstrated that patients who monitored their own symptoms of depression using the PHQ-9 and gave feedback to physicians in the primary care setting showed improved outcomes following their treatment. Kroenke, Spitzer, Williams, and Kroenke (2012), found that the PHQ-9 was a valid instrument for detecting and monitoring depression. The above evidence research results suggested that the introduction and the use of the PHQ-9 at the outpatient psychiatric service would improve the screening and monitoring of patients with major depression. The PHQ-9 is described in the following paragraph.

The PHQ-9 is one of the instruments used for screening for major depression. The PHQ-9 is a reliable tool that has a sensitivity of 88% and a specificity of 88% for major depression (Blackwell & McDermott, 2014). The PHQ-9 addresses nine diagnostic criteria for depressive disorders as they have been experienced by a patient in the previous two weeks (APA, 2013). They are (1) lack of pleasure in usual activities, (2) feelings of hopelessness, (3) trouble with sleep, (4) low energy levels, (5) diminished or increased appetite, (6) feelings of guilt, (7) difficulty concentrating, (8) slowness of speech and restlessness, and (9) thoughts of suicide or self-harm. The severity of the depression is described numerically, with a score of 1–4 for minimal depression, 5–9 for mild depression, 10–14 for moderate depression, 15–19 for moderately severe depression, and 20–27 for severe depression. The PHQ-9 was used to initially

screen patients with depression disorders and monitor the severity of symptoms in patients already being treated for depression. Results were included in the patients' files to help healthcare providers pinpoint areas of concern and adjust treatment accordingly.

Methods

Project Design and Sampling

The project was first approved by the IRB at the [Redacted]. At a local outpatient clinic located in an urban area in the Western region of the U.S., there was a lack of patient-screening and monitoring tools for depression. In addition, some of the patients with depression who were assessed during follow-up visits were either not aware of their ongoing depression symptoms or considered the symptoms to be normal as long as the patients were taking medications. In an effort to improve the quality of the service offered at this clinic, a patient health questionnaire (PHQ-9) for screening and monitoring patients was introduced to improve the outcomes for patients with depression (Kroenke, 2012). The purpose of the project was to improve the monitoring of patient with major depressive disorder while they are receiving treatment. To achieve this, two goals that included prevention of patient harm and reduction of current depressive symptoms were set. These goals were achieved by assessing clinical outcomes that resulted from the appropriate use of the PHQ-9 tool, introduction of a systematic patient monitoring, and adjustment of treatment to improve depressive symptoms among the patients enrolled into the study as explained below.

The project's participants were patients with major depression who were seeking psychiatric care in the outpatient clinic. The nursing staff selected a convenience sample of people who presented at the clinic and who were willing to participate in the project. A total of 22 participants were chosen during the patient-assessment process as part of discharge planning.

The inclusion criteria were patients with depression, who were between 19 and 50 years old, male or female, and fluent in English. No distinctions were made on the basis of racial or ethnic group, socioeconomic status, or level of education. The exclusion criteria included patients suffering from other psychiatric disorders, patients with major depression whom also have terminal or debilitating medical illnesses, and patients who did not speak English. The project participants completed the initial PHQ-9 addressing nine diagnostic criteria for depressive disorders as they have been experienced in the previous two weeks. Continuous completion of the PHQ-9 was done on each participant's follow up appointment for three months corresponding to the duration of the study. The PHQ-9 scores were recorded in the patient health record. The initial and final PHQ-9 scores were collected for data analysis.

Data collection and Analysis

Statistical software, IBM's SPSS Grad Pack Version 21.0, was used to analyze the data. All demographic data was analyzed and reported as descriptive statistics. Analysis of the initial PHQ-9 comparing the final PHQ-9 scores were performed using paired *t*-test. Tests were made to measure compare the means of the initial and final PHQ-9 scores, and the frequency in the severity of symptoms and the significance of responses to treatment based on the baseline data and the data collected throughout the project. The PHQ-9 thus helped the clinician determine patients' rates of remission of depression symptoms.

Results

A total of 22 patients with major depression participated to the quality improvement project. A paired-samples *t* test was calculated to compare the mean initial PHQ-9 scores to the mean final PHQ-9 scores. The mean on the initial PHQ-9 was 13.27 (*sd* = 5.522), and the mean on the final PHQ-9 was 3.50 (*sd* = 2.445). A significant decrease from the initial to final PHQ-9

was found ($t(21) = 12.981$, $p < .001$), indicating improvement to symptoms of major depression. At the initial visit, 27.3% of the patients presented with mild depression, 31.8% with moderate depression, 27.3% with moderately severe depression, and 13.6% with severe depression (see table 1 & pie chart 1). At the end of the project, 4.5% of the patients were asymptomatic of major depression while complying to the treatment, 72.7% had minimal depression, 18.2% had mild depression, and 4.5% had moderate depression (see table 2 & pie chart 2). No patient had severe depression at the end of the project.

Table 1. Initial PHQ-9 Depression Rating

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Mild depression	6	27.3	27.3	27.3
	Moderate depression	7	31.8	31.8	59.1
	Moderately severe depression	6	27.3	27.3	86.4
	Severe depression	3	13.6	13.6	100.0
	Total	22	100.0	100.0	

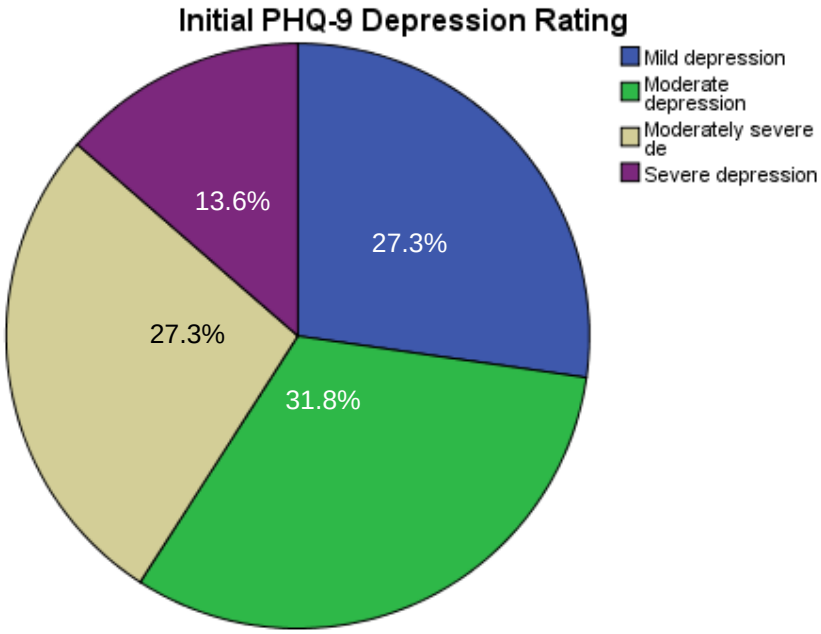
Table 2. Final PHQ-9 Depression Rating

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Asymptomatic	1	4.5	4.5	4.5
	Mild depression	4	18.2	18.2	22.7
	Minimal depression	16	72.7	72.7	95.5
	Moderate depression	1	4.5	4.5	100.0
	Total	22	100.0	100.0	

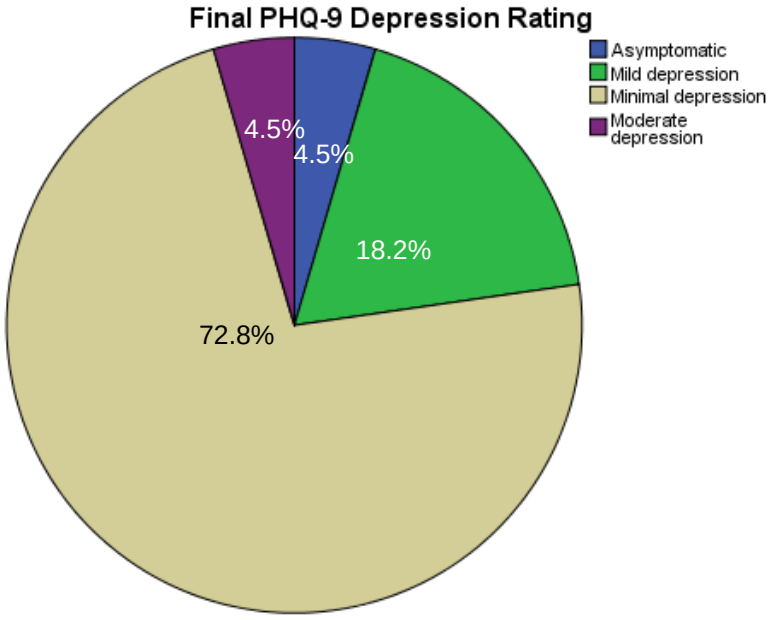
Table 3. Frequency of Depression Symptoms Reported

Depression Symptoms Participants N=22	**Initial PHQ-9 Scores Percentage reporting**	**Final PHQ-9 Scores Percentage reporting**
Low energy	95.5	54.5
Problems with Sleep	90.9	50
Feeling guilty	90.9	31.7
Anhedonia	86.4	22.7
Depressed mood	81.8	31.8
Poor concentration	72.7	40.9
Eating problems	72.7	50
Suicidal thoughts	54.5	0
Psychomotor problems	45.5	12.6

Pie Chart 1



Pie Chart 2



The impact of depression symptoms causing difficulties to do work, take care of things at home, and getting along with others were somewhat difficult for 50% of the patients, very difficult for 9.1% of the participants, and extremely difficult for 27.3% of the participants

initially. At the end of the project, 70% of the patients said that they have no interference of depression symptoms with the activities of daily living, work, and social interaction. Only 25% expressed having somewhat difficulty with depression symptoms, while none expressed having very difficult or severe problems with depression.

The initial and final PHQ-9 scores of the specific depression symptoms that were reported were analyzed for the 22 participants. The results showed the following initial versus final PHQ-9 scores for each symptom respectively: 95.5% vs. 54.5% of the participants felt tired and had little energy, 90.9% vs. 50% had sleeping problems, 90.9% vs. 31.7% had feelings of guilt and worthlessness, 86.4% vs. 22.7% had little interest or pleasure in doing things, 81.8% vs. 31.8% felt hopeless and down, 72.7% vs. 40.9% had a poor appetite, 72.7% vs. 50% had trouble concentrating, 54.5% vs. 0.0% (none) had suicidal ideations, and 45.5% vs. 12.6% had psychomotor problems (see table 3).

Discussions

The PHQ-9 was self-administered by the participants to identify the severity of the symptoms of major depression in the previous two weeks. The prevalent symptoms of major depression were feeling tired and having little energy, sadness and hopeless, problems with sleep, and difficulty enjoying life. About half of the patients had trouble concentrating and had thoughts that they would be better off dead in the previous two weeks. However, no patient expressed having suicidal ideation at the time of the assessment by the health care providers. The analysis of the severity of the depression symptoms helped to identify the most prevalent symptoms and their severity. Medications were also adjusted based on the prevalent symptoms of depression. This identification was then followed by changes in treatment that included education to help the participants identify triggers of the depression symptoms, and discuss the

strategies of managing the stressors.

All the participants were treated based on the clinical presentation and the patient response to treatment. Most were prescribed different antidepressants and were given adjuvant treatment to appropriately respond to specific severe symptoms of major depression. For example, patients with difficulty sleeping related to depression were prescribed Trazodone a sedating antidepressant. Antidepressants with less sedating effect were given to patients who were sleeping too much. Change in medication occasionally needed for patients who did not respond well to treatment or those who did not tolerate side effects not well. Increase in medication was also observed in patients following low dosage initially prescribed when starting on new medication, and symptoms of depression improved within three months.

Using symptoms focused health education respond well to psychosocial strategy of managing major depression. Ratings of depression symptoms helped health providers to better interact with the patients targeting the high rated symptoms. Patients who had little interest in doing things, feeling tired and had little energy were encouraged to exercise and increase social interaction. Other health education topics such as poor appetite, problem with sleep, and feeling down or hopeless were discussed. Patients were encouraged to increase self-efficacy, self-esteem, use good sleep hygiene, and eat healthy. Positive observed results were the good number of patients asymptomatic (4.5%) and no patient had severe depression at the end of the three months of the project interventions. Also, there was a reduction in moderate depression, and mild depression. The rate of the minimal depression was increased due to the drop in severe and moderate depression rates.

The main limitation for this project was the limited number of participants. There were 22 participants total, having a larger number of participants could have demonstrated different

results. Although this was a limitation of the project, there was significant improvement and changes in patient care as shown above. These improvements allowed for depression assessment and the approach to treatment to be individually tailored or patient centered. It is recommended that future projects include larger number of participants and that similar studies be continued with similar populations.

In conclusion, the PHQ-9 tool was used to screen patients with major depression and establish the baseline severity of their symptoms. The PHQ-9 was also used to monitor the severity of symptoms of major depression to evaluate the response to treatment in order to adjust the treatment modalities accordingly. The results of the pre-assessment and follow up evaluation of patients with major depression using the PHQ-9 demonstrates the significance in reduction of the symptoms of major depression. The findings of this project suggest that the PHQ-9 can be useful not only as a screening tool, but also in evaluating symptoms of depression before and during treatment.

Limitations

The study limitations are that participants were conveniently selected and the sample size is small. Time allocated to the study is too short to observe outcomes from health interventions such as healthy eating and exercising. Clinical interventions and treatment modalities were diversified and tailored to each clinical patient situation.

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Conflict of Interest

The author declared that there was no source of funding associated with this quality improvement project. The quality improvement project was part of the author's project towards DNP graduation.

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