IMPLEMENTATION OF MEASUREMENT BASED CARE FOR BIPOLAR DISORDER: SYSTEMATIC SYMPTOM ASSESSMENT TO IMPROVE PATIENT CARE

by

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DEDICATION

This is dedicated to my friends and family, especially my husband and daughters. Your support and encouragement mean the world to me.

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I'd like to acknowledge my committee; Dr. Hammersla, Dr. Benavides-Vaello, and Dr. Cole. Special thanks to my chair, Dr. Hammersla, for sharing your knowledge and providing guidance at just the right time.

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ABSTRACT

Measurement-based care (MBC) in psychiatry facilitates greater recognition and communication of problematic symptoms. MBC is not commonly utilized in the routine care of individuals with bipolar disorder, resulting in failure to recognize treatment failure or subsyndromal symptoms. The purpose of this project was to improve patient outcomes through implementation of the Altman Self-Rating Mania Scale and Quick Inventory of Depression-Self Report as way to incorporate MBC at a community mental health center. Paper and pencil copies of assessment tools were utilized by clinicians with individuals aged 18 and over with a diagnosis of bipolar 1 or 2 disorder at the beginning of their appointments. Information about assessment tool use was collected via a tracking sheet and reviewed weekly. Of the 11 patients with bipolar disorder seen during the project timeframe, seven completed one or more assessment tool, one patient presentation was not clinically appropriate for assessment tool use, one patient preferred not to respond, and in two instances the provider forgot to use the tools. Utilization of both tools is indicated in order to assess both manic and depressive symptoms. Results support the integration of MBC into the EMR in order to reinforce the process of care. The relatively high use of one tool (5 of 11 times) supports the switch to a single tool to assess both manic and depressive symptoms. The Internal States Scale was identified as the tool that best fits the identified clinical and patient needs.

Keywords: Measurement-based care, bipolar disorder, community mental health, quality improvement

CHAPTER 1

BACKGROUND AND SIGNIFICANCE

Introduction

Management of bipolar disorder can be a challenging, and a majority of providers may not detect when a patient experiences lack of treatment response or an increase in symptom severity (Fortney et al., 2017). Due to the Covid-19 pandemic, many patients are being seen for follow up via video conference calls or over the telephone in order to reduce the risks of transmission of Covid-19 (Stefana et al., 2020). Beyond the current pandemic, telemedicine is likely to continue to be an increasingly common way to deliver mental health services. Telemedicine has been shown to increase the ability of a population to access care, especially in rural areas where specialty care is frequently clustered in larger population centers (Turvey & Fortney, 2017). In addition to this benefit, telemedicine also brings challenges.

Identifying when a patient experiences an exacerbation of depressive, hypomanic, or manic symptoms is made more difficult when the patient is seen for follow up over the telephone rather than in person due to inability to observe visual cues, lag time related to connectivity issues, and potential misinterpretation of changes in speech volume or tone that could be related to technology rather than symptoms of mood changes (Burgess et al., 2020). Improving the ability for patients and providers to recognize changes in mood symptoms and to communicate these changes over the telephone, video conference calls, as well as in person throughout the course of treatment provides the opportunity to alter the treatment plan to address patient symptoms in a timely way, and to thereby improve patient outcomes (Fortney et al., 2017).

Patient reported symptom assessment tools such as the Altman Self-Rating Mania Scale (ASRM) and the Quick Inventory of Depressive Symptomatology Self-Report (QIDS-SR) have demonstrated high levels of clinical utility with benefits such as helping determine clinical response to treatment and by enhancing the ability of the patient to communicate changes in symptoms to the provider (Cerimele et al., 2019; Fortney et al., 2017). Implementation of symptom measurement tools such as the ASRM and QIDS-SR as part of assessment and tailoring of treatment to the patient response aligns with measurement-based care (MBC), which has been shown to increase a provider's ability to recognize when a patient isn't responding well to treatment and to work with the patient to adjust the treatment plan in order to move towards reaching the patient's outcome goals (Fortney et al., 2017). This project aims to improve patient outcomes by improving consistency of symptom assessment through the implementation of the ASRM and QIDS-SR with patients with bipolar disorders in a community mental health clinic setting.

Background and Significance

Bipolar disorder is one of the most common mental health disorders and it is characterized by mood instability that cycles between hypomania, mania, and depression separated by periods of euthymic mood (Aldinger & Schultz, 2017). However, the course of bipolar disorders varies widely between patients, and many patients may have significant mood instability between episodes of depression, hypomania or mania (McKnight et al., 2017). Mood instability associated with bipolar disorder can have a chronic negative effect on an individual's ability to function and may decrease quality of life (McKnight et al., 2017). Poor outcomes in bipolar disorder can include occupational problems that result in a poorer socioeconomic status

and a risk of suicide that is 15 times higher than the general public (APA, 2013). About half of patients with bipolar disorder will have a recurrence of symptom exacerbation at 18 months after initial evaluation (Pinto et al., 2020). Factors that result from changes during the Covid-19 pandemic such as loss of usual routine and reduction in usual coping mechanisms such as going to the gym can be a trigger for a depressive, hypomanic, or manic episode (Burgess et al., 2020; Stefana et al., 2020). Given the increased risk of relapse due to disruptions related to Covid-19 and the increased use of telehealth, this is an opportune time to implement the use of measurement based self-rating tools that can increase the quality of symptom assessment both in person and over telehealth platforms.

Identification and Scope of Problem

In the United States only 17.9% of psychiatrists and 11.1% of psychologists use symptom rating scales in the routine care of patients (Fortney et al., 2017). This is despite knowledge that measurement-based care is a way to increase efficiency, accuracy, and consistency of symptom assessment so that the provider is more likely to detect non-response to treatment and adjust the treatment plan as needed (Fortney et al., 2017). Measurement based care is recommended to be used in routine psychiatric care by the United States Veterans Affairs and Department of Defense, the Kennedy Forum, The Group for the Advancement of Psychiatry, and the Substance Abuse and Mental Health Services Administration (Fortney et al., 2017; Cerimele et al., 2020). Despite the evidence supporting implementation of MBC in mental health and the availability of a number of reliable and valid assessment tools, the use of MBC in mental health remains scarce (Cerimele et al., 2019). Currently there is a lack of guidance regarding which specific tools to use and lack of provider knowledge of available tools that can be used in clinical practice

(Cerimele et al., 2019). This lack of guidance and knowledge regarding assessment tools for bipolar disorder likely factors into the limited use of measurement-based care for patients with bipolar disorder (Cerimele et al., 2019).

Failure to notice non-response or exacerbation of symptoms can lead to residual symptoms that are associated with poor outcomes such as a recurrence of a mood episode (Cerimele et al., 2020). Alternatively, increasing ability to detect changes in symptoms or detect residual symptoms can lead to greater levels of remission and positive patient outcomes (Cerimele et al., 2020). A community mental health center in south central Montana recognized that utilizing MBC would potentially improve symptom assessment and treatment for patients diagnosed with bipolar disorder. Use of MBC will increase accuracy when evaluating current treatment response and the possible need for change in the treatment plan. The ASMR and QIDS-SR have high levels of clinical utility as well as being sensitive and reliable in indicating symptom severity and changes in treatment (Altman et al., 1997; Bernstein et al., 2010).

Purpose Statement of Practice Change

The purpose of this project is to implement the use of the ASMR and QIDS-SR as way to incorporate measurement-based care into the routine care of individuals with bipolar disorder at this community mental health center. This will create a measurable and consistent way to assess symptoms while at the same time these tools may empower patients with greater ability to communicate their symptoms and give the provider a useful starting point for the assessment. The aim of this practice change is to improve assessment and monitoring of patient symptoms associated with bipolar disorder in order to better match treatment plan to the patient needs and to improve patient outcomes.

Congruence with Site's Mission, Goals, and Strategic Plan

The site is "dedicated to the establishment, development and maintenance of high-quality mental health and chemical dependency care in south central Montana with the goal of helping people overcome obstacles that keep them from enjoying a healthy and satisfying life" (MHC, 2020). It is also a nonprofit and a National Health Service Corps site, which means that there is a commitment to serving an underserved population and a focus on sound fiscal management and policies that promote clinician recruitment and retention in order to help the patient population, the clinical site, and the community to gain the most benefit possible (HRSA, n.d.). In addition to increasing the quality of mental health care, measurement-based care has several additional benefits that are congruent with the site's mission and goals. When all the providers use the same assessment tools, the aggregate symptom data can be used to guide quality improvement projects and to demonstrate competency and value to stakeholders (Fortney et. Al., 2017). Measurement based care has not been used widely in mental health settings and this could contribute to chronic underfunding of mental health care services because these services are not able to demonstrate their value without these types of metrics (Fortney et al., 2017). Implementing measurement-based care in the care of patients with bipolar disorder will effectively provide the organization with the data it needs to inform quality improvement projects and to demonstrate value to key stakeholders, including patients.

CHAPTER 2

REVIEW AND SYNTHESIS OF EVIDENCE IN THE LITERATURE

Use of MBC in Mental Health Care

MBC in mental health care has been described as "the use of validated clinical measurement instruments to objectify the assessment, treatment, and clinical outcomes, including efficacy, safety, tolerability, functioning, and quality of life, in patients with psychiatric disorders" (Aboraya et al., 2018). Waldrop & McGuinness (2017) define MBC as the use of patient reported rating scales along with evidence based clinical practice guidelines in order to develop a more precise care plan that is individualized to the patient's response to treatment. There are variations of the definition of measurement-based care in psychiatry, but a commonality is the use of a measurement instrument (assessment tool) to increase consistency in the assessment of symptoms and then use of the information gathered from the assessment tool as part of clinical treatment decision making (Aboraya et al., 2018; Waldrop et al., 2017; Kilbourne et al., 2018; Lewis et al., 2018).

MBC is not meant to replace clinical expertise and judgement, but rather as a tool that can increase assessment accuracy and improve outcomes of care (Aboraya et al., 2018). Currently, MBC is not routinely used in mental health and treatment decisions are guided by the patient's subjective description of symptoms and the provider's preferences resulting in wide variations in care delivery (Waldrop & McGuinness, 2017). Current practice lacks standardization and does not effectively track a patient's response to treatment over time (Kilbourne et al., 2018). This can lead to delays in treatment plan adjustments and poorer

outcomes (Kilbourne et al., 2018). Implementation of MBC for patients with mental health disorders such as bipolar disorder is an opportunity to improve both the process and outcome of care.

Benefits of MBC

MBC has several benefits for patients, providers, and organizations. The use of patient reported self-assessment tools such as the ASMR and QIDS-SR have been shown to improve patients' ability to recognize symptom changes in themselves and to communicate with their provider regarding symptoms (Fortney et al., 2017). Increasing the ability of patients to communicate with providers can also strengthen the therapeutic relationship and shared decision making, both of which are associated with improved patient outcomes (Fortney et al., 2017; Fisher et al., 2017). MBC has been shown to increase patient participation in the treatment process, to increase patient self-awareness, and to promote coordination between providers which can also improve outcomes (Waldrop & McGuinness, 2017). The use of MBC can also help patients identify small gains early in treatment, which can increase hope and desire to adhere to the treatment plan (Fortney et al., 2017).

MBC provides several benefits to the provider in the assessment and management of patients with mental health disorders. Having the patient fill out self-report assessment tools just before or during the appointment provides information that can be used as a starting point for the assessment and can help the provider focus in on areas that need further exploration (Fortney et al., 2017). An additional benefit for providers includes the ability to reflect on one's practice relative to patient outcomes and identify areas to strengthen knowledge and skills (Fortney et al, 2017). As an example, a provider can look at aggregate symptom severity ratings and assess how

well specific treatments are working. If the provider identifies an area of symptomatology that continues at more severe levels across multiple patients, that could guide the provider's efforts to examine whether current treatment plans are consistent with the evidence. This can lead to specific topics/treatment options for the provider to develop knowledge and skill in. For nurse practitioners, the use of MBC provides an opportunity to demonstrate their value as a provider (Waldrop & McGuinness, 2017). Patient responses from MBC can be tracked over time and can show whether patients' symptoms are improving or if they remain severe. A provider who is able to build a therapeutic relationship, communicate and receive communication, and who works collaboratively with the patient to target the patient's concerns can show with data from the MBC that patient scores are improving and thus show quantitatively their benefit to the patient and organization.

For organizations, utilizing MBC can create the data needed to review timeliness, treatment, patient outcomes, and to identify areas where quality improvement initiatives may be needed (Fortney et al., 2017). With the growth of value-based payments, providers are incentivized to demonstrate quality care through positive patient outcome measures. MBC can help ensure that patients receive high quality care, and that mental health care practice is reimbursed for quality outcomes (Fortney et al., 2017; Kilboune et al., 2018). The various benefits of MBC outweigh the barriers of implementation (Aboraya et al., 2018).

Potential Barriers to Implementation

Barriers identified to implementation of MBC in mental health are primarily related to time and resources (Waldrop & McGuinness, 2017). Providers may have concerns that utilizing measurement-based assessment tools will add excess time to appointments, they may have

negative attitudes towards MBC (i.e., that it isn't as accurate as clinical judgement), and they may worry that the measures could be used to punitively judge their clinical ability (Lewis et al., 2018). Additional provider barriers may be lack of protocols, limited training in MBC, lack of consensus regarding which assessment tool to use, lack of incentive to use MBC, and the complexity of patients with multiple overlapping comorbidities (Aboraya et al., 2018).

Patients may have concerns regarding privacy if they are filling out forms in the waiting room (Waldrop & McGuinness, 2017). Patient symptoms such as acute psychiatric symptoms and disabilities such as cognitive deficits may also limit a patient's ability to provide self-report assessment data (Lewis et al., 2018). There is also a perception that patients might be unwilling to complete the self-report forms prior to appointments (Jenson-Doss et al., 2017). Identifying specific patient concerns and working with patients to address specific concerns may help overcome patient hesitancy regarding use of assessment tools.

A number of potential organizational barriers can impede implementation of MBC. Organizations with limited use of electronic health records and health information technology face increased demand on staff to implement and sustain MBC. Examples of increased staff demand include maintaining paper copies of the assessment tools, providing patients with the time and a place to fill out forms, and entering data into the electronic medical record. Organizations with minimal resources for training and lack of leadership support for implementation projects may also reduce the ability of an organization to develop, implement, and sustain an MBC improvement project.

The lack of consensus for what tools should be used for MBC in bipolar disorder can be a barrier for many organizations. This lack of consensus over which measure to use, especially for

organizations for multiple sites, can add an additional layer of difficulty for organizations. Unlike other healthcare services, the mental health care service field does not have established and consistent outcome measures and tools embedded within current health information technologies (Kilbourne et al., 2018). Limited incentive from payers can reduce motivation to incorporate MBC, especially as it pertains to costly changes such as making updates to electronic medical systems and health information technology (Lewis et al., 2018).

Strategies to Overcome Implementation Barriers

Overcoming barriers to implementation of MBC requires that barriers specific to the site and providers are identified (Lewis et al., 2018). Tailoring implementation strategies to the site is associated with more success in implementing MBC (Boyd et al., 2018). Boyd et al, 2018) found that the most successful strategies for implementing MBC in mental health care were financial strategies that reward providers and organizations for MBC implementation. Examples of financial incentives could be adjusting billing requirements and participating in value-based care programs, (Lewis et al., 2018). Provider and staff education/training can help overcome a lack of knowledge of how to successfully implement and sustain MBC. Engaging stakeholders at all levels and adapting the chosen measurement system to the organizational context can increase buy in and participation from stakeholders. A way to engage stakeholders at all levels is to include representatives from each group of stakeholders on the implementation team (Lewis et al., 2018). Addressing site specific concerns about privacy and data security can reduce patient hesitancy to complete assessment tools. Engaging with local champions who promote evidence-based care and MBC by inviting identified champions to be a part of implementation initiatives

or to be part of an educational presentation may influence the attitudes and behaviors of providers and staffing towards MBC (Lewis et al., 2018).

Recommendations for Assessment Tool Utilization

Measurement tools should be carefully chosen to ensure that they are efficient, reliable and valid, user friendly, brief, clinically relevant to decision making, sensitive to changes from medications or psychotherapy, and the data from the measure should be easily extractable (Aboraya et al., 2018; Fortney et al., 2017). Choosing a measurement tool that is diagnosis specific (such as the ASMR for mania) allows for symptom assessment that can inform changes to the diagnosis specific treatment plan (Fortney et al., 2017). Engaging patients and providers in the selection of the assessment tool can increase buy in from these stakeholders (Lewis et al., 2018).

Data gathered from the assessment tool must be current and available during the clinical encounter in order for it to be clinically useful (Fortney et al., 2017). Therefore, symptom assessment with the chosen tool should be done frequently and either right before or during an appointment with the provider (Fortney et al., 2017). The use of a measurement tool that is embedded into the electronic medical record is preferred but using a paper and pencil version of the MBC assessment tool to determine whether the tool is feasible and meets the needs of the stakeholders when measurement tools are not already embedded into the electronic medical record (Fortney et al., 2017). A drawback to use of a paper and pencil version is that it is more difficult to track changes over time (Fortney et al., 2017). Entering the data into a specific tab either by scanning in the completed screening tool or entering the screening tool manually into the tab within the electronic medical record is a way to ensure the data from the assessment tool

is available and easy to find for comparison over time. Comparing previous scores to current scores is a critical component of assessing symptom response to treatment with MBC (Fortney et. Al., 2017). Ideally, information gained from the assessment tool should be paired with clinical practice guidelines or treatment algorithms as part of the patient's individualized care plan (Waldrop &McGuinness, 2017).

While there are barriers to implementation of MBC in mental health care settings, there are many benefits of systematically assessing symptoms with a reliable and valid tool. By engaging stakeholders and choosing assessment tools that meet the needs of patients, providers, and the organization, these barriers can be overcome. Strategies from implementation science and a plan that creates the most clinically useful data can further reduce barriers.

CHAPTER 3

SETTING AND METHODS

Setting

The agency is a community mental health center located in south central Montana. It is an outpatient clinic that serves adults over the age of 18 regardless of ability to pay for services. The agency offers several services such as evaluation and treatment of mental health disorders, psychotherapy, alcohol and drug use assessments and treatment, and an assertive community treatment team. The interdisciplinary nature of the treatments offered at this site underscores the importance of effective ways to communicate patient progress between treatment team members.

Target population

Participants in this project were all adults over the age of 18 with a diagnosis of bipolar I or bipolar II disorder who are cared for at the clinical site during the evaluation period. The project participants were identified by the clinician caring for the individual.

Congruence of project with the organization's mission and goals

The aim of this project was to improve outcomes for patients with bipolar disorder through more consistent and measurable assessment of mood symptomatology that enables providers and patients to identify when treatments are working or if a change in treatment plan is warranted. Better outcomes, greater patient satisfaction, and increased provider efficiency indicate an improvement in quality that is consistent with the identified site's organizational aim of providing high quality mental health care to individuals in the community. Data collected

through standardized assessment tools provides an additional way for providers to communicate patient progress. This data can also help the organization meet meaningful use under the Patient Protection and Affordable Care Act by demonstrating a systematic evaluation of services, which may be helpful as part of a financial incentive to implement MBC (Waldrop & McGuinness, 2017).

Description of stakeholders

Stakeholders in this project included patients with bipolar disorder I or II who received care at the identified organization, clinicians who cared for individuals with bipolar disorders. Additional stakeholders were support staff who scan documents into patient charts.

Site specific facilitators and barriers to implementation

Site specific facilitators to implementation included a provider who expressed support for the project. Staff and the patient population showed interest in the project. Site specific barriers to implementation included limited functionality of the electronic medical record. There were no assessment tools built into the EMR and this resulted in greater demand on staff to implement the project. There was currently no developed quality improvement team and most staff was not trained in quality improvement methods. Provider satisfaction with current methods and perceptions of MBC was a potential barrier to implementation. The coronavirus pandemic presented an additional barrier to implementation due to reduced access to the site, and changes in patient ability to present in person to the clinic.

Description of project

This quality improvement project implemented use of the Altman Self-Report Mania Scale and the Quick Inventory of Depressive Symptoms-Self Report as part of the intake process for patients with bipolar disorder. The purpose of this project was to incorporate systematic patient symptom assessment and monitoring in order to improve patient outcomes through more responsive treatment planning. The goals of this quality improvement project were:

- All patients with bipolar disorder will complete the ASMR and QIDS-SR prior to appointments.
- Clinicians will review results of assessment tools during the patient encounter.
- Communication between patients and providers will be enhanced
- Communication between different members of the patient's care team will be enhanced
- Subthreshold symptoms will be identified, and patient will maintain improved mood stability
- Clinicians and patients will adapt treatment plan when clinically appropriate
- Assessment tools will be built into the electronic medical record.

Measures and Instruments

The MBC assessment tools used in this project were the ASMR and the QIDS-SR. The ASMR is a 5 item self-rating tool that was created with the goal of developing a brief self-rating mania scale that is compatible with DSM criteria used to measure the presence and severity of manic symptoms for use in both clinical settings and research projects (Altman et al., 1997). The reliability of the ASMR across 3 subscales is demonstrated with Pearson correlation coefficients

of r = 0.86 ($p<0.0010$, r = 0.89 ($p<0.001$), and r = 0.89 ($p<0.001$). Good validity of the mania subscale is shown with a Cronbach's alpha value of 0.79. The validity of subscales that measure psychotic symptoms and irritability are acceptable with Cronbach's alpha values of 0.65 and 0.65. (Altman et al., 1997). Cerimele et al. (2019) found the ASMR to have high clinical utility because it has good reliability and validity, and it is brief and easy to score. An 11-item version that focuses on symptoms of mania and a 14-item version that that includes 3 items to assess for psychosis are available in order to provide versions of the ASRM that facilitate more comprehensive assessment of symptoms (Altman & Ostergaard, 2018). For this project we used the original 5 item scale due to its brevity and ease of use. Because the ASMR only assesses symptoms of mania, it is necessary to use another assessment tool to evaluate depressive symptoms for patients with bipolar disorder in the outpatient setting.

The QIDS-SR is a 16 item self-rating tool that was created as a self-report assessment tool that measures depressive symptoms and provides clinically relevant information (Bernestein et al., 2010). The QIDS-SR has a Cronbach's alpha of 0.83 and it has been shown to be a valuable tool for clinicians working with patients with bipolar disorder (Bernstein et al., 2010, Cerimele et al., 2019)). The self-report is an easy-to-use tool that practitioners can incorporate into practice (Bernstein et al., 2010). Cerimele et al. (2019) found the QIDS-SR to have a relatively high clinical utility based on ease of scoring, brevity, and degree of uptake by other clinicians. The QIDS-SR was used for this project because it is a self-report assessment tool that is easy to use, relatively brief, and it produces clinically relevant information.

Implementation Plan

The first step of project implementation was to obtain buy in from stakeholders. This was done during regular and informational sessions that occurred during weekly staff meetings to learn about the clinicians' experiences, comfort level, and perspectives on using MBC assessment tools with patients with bipolar disorder. Education about the benefits of MBC to patients, providers, and the organization was provided as part of developing buy from stakeholders. Time at weekly staff meetings was used throughout the project to educate stakeholders about MBC, to reinforce learning throughout the project, to identify weak points in the implementation plan, to problem solve with stakeholders about how the process could be improved, and to consider changes to the implementation plan. Communication with clinician stakeholders occurred in person during weekly staff meetings. Additional communication occurred over the telephone and email. Stakeholders were provided with the project leader's cell phone number and email address at the initial meeting. Questions were addressed by the project leader.

Once buy in was secured, the next step in the project was to provide further education. Education was provided about MBC, critical components of successful use. The components included timeliness of assessment tool use, ability to access data from current and previous assessment tool use and strategy to use treatment guidelines or algorithms to guide treatment changes when needed. This education was provided at the first weekly staff meeting that marked the beginning of the project. Assessment forms are available at no charge and paper copies of the tools were provided to clinicians at the initial meeting.

In preparation for beginning to use the assessment tools, clinicians identified patients with bipolar I or II disorder that they provided care for during the implementation of this project.

Clinicians kept copies of the blank assessment tools in their offices. Clinicians were provided with a tracking sheet to fill out that captured the data about assessment tool use. The tracking sheet did not contain any protected health information.

To begin using the tools with patients, the clinician provided the patient with the assessment tools at the beginning of an in-person appointment. If the patient had questions or difficulty with the tool, the clinician was able help with the tools. The provider then incorporated the data from the tool into the patient assessment. If the patient was seen via telehealth, the provider went over the assessment tool with the patient and recorded the data on the paper form. The paper copy of the tools was kept in the patient's paper chart and a copy was to be scanned into the EMR. Clinicians filled out a tracking sheet for each patient they saw with bipolar disorder.

Regular evaluation of the implementation was done through the use of PDSA cycles. One-week cycles were utilized to identify where improvement to the implementation strategy was needed. The beginning of each PDSA cycle was the weekly staff meeting at which time planning for the subsequent week implementation occurred. During each implementation week, clinicians completed the tracking sheet that provided data on rates of tool usage as well as a way to record challenges to current implementation plan. These sheets were collected at the weekly staff meeting. Discussion and planning for improvements to the implementation plan was done at the staff meeting, which then marked the beginning of the next PDSA cycle.

Data Collection and Analysis

Data was reviewed weekly by the project leader. Data was collected via tracking sheets that were completed by clinicians each day. Data was analyzed with descriptive statistics using

Excel. Data collected included the number of patients with bipolar disorder seen that week, how many of these patients who completed the assessment tools, whether this was the initial use of the assessment tools or a repeat use of the tools, reasons for assessment tool use choices, and space to write in thoughts about how to improve the implementation process. Due to time constraints of this project, data was not collected about whether the forms were scanned into the electronic medical record or whether patients experienced more mood stability and less symptom exacerbation.

IRB submission process

IRB submission occurred after proposal defense. Montana State University IRB approval was secured prior to beginning the project. Because this was a quality improvement project, an exempt IRB approval was sought.

Timeline of project

Implementation began on January 27, 2021 and concluded February 24, 2021. The first week of the project included education, provision of assessment tools and tracking document to clinicians, and it marked the beginning of weekly PDSA cycles. Weeks two through 4 consisted of continued PDSA cycles and data gathering. After the final PDSA cycle, final data gathering occurred in preparation for analysis of the project.

Feasibility and plan for sustainability

The paper and pencil format of this project was inexpensive and easily incorporated into the workflow. Entering the information, whether by scanning the forms or entering information by hand increased staff workload. This increased workload was feasible as part of a short-term

project to determine whether the incorporation of these tools is an acceptable clinical change. Maintaining paper copies of the self-report tools is sustainable and current staffing was adequate to cover the increased workload of scanning or entering the self-report data. Ideally, the EMR will be updated to include assessment tools that will reduce staff demands and increase ease of access to the data created through the assessment tools in the future.

CHAPTER 4

RESULTS

Results

Over the course of the project, a total of eleven individuals with bipolar disorder were seen for appointments. Seven of the eleven individuals were provided with screening tools and completed the either one or both of the assessment tools. One individual was provided with the tools but was unable to complete them due to severity of illness. Three individuals were not provided with tools, two of these due to provider forgetting, and one of these due to individual in crisis and the visit focus was to develop a safety plan. All of the assessment tools completed were reviewed with the individual during the appointment. The short duration of this project prevented the collection of data about whether the completed tools were scanned into the patient chart and whether treatment plans were adapted in response to the information gained through repeated use of the assessment tools. The short duration of the project also prevented collection of data to learn whether individuals who received measurement-based care maintained greater mood stability over time.

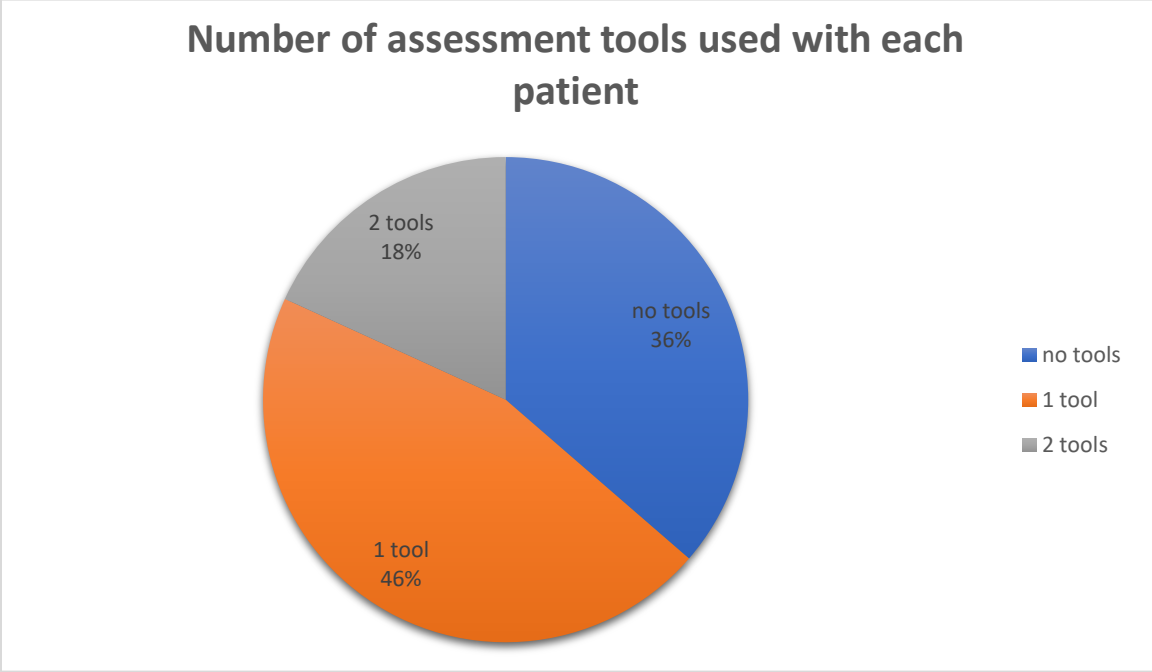

Figure 1. Pie chart depicting number of MBC tools implemented for each patient with bipolar disorder during the project

Of the eleven individuals with bipolar disorder who were seen during the project, five completed one of the tools, two completed both of the tools, and four individuals did not fill out assessment tools. There were various reasons given for why the tools were or were not used.

Reasons given for assessment tool use choices included time constraint, clinical judgment, clinician forgot, patient preference, and acuity of illness. Time constraint was used to describe clinical encounters in which there was less time with the patient such as if the patient was late for the appointment. Time constraint was chosen 20% (n=1) of the time. Clinical judgment was chosen 100% (n=5) of the time for 5 individuals who completed one of the two tools. In each of these cases, the clinician identified either mania or depression as the primary concern for the visit and chose to provide the assessment tool most appropriate to that symptom rather than doing both tools regardless of primary presenting symptomatology. Of the four

individuals who did not complete assessment tools, clinician forgot was chosen 50% (n=2) of the time. Patient preference was chosen 25% (n=1) of the time. Data was not collected in this project about what informed the patient's preference to not complete assessment tools. Concerns for privacy or the burden of filling out forms have been noted as potential barriers to utilizing MBC assessment tools (Waldrop & McGuinness, 2017). Acuity of illness was chosen 25% (n=1) of the time, and this was related to patient in crisis, but it could have been utilized for patient's whose depressive or manic symptoms prevented them from being able to fill out forms.

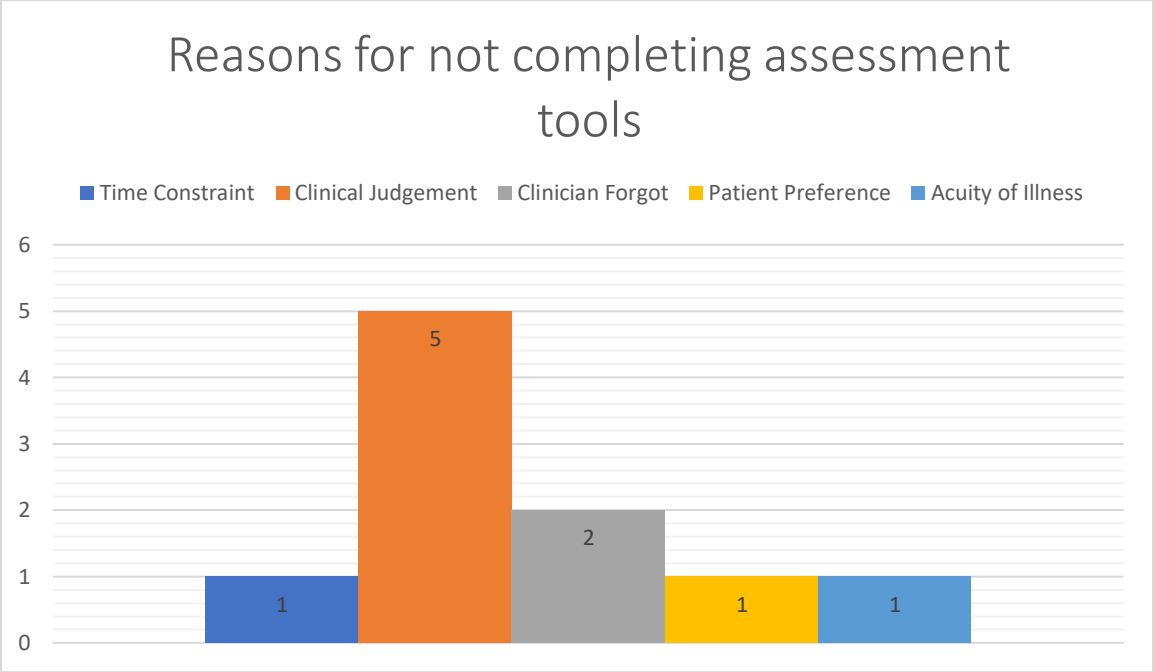

Figure 2. Reasons given for assessment tool choices and how often those reasons were chosen

CHAPTER 5

DISCUSSION

Discussion

The goal of this project was to have all of the patients with bipolar disorder who were seen in the clinic complete the assessment tools to systematically assess symptomatology in order to improve patient care. Throughout the project, areas for improvement were identified as well as parts of the project that went well. The workflow of having the forms in the exam rooms for use by the clinicians supported use of assessment tools during patient visits. Areas that were identified as needing improvement were the choice of the assessment tools, how to better incorporate the tools into workflow that would support clinicians' ability to remember to use the tools, and how to better use screening tools when the patient was seen curing a telehealth visit. While the goal of having all patients with bipolar disorder complete assessment tools was not met, this project provided information that can be used in ongoing efforts to implement MBC for patients with bipolar disorder in this setting.

Despite not meeting the goal of all patients completing assessment tools, the majority of patients did receive screening with either one or both of the tools. Specifically, if a patient presented as manic, the provider utilized the mania assessment tool and not the depressive scale and vice versa. Utilizing just one of the tools rather than both potentially limits the ability of the clinician to recognize symptoms that may need to be addressed through a change in treatment plan. Individuals with bipolar disorder can have fluctuating symptoms of mania and depression concurrently, and therefore assessment with both the mania and depression tools is the ideal use

of measurement-based tools for bipolar disorder regardless of the predominant presenting symptom (Cerimele et al., 2019). The high rate of use of a single tool rather than both in this QI project (46%, n=5) suggests a single assessment tool that includes both manic and depressive symptom assessment may be more feasible in this setting. In discussion with providers, some noted that the QIDS-SR was long and took up more time that they felt they could spare during the patient encounter. Ensuring that the assessment tool is a good fit for the specific setting and clinicians is a critical part of ensuring that MBC becomes a useful element of patient encounters (Lewis et al., 2018). Identifying alternative assessment tool option and choosing one that fits the clinician and patient population better will lead to more consistent use of MBC in this setting.

Two possible options for alternative assessment tools are as follows: The 6 item Self-Report Hamilton Depression Scale (S-HAM-D6), which could replace the QIDS-SR, or the Internal State Scale (ISS), which is a single self-report assessment tool that assess both manic and depressive symptoms that could replace both the QIDS-SR and the ASMR. The full Hamilton Depression Scale is frequently used in depression research and has become the "gold standard" to measure symptom severity of depressive symptoms over time (Kraun et al., 2019). The S-HAM-D6 was found to have good internal consistency and responses were highly correlated with other self-rated and clinician-rated assessment scales for depression (Kraun et al., 2019). The S-HAM-D6 in combination with the ASMR would assess for the full spectrum of symptoms, however this combination of assessment tools risks continued use of a single tool rather than both. For this reason, the S-HAM-D6 and ASMR is not recommended in this setting.

The Internal State Scale was developed to assess both manic and depressive symptoms at the same time through four subscales (Kraun et al., 2019). The subscales are Activation, which

measures cognitive and behavioral activation, such as increased energy or racing thoughts; Conflict, which measures irritability; Well-being, which assesses for psychological well-being; and Depression, which assesses for depressive symptoms (Dodd et al., 2013). The ISS consists of 16 items and the subscales have a Cronbach's alpha of 0.81 to 0.92 and it has been shown to have a high level of clinical utility (Dodd et al., 2013; Cerimele et al, 2019). The subscale statements are straightforward, and response is given by rating how the person felt in relation to the statement on a scale of 0 to 100 where 0 is "not at all" and 100 is "very much so". An example of a statement is "Today my thoughts are going fast". The easy-to-use Likert scale and straightforward statements address an additional concern that clinicians identified, which is the use of a complicated Likert scale during telehealth visits. In order to ensure assessment of both manic and depressive symptoms, use of the ISS is the best choice for implementation in this setting.

Utilizing the QIDS-SR and ASMR over the telephone proved to be a challenge for clinicians and patients. Patients found it difficult to remember responses that had been read to them thus requiring the provider to repeat the options and potentially creating frustration for the patient and provider. A tool with a simpler Likert scale would be a better fit for clinicians who see many patients over the telephone. The ISS meets the need for a tool with a simple Likert scale and this would facilitate assessment with the tool over the telephone. Another potential solution could be to mail out a copy of the assessment tools to the patient so they can reference the paper copy when going through responses with the clinician on the phone. Providers noted that either of these options would be preferable to repeating the response options of the QIDS-SR when working with patients with bipolar disorder over the telephone. Technology based

assessment tools, such as the use of the PHQ-9 submitted electronically between a patient's smartphone and the EMR has shown promise (Bauer et al., 2018). The limited functionality of this setting's EMR and limitation of patients' access to technology currently do not support this as a solution at this point, however it may be possible in the future.

For the individuals who did not receive any of the tools, one was an appropriate use of clinical judgement. The patient presented in crisis and the priority of the appointment was risk assessment and developing a safety plan. This was an example of using clinical judgement, which MBC is not intended to replace. Rather, MBC is intended to help focus assessment through improved communication of symptoms.

Patient preference was noted once as the reason for not utilizing the assessment tools. This project did not collect information about patient concerns that may have contributed to the patient's choice not to fill out the forms. Possible reasons could contribute to a patient not wanting to fill out the assessment tools could be concerns about privacy, response burden (i.e., if questions do not seem relevant to a patient or if responses are not integrated into care planning), or potentially cognitive or visual difficulties (Lewis et al, (2018); Aboraya et al., (2018). Ensuring that the provider discusses how the information can be used to improve communication of symptoms and tailoring of treatment plan may increase the willingness of patients to participate in measurement-based care. Switching to a single tool rather than two tools may also reduce the patient's perception of response burden. Providing a private area to complete forms in the clinic can also improve patient's confidence that their privacy is protected. Some patients may be unwilling to complete a self-report symptom assessment prior to an appointment, and if this is the case, the provider can incorporate the assessment tool during the clinical encounter.

The clinician forgetting to utilize the tools supports the need to incorporate MBC tools as part of the EMR. The structure of clinical processes influences the way care is delivered (Kilbourne et al., 2018). Integrating assessment tools used in measurement-based care into the EMR addresses care delivery processes at the system level. An overarching challenge to incorporating more technology into mental health care is that mental health care providers often use different EMR systems from medical practices, which reduces their ability to share information between providers (Kilbourne et al., 2018). Community mental health centers specifically have received less funding/incentives for information technologies. This has resulted in less use of technology in routine patient care in community mental health centers (Larrison et al., 2018). Increasing funding and incentives for community mental health centers is needed to help facilitate technological advances in these clinics EMR based measurement feedback systems that support MBC through making collection and management of routine outcome measures can reduce the burden of MBC and increase the ease of reviewing data and trajectory of patient symptoms (Lewis et al., 2018). Advancing the use of technology greatly facilitates incorporation of MBC.

Limitations

Fewer patients with bipolar disorder were seen than expected during this time frame. With fewer patients came fewer opportunities to develop the use of MBC as a routine part of care. The smaller number of participants may have produced a less accurate representation of the incorporation of the use of the assessment tools in the routine care of individuals with bipolar disorder. A solution to this would be to continue tracking the tool use over time to get a more accurate picture of utilization practices. Clinicians noted more frequent cancellations due to a

winter storm that occurred during the project, some patients declined to be seen over the telehealth because they did not have enough minutes on their phones or access to a computer or the internet. Implementation of the project during nicer weather when transportation is less difficult would likely increase the number of participants. Ongoing challenges of the Covid-19 pandemic also affected the project because of the impact on ability to find transportation, more individuals experiencing unemployment and reduced income, complying with social distancing protocols, and individuals being ill or caring for someone who is ill. One provider at the clinic declined to participate in the project despite efforts to engage, and therefore there was no data collected for that provider. Weekly staff meeting time was limited and didn't allow for as much education and support than is needed for successful use of MBC. Arranging for more time that could be dedicated to working on implementation of MBC with the team would be beneficial in order to provider more education and support for the project. The duration of the project prevented longer term outcome evaluation. Longer term evaluation would be done through chart review by learning whether the assessment tools were used and then comparing that information with the chart note.

Recommendations

This project showed that incorporating measurement-based care is feasible in this setting, but that more work is needed to implement it in a way that brings the full benefits of MBC to providers, patients, and the organization. Ideally, funding would be sought to update the EMR system to reduce the burden of MBC, to make it easier to utilize information from assessment tools, and to provide the organization with the ability to extract information from the EMR about the quality of care provided at the clinic. When implementing assessment tools for

use with patients with bipolar disorder, measurement of both manic and depressive symptoms consistently is vital to meaningful symptom evaluation over time. Therefore, utilizing a single tool that assesses both manic and depressive symptoms concurrently, is brief, and consists of a simple Likert scale that can be easily used during telehealth visits is recommended. The Internal State Scale fits these clinician and patient identified needs. Ensuring the organization remains flexible and responsive to clinician and patient feedback regarding tool use will allow for further refinement of assessment tool choice if needed. When MBC is implemented, providing adequate time set aside for education and support for MBC will also create an environment that increases the probability that MBC will be successfully incorporated into routine patient care. Additionally, learning patient perspectives about the use of measurement-based assessment tools would help in addressing patient concerns and increasing patient participation with assessment tools.

DNP Essentials

This project demonstrates several of the DNP Essentials for practice. The project incorporates DNP Essential 1, nursing science, especially as nursing science views the patterning of human behavior in interactions with the environment and because of the focus on human response to illness and treatment (Zaccagnini & White, 2017). This is shown in this project through the goal of evaluating patients' response to care and tailoring treatment plans to meet the individual patient's needs. It is also shown in the recognition that the use of assessment tools is supported through integration in the EMR because that would make the assessments part of the workflow rather than making it a step each individual clinician needs to remember (patterning of human behavior within the environment). Looking at the workflow and how it affects clinician

decisions also demonstrates DNP Essential II, systems thinking. Systems thinking involves the ability to identify issues and then to contribute to system redesign (Zaccagnini & White, 2017). Continuing work in this setting would allow for strategic energy and redesign, such as through identification of grants that could enable EMR updates with greater functionality. The project demonstrates DNP Essential 3, evidence-based practice, which includes the translation of evidence from the literature into an intervention that can be used in practice (Zaccagnini & White, 2017). This project involved evaluating literature to determine what the evidence base supported and then translating the evidence into an intervention that can be used in clinical practice. DNP Essential 6, Interprofessional Collaboration, which includes working with team members from other professions, in this case LCPCs and LCSWs, and an administrator. The project required clarification of different team members' roles, recognition of the value of each team member's contributions to patient care, and there was an emphasis on increasing communication between providers who provide therapy services and medication management services.

Conclusion

Measurement based care in psychiatry is well supported by evidence and it has the potential to improve outcomes for patients with bipolar disorder. Bipolar disorder can be difficult to manage, especially when subsyndromal symptoms go undetected and are not targeted as part of treatment planning, leading to inadequate symptom management. Using MBC to assess symptoms and increase communication between patients and providers improves the ability of provider to tailor treatment plan to the individual's needs, thereby improving change of symptom remission and improved mood stability. MBC also provides value to providers and organizations

as they work toward increasing quality of care. Data from assessment tools can be used by providers as part of reflective practice—providing an opportunity to assess their skill and knowledge in particular treatment areas. Organizations can review aggregate data to demonstrate quality to stakeholders, and to meet requirements of value-based care payment systems. Incorporating routine assessment with MBC based tools, reviewing the information with patients, and altering treatment plans to meet patient needs have been shown to be easily done, especially when incorporated into the EMR. Ensuring assessment tools are chosen and tested by clinicians to meet clinical needs and there is adequate education to support MBC in order to get the most benefit from its use is also critical to successful use of MBC. When MBC is tailored to clinician and patient needs, and it is systematically supported through education and integration into EMR, it can be an effective way to improve patient outcomes.

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APPENDICES

APPENDIX A

QUICK INVENTORY OF DEPRESSIVE SYMPTOMATOLOGY-SELF REPORT

Name _____
Date _____

Please circle the one response to each item that best describes you for the past seven days.

1. Falling Asleep:

0 I never take longer than 30 minutes to fall asleep.
1 I take at least 30 minutes to fall asleep, less than half the time.
2 I take at least 30 minutes to fall asleep, more than half the time.
3 I take more than 60 minutes to fall asleep, more than half the time.

2. Sleep During the Night:

0 I do not wake up at night.
1 I have a restless, light sleep with a few brief awakenings each night.
2 I wake up at least once a night, but I go back to sleep easily.
3 I awaken more than once a night and stay awake for 20 minutes or more, more than half the time.

3. Waking Up Too Early:

0 Most of the time, I awaken no more than 30 minutes before I need to get up.
1 More than half the time, I awaken more than 30 minutes before I need to get up.
2 I almost always awaken at least one hour or so before I need to, but I go back to sleep eventually.
3 I awaken at least one hour before I need to and can't go back to sleep.

4. Sleeping Too Much:

0 I sleep no longer than 7-8 hours/night, without napping during the day.
1 I sleep no longer than 10 hours in a 24-hour period including naps.
2 I sleep no longer than 12 hours in a 24-hour period including naps.
3 I sleep longer than 12 hours in a 24-hour period including naps.

5. Feeling Sad:

0 I do not feel sad
1 I feel sad less than half the time.
2 I feel sad more than half the time.
3 I feel sad nearly all of the time.

6. Decreased Appetite:

    0 There is no change in my usual appetite.
    1 I eat somewhat less often or lesser amounts of food than usual.
    2 I eat much less than usual and only with personal effort.
    3 I rarely eat within a 24-hour period, and only with extreme personal effort or when others persuade me to eat.

7. Increased Appetite:

    0 There is no change from my usual appetite.
    1 I feel a need to eat more frequently than usual.
    2 I regularly eat more often and/or greater amounts of food than usual.
    3 I feel driven to overeat both at mealtime and between meals.

8. Decreased Weight (Within the Last Two Weeks):

    0 I have not had a change in my weight.
    1 I feel as if I've had a slight weight loss.
    2 I have lost 2 pounds or more.
    3 I have lost 5 pounds or more.

9. Increased Weight (Within the Last Two Weeks):

    0 I have not had a change in my weight.
    1 I feel as if I've had a slight weight gain.
    2 I have gained 2 pounds or more.
    3 I have gained 5 pounds or more.

10. Concentration/Decision Making:

    0 There is no change in my usual capacity to concentrate or make decisions.
    1 I occasionally feel indecisive or find that my attention wanders.
    2 Most of the time, I struggle to focus my attention or to make decisions.
    3 I cannot concentrate well enough to read or cannot make even minor decisions.

11. View of Myself:

    0 I see myself as equally worthwhile and deserving as other people.
    1 I am more self-blaming than usual.
    2 I largely believe that I cause problems for others.
    3 I think almost constantly about major and minor defects in myself.

12. Thoughts of Death or Suicide:

    0 I do not think of suicide or death.
    1 I feel that life is empty or wonder if it's worth living.
    2 I think of suicide or death several times a week for several minutes.
    3 I think of suicide or death several times a day in some detail, or I have made specific plans for suicide or have actually tried to take my life.

13. General Interest:

    0 There is no change from usual in how interested I am in other people or activities.
    1 I notice that I am less interested in people or activities.
    2 I find I have interest in only one or two of my formerly pursued activities.
    3 I have virtually no interest in formerly pursued activities.

14. Energy Level:

    0 There is no change in my usual level of energy.
    1 I get tired more easily than usual.
    2 I have to make a big effort to start or finish my usual daily activities (for example, shopping, homework, cooking or going to work).
    3 I really cannot carry out most of my usual daily activities because I just don't have the energy.

15. Feeling slowed down:

    0 I think, speak, and move at my usual rate of speed.
    1 I find that my thinking is slowed down or my voice sounds dull or flat.
    2 It takes me several seconds to respond to most questions and I'm sure my thinking is slowed.
    3 I am often unable to respond to questions without extreme effort.

16. Feeling restless:

    0 I do not feel restless.
    1 I'm often fidgety, wringing my hands, or need to shift how I am sitting.
    2 I have impulses to move about and am quite restless.
    3 At times, I am unable to stay seated and need to pace around.

To Score:

1. Enter the highest score on any 1 of the 4 sleep items (1-4) ____
2. Item 5 ____
3. Enter the highest score on any 1 appetite/weight item (6-9) ____
4. Item 10 ____
5. Item 11 ____
6. Item 12 ____
7. Item 13 ____
8. Item 14 ____
9. Enter the highest score on either of the 2 psychomotor items (15 and 16) ____

TOTAL SCORE (Range 0-27) ____

APPENDIX B

ALTMAN SELF-RATING MANIA SCALE FOR MANIA (ASRM)

Name_____. Date_____Score_____

Instructions

1. On this questionnaire are groups of five statements; read each group of statements carefully.
2. Choose the one statement in each group that best describes the way you have been feeling for the past week.
3. Circle the number next to the statement you picked.
4. *Please note:* The word "occasionally" when used here means once or twice; "often" means several times or more; "frequently" means most of the time.

1) 0 I do not feel happier or more cheerful than usual.
1 I occasionally feel happier or more cheerful than usual.
2 I often feel happier or more cheerful than usual.
3 I feel happier or more cheerful than usual most of the time.
4 I feel happier or more cheerful than usual all of the time.

2) 0 I do not feel more self-confident than usual.
1 I occasionally feel more self-confident than usual.
2 I often feel more self-confident than usual.
3 I feel more self-confident than usual most of the time.
4 I feel extremely self-confident all of the time.

3) 0 I do not need less sleep than usual.
1 I occasionally need less sleep than usual.
2 2 I often need less sleep than usual.
3 I frequently need less sleep than usual.
4 I can go all day and night without any sleep and still not feel tired.

4) 0 I do not talk more than usual.
l I occasionally talk more than usual.
2 I often talk more than usual.
3 I frequently talk more than usual.
4 I talk constantly and cannot be interrupted.

5) 0 I have not been more active (either socially, sexually, at work, home, or school) than usual.
1 I have occasionally been more active than usual.
2 2 I have often been more active than usual.
3 I have frequently been more active than usual.
4 4 I am constantly active or on the go all the time.

5 I feel happier or more cheerful than usual all of the time.

6) 0 I do not feel more self-confident than usual.
1 I occasionally feel more self-confident than usual.
2 I often feel more self-confident than usual.
3 I feel more self-confident than usual most of the time.
4 I feel extremely self-confident all of the time.

7) 0 I do not need less sleep than usual.
1 I occasionally need less sleep than usual.
2 2 I often need less sleep than usual.

3 I frequently need less sleep than usual.
4 I can go all day and night without any sleep and still not feel tired.

8) 0 I do not talk more than usual.
l I occasionally talk more than usual.
2 I often talk more than usual.
3 I frequently talk more than usual.
4 I talk constantly and cannot be interrupted.

5 0 I have not been more active (either socially, sexually, at work, home, or school) than usual.
1 I have occasionally been more active than usual.
2 I have often been more active than usual.
3 I have frequently been more active than usual.
4 4 I am constantly active or on the go all the time.