AN INTERVENTION TO INCREASE MEDICATION ADHERENCE IN PATIENTS WITH MENTAL ILLNESS

by

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As members of the DNP Project Committee, we certify that we have read the DNP project prepared by Mehdi Bubba Lou Thomas, titled An Intervention to Increase Medication Adherence in Patients with Mental Illness, and recommend that it be accepted as fulfilling the DNP project requirement for the Degree of Doctor of Nursing Practice.

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ABSTRACT

Purpose:

This quality improvement project aimed to assess the efficacy of an educational intervention in enhancing patients' comprehension regarding their prescribed medications and to ascertain if this understanding varied based on the timing of patient engagement (initial or follow-up appointment).

Background:

Patient non-adherence to medication often stems from a need for more understanding regarding the purpose and correct usage of prescribed drugs. A comprehensive grasp of medication regimens has the potential to improve patient adherence, leading to better health outcomes and decreased healthcare costs.

Methods:

Participants were provided with educational materials detailing their medications' nature, purpose, and usage. Feedback was obtained via JotForm to determine levels of understanding post-intervention. Participants were divided into two groups based on their appointment type, and their responses were analyzed using Fisher's Exact Test.

Results:

Out of 13 participants, 10 reported that they “fully understood” their medication post-intervention, with six of these from the follow-up group and four from the initial group. Conversely, only three participants claimed to “somewhat understand” their medications, with two from the initial and one from the follow-up group. The Fisher exact test statistic value was

0.5594, indicating no significant difference in understanding levels between the two groups at $p < .05$.

Conclusions:

While the educational intervention shows promise in elevating patients' understanding of their medication regimen, no significant variance was observed regarding the types of appointments. The project emphasizes the potential benefits of patient education and serves as a foundation for future interventions to improve patient comprehension and medication adherence regardless of appointment type.

INTRODUCTION

Two problematic areas that significantly impact patient outcomes in the United States (US) are patient education and compliance regarding psychiatric medications (Kirchner et al., 2022). Medication adherence is a significant challenge for mentally ill individuals, affecting well-being and treatment efficacy (Kirchner et al., 2022). Due to the limited availability of mental healthcare providers, the US has been experiencing a trend in which adequate care is only sometimes delivered, creating challenges for those searching for treatment (Turale & Nantsupawat, 2021). With historically low medication compliance rates, we identified a need to develop effective interventions for the patient and the organization with minimal economic impact on both parties. This Doctor of Nursing Practice (DNP) project aimed to increase medication adherence rates within the patient populace at a local mental health clinic through standardized and time-effective interventions. The goal was to implement expanded education using approved, visually stimulating resource materials and provide a set appointment period for questions to increase compliance amongst those with mental illness. The intervention was evaluated through a post-intervention survey analyzing appointment type, whether the medication was new, their confidence, and overall satisfaction.

Background Knowledge and Significance

The current medication education model for those with mental illness is lacking and needs significant inputs to reproduce effects seen in other, less stigmatic areas of medicine. The varying degrees and pathologies of mental illness require different levels of care and post-appointment education (Marrero et al., 2020). Factors determining estimated success rates in medication adherence include patient personality, psychological processes, and perception of

health at the time of visit (Marrero et al., 2020). Researchers suggest multiple themes contribute towards medication nonadherence in the mentally ill, with a significant focus on health locus of control (defined as a patient's perceived style regarding their health), psychological reactance (a phenomenon in which patients view a prescription as a barrier to their freedom of choice), and self-efficacy (their ability to cope with their diagnosed health problems) (Marrero et al., 2020). Evaluation of patient profiles supports that those who maintain a higher degree of health locus of control coupled with decreased physical reactance will result in higher levels of medication adherence (Marrero et al., 2020).

Barnard (2019) discusses the importance of medication education in its ability to improve patients' understanding of their condition, possible side effects of their medication with mitigating techniques, and the importance of consistent administration of their medication as directed by their provider to ensure optimal effects. Further research is necessary to determine how clinicians and educators can impact these individual factors to increase patient compliance with medication and treatment plans to improve patient outcomes. Barnard (2019) further explains that a decreased understanding of medications may result in poor compliance, which ultimately reduces the efficacy of treatment while potentially placing the patient in a situation where dire consequences are possible. To mitigate decreased compliance and to promote optimal treatment in psychiatric patients, it is imperative to create a relationship that promotes ongoing medication education (Barnard, 2019).

Prevalence and Risk Factors

Medication education and compliance in psychiatric patients is a complex issue to correct due to the numerous circumstances involved in patient care. According to Kirchner et al. (2022),

an estimated 50% of psychiatric patients do not take their medications as prescribed, contributing to the progression of disease states through nonadherence. Nonadherence to medication regimens places patients suffering from psychiatric disorders at a higher risk profile for comorbid diseases and increases psychosocial barriers to sustained wellness (National Alliance on Mental Illness [NAMI], 2021). National Alliance on Mental Illness (2021) reports that patients who suffer from depression are at a 40% increased risk of developing cardiovascular and metabolic diseases compared to the public while 32.1% of adults in the US with mental illness experienced disorders involving substance abuse (NAMI, 2021).

Negative implications of medication nonadherence do not only affect health outcomes, but they also often expand into occupational areas, causing distress for many. When discussing employment, those with mental illnesses have a 1.2% higher chance of not finding gainful employment than those unafflicted (NAMI, 2021). In the child and adolescent populace, observations of increased dropout rates from high school are nearly double, with a three times greater chance of children repeating a grade (NAMI, 2021).

Factors that impede effective care of those with mental illness include insufficient patient involvement when discussing treatment plans, which negatively impacts the likelihood of medication adherence and limited access to mental health services (Foley et al., 2021). Furthermore, many psychiatric disorders accompany other comorbidities making multiple medication compliance complicated, and side effect profiles may not be easily identifiable between the different classes (Foley et al., 2021). Factors of medication literacy and stigma exist in the United States, with numerous patients lacking a basic understanding of why and how their

medications help their disease process while social determinants create barriers for patients to discuss mental health problems with their care team (Khalifeh & Hamdan-Mansour, 2021).

Consequences of Medication Nonadherence

Nonadherence to medication regimens has many downstream effects on the individual and society. Ho et al. (2016) note that missing medications is the most common reason for failure in treating the mentally ill. Ho et al. (2016) state that approximately half of patients admit to not taking their medications as prescribed, resulting in worsening symptoms and significantly poorer outcomes. The effects of nonadherence expand further when mentally ill patients need higher levels of care due to non-compliance. In the US, medication nonadherence creates several disastrous ripples in health care with increased emergency room visits, hospitalizations, and delays in patient care (Ho et al., 2016).

Untreated mental illness continues its deleterious effects in the community by increasing costs to treat veterans, the incarcerated, the homeless, or a combination of them. Researchers have identified staggering results identifying mental illness in these groups, with 37% of incarcerated people, 20.8% of homeless people, 70% of young juvenile offenders, and 8.4% of military personnel all suffering from psychiatric conditions affecting their health (NAMI, 2021). When discussing economic impacts, severe mental illness is catastrophic, costing our economy $193.2 billion annually (NAMI, 2021).

Unfortunately, the consequences do not stop at the individual patient level. Increased patient loads, decreased availability of treatment facilities due to overcrowding, and financial constraints continue to stress our already vulnerable healthcare system (Ho et al., 2016). The

events mentioned above are likely reducible with the implementation of tailored medication education and regular follow-ups (Ho et al., 2016).

Current Education Models

Medication adherence focused on managing mental illness remains a significant challenge for many providers. The necessity of strict adherence to many psychiatric medications further disrupts patient outcomes as many disease states, such as anxiety disorders, schizophrenia, and psychotic disorders, present with a lack of insight and resistance to care (González de León et al., 2022). Patients report multiple factors when discussing their reluctance to medication regimens, such as intolerable side effects of psychiatric medications, multiple dosings throughout the day, and lack of education and expectations of the proposed treatment plan (González de León et al., 2022). The culminating event of these factors leads to patients who are non-compliant and at increased risk for adverse health and societal events such as imprisonment, involuntary hospitalization, and homelessness (NAMI, 2021).

Various strategies exist to aid in the care of these patients and to help reduce barriers. Many methods currently exist to aid patient education, such as patient-centered, group, and technologically-focused education (Schulze et al., 2019). The preferred method of medication education is patient-centered care. Patient-centered education allows providers to communicate freely with their patients, addressing concerns from side effects to treatment goals (Correll, 2020). When executed correctly, patients are often more likely to be compliant, but this method proves to be a challenge with the structure of many organizations focusing on volume and productivity (West et al., 2018). Many providers feel they were not provided enough time with their patients for medication education and request ways to help foster education in the limited

time available (West et al., 2018). The quest for quality education, improved outcomes, and patient satisfaction remains at the forefront of medical organizations, but there is currently little action to improve these desired metrics (Hoff et al., 2021).

Significance to Healthcare

Nonadherence to medication regimens causes an estimated 125,000 avoidable deaths yearly and increased financial spending of $100-300 billion annually (Kleinsinger, 2018). Neiman et al. (2017) report that in the US alone, 3.8 billion prescriptions are written annually, with only about 20% filled by the patient, and of those, only half of the patients will take them as prescribed (Neiman et al., 2017). Nonadherence is associated with suboptimal outcomes, higher rates of hospital admissions, and increased mortality from chronic conditions (Neiman et al., 2017). Improving medication compliance is a public health priority with the potential to reduce many of our patients' health and economic burdens (Neiman et al., 2017).

Local Problem

The chosen implementation site for this DNP project is an outpatient mental health organization that aims to enhance medication compliance among individuals receiving treatment for various psychiatric disorders. Established in 2021, the clinic's goal is to improve the health disparities of those in the surrounding community by providing resources that are practical and effective. Through interviews with our site's providers, significant discrepancies were observed between patients who were compliant with medication administration versus those who continuously deviated from their prescribed treatment plan. Based on ongoing research and anecdotal evidence from their patients, there is a belief that medication compliance can be

enhanced by adopting a patient-centered care approach that prioritizes education and engagement with visual aids.

Long Beach, California, faces a pressing need for mental health intervention and support, backed by compelling regional statistics. Between 2016 and 2019, rates of serious psychological distress reported by California adolescents and adults have shown a concerning increase, indicating a growing mental health burden (Holt, 2022). Furthermore, a significant treatment gap exists, as close to two-thirds of adults with mental illness and two-thirds of adolescents experiencing major depressive episodes in California do not receive the necessary care (Holt, 2022). Notably, mental health treatment rates remain low within California's prison system. In 2019, only 30% of female inmates and 20% of the male prison population received mental health treatment while incarcerated (Holt, 2022).

Informal recent data observed at the clinic supports that there are gaps in patient education regarding medication recommendations and treatment plans. Patients receive education about their psychiatric conditions in conjunction with medication education and therapy. While this multifaceted approach is helpful to the patient, concerns exist about whether this is the most effective modality to improve medication compliance and symptom reduction.

Through company meetings with clinicians, areas of suggested improvement were identified. These areas of improvement included increased face-to-face time with patients discussing medications, literature for patients, and the ability to track satisfaction rates regarding education received. The organization is interested in solutions to quell its localized problem of decreased compliance in those with barriers to medication adherence due to complex psychiatric and socioeconomic variables.

Intended Improvement

Project Purpose

This project aimed to assess the efficacy of an educational intervention in enhancing patients' comprehension regarding their prescribed medications and to ascertain if this understanding varied based on the timing of patient engagement (initial or follow-up appointment).

The study further explored whether medication education and materials improved treatment perception and compliance. More broadly, this project aimed to provide clinicians with an increased understanding of the interrelation of patient education and medication adherence. The quality improvement initiative results may empower clinicians with additional knowledge and tools to develop effective interventions that might improve patient outcomes and healthcare literacy.

Project Question

"How does a one-time medication education intervention with a visual aid affect patients' comprehension of and confidence in their medication regimen at an outpatient mental health clinic?"

Project Objectives

Our project included the following objectives:

1. Obtain and integrate a collection of approved medication literature for clinicians from the Neuroscience Education Institute to utilize during the end of patient appointments.
2. Provide medication literature interventions during appointments.

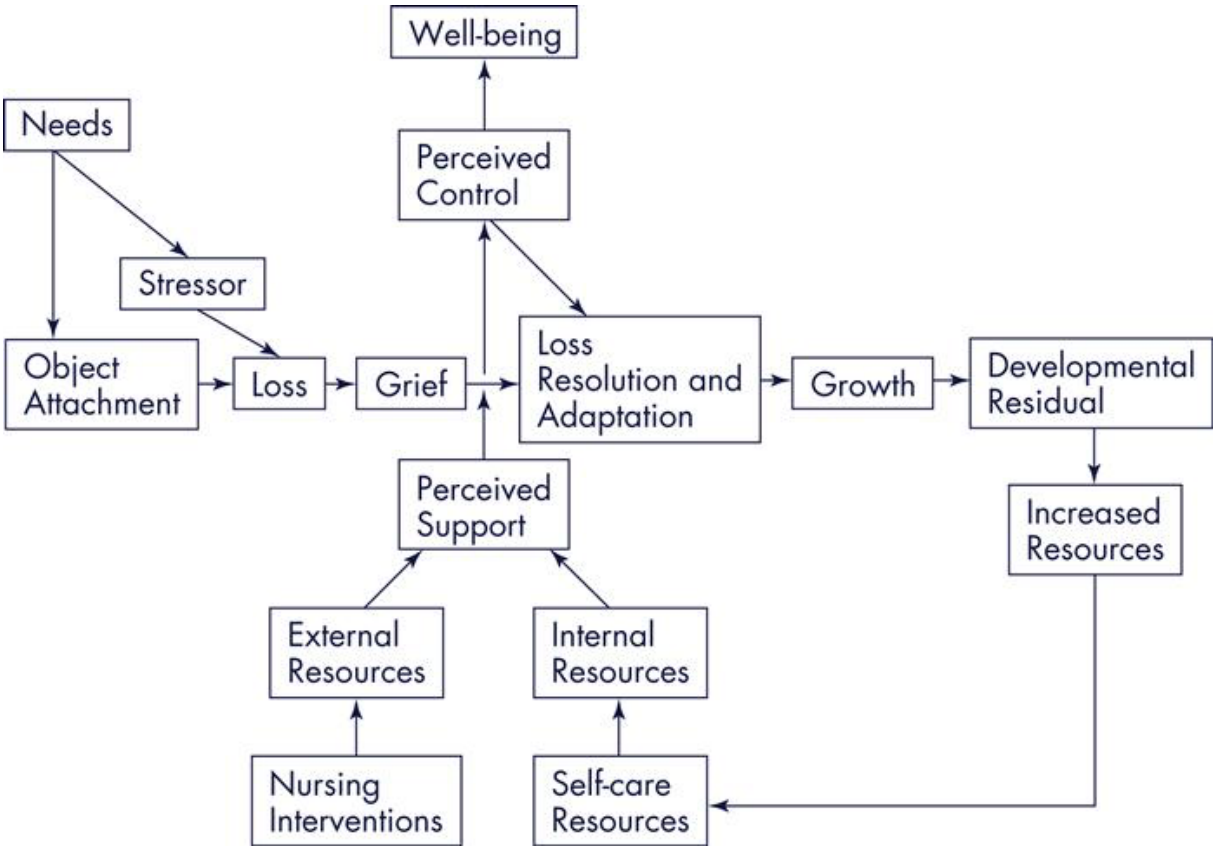
3. Conduct post-intervention interviews with patients to assess changes in their overall perception of their ability to comply with their proposed treatment plan.
4. Evaluate the effectiveness of the intervention in improving the patient's perception of their treatment and medication adherence, as well as the feasibility of the intervention within the current patient allotted appointment times.
5. Determine whether the patient's education and confidence improved regardless of appointment type.
6. Make recommendations for continuing or modifying the intervention based on the evaluation results.

Theoretical Framework

This DNP project is based on the theoretical framework of Erikson's Modeling/Role-Modeling nursing theory. Developed by Dr. Helen Erickson, Dr. Evelyn M. Tomlin, and Dr. Mary Ann P. Swain, this framework incorporates themes found in Maslow's Theory of Hierarchy of Needs, Erikson's Theory of Psychosocial Stages, Piaget's Theory of Cognitive Development, and Seyle and Lazarus's General Adaptation Syndrome (Erickson, 2019). Using characteristics from each theme, Erickson (2019) explains how caring and nurturing the patient with a focus on the patient's uniqueness allows for improved health outcomes. Erikson's Modeling/Role-Modeling nursing theory focuses on the following eight major concepts to assist in treating our patients and developing autonomy: health, adaptation, holism, affiliated individuation, self-care, nurturance, unconditional acceptance, and facilitation (Erickson, 2019) (Figure 1).

Figure 1

Modeling and Role-Modeling Nursing Theory



(Adapted from *Relationships among the constructs of the Modeling and Role-Modeling (MRM) theory*, (From Erickson, M. E. [1996]. *Relationships among support needs satisfaction, and maternal attachment in adolescent mothers.* Doctoral dissertation: University of Texas–Austin, with permission from Margaret Erickson, Austin, TX.), retrieved from https://nursekey.com/modeling-and-role-modeling-theory-in-nursing-practice/. Copyright 1996).

Health

In Erikson's Modeling/Role-Modeling, health is seen as a dynamic state that is constantly changing based on the individual's ability to adapt (Erickson, 2019). The ability to adjust and maintain balance when faced with stressors is required for the patient to manage their health conditions successfully (Erickson, 2019).

Adaptation

The individual's ability to adapt and respond to internal and external stressors is paramount in managing health conditions. Displaying healthy, adaptive coping mechanisms, strategies, and behaviors help to influence the patient's overall health outcome (Erickson, 2019). Erickson (2019) states the importance of this concept and encourages nurses and clinicians to use the modeling/role-modeling approach to help support patients who seek support. This technique is essential in our quality improvement initiative focusing on continued medication adherence as initial treatment is an area where dropout is experienced (While, 2020).

Holism

Erikson's Modeling/Role-Modeling theory discusses patients' complexity, explaining that their physical, emotional, social, and spiritual approaches are intertwined in their everyday experiences (Erickson, 2019). Erickson (2019) explains how the identification of patient viewpoints can help determine how nurses and clinicians offer support and model behaviors for effective treatment.

Affiliated Individuation

Recognizing that individuality and connectedness are key elements in successful treatment and buy-in is imperative, as patients with mental illness are prone to feelings of isolation and neglect (While, 2020). Nurses and clinicians can use Erikson's Modeling/Role-Modeling theory to approach patients in a caring manner that aids in developing self-care strategies that are tailored toward unique experiences. Through our interventions, we aim to help patients maintain their momentum when starting or continuing their medications as prescribed through our added contact time.

Self-Care

By engaging patients in activities that promote their physical, emotional, and spiritual health, nurses and clinicians can model appropriate behaviors. Educating patients on techniques and serving as role models to those with impaired stability serves as an intervention that may improve medication compliance (Erickson, 2019).

Nurturance

Nurturance refers to providing our patients with care and support focused on growth and development (Erickson, 2019). Ensuring that we provide care that promotes health, well-being, and personal growth is vital in setting the patient up for success.

Unconditional Acceptance

Using modeling/role-modeling, nurses and clinicians can show our patients that they are accepted regardless of their circumstances, history, and condition (Erickson, 2019). Providing stability in this professional relationship allows caregivers to supportive measures to influence positive outcomes for those suffering significantly from a mental illness (Erickson, 2019).

Facilitation

Facilitation helps patients reach their full potential through goal achievement (Erickson, 2019). Nurses and clinicians can approach this key concept by facilitating adaptive coping mechanism strategies and behaviors and promoting well-being (Erickson, 2019).

Relevant Constructs

In terms of our goal of improving medication adherence in patients with mental illness, the use of Erikson's Modeling/Role-Modeling theory may improve outcomes due to its propensity to focus on the individual and their unique needs. A decline in mental health is often

multifactorial, and the ability to analyze several possible areas of concern with plans to mitigate interference may provide better outcomes for those we are treating. Understanding the eight major components of Erikson's Modeling/Role-Modeling theory is important as it guides the practitioner toward possible barriers to care while highlighting areas that can exponentially increase patient compliance.

Limitations

Like other nursing theories, Erikson's Modeling/Role-Modeling theoretical framework contains limitations. Careful consideration was given to the existing limitations of Erikson's framework and how they may interact with our desired interventions and implementation process. The following limitations are the most pertinent to our selected research:

1. Applicability: Erikson's Modeling/Role-Modeling theoretical framework was developed explicitly for nursing practice using nursing interventions. Our nursing background and scope of practice are considerably different when compared to the creation of this theory and common day.
2. Empirical evidence: While numerous research studies demonstrate the potential for Erikson's Modeling/Role-Modeling theoretical framework to succeed, we still view these theories as limited when applying them to other fields of practice.
3. Bias: Due to its heavy reliance on subjective interpretation of the patient's goals, experiences, and needs, the clinician may involuntarily create assumptions that can influence outcomes.
4. Complexity: Erikson's Modeling/Role-Modeling theoretical framework is complex due to its involvement in numerous theories. As previously discussed, practical training and

education may be necessary to ensure it is understood and used appropriately, as it is susceptible to bias errors.

5. Social determinants of health: While the framework acknowledges the importance of understanding the patient's unique experience, it is limited to the broader social determinants of health that have evolved since its inception. Access to care, social support, racial inequality, gender inequality, generational trauma, and wealth inequality are relatively newly recognized determinants influencing our populace's care.

In summary, Erikson's Modeling/Role-Modeling theoretical framework has limitations, no different from other nursing theories. Still, despite these limitations, we view this framework as valuable for nurses and clinicians in the evolution of creating patient-centered care.

Literature Synthesis

Literature Search Description

A literature search was conducted to explore the current climate regarding medication compliance in the mentally ill while exploring possible solutions to improve patient outcomes. Accessing the Arizona Health Sciences Library, three electronic databases (PubMed, PsycINFO, and the Cumulative Index of Nursing &Allied Health Literature) were used to conduct the literature search. The search utilized the keywords "medication compliance" AND "mental illness" and was limited to articles published in the past seven years with full-text availability. International studies were not excluded, but studies had to be published in English. Initially, 3,155 articles were identified through the search strategy. After applying inclusion and exclusion criteria, seven articles meeting the following criteria were selected for the literature synthesis: published in the last seven years, full-text availability, focused on medication compliance in

mental illness, and written in English. Exclusion criteria included non-peer-reviewed articles, articles not related to medication compliance in mental illness, articles not written in English, and articles published more than seven years ago. The final selection of articles was based on the relevance of the study to the research question and the quality of the study design and methodology. The search strategy was designed to ensure reproducibility, allowing other researchers to conduct the exact search with the same keywords and subject headings to identify the seven articles that were selected based on the above-mentioned criteria.

Comprehensive Appraisal of Evidence

The findings of the literature synthesis support medication adherence's profound impacts on improving physical and psychological health, improving quality of life, decreasing economic costs, and improving relationships among those with mental illness. Early identification and continued treatment of mental disorders through compliant medication administration provide positive outcomes for our vulnerable populace. Medication compliance remains complicated, with many issues stemming from challenges to identify and control variables. The main themes identified in the literature synthesis were:

1. Medication adherence and its impacts on physical and psychological health, quality of life, economic costs, and relationships among those with mental illness.
2. Need for increased medication education to improve compliance rates in diverse and challenging populations.
3. Factors contributing to medication non-compliance, including stigma, side effects, medication costs, access to care, lack of understanding, and comorbidities.

4. Barriers to medication compliance in the mentally ill, including severity of disease, decreased mental faculties, lack of information, decreased financial means, and impoverished support systems.
5. Interventions to improve medication compliance, including patient-centered assessments, improving health literacy and self-efficacy through education, increased access to social support systems, decreasing the time between appointments, and individual counseling.

The literature supports the idea that using a robust medication education system may increase compliance rates in a historically diverse and challenging population (Schulze et al., 2019).

Need for Increased Medication Education

Medication non-compliance has deleterious effects that extend their reach far beyond the patient. The results of a review by Ho et al. (2016) highlighted the impacts on non-adherent patients, including increased risk of relapse, emergency department visits, increased hospitalization rates, increased severity of depression, and decreased remission/responses to treatment. Furthermore, Ho et al. (2016) discuss the financial implications as many mentally ill patients are underinsured, causing large amounts of financial resources to be diverted towards stabilization when routine compliance may have prevented these encounters. Kirchner et al. (2022) support these findings in their study identifying medication adherence across affective-to-psychotic disorders. Using a study sample of 1,062 patients from the PsyCourse study, adherent patients rated their quality of life significantly higher compared to non-adherent patients (13.21 [3.34]; non-adherent group, 12.07 [3.97]; $U = 63{,}397.00$; $z = -3.58$; $p < 0.001$) (Kirchner et al., 2022).

Factors Contributing to Non-Adherence

Numerous factors contribute to medication non-compliance. The stigma of treatment, side effects, medication costs, access to care, and lack of understanding are the most common barriers experienced in treating those with mental illness (González de León et al., 2022). Foley et al. (2021) align with the findings discussed by Correll (2020) and González de León et al. (2022), expanding on the core principles that medication non-adherence is a significant problem. Foley et al. (2021) conducted a systematic review evaluating relevant published articles from January 2009 to April 2019 looking at many of the same barriers mentioned by González de León et al. (2022). Foley et al. (2021) determined the prevalence rate of non-adherence (42.6%) and discovered that an additional barrier may exist, multiple diseases. Foley et al. (2021) conclude that comorbidities increased non-adherence in patients.

Barriers to Medication Compliance in the Mentally Ill

Patients with mental illness typically experience increased risk factors that influence their ability to adhere to medications as prescribed (Kirchner et al., 2022). The severity of the disease, decreased mental faculties, lack of information, decreased financial means, and impoverished support systems remain common factors in patients who cannot comply with medications as prescribed (Khalifeh & Hamdan-Mansour, 2021; Kirchner et al., 2022). Focusing on the common barriers to medication compliance, a root cause approach may help improve patient outcomes.

Interventions to Improve Medication Compliance

Correll (2020) discusses the importance of patient-centered assessments when caring for those diagnosed with schizophrenia. Patient-centered assessments present many benefits, such as

an increased understanding of the disease process and improved patient-clinician communication (Correll, 2020). Performing a patient-centered assessment allows the clinician to determine factors interrupting care, allowing for interventions to be implemented in real-time (Correll, 2020). Improving literacy and health self-efficacy through education while treating possible underlying conditions may increase medication compliance (Foley et al., 2021). Increased access to social support systems, decreasing the time between appointments, additional education, and individual counseling are recommended methods to help improve compliance in patients with mental illness with other comorbidities (Foley et al., 2021). Striving for medication compliance should be every clinician's goal. This improvement has downstream effects that directly benefit the patient while improving the economic impact of untreated mental illness on our country (Ho et al., 2016).

Strengths of Evidence

Several factors support the strength of the research conducted for exploring medication adherence in those with mental illness. Reviewing the selected articles, we see strengths in numerous areas. Our first strength is the overall comprehensive nature of the literature. The chosen research articles include thorough reviews of existing studies examining medication adherence and its impact on various aspects of mental health. Through synthesizing a wide range of literature, we can understand the complex nature of the barriers that are currently present.

Identification of key themes are identified in the research, which helps narrow our view on interventions and their outcomes. The articles within our research focus on physical and psychological health, quality of life, economic costs, and relationships among patients with

mental illness. Organizing themes allows researchers to structure findings in a way that provides clear messaging on possible interventions.

Recognition of diversity in this group is an essential strength as this allows researchers to understand the barriers to care in this unique population. According to our conducted literature synthesis, specific challenges that this population faces include medication costs, access to care, and lack of understanding. The undertaken research highlights interventions that have proven effective, with recommendations to explore further how we can improve patient care in this marginalized group.

Lastly, considering broader implications emphasizes why mental health is so challenging to treat. Examining the increased risk of relapse, emergency department visits, hospitalization rates, and financial burdens, our research shows the far-reaching consequences of medication non-adherence.

Weaknesses, Gaps, and Limitations of Evidence

The quality of research and levels of design that are often used when attempting to measure medication adherence and mental illness were often weak due to several factors. To date, no single standardized approach exists for accurate compliance measurement. Many modalities for evaluating adherence exist, conversely influencing biases and limitations within many studies. Most of the research conducted relies on inputs from the patient that are not verifiable, often making research susceptible to inaccurate rates of reported adherence.

Adding to limitations, the complexity of mental illness and social determinants of health services drastically alter the outputs of studying medication adherence when trying to isolate a particular intervention. Different reasons for non-compliance, from personality to psychosocial

barriers, exist, making this topic challenging to reproduce and analyze when creating broad interventions. Several studies will often have differing results based on different diagnoses of mental illness as evidenced in comparisons of those with affective and psychotic disorders demonstrating that as mental illness severity and nonadherence increase congruently (Kirchner et al., 2022).

Overall, understanding medication non-adherence remains an area that needs to be evaluated. Due to the diverse nature of non-adherence, the practicality of conducting research, funding, and ethical concerns, only some payors have expressed interest in replicating studies. From the existing articles, we can delineate the importance of providing interventions that improve adherence as they impact the patient and society.

METHODS

Project Design

The design for this quality improvement (QI) project was centered around implementing a verbal and visual medication education program to improve medication compliance in patients who suffer from mental illness. The design for this QI project involved a post-intervention survey to measure the effectiveness of the intervention and to ascertain differences between initial and follow-up education.

The first step in the project design was determining whether an intervention needed to exist. Through a thorough literature review, the project team identified evidence-based interventions that had shown promising results in improving compliance rates and accelerating positive outcomes. Our literature synthesis supported the need for improvement in medication compliance for those suffering from mental illness. Based on the numerous studies reviewed, the

most logical implementation would be a standardized medication guide that could be given to patients during their appointments and reviewed with their providers. Providing standardized approved information assisted in educating the patient while decreasing the time needed to answer questions. The clinic we chose for this intervention allowed for allotted medication education time, making this a viable project to maximize teaching in the allotted encounter time.

The next step in our project was the design of the intervention. Through collaboration with clinic staff and the medical director, a feasible plan was created that focused on the use of visual aids that we could offer our clients. The proposed visual aid was a one to two-page informational guide that covered areas of medication compliance such as pictograms, medication dosages, frequency, side effects, and when to alert your treating provider.

Once the team decided on our intervention, we determined that the most appropriate model for improvement was the Plan-Do-Study-Act (PDSA) model. The PDSA model involved implementing interventions on a small scale, studying the results, and acting on the findings to refine processes before broader implementation.

To ensure the purpose of this QI project was met, the following four outcomes were measured:

1. Patient Understanding of Medication: Understanding their medication regimen was crucial to their compliance. Measuring patients' knowledge of their medication after the intervention provided insight into the effectiveness of the proposed education intervention.
2. Confidence in Medication Management: Patients' confidence in their ability to manage their medication regimen was relative to compliance rates. Measuring patients' trust in

medication management after our proposed intervention could explain how the patient received our intervention.

3. Satisfaction with Education Intervention: Patients' satisfaction with the medication education program was vital as it predicted future compliance. Using a survey, we could identify areas for improvement.
4. Perceived Benefits of Education Intervention: Patients' perceptions of the benefits of the medication intervention served as a marker towards the impact on their medication compliance. Measuring patients' perceived benefits using surveys informed us of areas that were particularly effective or could be improved.
5. Differences in Appointment Types: Understanding the benefit of continued education in differing appointment types and its effects on patient medication compliance and confidence.

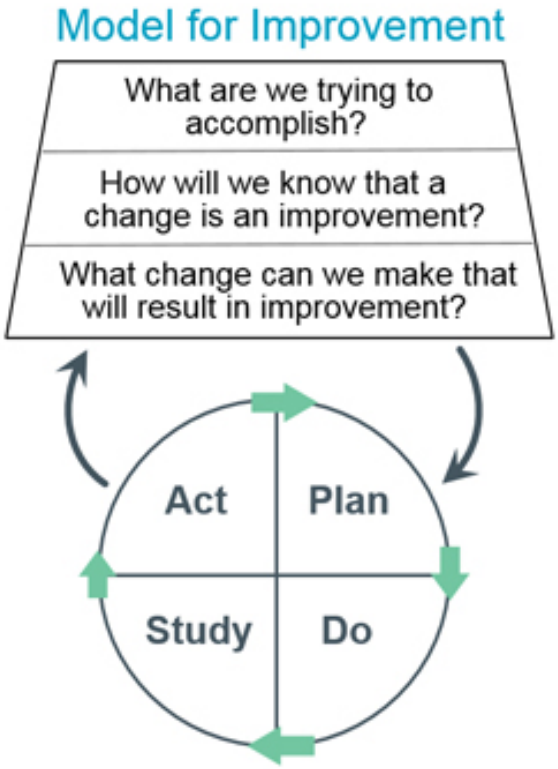
Model for Improvement

A model for improvement (MFI) is a structured approach to identifying quality improvement (QI) measures that can be applied to various healthcare settings and contexts (Institute for Healthcare Improvement [IHI], 2016). An MFI provides organizations with a framework for testing changes on a small scale before a broader implementation (IHI, 2016). The MFI method allows for ongoing learning and improvement while conserving resources, making it a preferred method for many organizations (IHI, 2016). Quality improvement (QI) programs are a model for improvement designed to identify areas of improvement, allow for testing and development of interventions, and evaluate the effectiveness of the change within the organization (IHI, 2016). Through a cyclical process of planning, implementing, studying, and

acting on findings, QI programs allow for refining proposed interventions (IHI, 2016). When designing QI projects, the Plan-Do-Study-Act (PDSA) model is a widely used method with a simple, structured approach that enables healthcare organizations to create and evaluate interventions that may be adapted to various contexts (IHI, 2016). For this project initiative, we used the PDSA model.

Figure 2

The Model for Improvement



(Adapted from *Model for Improvement*, by the Institute for Healthcare Improvement, retrieved from https://www.ihi.org/resources/Pages/HowtoImprove/default.aspx, Copyright 2023).

Plan-Do-Study-Act (PDSA) Cycle

Plan

The first phase of the PDSA model is planning. For this intervention, our first step included gathering buy-in from our clinic owner and medical director. Through an interview via Zoom, the project was discussed in detail, explaining that no standardized teaching or information was available for patients at the outpatient clinic. Elaborating on comparing a discharge packet from a hospital to our outpatient populace, we discussed the possibility of implementing a one to two-page guide about the prescribed medications that could be reviewed with the patient during their appointment. The ability to standardize areas of teaching while providing an approved reference that aids patients in compliance was the focus of our intervention.

Once authorized by the medical director and clinic owner, we began research synthesis looking for areas in which patients often stated they did not feel supported. Our review found many areas of concern regarding compliance with medication in patients with mental illness, with many cases being multifactorial. A common theme discovered included unknown side effects and how to mitigate them, why they are taking medicine, and how they are supposed to take it. Once we narrowed our scope, we determined that implementation of this plan was feasible and decided to evaluate results post-surveys. Using post-surveys allows us to capture information regarding the primary education they have received as patients, their perception of their education and how it impacts their compliance, and the differences after receiving our intervention. We sent a link for a follow-up survey immediately after the appointment had finished with targeted questions focusing on medication perception and understanding.

Do

In this stage, the medication education intervention was implemented on a small scale. We offered our intervention to all patients assigned to the medical director's schedule over five days. If the patients were interested in participating, we then provided appropriate consent via a JotForm link as well as verbal consent. During the appointment, after the interview, diagnosis, and plan were conducted, the additional medication education and visual aid were delivered by the principal investigator (PI). The amount of time allotted for this instruction was no more than five minutes. Once the education was provided, the patients received a follow-up link through their email to complete a post-survey on JotForm. During this phase, our team collected data.

Study

During the study phase of the PDSA model for this QI project, the project team analyzed data collected through our post-surveys that were administered in the "Do" phase to determine if our intervention was effective in improving patients' understanding and compliance with medications. In this phase, the disclosure statement, appointment, and post-survey were accessed via a JotForm link to capture data. Using JotForm, we successfully implemented our surveys with a single access link to help our team analyze the data.

Analyzing our data proved helpful in determining what group of patients may not have responded as desired to our intervention and gave us insights into how we can reach this group of non-responders. Our team identified areas of improvement through data analysis to identify gaps or changes needed to our educational material. By determining these areas, we can further refine our intervention into a more practical version while improving our patient's perceptions of their

treatment. Continued monitoring is necessary to ensure providers continue our intervention and that it is still helpful.

Act

Our final measure included a thorough data review obtained throughout the last three steps of this process, and a critical evaluation was completed. We determined how our intervention was deployed and received and investigated the shortfalls and recommendations from our "study" phase. Using careful data analysis, we decided that our intervention was worthy of implementation and a final recommendation with progressive changes made as necessary was presented to the organization. The goal was to create a "living" program that is constantly evaluated and changed as providers become attuned to our new process of medication education. While the intervention may seem simple, ensuring the appropriate documents are shared and reviewed will be challenging due to possible appointment constraints and provider resistance.

Setting and Stakeholders

This study occurred in a newly established outpatient psychiatry clinic in Long Beach, California. The clinic provided mental health services to diverse patients of varying ethnic backgrounds and health literacy. The clinic was staffed by doctors, nurse practitioners, physician associates, and office administrative staff. Patients accessed their providers at scheduled appointment times using a HIPAA-secure telehealth platform, with in-person visits as needed. Patients could access a patient portal and register their email addresses with the clinic before their first appointment. Utilizing this existing platform, we communicated with our patients securely, ensuring privacy was maintained while assisting us in our evaluation of our intervention.

The stakeholders involved in this project included our patients, healthcare providers, and clinic staff. Patients were recruited through our psychiatry clinic with appointment reminder emails sent out 72 hours before their appointment. Our healthcare team and PI were responsible for implementing our program, ensuring that patients received the appropriate medication guide, and discussing education with them during their appointments. Office staff assisted in gathering the necessary data. The project team ensured that close communication was maintained with leadership to identify any areas of concern or actions that might have impeded our clinic's operations or required changes due to non-feasibility.

Planning the Intervention

To evaluate our medication education initiative effectively, our project aimed to assess patients' perceptions of our program and its impact on their compliance and health outcomes. The intervention was given to all patients scheduled on the medical director’s schedule for the proposed time of the QI project. The medication education program was delivered during the appointment, either via telehealth or in-person visits, based on the patient’s preference. The QI project included verbal teaching based on the digital media selected and approved to give to patients during this treatment time. Patients were encouraged to ask questions and participate in discussions.

After their appointment, patients could verbally elect to enroll in a post-intervention survey. They then had the option to go to JotForm to complete the survey. Their survey submission was consent since it incorporated a disclaimer to gather data for this QI project.

Overall, our intervention was implemented through patient engagement before the appointment, delivery of our intervention during the appointment, and a follow-up with patients

to determine their willingness to complete our post-intervention survey. The design of this program was made flexible and responsive to patient needs and preferences to improve medication compliance and outcomes.

Participants and Recruitment

The study conducted at the Bon Mente Clinic was designed to evaluate the influence of the medication education program on patient knowledge, perception, and confidence regarding their treatments. We established strict inclusion and exclusion criteria for participant selection to ensure the most relevant results.

Inclusion criteria consisted of participants being 18 or older, ensuring that proper informed consent could be obtained. Recognizing the importance of diversity, the study was open to all genders and ethnicities. All participants had been diagnosed with a mental health condition and had scheduled appointments at the Bon Mente Clinic with our specialized medication education team consisting of the Preceptor and the PI/DNP Student, during the designated five-day implementation period. Voluntary participation was a cornerstone of our approach. Additionally, proficiency in reading and understanding English was essential for participation.

However, several criteria led to the exclusion of potential participants from the study. These included being under 18 years of age, not being on any prescribed medications, and having cognitive impairments or severe mental illnesses that might deter active engagement in the program. Furthermore, those who had their appointments scheduled outside the stipulated five-day implementation window with our medication education team were not considered for the study. We also had to exclude those who declined participation, especially in the post-

education survey, and those who faced technological barriers preventing them from accessing or completing the digital document and survey. It's worth noting that all processes aligned with the IRB Protocol for Determination of Human Research

Consent and Ethical Considerations

All data collected during this initiative was stored following applicable laws and regulations, most notably the Health Insurance Portability and Accountability Act (HIPAA). Patient privacy and confidentiality were paramount during this initiative and were strictly maintained. Our intervention was delivered in a culturally sensitive and responsive manner that met the needs of the clinic's diverse patient population. The University of Arizona Institutional Review Board (IRB) was responsible for approval before initiating our project. The IRB ensured that our initiative was conducted within federal, state, and institutional requirements guidelines. Any changes to this project required additional review and approval by the IRB.

Data Collection

Data for this project was collected using a post-intervention survey that was electronically accessible to patients via JotForm. The survey was made available after the appointment had concluded (post-intervention). Responses were collected and stored anonymously using the JotForm platform to protect patient privacy and intervention integrity. The survey data was held in a secure, password-protected database with full access given to our team.

Data Analysis

The data analysis phase of our quality improvement (QI) project was paramount in deciphering the outcomes and drawing meaningful insights. We meticulously processed the

collected data during this phase, looking for patterns, trends, and significant findings. By employing Fisher's exact test, we could ascertain the validity of our results and ensure the observations drawn were not mere coincidences. The processed data offered a comprehensive view of the descriptive analytics of patient responses, highlighting areas of success and potential improvement for our educational intervention. The analysis illuminated the depth of patients' understanding and satisfaction levels post-intervention. Such insights were valuable for the immediate improvement of our practices and for framing future interventions in this domain. This phase was essential in bridging the gap between raw data collection and actionable insights, allowing us to move from mere observations to informed decision-making.

RESULTS

The study involved 13 participants to assess the effectiveness of the educational intervention on patient understanding of their medication regimens. Data was collected from both initial and follow-up assessments.

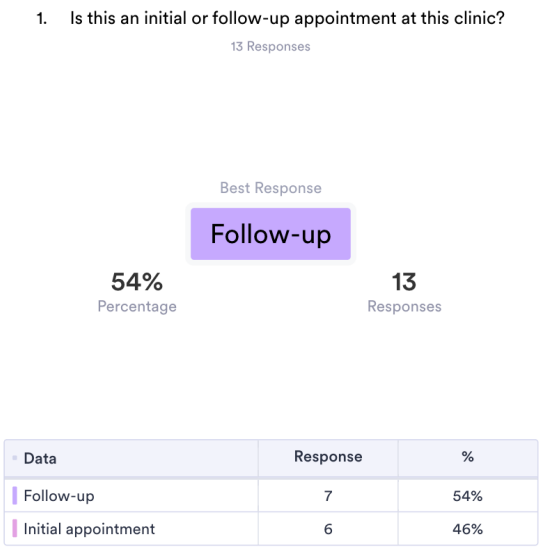
The Fisher exact test was employed to determine if there was a statistically significant difference between the initial and follow-up appointments when assessing knowledge and satisfaction. The test yielded a statistic value of 0.5594. This result was not significant at $p < .05$. This indicates no significant difference in patient understanding between the initial and follow-up assessments post-intervention highlighting the applicability of our intervention in improving patient understanding, confidence, and satisfaction regardless of appointment type or prior knowledge of medications.

Outcomes

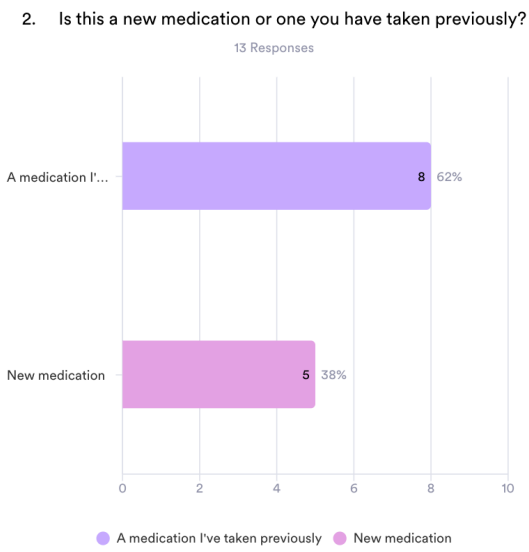
The outcomes from the quality improvement project were systematically captured and categorized based on two primary segments: the nature of the patient's appointment and their familiarity with the prescribed medication. Detailed tables incorporating percentage breakdowns offer a robust view of the project's impact. Further, inferential statistics using Fisher's exact test have been incorporated to ascertain the significance of observed differences in appointment types.

Table 1

Responses Based on Appointment Type and Familiarity of Medication



Data	Response	%
Follow-up	7	54%
Initial appointment	6	46%

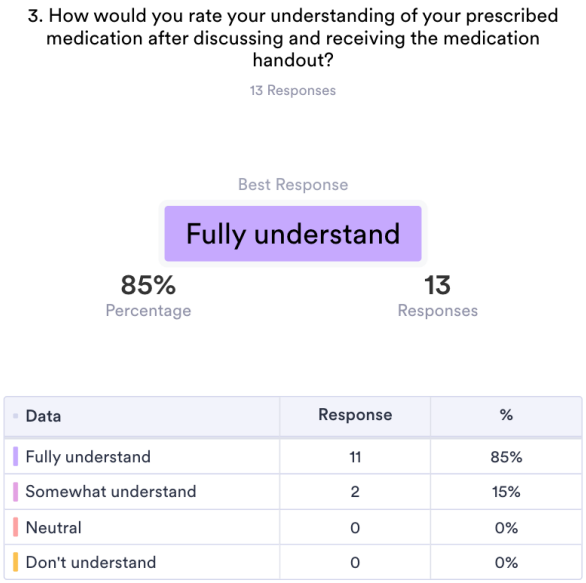


This table classifies responses from both initial and follow-up appointments:

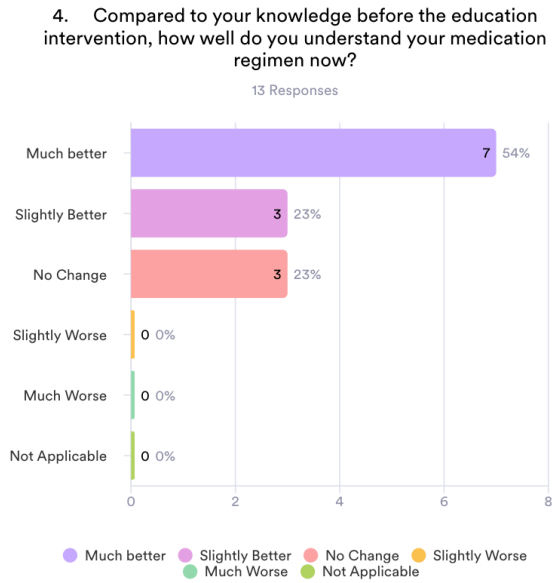
- Of the six respondents from initial appointments, four were introduced to a new medication, while two had been prescribed a medication they had taken previously.

Table 2

Responses Based on Understanding and Perceived Knowledge



Data	Response	%
Fully understand	11	85%
Somewhat understand	2	15%
Neutral	0	0%
Don't understand	0	0%

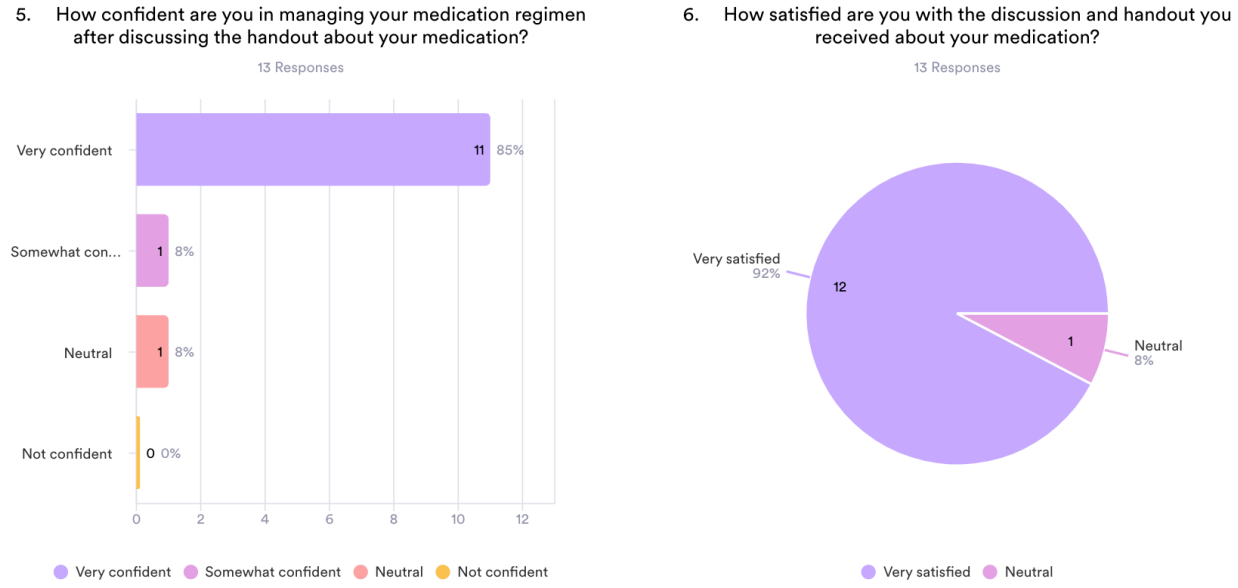


- A commendable 85% (11 out of 13) claimed to fully understand their prescribed medication post-discussion.
- Notably, 54% (7 out of 13) felt their knowledge post-intervention was “much better.”

Drawing from these statistics, there is a clear indication that educational intervention significantly enhanced the understanding of medication amongst patients regardless of appointment type illustrating our objectives of demonstrating improved confidence, and knowledge of prescribed medications.

Table 3

Responses Based on Confidence and Understanding



This table captures responses concerning participants' familiarity with their medication:

- Eleven out of 13 participants rated their confidence level as very confident while one respondent selected somewhat confident and one respondent selected neutral.
- All four participants introduced to a new medication reported full comprehension post-discussion.
- Participant satisfaction after our intervention resulted in twelve members stating they were very satisfied and one respondent stating they were neutral.

The point from this table is that the educational intervention ensured that even those introduced to new medication felt fully equipped with the needed knowledge.

However, when evaluating the relationship between the type of appointment and understanding of medication using the Fisher's Exact Test, we received a test statistic value of

0.5594. This p-value is more significant than the traditional significance threshold of 0.05. This indicates that statistically speaking, there is not a significant difference in the understanding levels of participants from initial appointments compared to those from follow-up appointments when using our proposed intervention. In simpler terms, the appointment type (initial or follow-up) did not play a statistically significant role in influencing the participant's understanding of their medication after our educational intervention.

Table 4

Fisher's Exact Test Analyzing Differences in Learning According to Appointment Type

Results			
	Initial	Follow up	***Marginal Row Totals***
Fully Understand	4	6	10
Somewhat Understand	2	1	3
Marginal Column Totals	6	7	13 (Grand Total)

In summary, combining the raw figures with the statistical data reinforces the efficacy of our educational initiative. Most respondents, irrespective of the nature of their appointment or their familiarity with the medication, reported an enhanced understanding post-intervention. This suggests the potential benefits of similar interventions across diverse patient groups and clinical settings, thereby justifying its broader adoption in healthcare practices.

DISCUSSION

The findings from this quality improvement (QI) project bring forward several crucial insights regarding patient comprehension and the efficacy of educational interventions. One of the main takeaways is the apparent effectiveness of the educational materials in enhancing patient understanding. Most participants, irrespective of whether in the initial or follow-up

group, reported a complete understanding of their medications post-intervention. These observations lead to the assumption that our materials were important in filling knowledge gaps, promoting better adherence, and possibly improving health outcomes in the long run. The lack of significant differences between the initial and follow-up groups, as indicated by the Fisher exact test statistic, implies that the timing of patient engagement (initial vs. follow-up) may not be as critical. This is a particularly noteworthy point as it suggests that timely education can be effective during the first appointment or a subsequent one. It offers flexibility in when and how educational interventions are delivered.

On the flip side, it is essential to consider that the lack of significant difference might be attributed to the sample size. A more significant, more diverse sample could have provided more nuanced insights into the varying effects of educational interventions based on the timing of the engagement.

Furthermore, the overwhelmingly positive feedback on understanding might hint at a potential response bias. Patients, especially in a clinical setting, may be inclined to provide favorable feedback after an intervention. In future studies, objective measures and self-reports might help obtain a more balanced perspective.

A well-informed patient is better positioned to make informed decisions about their health and is more likely to experience positive outcomes. This project indicates a pressing need for more comprehensive studies. Diving deeper into the factors influencing patient comprehension may enhance our understanding of optimizing medication adherence as clinicians serving the mental health populace.

Summary

The QI project aimed to evaluate the effectiveness of an educational intervention designed to bolster patients' understanding of their prescribed medication. By categorizing responses based on the type of appointment – initial or follow-up – we sought to ascertain if the intervention's impact varied depending on when the patient was engaged.

The collected data suggested a positive trend: most participants reported a comprehensive understanding of their medication post-intervention, irrespective of their appointment type. Specifically, 85% of participants felt they fully grasped their medication's purpose and usage. It is essential to note that the Fisher's Exact Test indicated no statistically significant difference in understanding levels between the initial and follow-up groups.

In conclusion, the initiative, while not without its limitations, provides a solid foundation upon which further interventions can be built. It highlights the importance of continuous evaluation and iteration in pursuing patient-centric healthcare improvements.

Interpretation

Interpretation of the data is vital in deriving actionable insights from raw results. Within the context of our quality improvement project involving 13 participants, a detailed understanding of these responses is essential for evaluating the project's effectiveness.

Of the 13 participants, a significant 85% from the initial appointment segment affirmed that they fully grasped their prescribed medication after the discussion. This contrasts with the 15% who expressed only a somewhat understanding. When these numbers are contextualized with our project's objectives, it underscores the positive impact of our educational initiative, particularly for those unfamiliar with a medication.

Furthermore, for those who had been on their medication before, 92% expressed that they were very satisfied with our educational intervention. This solidified the notion that our educational methods were effective irrespective of a patient's prior experience with the medication. For instance, all participants introduced to a new medication—four individuals—reported a "much better" understanding post-educational outreach. On the other hand, 23% of the nine participants who had previously taken their medication echoed this sentiment. This differentiation provides insights into how previous experiences with medication can influence perceptions of educational efficacy.

Regarding confidence in medication management post-intervention, 85% of the participants felt "very confident." This statistic indicates the project's success and hints at the likelihood of improved patient adherence to medication regimens due to this increased confidence.

In sum, these statistics, especially when viewed through the lens of the total number of participants, highlight the project's success. They affirm the potential of educational interventions to fill knowledge gaps, bolster patient confidence, and enhance overall patient outcomes.

Implications (Practice, Education, Research and Policy)

The outcomes of our quality improvement project have significant implications across various healthcare domains. In terms of practice, the enhanced understanding and satisfaction noted among patients post-intervention suggest a direct pathway to improving medication adherence. With better adherence, we can anticipate improved patient outcomes overall. Given

these results, medical facilities and practitioners might consider making educational interventions a staple in their interactions, especially when prescribing medications.

The educational realm can also draw lessons from this project. The overwhelmingly positive patient feedback stresses the need for clear communication and highlights the crucial role of educational tools in a clinical setting. Integrating training on effective patient education strategies becomes essential as we prepare future medical and nursing professionals. Such preparedness ensures better patient understanding and compliance and strengthens the patient-provider relationship.

From a research perspective, this project acts as a stepping stone. While we have identified the benefits of our educational interventions, there is ample room for more in-depth studies. For instance, examining the long-term effects of such interventions, understanding their impact on medication adherence, and exploring different patient demographic responses are all potential areas for exploration. Additionally, comparing various educational methods or tools can help streamline best practices in patient education.

Lastly, the project's success signals an opportunity at the policy level. If we witness such positive outcomes from a single project, healthcare policymakers and administrators should consider advocating for standardized patient education. This might involve allocating resources for training or developing educational materials. Such measures could pave the way for a more informed patient community, fostering better health outcomes and stronger patient-provider relationships. In essence, the effects of this quality improvement project have the potential to reshape various facets of healthcare, emphasizing the importance of patient education in the broader healthcare landscape.

Limitations

While instrumental in gauging the immediate response to the educational intervention, the project had certain constraints that need to be considered when interpreting the results. Our first areas of potential weakness were the sample size and duration of the study. The project's timeframe was concise, spanning just five days, and this brief window might only partially represent the broader, dynamic context of patient interactions in the clinic. The limited number of respondents also poses a potential bias. With only 13 out of 36 patients participating, there is an underlying question: Do these results truly represent the entirety of the patient population's sentiments, or are they primarily the views of a more engaged, responsive group?

The conscious choice to omit demographic data was rooted in the aim of preserving patient anonymity but created our second area of weakness. Demographic variables, such as age, gender, educational background, or cultural nuances, can substantially influence a patient's reception and interpretation of educational material. By not capturing this information, we inadvertently shield ourselves from potential insights into how different population groups interact with and benefit from the intervention.

Our third concerning area is the use of a single platform for data collection, in this case, JotForm. While digital platforms offer convenience, they might inadvertently exclude specific patient demographics, particularly those who are technologically averse or unfamiliar with this specific platform.

Lastly, the nature of self-reported data always brings with it the possibility of subjectivity. Patients' self-assessments, while genuine, can be colored by a multitude of external factors, from their mood on the day of the survey to the influence of recent interactions. Without

the balance of objective measures, this form of data leans heavily on personal perceptions, which can sometimes drift from factual accuracy.

However, even with these limitations in perspective, the project's insights are undeniably valuable. It underscores the profound potential of dedicated educational interventions in bridging the gap between medical prescriptions and patient understanding. While the study points out areas for improvement and further inquiry, it also highlights the path forward: a future where patients are empowered, informed, and confident about their healthcare journey.

DNP Essentials Addressed

The Doctor of Nursing Practice (DNP) Essentials, defined by the American Association of Colleges of Nursing (AACN), sets the standard for all DNP graduates. These guidelines emphasize the highest caliber of training for nurses (AACN, 2006).

Beginning with our project's foundation, we anchored it in evidence. By delving into and incorporating the most recent research, we aligned our efforts with the "Scientific Underpinnings for Practice" essential. This evidence-based approach seamlessly transitioned into our emphasis on elevating care quality, capturing the essence of the "Organizational and Systems Leadership for Quality Improvement and Systems Thinking" guideline (AACN, 2006).

Our methodical approach ensured precision and clarity as we ventured into data collection. Utilizing Fisher's exact test, we ensured our results' accuracy and mirrored the principles of "Clinical Scholarship and Analytical Methods for Evidence-Based Practice" (AACN, 2006). This process enriched our understanding of the positive impact education has on patients.

In our data collection phase, our choice of JotForm as the survey tool signaled our commitment to incorporating advanced technology. This decision resonates with the "Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Health Care" essential (AACN, 2006).

Furthermore, our project thrived on collective expertise. Engaging with a diverse group, from medical directors to patients, we fostered a collaborative spirit, reflecting the "Interprofessional Collaboration for Improving Patient and Population Health Outcomes" essential (AACN, 2006). This multi-faceted input enriched our insights, offering a comprehensive perspective. A cornerstone of our project was patient education. Empowering patients with knowledge equips them to make informed health decisions, fostering a healthier community.

In summation, our project not only upheld the DNP Essentials but also showcased the pivotal role of a DNP-prepared nurse. Through strategic planning, execution, and evaluation, we illustrated the tangible impact advanced nursing practices can have on healthcare.

Conclusions

Several conclusions can be drawn in assessing the scope and impact of the quality improvement project focused on medication education. The initiative aimed to gauge the effectiveness of educational interventions on patients' understanding of their medication regimens.

Educational outreach plays a pivotal role in enhancing patient comprehension, especially for those unfamiliar with a prescribed medication. This signifies the importance of providing targeted educational resources, especially during initial appointments.

Additionally, the overwhelming confidence and satisfaction levels reported post-intervention showcase that the educational materials and discussions not only conveyed the necessary information but did so in a manner that resonated with the participants. This further emphasizes the importance of the delivery method in such initiatives.

However, while the results are promising, it is essential to recognize the project's scale. Though outcomes are positive, broader implementation and subsequent evaluations would provide a more comprehensive picture of the intervention's effectiveness across varied demographics.

This project underscores the value of structured educational interventions in healthcare settings. When patients are well-informed about their treatments, they are likely to be more adherent and engaged, leading to better overall health outcomes. This study, albeit on a smaller scale, sets the groundwork for more extensive research and the potential widespread adoption of similar educational strategies.

Plan for Sustainability

The longevity and continuing success of our QI project, which focuses on patient education, is contingent upon a strategic and well-structured plan for sustainability. This plan encompasses the foundational elements that were pivotal to the project's success and anticipatory strategies that will address future challenges and modifications.

An essential resource in our educational approach is the specialized medical education pamphlets provided by the Neuroscience Education Institute (NEI). Maintaining an active membership with NEI is, therefore, of utmost importance. This membership guarantees access to these top-tier, continuously updated educational materials, and connects the clinic with the latest

developments and best practices in medical education. Ensuring the budget prioritizes the NEI membership is critical to avoid disruptions in accessing these essential resources.

Continuous training for the clinic staff is another crucial element. As the clinic evolves and staff dynamics change, all team members must be aligned with the project's methodologies and objectives, whether they have been with us from the start or are newly onboarded. Regular training sessions or workshops can foster a consistent delivery of quality patient education, irrespective of staff changes.

Feedback has been instrumental in our project's success, and its role in future iterations cannot be diminished. While JotForm served as an efficient feedback tool, broadening the feedback collection methods will ensure we tap into a broader patient demographic. Instituting regular assessments, perhaps quarterly, will be instrumental in gauging the project's ongoing impact and determining areas of enhancement.

Ongoing engagement with all stakeholders from clinic management and care providers to patients will help cultivate a sense of collective ownership and commitment to the project. Their insights and feedback can provide fresh perspectives and innovative solutions.

Finally, with the medical domain being in constant flux, evolving guidelines, new medication protocols, and emerging educational technologies, periodic reviews and updates to our content and methodologies are non-negotiable.

In conclusion, sustainability hinges on a multi-pronged approach. This quality improvement project can have an enduring and transformative impact on the clinic and its patient community through dedicated resources, consistent stakeholder engagement, a firm commitment to our NEI membership, and staying updated on medical education trends.

Plan for Dissemination

A strategic dissemination plan is vital for the success and continuity of our QI project. We are committed to ensuring that the insights and results from the project are shared widely and effectively within our clinic's professional community. As an initial step, we conducted a comprehensive debriefing session with the clinic staff and providers. This session served as an avenue to discuss the project's goals, processes, findings, and potential future directions.

Every team member received a detailed copy of the project to facilitate a deeper understanding. This document will serve as a reference point, enabling members to contemplate further and potentially integrate the project's recommendations into their daily tasks. An executive summary was provided, offering a concise overview of the project making it accessible for those desiring a quick yet thorough grasp of our findings and methodologies.

Our dissemination strategy fosters a shared understanding and collective vision within our clinic. Through structured discussions and accessible resources, we aim to provide our team with the insights from the project, ultimately benefiting patient care.

APPENDIX A

SITE APPROVAL/THE UNIVERSITY OF ARIZONA INSTITUTIONAL REVIEW BOARD AUTHORIZATION LETTER

bonmente
MENTAL HEALTH FOR MODERN LIFE

1590 Rosecrans Ave Suite D 617
Manhattan Beach, CA 90266
www.bonmente.com
(310) 360-7200 Phone
(424) 237-3204 Fax

August 17, 2023

Human Subjects Protection Program
The University of Arizona
845 N Park Ave., Suite 537A
Tucson, AZ 85719

Please note that Mr. Mehdi Thomas, a Doctor of Nursing Practice student from the University of Arizona, has permission from Bonmente Clinic in Long Beach, California, to conduct a quality improvement project at our facility titled "AN INTERVENTION TO INCREASE MEDICATION ADHERENCE IN PATIENTS WITH MENTAL ILLNESS."

Mr. Thomas will conduct a post-intervention survey with clients of Bonmente Clinic receiving mental health services. The survey will be distributed via an electronic link. During the appointment, patients will receive a verbal explanation of the project's purpose and the survey process. Additionally, a secondary explanation in the form of a disclaimer will be provided before starting the survey on JotForms, ensuring a clear understanding of the project. Participation in the survey is entirely voluntary, and individuals can decline without impacting their care.

The projected completion date for this project will be no later than October 13th, 2023, and may start at any date prior once approved by the University of Arizona. Mr. Thomas has agreed to provide my office with a copy of the University of Arizona Determination before he recruits participants. During their monthly staff meeting, he will also present aggregate results to the Bon Mente Clinic operations team.

If you have any questions or concerns about this project, please do not hesitate to contact our office at (310) 360-7200.

Signed,

Laura Murdock, MBA, CPCO, CPPM, CMPE, SHRM-SCP, CPC
Laura.murdock@bonmente.com
(310) 360-7200 ext. 101
Practice Manager

THE UNIVERSITY OF ARIZONA
Research
Innovation & Impact

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Tucson, AZ 85719
Fax: 520-621-9810
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NOT HUMAN RESEARCH

September 6, 2023

Mehdi Thomas

Dear Mehdi Thomas:

On 9/6/2023, the IRB reviewed the following submission:

Type of Review:	Initial Study
Title:	AN INTERVENTION TO INCREASE MEDICATION ADHERENCE IN PATIENTS WITH MENTAL ILLNESS
Investigator:	Mehdi Thomas
IRB Submission ID:	STUDY00003513
Sponsor:	None
Prime Sponsor:	None
IND, IDE, or HDE:	None
Documents Reviewed:	• Advisor Attestation, Category: Institutional Approval; • Approved Site Letter, Category: External Site Authorization; • Disclosure Statement, Category: Consent Form; • IRB Protocol for Determination of Human Research form, Category: IRB Protocol; • Post Intervention Survey, Category: Data Collection Tool; • Sample of Educational Material, Category: Participant Material; • Verbal Consent Script, Category: Recruitment Materials;

The IRB determined that the proposed activity is not research involving human subjects as defined by DHHS and FDA regulations.

APPENDIX B

CONSENT DOCUMENT (DISCLOSURE AND CONSENT FORM)

Project Title: Enhancing Medication Education at Bon Mente Clinic

Principal Investigator: Mehdi Thomas

This project aims to improve medication education at Bon Mente Clinic through an educational intervention designed to enhance patients' understanding of their prescribed medications and potential side effects.

You are invited to participate in a short survey as part of this project. The survey consists of 6 questions that ask for no personal or identifiable information. Your participation in this survey is entirely anonymous, and your name will not be collected or linked to your answers.

There are no foreseeable risks associated with participating in this project. While you will receive no immediate benefit from participating, your valuable feedback will improve the medication education experience for others at Bon Mente Clinic.

Participation in this survey is voluntary, and your decision will involve no penalty or loss of benefits to which you are otherwise entitled. You may withdraw from the survey at any time, and you can skip any question you choose not to answer. By participating, you do not give up any personal legal rights you may have as a participant in this project.

By completing the survey, you are providing your consent for us to record your answers and use them for educational purposes within the Bon Mente Clinic and the University of Arizona. Your responses are crucial to enhancing our medication education program, and your feedback is greatly appreciated. Your responses will remain completely anonymous and confidential. Your name will not be collected or linked to your answers.

For any questions, concerns, or inquiries about this survey or the project, please contact Mehdi Thomas, BSN, DNP Student, at (424) 634-8920 or via email at mehdithomas@arizona.edu

Thank you for participating and contributing to improving Bon Mente Clinic's medication education. Your feedback is of great value, and your participation is highly appreciated.

APPENDIX C

RECRUITMENT MATERIAL (RECRUITMENT SCRIPT)

Script for Consent Regarding Our Medication Education Program

DNP Student (Mehdi Thomas): "Before we go over your medications today, I'd like to share some information about a new initiative we're launching here at Bon Mente Clinic in Long Beach, California. Our goal is to provide you with even better medication education to help you feel more confident and informed about your treatment.

We're introducing a program that offers easily understandable information and visual aids to help you better grasp your prescribed medications. This initiative is part of our commitment to improving your experience with us. I want to emphasize that this is not a research study; it's a quality improvement project designed to enhance your understanding of your medications.

I also want to assure you that your privacy is of utmost importance to us. The survey we're introducing is completely anonymous and will not ask you for any information that could identify you or your medical conditions. It will only be used for the purpose of this quality improvement project.

If you decide to participate, you will receive the survey. All appointments with your provider are given this additional education. The total education will take approximately 5 minutes. After our appointment, you'll have the chance to complete a short survey of 6 questions. This survey can be completed in 10 minutes or less and will help us understand how helpful you found the program.

Your privacy and confidentiality are our top priorities, and your participation won't affect your ongoing care with us. If you have any questions or concerns, please don't hesitate to ask. We value your input and want to ensure that your experience with medication education is the best it can be.

Do you have any questions about this project?

APPENDIX D

EVALUATION INSTRUMENTS (POST-INTERVENTION SURVEY)

Post-Intervention Survey Questions

1. **Is this an initial or follow-up appointment at this clinic?**
    - Initial appointment
    - Follow-up
2. **Is this a new medication or one you have taken previously?**
    - New medication
    - A medication I've taken previously
3. **How would you rate your understanding of your prescribed medication after discussing and receiving the medication handout?**
    - Fully understand
    - Somewhat understand
    - Neutral
    - Don't understand
4. **Compared to your knowledge before the education intervention, how well do you understand your medication regimen now?**
    - Much better
    - Slightly better
    - No change
    - Slightly worse
    - Much worse
    - Not Applicable
5. **How confident are you in managing your medication regimen after discussing the handout about your medication?**
    - Very confident
    - Somewhat confident
    - Neutral
    - Not confident
6. **How satisfied are you with the discussion and handout you received about your medication?**
    - Very satisfied
    - Somewhat satisfied
    - Neutral
    - Not satisfied

APPENDIX E

PARTICIPANT MATERIAL (INSTRUCTIONAL HANDOUT)

Prozac (fluoxetine)

What is it usually prescribed for?

Major depressive disorder, obsessive-compulsive disorder, premenstrual dysphoric disorder, bulimia nervosa, and other conditions.

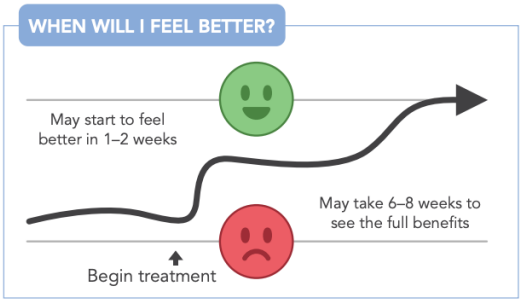
How does it work?

Prozac helps control feelings of sadness and fear or worry. Prozac is thought to boost the brain chemical serotonin and balance the serotonin brain system.

What should I expect?

It may take a few weeks for you to feel the full benefits of taking this medicine. Sleep, energy, or hunger may improve within the first 1–2 weeks. Sadness and lack of interest in activities may need up to 6–8 weeks to improve fully.

Your healthcare professional will start with a low dose that is slowly increased to find the best dose that works for you. Tell your healthcare professional how it's working for you and if you have any side effects so the dose can be changed if needed.



Take Prozac exactly as prescribed to get the full benefit of this medicine.

Will I have side effects?

You may or may not have side effects when taking Prozac. Most side effects improve over the first week or two of treatment. Sexual side effects of Prozac may last for a long time. Talk to your healthcare professional about making a change if this side effect bothers you.

What are common side effects and what can I do to feel better?

If your side effects are mild, talk to your healthcare professional about them at your next appointment.

	Drink plenty of water	Drink less caffeine and alcohol	Do more exercise	Healthcare professional suggestion
Upset stomach or diarrhea	X	X		
Feeling very tired	X	X	X	
Dry mouth	X	X		
Feeling nervous or excitable		X	X	
Trouble sleeping		X	X	
Headache	X	X	X	

Note: This is not a complete list of side effects; other side effects are possible. Before starting Prozac, tell your healthcare professional about all the medicines you are taking to avoid unexpected side effects.

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Prozac (fluoxetine)

YOU'RE NOT ALONE!

In 2018, Prozac was prescribed over 25.6 million times in the United States.

What should I avoid?

Don't start any new medicines, over-the-counter drugs, or herbal remedies without talking to your healthcare professional first. There are many interactions with medicines that may increase your chance of side effects.

Do not suddenly stop taking Prozac unless your healthcare professional has told you to, because it can cause nausea, headache, irritability, and other negative feelings.

Use less alcohol and recreational drugs. They may decrease the benefits of Prozac and increase the chance of side effects.

WHAT IS MOST IMPORTANT TO REMEMBER

- It may take up to a few weeks for you to feel the full benefits of taking this medicine
- Tell your healthcare professional about any troubling side effects so that you can work together to address them
- Do not suddenly stop taking this medicine unless told to do so by your healthcare professional
- Don't start any new medicines, over-the-counter drugs, or herbal remedies without talking to your healthcare professional
- Get medical care right away if you have serious side effects

When should I call a healthcare professional right away or visit the emergency room?

If you have any **serious** side effects. Here are some examples of serious side effects:

- Thoughts of suicide or are planning to hurt yourself
- Very stiff muscles, high fever, sweating, confusion, fast or uneven heartbeats, feeling like you might pass out
- Very upset stomach or throwing up, big change in balance
- Blurred vision, tunnel vision, eye pain or swelling, or seeing halos around lights
- Very excitable and nervous

If you think there has been an overdose, call your poison control center (800-222-1222) or get medical care right away.

Where can I get more help?

National Alliance on Mental Illness (NAMI) – nami.org

National Suicide Prevention Lifeline – Call 1-800-273-TALK (8255)

Crisis Text Line – Text "HELLO" to 741741

Notes and questions for my next appointment

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APPENDIX F

PROJECT TIMELINE

Completion Date	Planning	Pre-implementation	Implementation	Evaluation
January 2023	Meet with the medical director to determine the feasibility of the QI project.			
February 2023	Submit a proposal to the project chair			
February 2023	Identify committee members			
February – August 2023	Send rough drafts for review			
August 2023		Obtain authorization letter		
August 2023		Proposal Defense Presentation		
September 2023		Obtain IRB approval		
September 2023			Confirm staff for selected dates	
September 2023			Collect data	
November 8th, 2023				Final Defense / Executive Summary letter

APPENDIX G

LITERATURE REVIEW GRID

Project Question: At a local mental health clinic, does providing medication education in the form of a two-page informational packet with explanation at the end of appointments impact patient perception and adherence regarding treatment?

Pub. Year; Author's Last Name	Title of Publication	Type of Study	Main Outcomes of Findings	Support for and or Link to Project
Correll (2020)	Using Patient-Centered Assessment in Schizophrenia Care: Defining Recovery and Discussing Concerns and Preferences	Systematic Review	• Advocates for integrating pharmacologic interventions with evidence-based non-pharmacologic treatments and patient-reported outcomes supported by measurement-based care. • Encourages adoption of a combined shared decision-making and motivational interviewing approach for more effective treatment decisions.	• Discusses the significance of shared decision-making in serious mental illness treatment. • Illustrates the necessity of patient education on potential outcomes, adverse effects, and long-term health implications to improve compliance. • Information aligns with our project's objectives and underlines our commitment to providing educational pamphlets at patient meetings.
Foley et al. (2021	Prevalence and predictors of medication non-adherence among people living with multimorbidity: A systematic review and meta-analysis	Systematic review and meta-analysis	• Identified a high prevalence of non-adherence (42.6%). • The study unveiled an additional adherence barrier: multiple diseases. • Concluded that the presence of comorbidities escalates non-adherence in patients.	• Reinforces existing research identifying multiple barriers to patient medication adherence. • Highlights the critical role of comorbidities in patient medication adherence; increased comorbidities are linked with a higher risk of non-adherence. • Affirms the importance of medication education for long-term compliance. • Calls for heightened healthcare provider attention toward the effects of multimorbidity on chronic disease self-management due to variable levels of medication non-adherence.

Pub. Year; Author's Last Name	Title of Publication	Type of Study	Main Outcomes of Findings	Support for and or Link to Project
González de León et al., (2022)	Barriers and facilitating factors of adherence to antidepressant treatments: An exploratory qualitative study with patients and psychiatrists	Exploratory qualitative study	• Suggests the need to promote a good doctor–patient relationship and adequate patient information about depression and its treatment to increase their engagement in the recovery process. • Information about tools to help patients overcome adherence barriers.	• Examines the experiences and expectations of patients with depressive disorders regarding the disease and different antidepressants, as well as examining the barriers and facilitating factors that could affect their adherence to medications. • Highlights the need for shared decision-making to improve adherence. • Discusses side effects as one of the main causes of treatment discontinuation. • Recommends professionals consider that patients have erroneous and preconceived ideas about the side effects of antidepressant drugs. By contrast, patients recognize that they are concerned about these side effects, and these concerns affect their adherence. The use of our informational pamphlet may improve medication knowledge.
Ho et al. (2016)	Clinical and economic impact of non-adherence to antidepressants in major depressive disorder: A systematic review	Systematic review	• Non-adherence was associated with an increased risk of relapse and recurrence. • Rates of hospitalization and emergency department visits also increased. • There was also worsening of symptoms, and a	• Supports the need for increased education regarding medication side effects to improve adherence. • Discusses the societal downstream effects of non-adherence such as increased costs, delays in care, and overuse of services.

Pub. Year; Author's Last Name	Title of Publication	Type of Study	Main Outcomes of Findings	Support for and or Link to Project
			decrease in response and remission rates. • Worsening of clinical outcomes translated to increased healthcare utilization.	
Khalifeh & Hamdan-Mansour, (2021)	Prevalence, barriers, and interventions related to medication adherence among patients with major depressive disorder: A scoping review	Scoping review	• Approximately 67% of studies used self-report data collection. Illness-related factors (e.g., onset of illness, duration of illness, symptoms, illness severity), medication-related factors (e.g., adverse reactions, duration of treatment, cost of treatment), and patient-related factors (e.g., beliefs, attitudes, knowledge, self-stigma) were the most reported factors associated with medication adherence. • Multi-faceted interventions were recommended over single-element interventions to enhance medication adherence.	• Displays the need to integrate effective tools to educate patients about their medications and goals of treatment. • Demonstrates the relationship between patient knowledge and medication adherence.
Kirchner et al., (2022)	Medication adherence in a cross-diagnostic sample of patients from the affective-to-psychotic spectrum: Results from the PsyCourse study		• Approximately 50% of patients do not take their medication as prescribed, and non-adherence can contribute to the progress of a disease. For patients suffering from mental diseases, non-adherence plays an important role.	• Evaluate the association of sociodemographic, clinical, personality, and quality of life-related factors with medication adherence

Pub. Year; Author's Last Name	Title of Publication	Type of Study	Main Outcomes of Findings	Support for and or Link to Project
Schulze et al., 2019	Improving medication adherence with telemedicine for adults with severe mental illness	Randomized clinical trial	• Telemedicine via telephone can deliver low-threshold support to patients who are otherwise at high risk of progressive nonadherence to their psychotropic medication after 6 months.	• Demonstrates the ability to positively impact adherence through patient engagement.

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