



Using Motivational Interviewing for Medication Adherence in Patients with Schizophrenia Spectrum Disorders

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USING MOTIVATIONAL INTERVIEWING FOR MEDICATION ADHERENCE IN
PATIENTS WITH SCHIZOPHRENIA SPECTRUM DISORDERS

by

Ashlyn Tellers

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A DNP Project Submitted to the Faculty of the

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GRADUATE COLLEGE

As members of the DNP Project Committee, we certify that we have read the DNP project prepared by Ashlyn Tellers, titled *Using Motivational Interviewing for Medication Adherence in Patients with Schizophrenia Spectrum Disorders* and recommend that it be accepted as fulfilling the DNP project requirement for the Degree of Doctor of Nursing Practice.

Terry A. Badger Date: Jan 23, 2020
Terry A. Badger, PhD, RN, PMHCNS-BC, FAPOS, FAAN

Michelle Kahn-John Date: Jan 24, 2020
Michelle Kahn-John, PhD, RN, PMNHP-BC, GNP

Shawn Patrick Gallagher Date: Jan 24, 2020
Shawn P. Gallagher, PhD, PMHCNS-BC, APRN-BC, FNP-BC

Final approval and acceptance of this DNP project is contingent upon the candidate's submission of the final copies of the DNP project to the Graduate College.

I hereby certify that I have read this DNP project prepared under my direction and recommend that it be accepted as fulfilling the DNP project requirement.

Terry A. Badger Date: Jan 23, 2020
Terry A. Badger, PhD, RN, PMHCNS-BC, FAPOS, FAAN
DNP Project Committee Chair
College of Nursing

ARIZONA

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DEDICATION

I would like to first dedicate this project to God and my Lord and Savior, Jesus Christ. Their love and protection provided me strength throughout this educational journey and the life struggles I faced while pursuing my academic and professional career goals. I would like to thank all my friends and family that have loved and supported me throughout this program. Your words of praise and encouragement inspired me to keep going. I would like to specifically express my gratitude to Allyson Sambach, a dear friend that encouraged me to start this program with her, so I may expand my career. Thank you for your encouragement, love, and support since you came into my life and throughout this program.

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ABSTRACT

Schizophrenia spectrum disorders are psychiatric illnesses that have a high incidence of patients not adhering to their antipsychotic medications. There are multiple factors that contribute to medication nonadherence in patients with a schizophrenia spectrum disorders. Nonadherence with antipsychotic medications can cause poor patient outcomes for patients with these psychiatric illnesses. There is evidence to support that the therapeutic communication intervention, motivational interviewing, can improve medication adherence in patients with schizophrenia spectrum disorders. This quality improvement project used a pre- and post-test design to assess medication adherence pre- and post-intervention. The main outcome of this project was to improve the patient outcome, medication adherence. This project included a study sample of two participants that met inclusion criteria. Patient A's pre-intervention medication adherence rating scale (MARS) score was 7 out of 10 and Patient B's score was 4 out of 10. The higher the score on the MARS, the more favorable medication adherence. Patient A was unable to receive a therapeutic session of motivational interviewing because he was acutely psychotic and paranoid. Patient B received one face-to-face motivational interview session and behavioral changes were discussed on how to maintain medication adherence. The one-month follow up post- intervention could not be completed due to appointments being rescheduled by the patients and provider. The post-intervention MARS were not completed and motivational interviewing was unable to be evaluated for effectiveness. Despite the lack of result findings on medication adherence, administering the MARS and utilizing motivational interviewing offered insight about the patient's beliefs and feelings about their antipsychotic medication. It is recommended

for future projects to expand the PDSA cycle to recruit more participants and fully implement the study protocol.

Keywords: motivational interviewing, medication adherence, schizophrenia spectrum disorders, and therapeutic communication.

INTRODUCTION

Schizophrenia affects 1.1% of Americans or about 2.6 million adults, with 40% of these individuals being untreated (Treatment Advocacy Center, 2018c). Schizophrenia spectrum disorders includes schizophrenia, psychosis, schizoaffective, schizophreniform, delusional, and schizotypal (personality) disorder (American Psychiatric Association [APA], 2013). This Doctor of Nursing Practice (DNP) project will address schizophrenia spectrum disorders, specifically schizophrenia and schizoaffective disorder.

The diagnostic criteria for schizophrenia is having two or more of the following symptoms present for a majority of a one-month period: delusions, hallucinations, disorganized speech, disorganized or catatonic behavior (APA, 2013). These symptoms must also be causing a decline in functioning in one or more including work, school, relationships, or self-care (APA, 2013). Symptoms must also persist for six months, other disorders have been ruled out, and the symptoms are not attributed to the effects of a medical condition or substance use (APA, 2013).

To meet diagnostic criteria for schizoaffective disorder, the person must present with two or more symptoms of schizophrenia for an uninterrupted period of one month (APA, 2013). In addition to having delusions or hallucinations for two or more weeks without a major mood episode of either depression or mania (APA, 2013). Symptoms of depression or mania must be present for the entire duration of the psychotic disorder and symptoms cannot be attributed to a substance (APA, 2013). Schizoaffective disorder can be either bipolar or depressive type (APA, 2013).

There are multiple factors that enhance the quality of care of patients who experience psychotic symptoms. One significant care enhancing technique is therapeutic communication, a

technique that builds a professional and trusting relationship between patients and their healthcare provider. Effective and therapeutic communication are critical skills for healthcare providers when working with patients and is even more significant for patients with schizophrenia spectrum disorders. The healthcare provider uses therapeutic communication to influence or help the patient come to a better understanding of their illness and treatment options contribute to the therapeutic relationship (Mosby, 2017). Specific strategies may be used to urge the patient to convey feelings or ideas of acceptance (Mosby, 2017), such as with their diagnosis and treatment plan, as good therapeutic communication leads to a better therapeutic relationship and improved medication adherence in patients with schizophrenia spectrum disorders (Jaeger, Weißhaupt, Flammer, & Steinert, 2014; McCabe et al., 2012).

A poor therapeutic relationship between the prescriber, poor insight and lack of knowledge, and coercion to take medication have an undesirable effect on treatment outcomes for schizophrenia spectrum disorders (Lincoln et al., 2016). Another contributing factor to nonadherence of medications in patients with schizophrenia spectrum disorders is poor communication (Misdrahi, Petit, Blanc, Bayle, & Llorcas, 2012; Wade, Tai, Awenat, & Haddock, 2016; Velligan, Sajatovic, Hatch, Kramata, & Docherty, 2017). Whereas a positive therapeutic relationship between healthcare providers and patients with schizophrenia spectrum disorders is associated with better antipsychotic medication adherence (McCabe et al., 2012).

The primary medications for treating schizophrenia and psychosis of schizoaffective disorder are first generation ‘typical’ antipsychotics and second-generation ‘atypical’ antipsychotics and typically, when a patient starts on antipsychotic therapy for psychotic symptoms, this becomes a life-long treatment (Lally & MacCabe, 2015; Zhang, 2016). The

benefits of antipsychotics are symptom management and improved quality of life (Zhang, 2016). Antipsychotic medications reduce the symptoms of schizophrenia and psychosis, such as auditory and visual hallucinations, paranoia, delusions, and disorganized behavior and thinking (Zhang, 2016). Symptoms of schizophrenia affect the patient's functioning, productivity, may cause aggression, agitation, and may lead to self-harming and institutionalization (Zhang, 2016). Antipsychotic medications help manage the illness, and allow patients to integrate within the community (Zhang, 2016).

Medication *adherence*, also interchangeably used with the term medication *compliance*, is defined as taking medication as prescribed (Haddad et al., 2014). Medication adherence is important for the treatment and mental well-being of people with schizophrenia spectrum disorders. In contrast, *nonadherence* refers to times when patients are not adhering to the prescribed recommendations. Nonadherence may also be used interchangeably with *noncompliance*. Nonadherence can occur when people completely stop taking their medications as prescribed, or the patient only occasionally takes the medication, or has missing doses (Haddad et al., 2014). Many issues can arise for people with psychosis not adhering to their medication regimens. Medication nonadherence in people with schizophrenia can lead to an increase risk of relapse, readmission into hospitals, and even death (Higashi et al., 2013). Other consequences of nonadherence for people with schizophrenia disorders are homelessness, incarceration, suicide attempts, suicide deaths, and homicide involving a person with serious mental illness (Treatment Advocacy Center, 2018b).

One method that has been shown to increase adherence or compliance with medications is motivational interviewing, a therapeutic communication intervention. Motivational

interviewing utilizes three communication styles in healthcare, which are *directing*, *guiding*, and *following* (Rollnick, Miller, & Butler, 2007). *Directing* is an approach for the provider to take charge in the session by communicating and offering knowledge and expertise to the situation (Rollnick et al., 2007). *Guiding* involves the healthcare provider assisting the patient and making alternative suggestions to behavioral change by asking the patient how the healthcare provider can assist the patient (Rollnick et al., 2007). *Following* involves the healthcare provider listening to the patient and following along with what they say by communicating support and trust in the patient's decisions to make a change (Rollnick et al., 2007). These three communication styles may also be used interchangeably with one another and adapted to the individual patient needs (Rollnick et al., 2007).

Three communication skills that can make these communication styles more effective are *asking*, *listening*, and *informing* (Rollnick et al., 2007). The provider must ask the patient questions in order to better understand the problem and listen attentively (Rollnick et al., 2007). Healthcare providers can show that they are actively listening to their patients by paraphrasing, using verbal affirmations, seeking clarifications, and nonverbal language. Patients must also be informed of their illness and the importance of appropriate treatment for their health and well-being (Rollnick et al., 2007). If informing does not take place, this can result in poor adherence to treatment (Rollnick et al., 2007).

Healthcare providers who use these motivational interviewing communication styles and skills, can collaborate with the patients with schizophrenia spectrum disorders and make shared decisions on treatment. Engaging the patient in this therapeutic manner gives patients a sense of empowerment in their care and skills to develop their own motivation to make necessary changes

to improve antipsychotic medication adherence. Thus, this project utilized these communication styles and skills of motivational interviewing to emphasize to the patients with schizophrenia spectrum disorders, the importance of antipsychotic medication adherence

Significance

Using motivational interviewing as a form of therapeutic communication in the mental healthcare setting, advanced practice nurses can help improve patient outcomes and associated healthcare costs resulting from readmissions to hospitals. Some 80% of people with schizophrenia who stop taking their medications compared to 30% of those who are compliant with their medications will experience a relapse of psychotic symptoms within a year (Treatment Advocacy Center, 2018c). The economic burden of schizophrenia on the U.S. was \$155.7 billion with \$37.7 billion in healthcare costs in 2013 (Cloutier et al., 2016). This amounts to a cost of \$44,773 per individual with schizophrenia (Fuller, 2016). The cost of schizophrenia on the U. S. economy was last reported in 2002 and was estimated at \$62.7 billion (Fuller, 2016). These costs could be reduced if more patients with schizophrenia spectrum disorders took their antipsychotic medications in congruence with the definition of medication adherence. The significance for patients with schizophrenia spectrum disorders to adhere to their antipsychotic medications is so they may have an improved quality of life (Zhang, 2016).

Local Problem

In Arizona, the estimated number of people with schizophrenia in 2017 was 59,000 (Treatment Advocacy Center, 2018a). There is little research, within Arizona or at this clinic, on the use of motivational interviewing with patients with schizophrenia spectrum disorders who are nonadherent to their medications. As a registered nurse in an inpatient clinical setting and as an

advanced practice nurse student, I am aware that many healthcare providers with patients with schizophrenia spectrum disorders to encourage medication adherence do not use motivational interviewing. The lack of use of motivational interviewing in the care and treatment of patients with schizophrenia spectrum disorder justifies the need for, as well as the significance of this DNP project as a mechanism to provide greater understanding and evidence on the use of motivational interviewing for this population.

The target population are the adult patients with schizophrenia spectrum disorders who are prescribed antipsychotic medications at a local outpatient clinic, Strategic Mental Health, in Phoenix, Arizona. There are currently 123 patients in an active status at the Strategic Mental Health clinic with a diagnosis of schizophrenia and 248 active patients with a diagnosis of schizoaffective disorder. Of the 123 patients with schizophrenia, 29 patients have continued to seek medication management at the clinic for their schizophrenia in the year 2019. Out of the 248 patients with schizoaffective disorder, 62 patients (in 2019) seek medication management for their mental illness.

Purpose, Aim and Objective

The purpose of this DNP project was to implement motivational interviewing with patients with schizophrenia spectrum disorders to improve medication adherence at the outpatient psychiatric clinic, Strategic Mental Health. The advanced practice nursing student used motivational interviewing to enhance therapeutic communication with patients with schizophrenia spectrum disorders and emphasized the importance of antipsychotic medication adherence. The objective was to evaluate if motivational interviewing was effective in improving

medication adherence in a subsample of persons diagnosed with schizophrenia and schizoaffective disorder.

Stakeholders are important to the development and implementation of the project. The stakeholders involved in this project included the participating patients, the chief psychiatric mental health nurse practitioner of the three locations of the clinic, the committee members of the project, and the author of the project. Each stakeholder brought a unique aspect to the quality improvement project. The intent of the patients participating in this project was to aid in quality improvement of this clinical problem and for future evidenced- based practice. The psychiatric provider and committee members of this project provided knowledge and resources for successful implementation of the intervention and working with the participating patients. The author of this project has analyzed evidence of the motivational interviewing intervention. This author then formulated and disseminated the implementation and evaluation of the project.

Study Question

Will using motivational interviewing, as a form of therapeutic communication, increase adult patients with schizophrenia spectrum disorders, adherence to their antipsychotic medications?

Conceptual and Theoretical Framework

Plan-Do-Study-Act Cycle

The framework that helped guide this DNP project was the Institute for Healthcare Improvement (IHI) model for improvement, plan-do-study-act (PDSA) cycle. This quality improvement framework is used to accelerate improvement of healthcare and outcomes by developing, testing, and implementing change (IHI, 2019). The model consists of two parts. Part

one address three questions: 1) “What are we trying to accomplish?” 2) “How will we know that a change is an improvement?” and 3) “what change can we make that will result in improvement?” (IHI, 2019). These three questions create a sequence that leads to testing change. To answer these questions, timely and measurable aims are set that address a specific patient population, measures are established to evaluate if a change has led to an improvement, and a proposed change to implement (IHI, 2019). Once this is established, the change may be tested using the PDSA cycle, which is the second part to the IHI model of improvement. The PDSA cycle consists of four phases: 1) plan the test and how data will be collected; 2) try out the change by performing a small test; 3) study and analyze the data collected; and, 4) act on the change based upon the results (Agency for Healthcare Research and Quality [AHRQ], 2013).

For this DNP project, the aim was to enhance medication adherence among adult patients with schizophrenia spectrum disorders at the end of a one-month post-intervention follow up. Medication adherence was the measurable outcome. The selected intervention for change was motivational interviewing. The “plan” phase for this project was planning the methodology and appraisal of evidence to support the intervention. The “do” phase was implementing motivational interviewing as a form of therapeutic communication between the healthcare provider and patients with schizophrenia spectrum disorders, on a small scale in the clinical setting chosen. The “study” phase of this project was performing a data analysis of the results after implementation of the intervention. Lastly, the “act” phase involved a discussion with stakeholders on the results of this DNP project and implications for future research and clinical practice.

Theory of Planned Behavior

The theory of planned behavior (TPB) was another framework that guided this project as it provides the theoretical background behind human behaviors, that humans consider the implications of their actions, and the person's intent to do or not to do a certain behavior will contribute to their actions (Ajzen, 2005). There are three types of beliefs that guide human behaviors: 1) A behavioral belief is the human's subjective expectation that a behavior will produce an outcome; 2) the outcome will then determine the person's attitude about the behavior (Ajzen, 2019); and, 3) The person will develop either a positive or negative attitude about the behavior depending on their belief of whether the outcome was good or bad (Health Communication Capacity Collaborative [HCCC], n.d).

Normative beliefs are the behavioral expectations of specific individuals that have an influence on the human's intent to engage or not engage in these behaviors due to social or peer pressure, as known as subjective norm (Ajzen, 2019). Lastly, control beliefs consider that there are certain powerful factors that may expedite or hinder the action of a behavior that leads to the human's perceived behavioral control of their ability to perform a behavior (Ajzen, 2019). The actual ability, skills, and resources to successfully perform a behavior is actual behavioral control (Ajzen, 2019). Overall, the personal attitude, social influence, and issue of control are the motivation of the person's intent to perform a behavior and they must find their own personal readiness to do so (Ajzen, 2005; 2019). Figure 1 displays the TPB diagram.

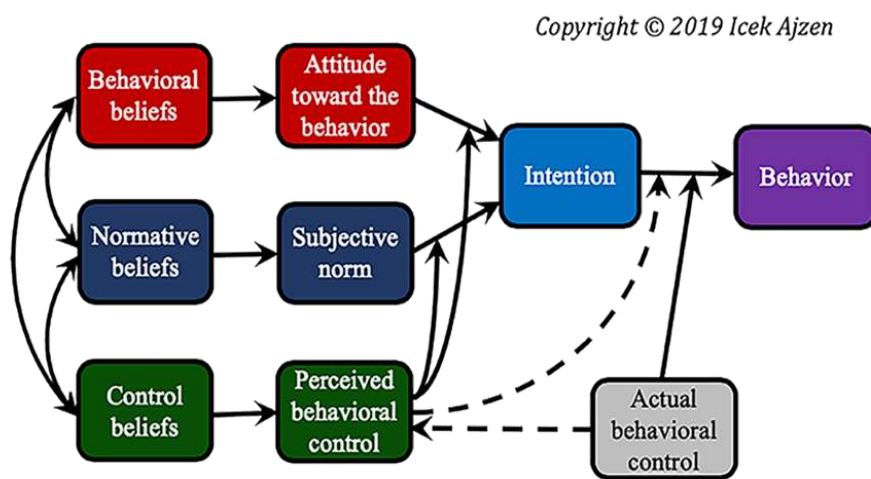


FIGURE 1. The theory of planned behavior diagram. (Derived from Ajzen, 2019).

The Health Communication Capacity Collaborative (HCCC) states that implementers of interventions can use this theory to address an individual's certain behavior (n.d.). In relation to this DNP project, this theory provided the underlying understanding of implementing motivational interviewing to address the behavior of medication nonadherence in patients with schizophrenia spectrum disorders. Through the understanding of the three beliefs of the theory and a person's motivational intentions to perform a behavior, it provides the knowledge of how to help someone make a behavioral change (HCCC, n.d.).

The purpose of motivational interviewing is to guide a patient in finding their own motivation to make a behavioral change (Rollnick et al., 2007). The healthcare provider can gain insight on their patients' values, beliefs, and concerns about their medication nonadherence behaviors and use motivational interviewing to elicit a conversation to collaborate good reasons and arguments for a behavioral change (Rollnick et al., 2007). People can be willing to change if they have a positive attitude about the behavior and it is important to remember that there are certain factors that may be hindering them from making the change. Barriers must be identified

such as; negative attitudes, subjective norms, and the individual's ability to perform a behavior for the change to take place (HCCC, n.d.). Discussing barriers and ambivalence about medication adherence is a part of the collaboration and therapeutic communication that motivational interviewing offers between healthcare providers and patients.

In using motivational interviewing, the healthcare provider must listen to the patient's perception on their reasoning for medication nonadherence and motivation for change by asking if they want to and how they would make a change rather than telling them how they should (Rollnick et al., 2007). This focuses on gaining the patient's attitude and intent to change. Ultimately, the therapeutic communication between the healthcare provider and the patient using motivational interviewing empowers the patient to develop their own ideas and resources to make the necessary behavioral changes with the healthcare provider's support (Rollnick et al., 2007).

Motivational Interviewing

The goal of motivational interviewing is for the healthcare provider to assist a patient to make behavioral changes to promote a better and healthier lifestyle, using their internal motivation. The patient must be "... willing, able and ready ..." to change (Barkhof et al., 2006). Motivational interviewing differs from provoking persuasion, arguments, and becoming confrontational with the patient, and instead the focus is on providing empathetic, respectful, non-judgmental, and reflective listening for the patients' perspective on changing behaviors (Barkhof et al., 2006). The healthcare provider utilizing motivational interviewing must present to the patient discrepancies in their current behaviors and encourage the patient to develop their own reasons for change (Barkhof et al., 2006). The healthcare provider is encouraged to roll with

resistance and change their approach in helping patients identify changing behaviors that they are not ambivalent about (Barkhof et al., 2006). The healthcare providers are urged to support the patients' self-efficacy to make the behavioral change (Barkhof et al., 2006).

This psychological intervention will provide therapeutic communication between the healthcare provider and patients with schizophrenia spectrum disorders. Motivational interviewing will allow the patients with schizophrenia spectrum disorders to better understand the need and importance of medication and formulate their own ideas on modifying their feelings and thoughts about antipsychotic medications, and make a change to their nonadherent behaviors.

This project director received continuing education and training on the foundation, evidence as well as the communication skills and processes of motivational interviewing. The education and training included two modules that introduced motivational interviewing and the coaching skills and process of this intervention. The University of Arizona offered the training as 12 continuing education credits (EC). Certificates were awarded for completion of the training (Appendices A & B).

With the completion of the motivational interviewing course, this author implemented the intervention during a medication management session with the patient. The technique of motivational interviewing during the session intended to encourage the patients to reevaluate their beliefs on the importance of their medications and make the necessary behavioral changes. Having an established relationship with the patient after becoming acquainted in the outpatient clinical setting, where the project will take place, will also be an advantage.

Literature Review

A comprehensive literature review was performed to synthesize the best evidence based research for application and implementation into clinical practice. Using systematic methods, scholarly articles were searched on PubMed, CINAHL, and PsychINFO. The following key search terms were used: “schizophrenia,” “medication nonadherence” or “adherence,” “medication noncompliance” or “compliance,” “therapeutic communication” or “relationship” or “alliance,” and “motivational interviewing.” Search criteria was limited to adult participants, ages 18 and older, the English language, articles from the publication dates 2010 to 2019, text availability was limited to full text, and search terms were filtered to the title and abstract. This yielded 10 articles to be considered for evidentiary support in this project. The study designs of these articles include, one randomized controlled trial (RCT), one quasi-experimental study with a pre- and post-test design, one case study, one cross sectional study, one observational study, one multi-centre study, one literature review, and three systematic reviews (Chien et al., 2015; Dikec & Kutlu, 2015; El-Mallakh & Findlay, 2015; Ertem & Duman, 2016; Higashi et al., 2013; Jaeger et al., 2014; Mallisham & Sherrod, 2017; McCabe et al., 2012; Velligan et al., 2017; Wade et al., 2017). Table 1 displays the appraisal of all articles reviewed.

TABLE 1. Evidence appraisal table.

Author / Article	Qualitative: Concepts or Phenomena Quantitative: Key Variables Hypothesis Research Question	Theoretical Framework	Design	Sample (N)	Data Collection (Instruments/Tools)	Findings
Chien, Mui, Cheung, & Gray (2015). Effects of motivational interviewing-based adherence therapy for schizophrenia spectrum disorders: A randomized controlled trial	<p>Hypothesis: To test and evaluate if adherence therapy (AT) using motivational interviewing (MI) is effective on outpatients with schizophrenia spectrum disorders over a six- month follow up</p> <p>Variables: Medication adherence Symptom Severity Insight into treatment Hospitalization rate Level of functioning</p>	None stated.	Single blind, Randomized controlled trials (RCT)	N=114 AT=57 Treatment as usual (TAU)=57	<p>Baseline and post 6 months; Positive and Negative Syndrome Scale (PANSS)</p> <p>Insight and Treatment Attitude Questionnaire (ITAQ)</p> <p>Adherence Rating Scale (ARS)</p> <p>Frequency and length (days) of psychiatric re-hospitalizations</p> <p>Specific Level of Functioning Scale (SLOF)</p>	Overall findings resulted in improvements of the five measurable outcomes when MI was used for a six-month period.
Dikec & Kutlu (2015). Effectiveness of adherence therapy for people with schizophrenia in turkey: A controlled	<p>Hypothesis: The patients with schizophrenia that receive adherence therapy will have high scores on treatment adherence,</p>	None stated.	Quasi-experimental design with a pretest–posttest	N=30 Experimental (n=15)-received 8 sessions of adherence therapy	<p>Questionnaire Form Medication</p> <p>Medication Adherence Rating Scale (MARS)</p>	Adherence therapy was effective at improving medication adherence, but only at the posttest scores of the MARS. Adherence therapy did not improve insight or

TABLE 1 – *Continued*

Author / Article	Qualitative: Concepts or Phenomena Quantitative: Key Variables Hypothesis Research Question	Theoretical Framework	Design	Sample (N)	Data Collection (Instruments/Tools)	Findings
study.	insight and internalized stigma than the controlled group of patients with schizophrenia that did not receive adherence therapy. Adherence therapy consisted of MI and cognitive- behavioral techniques.			Control (n=15)	Internalized Stigma of Mental Illness Scale (ISSMI) Beck Cognitive Insight Scale (BCIS)	internalized stigma.
El-Mallakh & Findlay (2015). Strategies to improve medication adherence in patients with schizophrenia: The role of support services	Support services that promote medication adherence in mental health patients diagnosed with schizophrenia	None stated.	Literature Review: 22 articles included	Not applicable.	Not applicable.	Many support service interventions were found to aid in medication adherence, one of them being MI. Three out of four articles reviewed on MI showed evidentiary support for medication adherence, symptom management, and patient's attitudes on medication.

TABLE 1 – *Continued*

Author / Article	Qualitative: Concepts or Phenomena Quantitative: Key Variables Hypothesis Research Question	Theoretical Framework	Design	Sample (N)	Data Collection (Instruments/Tools)	Findings
Ertem & Duman (2016). Motivational interviewing in a patient with schizophrenia to achieve treatment collaboration: A case study	Enhance treatment collaboration using MI for a patient with schizophrenia who is resistant to treatment	None stated.	Case study; 45 minutes of MI once a week for 6 weeks	N=1	Administered at baseline and at 6 week interview: Morisky Medication Adherence Scale (MMAS) Drug Attitude Inventory (DAI)	Patient was able to express his feelings of ambivalence towards his medication, benefited from MI in understanding the importance of medication adherence, and complied with treatment.
Higashi et al. (2013). Medication adherence in schizophrenia: factors influencing adherence and consequences of nonadherence, a systematic literature review	Determined factors that influence adherence of medications and what are the consequences of nonadherence on the schizophrenia spectrum disorder patient, healthcare system, and society	None stated.	Systematic Review: 37 articles included	Not applicable.	Not applicable.	Nonadherence of medications in the schizophrenic population can include the patient's lack of insight, their beliefs on medications, and substance abuse. Nonadherence can lead to relapse, hospitalization, and suicide. Positive factors that influence medication adherence are positive

TABLE 1 – *Continued*

Author / Article	Qualitative: Concepts or Phenomena Quantitative: Key Variables Hypothesis Research Question	Theoretical Framework	Design	Sample (N)	Data Collection (Instruments/Tools)	Findings
						therapeutic relationships with the provider and the perceived benefits the medication can offer.
Jaeger, Weißhaupt, Flammer, & Steinert (2014). Control beliefs, therapeutic relationship, and adherence in schizophrenia outpatients: A cross-sectional study	Hypotheses: Both powerful others and internal health locus of control (HLC) and the patient–doctor relationship are associated with medication adherence Powerful others HLC associates with a trusting therapeutic relationship, but is not associated between the therapeutic relationship and internal HLC	Theory of social learning	Cross-sectional study	N=69	Self-rating scales Medication Adherence Rating Scale (MARS) Fragebogen zur Erhebung von Kontrollüberzeugung genzu Krankheit und Gesundheit (KKG) a German questionnaire that is based on the Multidimensional Health Locus of Control (MHLC) scale Scale to Assess Therapeutic Relationships in Community Health Care, patient version (STAR-P)	The therapeutic relationship between the provider and patient and the patient’s attitudes and beliefs about their medications was highly correlated with medication adherence.

TABLE 1 – *Continued*

Author / Article	Qualitative: Concepts or Phenomena Quantitative: Key Variables Hypothesis Research Question	Theoretical Framework	Design	Sample (N)	Data Collection (Instruments/Tools)	Findings
	The therapeutic relationship facilitates the effect of the powerful others HLC preference for medication adherence					
Mallisham & Sherrod (2017). The spirit and intent of motivational interviewing	Educate HCPs on improving their communication skills with psychiatric patients using MI	None stated.	Observational study	N=61	MI training- Eight hour course, weekly, for six weeks on the MI course content; (comMI) to assess provider knowledge on MI and their communication skills, was given pre and posttest Motivational Interviewing Adherence and Competency Feedback (MIACF) form	After three weeks of implementing MI with the psychiatric patients, the HCPs enhanced their therapeutic relationships and behavioral changes with their patients.
McCabe et al. (2012). The therapeutic relationship and adherence to antipsychotic medication in schizophrenia	Study on whether the therapeutic relationship had an impact on medication adherence in patients with schizophrenia	None stated.	Multi- centre study	N= 134 clinicians and 507 patients	Data collected from December 2002 – May 2004 Therapeutic relationship assessed with the Helping Alliance Scale, patient version-(HAS-P) and clinician version- (HAS-C)	Patients and providers both linked a therapeutic relationship to medication adherence.

TABLE 1 – *Continued*

Author / Article	Qualitative: Concepts or Phenomena Quantitative: Key Variables Hypothesis Research Question	Theoretical Framework	Design	Sample (N)	Data Collection (Instruments/Tools)	Findings
					Medication Adherence- Buchanan criteria Symptoms assessed- PANSS	
Velligan, Sajatovic, Hatch, Kramata, & Docherty, (2017). Why do psychiatric patients stop antipsychotic medication? A systematic review of reasons for nonadherence to medication in patients with serious mental illness	Examined the different modifiable risk factors for nonadherence to antipsychotic medications in patients with Serious Mental Illness (SMI)	None stated.	Systematic Review: 36 articles included	Not applicable.	Not applicable.	In patients with schizophrenia, nonadherence was due to substance abuse and attitude about medication and adherence was linked to a better therapeutic relationship with the provider.
Wade, Tai, Awenat, & Haddock, (2017). A systematic review of service-user reasons for adherence and nonadherence to neuroleptic medication in psychosis	Reasons for neuroleptic medication nonadherence and adherence in patients with schizophrenia spectrum disorders	None stated.	Systematic Review: 21 articles included	Not applicable	Not applicable.	Factors that are influencing are the importance of relationships, outlook on illness, recovery, and treatment.

Synthesis of Evidence

Much of the evidence supports that improving therapeutic communication between the healthcare provider and patients with schizophrenia spectrum disorders can lead to a better therapeutic relationship and improve medication adherence (Higashi et al., 2013; Jaeger et al., 2014; McCabe et al., 2012). Factors influencing medication nonadherence are poor therapeutic communication and relationships between this patient population and their provider (Velligan et al., 2017; Wade et al., 2017). Motivational interviewing is an intervention described to enhance therapeutic communication (Mallisham & Sherrod, 2017). Healthcare providers educated on motivational interviewing who used this intervention with psychiatric patients, exhibited enhanced therapeutic communication skills, relationships, and behavioral changes with the patients (Mallisham & Sherrod, 2017).

Motivational interviewing increases medication adherence among patients with schizophrenia spectrum disorders (Chien et al., 2015; Dikec & Kutlu, 2015; Ertem & Duman, 2016). Motivational interviewing has been found to improve symptoms, increase insight into illness, reduce the number of re-hospitalizations, and enhance level of functioning (Chien et al., 2015). Improving symptom management, gaining insight into illness, and improving the level of functioning are very significant factors that enhance quality of life for these patients. In addition, medication adherence may improve, thereby reducing symptom relapse, re-hospitalizations, and fatalities (Higashi et al., 2013). Motivational interviewing has also shown evidentiary support towards medication adherence, symptom management, and changing the patient's attitude about their medications (El-Mallakh & Findlay, 2015).

Strengths, Limitations and Gaps

Chien et al. (2015) conducted a RCT using motivational interviewing. The study had many strengths due to the large sample size of 114 participants, study design, and positive results found for medication adherence and other outcomes following the implementation of motivational interviewing. However, a weakness was generalizability because the participants were only of Chinese culture and background.

A significant limitation to the research is small sample sizes. Although the case study included in the evidence appraisal table demonstrated medication improvement with motivational interviewing, it consists of only one patient (Ertem & Dumcan, 2016). The small sample size also limits generalizing the findings to a larger population (Ertem & Dumcan, 2016). Despite only one case, the study had intervention fidelity, which is a strength to support the evidence findings that motivational interviewing led to an effective communication process and should encourage healthcare providers to consider applying motivational interviewing in their practice for medication management and adherence (Ertem & Dumcan, 2016).

Biases can also be a limitation in research. The providers who participated in McCabe et al.'s (2012) study rated their patients' medication adherence and their relationships with those patients. The use of self-rated instrumental tools for assessing medication adherence may skew results, as patients can tend to overestimate their adherence (Jaeger et al., 2014). In addition, if there are other therapies used during the study other than just motivational interviewing this can also skew results (Dikec & Kutlu, 2015).

More extensive studies using a RCT design are needed in regards to this topic. RCTs are considered Level I of high quality evidence that provides consistent and generalizable results, a

sufficient sample size, adequate control, solid conclusion, and scientific evidence (Johns Hopkins Hospital, 2017). Future studies should also include the need to reduce biases by the use of more objective measures instead of the use of self-reported measures. Medication adherence can also be evaluated with the use of more objective measures such as blood tests, pill counts, and electronic monitoring (McCabe et al., 2012; Jaeger et al., 2014).

Overall, the literature supports using motivational interviewing to enhance therapeutic communication with patients with schizophrenia spectrum disorders and gain medication adherence. Although the evidence from the literature cannot be generalized to a large population, for the purpose of this DNP project, the use of motivational interviewing with a small sample size of patients with schizophrenia spectrum disorders may influence positive results in medication adherence.

METHODS

Design

The purpose of this DNP project was to implement motivational interviewing with patients with schizophrenia spectrum disorders, by therapeutically communicating the importance of their antipsychotic medications, to improve medication adherence. The design of this quality improvement project was a descriptive pre and post-test design. Participants were assessed before and after implementing motivational interviewing.

Participants

The participants were selected by performing a chart review of the electronic medical record. The inclusion criteria for this project were patients who were 18 and older who had a diagnosis in the schizophrenia spectrum that meets the DSM-V criteria, specifically

schizophrenia and schizoaffective disorder. The patients must have been receiving medication management at the local clinical setting from the nurse practitioner preceptor of this DNP student. In addition, each patient participant was English speaking, and currently prescribed antipsychotics to treat their type of schizophrenia. The exclusion criteria were pregnant patients, non-English speaking, patients with guardians and/or power of attorneys, and those that are actively suicidal, homicidal or experiencing an acute psychiatric emergency. The advanced practice student was treating seven potential participants that met these criteria.

Setting

The setting for this project took place among the three outpatient psychiatric clinics, named Strategic Mental Health, in the Phoenix area of Arizona. Strategic Mental Health offers psychiatric services for medication management and psychotherapy for many psychiatric, mental health, and addiction disorders. One psychiatrist, psychiatric mental health nurse practitioners (PMHNPs), licensed counselors and social workers, staffs the clinics. This setting is the clinical rotation site of the DNP student/project director.

Motivational Interviewing Intervention

Motivational interviewing is a patient-centered intervention that is utilized by healthcare providers in assisting patients to recognize problems in the self- management of their illness. Motivational interviewing also helps strategize ways in which patients can make behavioral changes and committing to changes for improving their own health and wellness (Barkhof et al., 2006). Motivational interviewing should be done in an empathetic and supportive manner that remains non-judgmental (Barkhof et al., 2006). The goal of motivational interviewing is for the patient to recognize a problem and build the internal motivation to make a change (Barkhof et

al., 2006). The patient must also be willing and ready to make the change (Barkhof et al., 2006). This form of therapeutic communication between the provider and patient can help strengthen the therapeutic relationship and potentially reduce or eliminate ambivalence.

The motivational interviewing session will consist of expressing empathy, develop discrepancy, roll with resistance, and support the patient's self-efficacy (Barkhof et al., 2006). This DNP project director used these principles by providing an empathetic and non-judgmental environment. The patient's perspective on any nonadherent behaviors concerning their antipsychotic medications was respected and heard (Barkhof et al., 2006). The patient was encouraged to share their ideas and beliefs on their antipsychotic medications and making behavioral changes. It was the responsibility of this DNP project director to recognize and express any discrepancies noted between the patient's current behaviors, thoughts, and beliefs (Barkhof et al., 2006). If the patient had any ambivalence or resistance to change these feelings will be acknowledged and the patient will be informed that these feelings are "natural and understandable" (Barkhof et al., 2006). After the patient had identified strategies for behavioral change to improve adherence to their antipsychotic medications, this DNP project director provided support and encouragement for the patient to make these changes (Barkhof et al., 2006).

Measure

Medication Adherence Rating Scale

The medication adherence rating scale, (MARS) (Appendix C), consists of 10 'yes' and 'no' questions that asks the patient to best describe their behavior and attitude towards their medication (Thompson, Kullkarni, & Sergejew, 2000). The questions are separated into three

dimensions: Questions 1 to 4 address the patient's medication adherence behavior, questions 5 to 8 address the patient's attitude toward taking medication, and questions 9 and 10 address negative side effects and the patient's attitude toward psychotropic medications (Owie, Olotu, & James, 2018). The MARS is scored by adding up each item of each dimension (Owie et al., 2018). Responses that indicate nonadherence are coded with a '0' and answers that are indicative with medication adherence are coded with a '1' (Owie et al., 2018). Specifically questions 1 to 6, 9 and 10 that are answered *no*, signifies adherence and is coded a '1' (Owie et al., 2018). Questions 7 and 8, a *yes* response signifies adherence and are coded a '1' (Owie et al., 2018). The MARS total scores ranges from 0-10, with higher scores indicating more favorable medication adherence (Owie et al., 2018).

The reliability and validity of this scale was confirmed through a study of 66 patients with schizophrenia spectrum disorders or psychosis (Thompson et al., 2000). Using Cronbach's alpha, the MARS had reliable internal consistency of 0.60 (Thompson et al., 2000). Concurrent validity was demonstrated in the MARS total scores with low but statistically significant correlations ($r = .18$, $p = .011$; Thompson et al., 2000). The researchers used the drug attitude inventory (DAI) and the medication adherence questionnaire (MAQ) and found several deficiencies, which led to the development and testing of the MARS questionnaire (Thompson et al., 2000). The MARS had greater validity measuring adherence to psychoactive medications in the clinical setting than the DAI and MAQ (Thompson et al., 2000). A study conducted in Nigeria concluded that the MARS had good reliability, with a Cronbach's alpha of 0.76, and is a useful tool for assessing medication adherence in patients with schizophrenia (Owie et al., 2018).

Owie et al. (2018) demonstrated that the MARS showed good significance despite a weak external validity psychopathology and insight ($p < 0.001$).

Self-reported methods for assessments are commonly used but can be one of the least reliable methods as patients may fabricate information (Lam & Fresco, 2015). However, they are easy to use, can be administered in many forms, low cost, and provide real time feedback (Lam & Fresco, 2015). It also provides insight to the healthcare provider on the patients' beliefs and concerns in regards to their medications (Lam & Fresco, 2015). This could allow for better communication on the importance of medication adherence and involving the patient in their treatment, which is the purpose of utilizing motivational interviewing in this project. The goal for this project was motivational interviewing would improve the scores of the MARS upon post-intervention, which will indicate improved medication adherence.

Data Collection Procedure

This DNP student performed a chart review with the nurse practitioner preceptor's assistance and access. Patients were approached during a one-month time frame for recruitment. Two patients approached during one of their follow up appointments were given a disclaimer that explained the purpose and aim of this project and the goal of motivational interviewing. The patients were made aware that they did not need to decide at that time their intent for participation. If patients were undecided, they were offered a one-week time frame to contact the clinic office to schedule an appointment to participate in a motivational interviewing session. The one-week time frame allowed potential participants to review the disclaimer, provide patients the opportunity to contact the DNP student with any questions, decide if they wanted to participate, and allowed a set timeframe for a decision and feedback. If the patients did not agree to a one-

month follow up or contact the clinic within a week, they were not included in the project. The two participants that were approached during recruitment agreed to a one month follow up post-intervention follow-up and each consented to participate.

Data on medication adherence was collected pre- intervention and was intended to upon the one-month post-intervention by using the MARS. Findings were based solely on what is found by using the MARS. The MARS was de-identified by labeling the assessment forms, “Patient A or B” going in alphabetical order. The purpose of this was to compare the pre and post intervention scores and ensure confidentiality of the responses. At the time of provided the disclaimer, two participants were provided with the MARS to complete. The patient’s answers to the MARS guided the therapeutic approach of motivational interviewing for the purpose of making behavioral changes and improving medication adherence. Patients only received one session of motivational interviewing, which began after the completion and scoring of the MARS. Motivational interviewing sessions are typically only one to two sessions (Hettema, Steele, & Miller, 2005). However, motivational interviewing is patient-centered and can be used with many healthcare illnesses (Rollnick et al., 2007). The literature on motivational interviewing indicates that the number of motivational interviewing sessions varies.

After the motivational interviewing session, the patients were scheduled a one-month follow-up appointment. At the one month follow up appointment, the intent was to have any returning participants complete the MARS again, it would have been scored in front of the patient, and the results were to be discussed comparing the pre- and post-intervention scores. Patients were not billed for this short follow-up, as permissible by the nurse practitioner. Success of the intervention on improving medication adherence was intended to be based upon the patient’s

self-report on the MARS. Any continued lack of medication adherence despite the intervention was to be further discussed with the PMHNP preceptor, who was managing the patients care and supervising this DNP student.

Data Analysis

The study variable of this project was medication adherence. The effects of the intervention, motivational interviewing, were analyzed and results provided from the findings of the data collected from the MARS on medication adherence. Data scores of the MARS from the pre-intervention were compared to the data scores of the MARS in the post-intervention and a descriptive analysis provided, that explains and compares the results. The plan for analysis was determined based upon the scoring guidelines of the MARS previously discussed.

The financial analysis for this project included printing the MARS on paper for the purpose of data collections and there was no cost to obtaining the MARS. The time to complete this project is considered donated, as it is required of the DNP student to receive the degree.

Ethical Considerations

Authorization from the chief psychiatric nurse practitioner of the clinic to access the patients' medical records and perform the project within the three clinic locations was obtained in writing before initiation of this DNP project (Appendix D). Patient privacy was protected through the Health Insurance Portability and Accountability Act (HIPAA) rules of the clinic. The patients' privacy was protected, as there were no patient identifiers on the assessment tool forms completed by the participants. The ethical principles of autonomy, beneficence, and justice were followed during the implementation of this project. This quality improvement project respected the individual autonomy of the patients participating, which was voluntary. The patients had the

right to incorporate the behavioral changes discussed in the motivational interviewing session or not.

The patients' safety was not jeopardized through the implementation of this evidence-based intervention technique to promote medication adherence. Patients included in this study, during their usual care, were assessed for medication adherence. There were minimal risks for harm. This project had the potential to benefit the participants and had potential for enhancing the quality of care delivered at this practice setting. All participants for this project were treated fairly and equally as it pertains to the inclusion criteria for the project. Each participant will have the right to withdraw from the project at any time without consequence. The University of Arizona obtained approval from the Institutional Review Board (IRB) for approval of the project (Appendix E).

RESULTS

Of the 91 patients diagnosed with a schizophrenia spectrum disorder at the clinical setting, there were only seven eligible participants, who were under the advanced nurse practitioner student provider's care, and met the inclusion criteria. In the one-month period of recruitment and implementation of this project, only two eligible patients were able to participate in this project. Four other potential participants were eligible for participation in this project during the time of recruitment. Unfortunately, due to appointment cancellations by the provider and/ or patients and rescheduling of appointments to later dates outside of the recruitment period, these patients were not able to participate in the project. One other eligible participant had not had an appointment for his medication management through the clinical setting since February 2019 and did not have a

future appointment set up. This limited the number of participants to 29% of those eligible; in other words, only two out of the seven patients were approached and agreed to participate.

Participants in this study were both males, with an age range of 20 to 47 years, and relationship status were single and married. The education status of the participants are some or completed college with one disabled and one employed participant. Diagnoses were both schizoaffective disorder, bipolar type and both prescribed antipsychotic medication.

According to medical records, both patients have been adhering to their antipsychotic medications for the past few months. The pre-intervention MARS completed by participants before implementing the motivational interviewing session indicated some level of nonadherence. Patient A scored 7 out of 10 on the MARS, indicating higher medication adherence, compared to Patient B who scored 4 out of 10, indicating lower medication adherence. According to their responses on the MARS, both patients believed that it is not natural for their minds or bodies be controlled by medication, the medication made them feel tired, and they did not think that their thoughts are any clearer being on medication. Patient B also responded that after taking the medication, when starting to feel better or feeling worse, Patient B would stop taking the antipsychotic medication. Patient B indicated on the MARS that the antipsychotic medication gave the feeling of acting like a 'zombie.'

Patient A's motivational interviewing session was not completed due to acutely present psychosis and paranoia. The patient was disorganized with his thoughts and speech, which did not provide an accurate or effective session for motivational interviewing. The patient admitted to adjusting his antipsychotic medication and not taking it at the prescribed time. This patient has a history of nonadherence with antipsychotic medication.

Patient A expressed ambivalence about taking the antipsychotic medication due to how it makes him feel, but agreed to continue taking the medication as prescribed. The patient's one-month follow up appointment was rescheduled so no follow up appointment was conducted to have a more thorough motivational interviewing session and post- intervention administration of the MARS.

Patient B received one face-to-face motivational interviewing session. During the session, the patient expressed his feelings about being on the medication, not liking having to take medications all the time, and that medication gives him the feeling of being tired. Patient did express that he feels less anxious, paranoid, and manic when taking the antipsychotic medication as prescribed. Patient B was asked what would changes his thoughts regarding his ambivalence towards his antipsychotic medications and what behavioral changes he could do to motivate himself to remain medication adherent. During the motivational interviewing session, the patient was encouraged to reduce any negative thoughts about the stigma of mental illness and having to take antipsychotic medications. The patient was encouraged to remind himself how the medication reduces his symptoms of his mental illness. Patient discussed ways he can modify his day when he is experiencing tiredness from the antipsychotic medication. The one-month follow up could not be completed for this patient due to scheduling issues with appointments.

The pre- intervention MARS scores could not be compared to a post-intervention MARS due to incomplete follow up appointments with both patients. Therefore, the motivational interviewing intervention could not be evaluated for improving medication adherence between these two patients with schizoaffective disorder.

DISCUSSION

This PDSA cycle recruited two participants from the Strategic Mental Health Clinic who were typical of the clinic's population. The PDSA cycle could not be completed because there were no results after implementation to evaluate the effectiveness of the motivational interviewing intervention on medication adherence with the participants. After reviewing the results with the provider, it was discussed with the provider that another PDSA cycle will need to be done with more patients and allowing more time to complete the post-intervention evaluation. Further necessary changes would be to follow up with the patients that have not rescheduled an appointment and who meet inclusion criteria for the project, over the phone, and get a follow up appointment scheduled.

The use of the MARS was a reliable and valid instrument for assessing medication adherence is a strength to this study. Despite the lack of results, the two participants had interest in some engagement and agreement to behavioral change related to medication adherence. The one session of motivational interviewing with these two participants indicated a positive response to the motivational interviewing intervention as evidenced by their engagement, verbal responses, and collaborative efforts. Patient A demonstrated this through verbal agreement to continue to take his antipsychotic as prescribed, despite ambivalence. Patient B agreed to collaborative efforts to making behavioral changes. It provided the provider insight into the patients' beliefs and feelings regarding their antipsychotic medications and improve therapeutic communication. Another strength to this study were the theoretical frameworks used to guide this project. The intervention, motivational interviewing, has been used in evidenced based research and has shown

some clinical significance in improving medication adherence, which is an additional strength to this study.

There are many limitations to this project as there can be no assessments made of any outcomes. The intervention cannot be evaluated to determine if medication adherence was improved post intervention. This limitation does not provide any results for if the participants' behaviors changed regarding medication adherence based upon the influence of the motivational interviewing intervention. A major limitation of this project was the discrepancy in the availability of the provider and the participating patients, as there was a reoccurring account of rescheduling and/ or cancelling the follow up appointments. High no-show rates are quite common in an outpatient behavioral health clinic. It occurs with the dynamics of patients with mental illness and psychiatric disorders. There were also difficulties recruiting a large number of patients. The limitations in this project contributes to a flawed project implementation and suggests implications, such as recruiting more patients and allowing for longer time with the project for future implementation.

DNP Essentials and Implications for Nursing Practice

The DNP Essential I: Scientific Underpinnings for Practice provides the scientific foundation of natural and social sciences that are applied to guide nursing practice (American Association of Colleges of Nursing [AACN], 2006). This DNP student evaluated the scientific underpinnings of evidence from literature to support the implementation of motivational interviewing for medication adherence. However, the implementation and results of the intervention did not support further evidence to support motivational interviewing for medication adherence, as the project could not be successfully completed.

This project demonstrated the competency in Essential II: Organizational and Systems Leadership for Quality Improvement and Systems Thinking. This essential addresses organizational and systems leadership to improve patient and healthcare outcomes with safe, effective, and efficient care (AACN, 2006). The outpatient clinical setting used in this project was an attempt to utilize organizational and systems leadership to improve patient outcomes, such as medication adherence to antipsychotics with the patients with a schizophrenia spectrum disorder. Due to the lack of outcomes from the implementation process, the future design for the project would be to allow for more time to recruit more patients and following up post-intervention to determine if patient outcomes improved.

Other DNP essentials that this project met are Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice and Essential VIII: Advanced Nursing Practice. A literature search using databases and a critical appraisal of evidence was performed to determine the support for implementation of motivational interviewing with patients with schizophrenia spectrum disorders. The MARS was intended to evaluate practice and patient outcomes. This project was designed to promote quality improvement for safe, effective, and patient-centered care (AACN, 2006). Gaps in the evidence were identified and discussed. Findings from this DNP project provide implications for future practice to expand the PDSA cycle to allow for more time and participants. The implementation process of this projects' study design informs this DNP student, future students, and researchers to extend time for implementation and evaluation of outcomes when implementing a project with the mental health population in an outpatient setting can present issues with scheduling appointments. This will

deliver a better study design that will perhaps provide quality improvement to the clinical setting based on results.

A comprehensive and systematic assessment of schizophrenia spectrum disorders was conducted in a complex situation, while remaining diverse and culturally sensitive (AACN, 2006). This DNP project student assessed for potential participants with a psychotic disorder, a vulnerable population, ensuing complex integration of care and this student was supervised during all clinical interventions by her clinical PMHNP preceptor. This DNP project intended to implement and evaluate the therapeutic intervention, motivational interviewing, to develop and sustain a therapeutic relationship with the patients and improve medication adherence (AACN, 2006). Clinical judgment was demonstrated using evidenced-based care of the motivational interviewing intervention and provide guidance and education to the patients to improve patient outcomes (AACN, 2006).

Conclusion

Due to the incomplete implementation of the intervention, there are no findings to report. However, multiple lessons were learned about how to implement a quality improvement project. In future practice, PDSA cycle length would be expanded to allow for more time for recruitment of participants and follow up appointments considering the inherent difficulties of patients not showing or rescheduling appointments.

The DNP project did provide insight into the participant's thoughts, feelings, and reasoning about their medication nonadherence. This allowed the DNP student to engage in a therapeutic conversation using motivational interviewing with the two participants. Major limitations was the inability to have a follow up appointment with the participants, attempt

motivational interviewing with Patient A again, and obtain a post- intervention MARS score to evaluate improvement in medication adherence. Future projects that use the PDSA cycle with increased patients will help to change future practice by integrating motivational interviewing in the outpatient clinical practice setting.

APPENDIX A:
MOTIVATIONAL INTERVIEWING CERTIFICATE



CONTINUING NURSING EDUCATION CERTIFICATE OF COMPLETION

Awarded to:

Ashlyn Tellers

For the successful completion of:

Introduction to Motivational Interviewing (v2)

8 Contact Hours

The University of Arizona Continuing Nursing Education is an approved provider of continuing nursing education by the Western Multi-State Division, an accredited approver by the American Nurses Credentialing Center's Commission on Accreditation.

cne.nursing.arizona.edu

Mary Koithan
PhD, RN, CNS-BC, FAAN, Primary Nurse Planner



31 Dec 2017
Date of Completion

APPENDIX B:
COACHING SKILLS AND PROCESS CERTIFICATE



**CONTINUING NURSING EDUCATION
CERTIFICATE OF COMPLETION**

Awarded to:

Ashlyn Tellers

For the successful completion of:

Coaching Skills and Process (course v2)

4 Contact Hours

The University of Arizona Continuing Nursing Education is an approved provider of continuing nursing education by the Western Multi-State Division, an accredited approver by the American Nurses Credentialing Center's Commission on Accreditation.

cne.nursing.arizona.edu

Mary Koithan
PhD, RN, CNS-BC, FAAN, Primary Nurse Planner



31 Dec 2017
Date of Completion

APPENDIX C:
MEDICATION ADHERENCE RATING SCALE (MARS)

Please respond to the following statements by circling the answer which best describes your behaviour or the attitude you have held toward your medication in the past week.

1. Do you ever forget to take your medication? Yes/No
2. Are you careless at times about taking your medicine? Yes/No
3. When you feel better, do you sometimes stop taking your medicine? Yes/No
4. Sometimes if you feel worse when you take the medicine, do you stop taking it? Yes/No
5. I take my medication only when I am sick. Yes/No
6. It is unnatural for my mind and body to be controlled by medication. Yes/No
7. My thoughts are clearer on medication. Yes/No
8. By staying on medication, I can prevent getting sick. Yes/No
9. I feel weird, like a 'zombie', on medication. Yes/No
10. Medication makes me feel tired and sluggish. Yes/No

(Thompson et al., 2000).

APPENDIX D:
SITE AUTHORIZATION APPROVAL LETTER

Strategic Mental Health
8160 E Butherus Dr. Suite 9
Scottsdale, AZ 85260

July 12, 2019

University of Arizona Institutional Review Board
c/o Office of Human Subjects
1618 E Helen St
Tucson, AZ 85721

Please note that Ms. Ashlyn Tellers, UA Doctor of Nursing Practice student, has permission of the Strategic Mental Health Clinic to conduct a quality improvement project at our facilities for her project, "USING MOTIVATIONAL INTERVIEWING FOR MEDICATION ADHERENCE IN PATIENTS WITH SCHIZOPHRENIA". The clinic address provided is the main office of the Strategic Mental Health Clinic and oversees all the clinic sites owned/ operated by this organization.

Ms. Tellers will conduct motivational interviewing with schizophrenic patients at Strategic Mental Health Clinic at a follow up appointment for their medication management. She will administer the Medication Adherence Rating Scale (MARS) to the patients before initiating motivational interviewing and again post intervention at a one month follow up appointment. She will recruit patients through chart reviews in the clinic's electronic medical record and at the patients' follow up appointment where they will receive a disclaimer that will explain the project, what they will be asked to do, the time involved, and agree to a one month follow up appointment. Ms. Tellers' activities will be completed by December 2019.

Ms. Tellers has agreed to provide to my office a copy of the University of Arizona Determination before she recruits participants.

If there are any questions, please contact my office.

Signed,



Diana Cox, MSN, RN, PMHNP-BC, MBA-HSM
Owner, CEO & Chief Nurse Practitioner

APPENDIX E:
THE UNIVERSITY OF ARIZONA INSTITUTIONAL REVIEW BOARD APPROVAL
LETTER


 Human Subjects
 Protection Program

 1618 E. Helen St.
 P.O. Box 245137
 Tucson, AZ 85724-5137
 Tel: (520) 626-6721
<http://rgw.arizona.edu/compliance/home>

Date: October 09, 2019

Principal Investigator: Ashlyn Tellers

Protocol Number: 1909009529

Protocol Title: USING MOTIVATIONAL INTERVIEWING FOR MEDICATION ADHERENCE IN PATIENTS WITH SCHIZOPHRENIA SPECTRUM DISORDERS

Determination: Human Subjects Review not Required

Documents Reviewed Concurrently:

HSPF Forms/Correspondence: *Determination of Human Subjects .pdf*

Regulatory Determinations/Comments:

- Not Research as defined by 45 CFR 46.102(l): As presented, the activities described above do not meet the definition of research cited in the regulations issued by U.S. Department of Health and Human Services which state that "Research means a systematic investigation, including research development, testing, and evaluation, designed to develop or contribute to generalizable knowledge. Activities that meet this definition constitute research for purposes of this policy, whether or not they are conducted or supported under a program that is considered research for other purposes. For example, some demonstration and service programs may include research activities. For purposes of this part, the following activities are deemed not to be research."

The project listed above does not require oversight by the University of Arizona.

If the nature of the project changes, submit a new determination form to the Human Subjects Protection Program (HSPP) for reassessment. Changes include addition of research with children, specimen collection, participant observation, prospective collection of data when the study was previously retrospective in nature, and broadening the scope or nature of the study activity. Please contact the HSPP to consult on whether the proposed changes need further review.

The University of Arizona maintains a Federalwide Assurance with the Office for Human Research Protections (FWA #00004218).

REFERENCES

- Agency for Healthcare Research and Quality. (2013). *Plan-do-study-act (PDSA) cycle*. Retrieved from <https://innovations.ahrq.gov/qualitytools/plan-do-study-act-pdsa-cycle>
- Ajzen, I. (2005). *Attitudes, personality and behavior* [E-book]. Retrieved from <https://ebookcentral.proquest.com>
- Ajzen, I. (2019). *Theory of planned behavior diagram*. Retrieved from <http://people.umass.edu/aizen/tpb.diag.html>
- American Association of Colleges of Nursing. (2006). *The essentials of doctoral education for advanced nursing practice*. Retrieved from <https://www.aacnnursing.org/Portals/42/Publications/DNPEssentials.pdf>
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th Ed.) [E-book]. Retrieved from <https://dsm-psychiatryonline-org.ezproxy3.library.arizona.edu/doi/full/10.1176/appi.books.9780890425596.dsm02>
- Barkhof, E., de Hann, L., Meijer, C. J., Fouwels, A. J., Keet, I. P. M., Hulstijn, K. P., ... & Linszen, D. H. (2006). Motivational interviewing in psychotic disorders. *Current Psychiatry Reviews*, 2(2), 207-213. doi:10.2174/157340006776875932
- Chien, W. T., Mui, J. H., Cheung, E. F., & Gray, R. (2015). Effects of motivational interviewing-based adherence therapy for schizophrenia spectrum disorders: A randomized controlled trial. *Trials*, 16, 1-14. doi:10.1186/s13063-015-0785-z
- Cloutier, M. Aigbogun, M. S., Guerin, A., Nitulescu, R., Ramanakumar, A. V., Kamat, S. A., ... & Wu, E. (2016). The economic burden of schizophrenia in the United States in 2013. *The Journal of Clinical Psychiatry*, 77(6), 764-771. doi:10.4088/JCP.15m10278
- Dikec, G. & Kutlu, Y. (2016). Effectiveness of adherence therapy for people with schizophrenia in Turkey: A controlled study. *Archives of Psychiatric Nursing*, 30(2), 249-356. Retrieved from <https://doi-org.ezproxy4.library.arizona.edu/10.1016/j.apnu.2015.11.009>
- El-Mallakh, P. & Findlay, J. (2015). Strategies to improve medication adherence in patients with schizophrenia: The role of support services. *Neuropsychiatric Disease and Treatment*, 11, 1077-1090. <http://dx.doi.org/10.2147/NDT.S56107>
- Ertem, M. & Duman, Z. C. (2016). Motivational interviewing in a patient with schizophrenia to achieve treatment collaboration: A case study. *Archives of Psychiatric Nursing*, 30(2), 150-154. doi:10.1016/j.apnu.2015.08.003

- Fuller, D. A. (2016). *Research weekly: The high cost of schizophrenia*. Retrieved from <https://www.treatmentadvocacycenter.org/key-issues/public-service-costs/3599-research-weekly-the-high-cost-of-schizophrenia>
- Haddad, P. M., Brain, C., & Scott, J. (2014). Nonadherence with antipsychotic medication in schizophrenia: Challenges and management strategies. *Patient Related Outcome Measures, 5*, 43-62. <http://doi.org/10.2147/PROM.S42735>
- Health Communication Capacity Collaborative. (n.d.). *Theory of planned behavior: An HC3 research primer*. Retrieved from https://www.healthcommcapacity.org/wp-content/uploads/2014/03/theory_of_planned_behavior.pdf
- Hettema, J., Steele, J., & Miller, W. R. (2005). Motivational interviewing. *Annu. Rev. Clin. Psychol., 1*, 91-111. doi:10.1146/annurev.clinpsy.1.102803.143833
- Higashi, K., Medic, G., Littlewood, K. J., Diez, T., Granström, O., & De Hert, M. (2013). Medication adherence in schizophrenia: Factors influencing adherence and consequences of nonadherence, a systematic literature review. *Therapeutic Advances in Psychopharmacology, 3*(4), 200-218. doi:10.1177/2045125312474019
- Institute for Healthcare Improvement. (2019). *How to improve*. Retrieved from <http://www.ihi.org/resources/Pages/HowtoImprove/ScienceofImprovementHowtoImprove.aspx>
- Jaeger, S., Weißhaupt, S., Flammer, E., & Steinert, T. (2014). Control beliefs, therapeutic relationship, and adherence in schizophrenia outpatients: A cross-sectional study. *American Journal of Health Behavior, 38*(6), 914-923. doi:10.5993/AJHB.38.6.13
- Johns Hopkins Hospital. (2017). *Johns Hopkins nursing evidence-based practice*. Retrieved from https://www.hopkinsmedicine.org/evidence-based-practice/_images/EBP%20Tool%20Samples/2017_Appendix%20D_Evidence%20Level%20and%20Quality%20Guide_Page_1.png
- Lally, J. & MacCabe, J. H. (2015). Antipsychotic medication in schizophrenia: A review. *British Medical Bulletin, 114*(1), 169-179. <https://doi.org/10.1093/bmb/ldv017>
- Lam, W. Y. & Fresco, P. (2015). Medication adherence measures: An overview. *BioMed Research International, 2015*, 1-12. doi:10.1155/2015/217047
- Lincoln, T. M., Jung, E., Wiesjahn, M., Wendt, H., Bock, T., & Schlier, B. (2016). The impact of negative treatment experiences on persistent refusal of antipsychotics. *Comprehensive Psychiatry, 70*165-173. doi:10.1016/j.comppsy.2016.07.009
- Mallisham, S. L. & Sherrod, B. (2017). The spirit and intent of motivational interviewing. *Perspectives in Psychiatric Care, 53*(4), 226-233. doi:10.1111/ppc.12161

- McCabe, R., Bullenkamp, J., Hansson, L., Lauber, C., Martinez-Leal, R., Rössler, W., ... & Priebe, S. (2012). The therapeutic relationship and adherence to antipsychotic medication in schizophrenia. *PLoS One*, 7(4).
- Misdrahi, D., Petit, M., Blanc, O., Bayle, F., Llorca, P. M. (2012). The influence of therapeutic alliance and insight on medication adherence in schizophrenia. *Nordic Journal of Psychiatry*, 66(1), 49-54. <https://doi.org/10.3109/08039488.2011.598556>
- Mosby. (2017). *Mosby's medical dictionary* (10th Ed.) [E-book]. Retrieved from <https://ebookcentral.proquest.com>
- Owie, G. O., Olotu, S. O., & James, B. O. (2018). Reliability and validity of the medication adherence rating scale in a cohort of patients with schizophrenia from Nigeria. *Trends in Psychiatry and Psychotherapy*, 40(2), 85-92. <https://doi-org.ezproxy3.library.arizona.edu/10.1590/2237-6089-2017-0077>
- Phan, S. V. (2016). Medication adherence in patients with schizophrenia. *International Journal of Psychiatry in Medicine*, 51(2), 211-219. doi:10.1177/0091217416636601
- Rollnick, S., Miller, W. R., & Butler, C. C. (2007). *Motivational interviewing in health care: Helping patients change behavior* [E-book]. Retrieved from <https://ebookcentral.proquest.com>
- Thompson, K., Kulkarni, J., & Sergejew, A. A. (2000). Reliability and validity of a new medication adherence rating scale (MARS) for the psychoses. *Schizophrenia Research*, 42, 241-247. Retrieved from [https://doi.org/10.1016/S0920-9964\(99\)00130-9](https://doi.org/10.1016/S0920-9964(99)00130-9)
- Treatment Advocacy Center. (2018a). *Arizona*. Retrieved from <https://www.treatmentadvocacycenter.org/browse-by-state/arizona>
- Treatment Advocacy Center. (2018b). *Fast facts*. Retrieved from <https://www.treatmentadvocacycenter.org/evidence-and-research/fast-facts>
- Treatment Advocacy Center. (2018c). *Schizophrenia: Fact sheet*. Retrieved from <https://www.treatmentadvocacycenter.org/evidence-and-research/learn-more-about/25-schizophrenia-fact-sheet>
- Velligan, D. I., Sajatovic, M., Hatch, A., Kramata, P. K., & Docherty, J. P. (2017). Why do psychiatric patients stop antipsychotic medication? A systematic review of reasons for nonadherence to medication in patients with serious mental illness. *Patient Preference and Adherence*, 11, 449-468. <http://dx.doi.org/10.2147/PPA.S124658>
- Wade, M., Tai, S., Awenat, Y., & Haddock, G. (2017). A systematic review of service-user reasons for adherence and nonadherence to neuroleptic medication in psychosis. *Clinical Psychology Review*, 51, 75-95. doi:10.1016/j.cpr.2016.10.009

Zhang, J. (2016). The benefits of antipsychotic drugs: Symptom control and improved quality of life. In P. Manu, R. J. Flanagan, & K. J. Ronaldson (Eds.), *Life-threatening effects of anti-psychotic drugs* [E-book]. Retrieved from <https://ebookcentral.proquest.com>