Teach-Back Method and Brown Bag Review in the Psychiatric Population:

An Evidence-Based Practice Project

Kori M. Pfeiffer

University of Toledo
Abstract

BACKGROUND: Investigators have recommended using the teach-back method (TBM) and brown bag review (BBR) to decrease medication errors and improve medication adherence among patients at all literacy levels. Unaddressed low health literacy levels have led to decreased medication adherence and increased medication errors. Medication non-adherence and misunderstanding affect 50% of individuals who suffer from a chronic illness, which impacts overall healthcare costs, quality of life, and sobriety.

METHODS: Between October 2019 and February 2020, participants from an inpatient detoxification unit were enrolled in this evidence-based practice project, which was conducted during two sessions. Session 1 included a TBM session, and Session 2 included both a TBM session and a BBR session. The participants were evaluated by comparing their baseline and post-intervention medication errors and medication adherence scores. The errors were based on the participant’s prescribed treatment plan. Participants’ health literacy levels were measured using the Single Item Literacy Screener (SILS). Staff members were provided written and oral education related to the TBM. The perspectives of staff members were solicited using a self-administered, investigator-designed feedback questionnaire.

RESULTS: Nineteen participants were initially enrolled with a 52.6% (n = 10) participant follow-up rate. The health literacy of participants ranged from high reading health literacy to limited reading health literacy. The median health literacy score using the SILS was a score of one, which was associated with high health literacy. The difference between participants’ Medication Adherence Rating Scale scores at baseline and post-intervention was significant (p = .039) using the Wilcoxon Signed-Rank Test. The difference between baseline and post-
intervention errors was clinically significant but not statistically significant \((p = .059)\) using the Wilcoxon Signed-Rank Test.

CONCLUSION: The TBM session and BBR session resulted in a slight increase in median medication adherence scores and a decrease in the number of median medication errors. The overall health literacy score for the patient population indicated high reading health literacy in contrast with current literature suggesting the target population’s predisposition for limited and low health literacy. The patient participants reported high satisfaction with the TBM and BBR methods, and the direct-care staff members reported that the TBM is both feasible and sustainable.
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Introduction and Problem Identification

The U.S. Department of Health and Human Services’ (2018) researchers have suggested that 40-80% of health information is immediately forgotten once patients leave a healthcare appointment. This is particularly true among individuals suffering from substance abuse disorders. Individuals suffering from substance abuse disorders experience substantially higher rates of medication non-adherence (Magura, Rosenblum, & Fong, 2011). Research focusing on these individuals also has indicated the presence of a continued opportunity to enhance and improve the medication-related education exchange between providers and patients (Magura et al., 2011). Substance abuse disorder is a psychiatric condition defined by The World Health Organization (WHO) as the destructive or unsafe intake of illegal drugs, psychoactive drugs, or alcohol (2020). The teach-back method (TBM) and brown bag review (BBR) from the Health Literacy Universal Precautions Toolkit (HLUP) are two evidence-based tools indicated for use in the clinical setting with patients at any level of health literacy, including substance abuse patients.

The Health Literacy Universal Precautions Toolkit was commissioned by The University of North Carolina at Chapel Hill and promoted by (a) the U.S. Department of Health and Human Services’ Agency for Healthcare Research and Quality (AHRQ) and (b) the Institute for Healthcare Improvement (IHI) (U.S. Department of Health & Human Services, 2018). The teach-back method (Tool 5 in the HLUP Toolkit) consists of first explaining medication instructions to patients. Clinicians then ask patients to describe, or “teach back” the same medication instructions they just received. The TBM also requires clinicians to obtain confirmation of the disease, medication, or treatment as understood from the perspective of the patient. The TBM has been shown to improve self-efficacy in medication management, reduce
hospitalization, and increase retention of disease knowledge and treatment (Ha Dinh, Bonner, Clark, Ramsbotham, & Hines, 2016; Slater, Huang, & Dalawari, 2017).

The brown bag review (Tool 8 in the HLUP Toolkit), when administered by healthcare personnel, encourages patients to bring their current medications and supplements to the office visit. The clinician reviews the medications and supplements brought into the office with the patient to check the accuracy of their understanding in an effort to decrease medication errors and increase medication adherence (U.S. Department of Health & Human Services, 2018). When used by healthcare providers, the BBR, can increase self-efficacy among patients managing medications, thus increasing medication adherence, increasing health literacy, and improving safety (Jager, Steinhaeuser, Freund, Szecsenyi, & Goetz, 2015). When administered by healthcare professionals, the TBM and BBR promote self-confidence and positive behavior modification by increasing understanding, ultimately leading to improved medication adherence and decreased medication errors (U.S. Department of Health & Human Services).

Evidence-based practice improvement methods aimed at improving and identifying health literacy are necessary to decrease unnecessary hospitalizations and emergency room usage (Jansen et al., 2018; Levy & Janke, 2016; U.S. National Library of Medicine, 2019). These evidence-based practice improvement methods also (a) improve medication adherence and decrease medication misunderstanding (Akazawa, Nomura, Kusama, & Igarashi, 2012; Becker, 2015; Ha Dinh et al., 2016; Miller, 2016; Osborn, Cavanaugh, & Kripalani, 2010; Zhang, Terry, & McHorney, 2014), (b) increase overall health (Levy & Janke, 2016), and (c) decrease morbidity and mortality rates (Cavanaugh et al., 2010; U.S. National Library of Medicine, 2019; Ventura & Piña, 2018). Currently, the WHO and Institute of Medicine (IM) have not fully reached the goal of improving medication adherence, which suggests the need for the application
of evidence-based practice to improve medication adherence (DiPersio, 2016). The goal for individuals who have been prescribed long-term medication is to achieve 80% or higher medication adherence (Kim, Combs, Downs, & Tillman, 2018).

**Background & Significance**

In this section, (a) the influence of substance abuse disorder on medication non-adherence, (b) the effect of limited health literacy on the patient-provider relationship, and (c) the effect of medication misunderstanding on overall patient health are explored and developed as a part of the background. The Health Literacy Universal Precautions Toolkit and the role of the teach-back method and brown bag review are also discussed in relationship to medication adherence and medication understanding.

**Substance Abuse Disorder and Medication Non-Adherence**

Patients suffering from psychiatric conditions are members of a vulnerable population. In 2017, 19.7 million individuals 12 years of age and older were suffering from substance abuse in the United States. Among those diagnosed with a substance abuse issue, 74% were diagnosed with alcohol abuse disorder, and 38% were diagnosed with illicit drug use disorder. Risk factors for the development of a substance abuse disorder may include genetic predisposition, detrimental environmental factors, low educational success, family history of substance abuse, teenage mental health disorders, and community attitudes about the perceived social acceptability of substance abuse (American Addiction Centers, 2020). Medication non-adherence and medication errors subject this population to disability, unemployment, more impoverished living conditions, and premature mortality (Semahegn et al., 2018).

The cost associated with untreated substance abuse disorders in 2015 totaled $442 billion in the United States (Murthy, 2016). Increased overall healthcare costs due to emergency
department use and pharmaceutical costs have resulted from medication non-adherence or untreated substance abuse disorder (Weiss, Barrett, Heslin, & Stocks, 2016a). Emergency departments in the Midwest, according to the Healthcare Cost and Utilization Project briefing by Weiss et al. (2016a), have documented the highest rates of substance abuse disorder-related emergency department visits (2016b). The use of emergency department services by individuals with substance abuse disorder is regarded as theoretically preventable and has resulted in an increase in hospital admissions, subsequently doubling the cost of care (Weiss et al., 2016a).

Individuals with substance abuse disorder who are non-adherent to their medication-assisted therapy have imposed higher healthcare costs per person compared to their adherent counterparts (e.g., $31,502 vs. $17,523) (Ruetsch et al., 2017). Individuals with substance abuse disorder also experience higher rates of communicable disease, tuberculosis, and Hepatitis C (Recovery Centers of America, 2020). Other economic burdens associated with substance abuse include costs of $5 million violent crimes, $14 million property crimes, increased rates of incarcerations, and $15 million in public assistance (Recovery Centers of America). However, efforts made toward treatment and prevention typically cost society $1 while saving the community $10 in return. Focusing on treatment, adherence, and relapse prevention is cost-effective compared to the costs associated with untreated substance abuse disorder (International Narcotics Control Board, 2013).

Kane, Kisimoto, and Correll reported that up to 50% of patients with chronic illness, including mental illness, do not follow medication instructions accurately after six-months of treatment (2013). In fact, misuse of prescription opioids has accounted for 70% of overdoses (Florence, Zhou, Luo, & Xu, 2016). In addition, poor insight has accounted for 55.6% of non-adherence cases, and negative attitudes about medication has accounted for 30.5% of non-
adherence cases (Velligan, Sajatovic, Hatch, Kramata, & Docherty, 2017). More specifically, in terms of non-adherence related to substance abuse, representatives from the National Council Medical Director Institute found a 34% therapy and medication adherence rate among individuals suffering from substance abuse disorder (The National Council, 2018). Non-adherence to substance abuse treatment protocols, including medication-assisted treatment, have led to significantly higher rates of relapse compared to patients who are adherent to treatment (Ruetsch et al., 2017). However, sharing responsibility and creating a supportive environment have been shown to increase medication adherence (Kane, Kishimoto, & Correll, 2013).

**Treatment Dropout Rates among the Substance Abuse Population**

In Ohio, 27.8% of individuals who receive inpatient treatment dropped out prior to discharge, and 52% in outpatient recovery dropped out of treatment prior to completion (American Addiction Centers, 2020). Common reasons for early dropout have included the inability to adapt to treatment, absence of motivation, and issues within the treatment program (American Addiction Centers). Basu et al. (2017) conducted a retrospective study exploring the reasons why patients drop out of treatment programs. These researchers found that the dropout rate was concentrated in the first 30 days (61%) and that up to 50% of patients discontinue treatment without provider approval. These researchers further reported that discontinuing treatment was positively correlated with several factors: (a) older age, (b) employment status, (c) lower level of education, (d) opiate usage, and (e) short-term (newly addicted) substance abuse. Reasoning and decision-making processes among individuals who discontinue treatment and then chronically relapse may be attributed to post-acute withdrawal syndrome (PAWS) (National Center on Addiction and Substance Abuse, 2020). Individuals suffering from PAWS require increased accountability, need intensive emotional support, and may not have achieved an
adequate personal understanding about the importance of sobriety (National Center on Addiction and Substance Abuse).

**Health Literacy**

Health literacy refers to (a) the degree to which individuals understand basic health information and amenities as well as (b) the ability to acquire, communicate, and analyze healthcare information in order to make reasonable and effective healthcare decisions (Centers for Disease Control and Prevention, 2019). Health literacy capacity and health literacy skills are terms that refer to the ability of individuals to attain, connect, process, and comprehend primary healthcare material for the purposes of making suitable health care choices (Centers for Disease Control and Prevention). For this evidence-based practice project, the health literacy component focused on the ability to read and comprehend the patient education material and instructions on prescription medication containers. Through the TBM and BBR processes, the investigator engaged participants using casual communication to explain the medication and open-ended questions to help participants understand how to follow instructions for its use (U.S. Department of Health & Human Services, 2018).

The level at which patient education materials are written do not always match the reading ability of patients, and these discrepancies can affect communication between patients and providers. Therefore, the National Action Plan to Improve Health Literacy has set the standard for a healthcare environment that supports access to accurate health information, patient-centered care, and promoting patient learning skills (Centers for Disease Control and Prevention, 2020). Likewise, the Office of Disease Prevention and Health Promotion has recognized the current need to intervene and address the crisis of low reading health literacy and poor health outcomes (HealthyPeople, 2019).
More than 30 million American adults are unable to read, write, or perform basic math at a fourth-grade level or higher (Concordia University Portland, 2018). These high rates of low health literacy have resulted in health disparities and increased risks of poor health outcomes (Concordia University Portland, 2018; Macabasco-O’Connell & Fry-Bowers, 2011). Common reasons for low health literacy include lower level education attainment, socioeconomic status, older age, cognitive disability, and belonging to a vulnerable population (Brabers, Rademakers, Groenewegen, van Dijk, & de Jong, 2017; Levy & Janke, 2016; Macabasco-O’Connell & Fry-Bowers, 2011; U.S. National Library of Medicine, 2019). Health literacy improvement efforts emphasize the patient-centered model of healthcare, which improves care quality and healthcare cost reduction. Low health literacy has an economic impact of $106-238 billion of unnecessary medical spending (U.S. National Library of Medicine). Likewise, low health literacy has led to decreased medication adherence and increased emergency department usage (HealthyPeople, 2019). Screening for health literacy and supplementing patient education material with dependable and reliable strategies from the Health Literacy Universal Precautions Toolkit reportedly improves medication adherence and patient-provider relationships (U.S. Department of Health & Human Services, 2018).

Statistically significant positive correlations have been reported between (a) levels of health literacy and (b) rates of medication adherence (Zhang et al., 2014). Therefore, it is imperative for providers to use plain language, employ open communication tactics, and ensure that patients have a basic understanding of all their medications (DeWalt et al., 2010). In addition, patients from all levels of health literacy have reported that they prefer their healthcare information to be provided in a simplified form (DeWalt et al., 2011).
Medication Adherence

Authors Jimmy and Jose (2011) have described adherence to medication as a treatment success factor and support the WHO’s definition of medication adherence as the extent to which a person’s actions resemble the provider’s treatment recommendations. Mental illness and chronic illness are exacerbated by low health literacy because patients are unable to understand commonly written directions by the provider (Clausen, Watanabe-Galloway, Bill, & Britigan, 2016). Addressing medication non-adherence among psychiatric patients is a global challenge, especially when introducing a new or unfamiliar medication (Chapman & Horne, 2013). In addition to low health literacy, low self-efficacy, lack of understanding, and inadequate planning also may lead to non-adherence as well. Commonly noted consequences of medication non-adherence include, but are not limited to, hospitalization, emergency room use, relapse, poor long-term outcomes, and psychosis (Cavanaugh et al., 2010; Chapman & Horne, 2013; Haddad, Brain, & Scott, 2014; Higashi et al., 2013; Jansen et al., 2018; Levy & Janke, 2016; Mert, Turgut, Kelleci, & Semiz, 2015; MPR, 2013).

Treating patients in the emergency department without a functioning intervention designed to increase medication adherence is likely to contribute to a healthcare environment in which the standard is for patients not to receive high-quality continuous care (AMN Healthcare, 2014). Furthermore, inappropriate or unnecessary emergency department visits will increase the likelihood that patients with chronic illness will continue to experience health deterioration and readmission (Clausen et al., 2016). However, by screening for health literacy and providing an effective intervention to improve low health literacy, the result is increased quality of health, decreased overall healthcare costs, improved knowledge regarding disease states, and a reduction in hospitalization and emergency department use (Clausen et al., 2016; Ylitalo et al., 2018). With
the continuation of healthcare and hospital staff shortages, the overuse of emergency
departments related to medication non-adherence will continue to increase without an operative
intervention (Heaton, Tundia, & Luder, 2013).

**Provider Role in Health Literacy and Medication Adherence**

Providers may supply an added layer of protection against medication non-adherence
among patients in psychiatric settings by building trusting and healthy relationships with
patients. A healthy provider-patient relationship typically is one in which medications can be
openly discussed and patients are engaged in the process (Chapman & Horne, 2013). In this
environment, medication comprehension is the responsibility both of providers and patients (U.S.
National Library of Medicine, 2019). Provider services in regard to health literacy improvement
efforts include, but are not limited to, providing brochures, consent forms, easy-to-read
instructions, and clear communication (U.S. National Library of Medicine). Patients with
unaddressed and unmet health literacy needs experience an increased likelihood of poor
healthcare outcomes (Powers, Trinh, & Bosworth, 2010). However, providers with health
literacy improvement tools can simplify patient self-care, improve access, and incorporate a
range of learning styles into the process of patient education (Dennis et al., 2012). Through clear
communication and navigation from providers, patients experience increased opportunities to
attain, develop, and comprehend appropriate health information required to make informed
healthcare decisions (U.S. National Library of Medicine).

Health literacy impacts provider-patient relationships because low health literacy has
been linked to low appointment attendance, lack of medication adherence, and improper self-
management of care (Bo et al., 2014; Dennis et al., 2012). Providers frequently over-estimate
patient literacy levels approximately 85% of the time, leading to increased adverse health
outcomes and hospitalizations (Dickens, Lambert, Cromwell, & Piano, 2013). During a cross-sectional, descriptive study by Macabasco-O’Connell and Fry-Bowers (2011), randomly selected registered nurses were interviewed about their knowledge and perception of health literacy. These researchers demonstrated that registered nurses often possess limited knowledge about the role of health literacy in patient healthcare outcomes (2011). However, nurses who participated in identifying limited health literacy and assessed comprehension empowered patients and increased their health understanding (Speros, 2011).

Many families and patients understandably neglect to report their low literacy status because it is a potential cause of shame or embarrassment (Macabasco-O’Connell & Fry-Bowers, 2011). Nevertheless, more than 99% of patients who were surveyed after completing a short health literacy screening did not report feelings of shame (VanGeest, Welch, & Weiner, 2010).

Through this evidence-based practice project, the goal of improving education and communication through proper screening and toolkit usage can be achieved. Simple screening tools administered correctly by clinicians provide a mechanism by which individuals with limited health literacy can be identified (Powers et al., 2010). Applying an evidence-based screening tool and intervention may improve medication adherence and overall health outcomes (Bo et al., 2014; Dennis et al., 2012).

**Health Literacy Universal Precautions Toolkit**

DeWalt et al. (2010, 2011) and the University of North Carolina at Chapel Hill were commissioned by the Agency for Healthcare Research and Quality to create and test the Health Literacy Universal Precautions Toolkit. In April of 2010, the Agency for Healthcare Research and Quality made the toolkit accessible to clinicians and the public. The toolkit includes (a) the
TBM and BBR, (b) a guide on delivery, and (c) materials for education and communication targeting individuals at all levels of health literacy (DeWalt et al., 2010).

The TBM, when implemented by a clinician, primarily confirms the degree to which patients understand their treatment. This method also has been referred to as the “show me” method because patients are asked to repeat the instructions and information they receive about treatment in order to promote information retention and correct any misunderstandings. Providers then are able to correct any misunderstandings or misperceptions patients may have by asking them to re-repeat the instructions. However, clinicians must ensure they are not administering the TBM as a means of “testing” patients. Rather, clinicians can reinforce the teaching, clarify medications, update patients’ medication records, reduce billing errors, and reduce polypharmacy by using the BBR as a follow up to the TBM. The BBR may be difficult to administer if patients fail to bring their medication bottle or vial to the appointment. DeWalt et al. (2010) has recommended that providers initiate a telephone reminder or provide patients with a medication carrying bag, also referred to as a “brown bag,” to serve as a BBR reminder.

National Goals for health literacy in the United States align with the goals and objectives of the Health Literacy Universal Precautions Toolkit. The first goal in the Centers for Disease Control and Prevention’s Action Plan is to create and distribute healthcare material that is precise and easy to use. The second goal is to incorporate communication that is clear and consistent. The third goal is to use evidence-based resources to address the gaps in health literacy and health education (Centers for Disease Control and Prevention, 2020). In a systematic review of oral and auditory literacy, Nouri and Rudd (2015) recommended the TBM and the use of plain language as a means of improving health literacy. The TBM can help clinicians validate comprehension among individuals with lower health literacy, decrease errors, and improve communication (Lee,
Tsai, & Tsai, 2013). Osborn et al. (2010) concluded that 83.5% of clients comprehended and retained medication information when using the TBM compared to the treatment-as-usual group, in which 60.8% of clients comprehended and retained medication information. The BBR session resulted in repeated success at detecting medication errors during in-person review sessions. In 177 pharmacies with 508 participants, 327 medication errors were identified and avoided when BBR sessions were used (Akazawa et al., 2012).

**Purpose and Goals of the Project**

Unaddressed low health literacy levels have led to decreased medication adherence and increased medication errors. Medication non-adherence and misunderstanding affect 50% of individuals who suffer from a chronic illness, which impacts overall healthcare costs, quality of life, and sobriety. The following sections (a) frame this project according to the PICO model, (b) present the dual-purposes of the project, and (c) describe the goals and methods of the project.

**Purpose Statement**

In substance abuse patients at an inpatient detoxification facility (P), does implementation of the teach-back method and brown bag review from the Health Literacy Universal Precautions Toolkit (I), compared to pre-intervention data (C), improve Medication Adherence Rating Scale scores and decrease medication errors (O)?

**Project Statement**

The purpose of this evidence-based practice project was to improve medication adherence and decrease medication errors among patients prescribed detoxification medications for detoxification from illicit drugs or alcohol. Individuals enrolled in this evidence-based practice project participated in the teach-back method and brown bag review from the Health Literacy Universal Precautions Toolkit through the guidance of the investigator. A secondary
The purpose of the project was to provide written and verbal instructions from the Health Literacy Universal Precautions Toolkit and to explore the opinions and perceptions of the staff members regarding the feasibility, sustainability, and understanding of the teach-back method.

**Goals and Objectives**

The primary goal of the project was to decrease medication errors, correct medication misunderstandings, and improve medication adherence scores for detoxification unit patients on detoxification medication(s) through the utilization of the teach-back method and brown bag review from the Health Literacy Universal Precautions Toolkit. A second goal of the project was to educate the detoxification unit staff members about the teach-back method and gain their input.

The goal was measured by the participants’ scores on the 10-item Medication Adherence Rating Scale (MARS), and the number of errors was determined by the investigator during the teach-back method session(s) and the brown bag review. The staff members were surveyed following the education sessions to elicit qualitative feedback about the ability of the teach-back method to improve comprehension, provide sustainability, and maintain feasibility. The information gained from the staff members assisted with the sustainability of the teach-back method's usage in the unit.

**Guiding Framework/Model/Theory(s)**

The theory of planned behavior and the Iowa Model together guided this evidence-based practice project.

**Iowa Model**

Titler et al. (2001) developed The Iowa Model at the University of Iowa Hospitals and Clinics to improve and encourage evidence-based practice and quality care. The Iowa Model was
used to support and structure the research and evidence selection. This model was chosen to
draw attention to an understanding of the problems that led to questioning the current practices
and researching evidenced-based findings. The evidence and the validity, relevance, and
significance of the evidence strengthened the support for the selection of the Iowa Model for this
evidence-based practice project (Titler et al., 2001).

The Iowa Model guides evidence-based practice projects through seven steps. The first
step was the selection of a topic. Improving health literacy using the teach-back method and
brown bag review method in an effort to increase medication adherence with substance abuse
patients was the topic for this evidence-based practice project. Forming a team was the second
step. The team consisted of one investigator, a chair, two committee members, and two clinical
managers. The inpatient detoxification facility and outpatient recovery facility were supportive
of the investigator performing the teach-back method and brown bag review method with
consenting patients at the inpatient detoxification unit and outpatient recovery clinic. The third
step was researching the evidence. For the fourth step, Titler et al. (2001) suggested analyzing
the journal articles for reliability, evidence strength, and quality. Step five included weighing the
benefits and risks of participation in the teach-back method and brown bag review method.
Benefits to patients enrolled in the project included providing tools aimed at increasing
medication adherence and decreasing medication errors. The risk, although small, included a
breach of confidentiality and inadvertent disclosure of personal information. Steps six and seven
consisted of implementing and evaluating the evidence-based practice project (Titler et al.,
2001).
The Theory of Planned Behavior

The theory of planned behavior was used as a conceptual model to guide this evidence-based practice project. It was selected because it delivered a beneficial theoretical outline for managing behavior while integrating concepts that allowed for predicting and understanding of human behavior. The beneficial aspects of the theory of planned behavior are its ability to predict behavior through participants’ (a) attitude about their ability to adhere to the prescribed medication; (b) beliefs or misconceptions about a prescriptive medication regimen; and (c) motivation to discuss, adhere to, and engage in the medication education. Thus, the combination of participants (a) engaging in the TBM and BBR and (b) exercising confidence in their ability to adhere to the medication regimen justified behavior modification. For example, enhancing participants’ perceived control and improving patients’ attitudes related to control over their medication regimen contributed to the improvement in medication adherence scores and a decrease in medication misunderstandings. The combined effect of addressing participants’ (a) control over their medication regimen and (b) attitude toward their prescribed regimen also provided the framework to recognize the behaviors associated with medication misconception and implement an intervention targeted at behavior modification (Ajzen, 1991).

The theory of planned behavior was used to aid with the prediction of deliberate behavior because behavior can be intentional. The idea behind the theory of planned behavior is that improving attitude and decreasing misconceptions about medications will increase perceived control, thus strengthening the intention to perform the modified behavior. Medication non-adherence and medication errors related to misconception and negative attitudes about the prescribed detoxification medication were addressed by modifying the participants’ routine and addressing health literacy. Through behavior modification (i.e., participation in the teach-back
method and brown bag review), patients’ perceived control increased, thus creating an open
dialogue about medication misunderstanding and the potential for the clinician to address and
intervene when there are signs of limited reading health literacy (Ajzen, 1991).

Attitude refers to the positive or negative feeling toward the subject of interest. In this
study, participants experienced positive or negative feelings about discussing medication routine
with the investigator. The social and subjective norm for the population and the clinic was for
patients not to bring medications to each visit and for clinicians not to administer the TBM-BBR
during follow-up visits. The perceived perception of patients about their degree of control was
that they were exclusively responsible for their medication adherence (Ajzen, 1991). The project
aimed to modify the subjective/social norm, attitudes, and the amount of perceived behavioral
control patients have over their medication adherence. Using steps five and six of the Iowa
Model, attitudes, subjective/social norms, and perceived behavioral control were successfully
modified. The teach-back method incorporated plain language to ensure a positive experience
(attitude toward the behavior). The social norms and subjective norms were modified among
participants as they engaged with the investigator and prioritized medication communication.
Using the teach-back method and brown bag review method, the investigator worked together
with participants to ensure correct medication administration and encourage follow-up. Step
seven of the Iowa Model requires evaluation of the actual behavior change, which was provided
through participants’ completing the Medication Adherence Rating Scale.

Review of the Literature

A literature review was conducted on the teach-back method, brown bag review, and
telephone encounters among the substance abuse or chronically ill population.
Search Strategies

The research articles considered for the literature review on the topics of the Health Literacy Universal Precautions Toolkit, the teach-back method, and the brown bag review process included (a) articles written in English, (b) articles reporting the results of research that was conducted in an industrialized country, and (c) articles reporting the results of studies conducted within the past five years. For both the teach-back method and brown bag review method, the research articles included participants who were 18 years of age or older and participants with chronic illness or mental illness. Research articles that were excluded included (a) research articles that included participants younger than 18 years of age, (b) articles that focused on maternity/pregnancy, and (c) articles in which participants were not currently diagnosed with a DSM-5 mental illness or a chronic illness. Search terms using Google Scholar included the following: "Health Literacy Universal Precautions Toolkit," which produced 101 results; "self-efficacy health literacy teach-back method," which produced 17,200 results, "self-efficacy health literacy brown bag method," which produced 7,230 results, "medication adherence brown bag method," which produced 17,500 results, and "medication adherence teach-back method," which produced 14,700 results. A PubMed search included the term “Health Literacy Universal Precautions,” which produced 36 results. The results were sorted by relevance to the search term. Of the reviewed articles, 11 were retained based on relevance to the topic of this evidence-based practice project.

The use of telephone calls, when scripted clearly and in plain language, has been supported by the Health Literacy Universal Precautions Toolkit. Additional literature supporting the use of telephone calls was extracted from CINAHL using the following search phrase: "psychiatric OR mental health OR behavioral health AND outpatient AND telephone OR phone
OR mobile OR smartphone OR telehealth AND reminder* OR adherence* OR compliance* OR follow up OR follow up AND appointment," which produced 10 journal articles. All research articles were published between the years of 2014 and 2019. Of the 10 journal articles produced by this search, three journal articles were selected for inclusion in this project.

**Appraisal of Evidence**

The evidence for the practice project consisted of guidelines, a toolkit, and literature supporting the toolkit and screening tool. The intervention for this evidence-based practice project is the Health Literacy Universal Precautions Toolkit. The AGREE II instrument is an assessment of the quality of information practice guidelines as well as the methodology used to produce these guidelines. The Health Literacy Universal Precautions Toolkit scored 94.4% on the AGREE II instrument, a score that strongly supported the use of the toolkit as a guide to intervening when low reading health literacy is suspected in the clinical setting (AGREE Next Steps Consortium, 2009). The level of evidence is based on Rutgers University Libraries provided in the Pyramid of Evidence (see Table 9 and Table 10) (Rutgers University Libraries, 2018).

**Teach-Back Method, Brown Bag Review, and Telephone Reminder**

Ha Dinh et al. (2016) conducted a systematic review of 12 articles about the teach-back method and its effect on medication adherence, hospital readmission, quality of life, and self-efficacy. Four of the twelve research studies confirmed that patients increased their knowledge of individual diagnoses after participating in the teach-back method. Two of the twelve studies measuring medication management self-efficacy reported statistically significant increases after implementing the teach-back method (p = 0.0026 and p < 0.001). Four of the twelve studies increased medication adherence using the teach-back method (p < 0.001). The teach-back
method increases medication adherence, self-efficacy, and disease understanding for individuals who have been prescribed long-term medications or diagnosed with a chronic illness (Ha Dinh et al., 2016).

Miller (2016) conducted a meta-analysis of 220 articles to generate the effect size of health literacy and medication/treatment adherence. The increase in health literacy correlated with high rates of medication adherence ($r = .14$). Interventions that aimed at increasing health literacy statistically increased health literacy and medication adherence ($r = .22$; $r = .16$). Miller concluded that incorporating the teach-back method as a method of identifying and correcting misunderstandings about medication information can increase medication adherence and increase medication understanding (Miller, 2016).

Slater, Huang, and Dalawari (2017) implemented the teach-back method with patients at the end of their emergency department encounter. The researchers administered a pre- and post-teach-back questionnaire to determine participants’ ability to recall their medication, condition, and follow-up instructions. Data were collected one week following the teach-back session to measure recall. The difference in participants’ ability to recall information between the pre-assessment post-assessment was statistically significant. Recall was 82.1% ($p < 0.005$) after the teach-back method compared to 70.0% before administration of the teach-back method (Slater et al., 2017).

Prochnow, Meiers, and Scheckel (2019) implemented the teach-back method with patients prescribed a medication that was new to them. The researchers administered pre- and post-assessments of the registered nurses who administered the teach-back method to participants. The results indicated an increase in confidence related to teach-back method administration among registered nurses ($p < 0.001$) and an increase in the use of the teach-back
Teach-back method (p < 0.001). Participants also reported an increase in their ability to recall the side effects of the medications. Scores for medication education improved from 6% to 10% on the Hospital Consumer Assessment of Health Care Providers and Systems' (HCAHPS), which is an instrument used by a hospital to gain patient insight on their hospital encounter (Prochnow et al., 2019).

Grice et al. (2014) conducted a study at an independent-living facility using the teach-back method which consisted of a questionnaire assessing the satisfaction and adherence of the independent-living resident participants. Interns enrolled in an academic pharmacy program administered the teach-back method to the independent-living resident participants. The results of the exit survey indicated that pharmacy interns and independent living participants were satisfied with the use of the teach-back method. The researchers found that there was an increased commitment among independent-living participants to improve their medication adherence (p = 0.029) and confidence (p = 0.026) in questioning providers about health-related issues. Almost all (94.1%) of the independent-living participants strongly agreed that the teach-back method improved their medication understanding (Grice et al., 2014).

Samuels-Kalow, Hardy, Rhodes, and Mollen (2016) identified qualitative results pertaining to the teach-back method among emergency department patients awaiting discharge. The results varied among participants; however, the majority of participants agreed that the teach-back method improved communication and comprehension of healthcare informational material. Fifty-one parent participants were interviewed, and 48% were classified as limited literacy. A small majority of participants with low and limited health literacy questioned whether the teach-back method was condescending. One participant reported experiencing fear about being judged by the administering provider after participating in the teach-back method.
Common themes reported by parent participants were that the teach-back method improved comprehension of vital information and confirmed emergency department discharge treatment protocols (Samuels-Kalow et al., 2016).

Hirsh et al. (2020) implemented the teach-back method, brown bag review method, and reminder calls recommended in the Health Literacy Universal Precautions Toolkit with adult patients from a vulnerable immunocompromised population. The researchers collected data for six months and compared it to the data collected from six months prior. The researchers instructed 46 providers who engaged in a total of 1,737 participant visits. During these 1,737 visits, 90% of participants participated in the teach-back method, 47% participated in the brown bag review method, and 69% received a reminder call. The results indicated an increase in medication adherence of 22% (p <0.001; by GEE) (Hirsh et al., 2020).

Weiss et al. (2016b) identified the need to routinely review medications with patients in direct-care settings in order to rule out misuse. The health literacy universal precaution's brown bag review was initiated in a private, rural Missouri practice and an urban California teaching practice. Forty-five interviews using the brown bag review were administered during a six-month period. The practice staff was interviewed at baseline and after implementing the brown bag review method. The brown bag review from baseline to post-intervention revealed a three-fold increase in the number of participants who brought all their prescription medications to their appointment. There was also a six-fold increase in the overall number of medications brought to in-office visits, and the number of participants doubled who were able to identify problems with prescription regimens and implement corrections in their treatment plans (Weiss et al., 2016b).

Mabachi et al. (2016) assessed 13 of the 20 tools in the Health Literacy Universal Precautions Toolkit that were chosen on a practice-preference basis. The goal of the study was to
improve health literacy through the Health Literacy Universal Precautions Toolkit. Qualitative data were collected through check-in calls and in-person interviews related to the toolkit’s use in the primary care setting by primary care staff members. Challenges included insufficient time to review medications during the brown bag review session, The authors’ findings led to the implementation of quality improvement methods among 75% of the practices in the evidence-based practice project, and 8 of 12 participating facilities planned to continue implementing Tool 8 (i.e., the brown bag review). The themes that researchers identified included an emphasis on the flexibility of the toolkit and the ease of combining the toolkit with other ongoing quality improvement methods. The commonalities among facilities that observed the most improvement and highest satisfaction levels included (a) management and staff members who committed to conducting training/education sessions, (b) an increase in patient-centered care, and most importantly (c) enthusiasm about the evidence-based practice project (Mabachi et al., 2016).

Becker (2015) implemented the brown bag review method with a goal of decreasing medication errors and non-adherence. Participants (n = 203) were measured at baseline and at a three-month follow-up appointment. Participants were provided written instructions along with a brown bag in which to transport their prescription medications to their follow-up appointment. Post-intervention, the clinic noted a decrease of 12.5% (r = .73) in reported medication errors for the intervention group (Becker, 2015).

Jager et al. (2015) implemented the brown bag review to determine whether usage was linked to increased medication memory and a change in personal belief about medications. Participants (n = 344) were to have been prescribed multiple medications (polypharmacy) to be included in the study. The study’s outcome measures were the Specific Necessity Subscale, the Beliefs About Medicine Questionnaire, and the Specific Concerns Subscale. There was a positive
correlation using linear regression among The Specific Concerns Subscale and comprehension of medication when implementing the brown bag review ($\beta = 0.160$, $p = 0.02$) (Jager et al., 2015).

Milward, Lynskey, and Strang (2014) conducted an analysis related to substance abuse and missed appointments. The study compared previous data related to appointment non-adherence in groups that were sent reminders via text messages, telephone calls, reminder letters, and no reminder at all (Milward, Lynskey, & Strang, 2014). The telephone reminder group endorsed a 40% attendance rate compared to the reminder-letter group, which endorsed an 8% attendance rate (Killaspy, Banerjee, King, & Lloyd, 2000). Jackson, Booth, Salmon, and McGuire (2009) reported that a reminder call for outpatient services reduced non-attendance by 50%. For patients with a substance abuse background, evidence suggests moderate effectiveness in response to telephone reminders designed to increase appointment attendance rates (Milward et al., 2014).

Clouse, Williams, and Harmon (2017) aimed to increase knowledge related to treatment and appointment adherence among new outpatient psychiatric clients ($n = 18$). No-show appointments led to decreased quality of service and longer wait-time for appointments. No-shows also increased costs. At the project site, the no-show rate for first-time appointments was 33%. The nurse-initiated telephone reminder encounter led to a 36% reduction in no-show appointment rates over a three-month sample period (Clouse et al., 2017).

Kunigiri, Gajebasia, and Sallah (2014) aimed to increase follow-up appointment adherence and decrease no-show rates at an outpatient psychiatric clinic. Increased appointment adherence led to an increase in patient quality of life and a decrease in relapse risk. Through the application of telephone encounters, there was a slight increase in appointment adherence (from
16% to 9% missed appointment) and an 8% increase in advance cancellation for appointments (Kunigiri et al., 2014).

Methods

Between October 2019 and February 2020, participants from an inpatient detoxification unit were enrolled in this evidence-based practice project, which was conducted during two sessions. Session 1 included a TBM session, and Session 2 included both a TBM session and a BBR session. The project setting, population, roles, barriers, facilitators, and future recommendations are presented below.

Project Setting and Population

Recruitment took place at the University of Toledo Medical Center detoxification unit in Toledo, Ohio. The follow-up occurred at the University of Toledo Medical Center outpatient psychiatric department after patients were discharged from the inpatient setting. The locations where the study was conducted included comprehensive non-profit clinics in Northwest Ohio that specialize in behavioral health, substance abuse, sub-acute detoxification, and treatment for mental health disorders. Staff members included psychologists, medical assistants, nurse practitioners, registered nurses, case managers, social workers, managers, and physicians.

The University of Toledo Medical Center detoxification unit is located on the sixth floor of the University of Toledo Medical Center and is integrated with the offices of outpatient behavioral services, located in the Rupert Building. The University of Toledo Medical Center detoxification unit is a 10-bed inpatient unit designed to treat individuals detoxifying from drugs or alcohol. The average length of stay for patients on the detoxification unit is three to five days with the goal of transitioning to outpatient care. Patients in the detoxification unit were in private or semi-private rooms and were responsible for their activities of daily living. The University of
Toledo Medical Center provided the investigator and participants with a private area to perform the intervention. The investigator worked alongside the direct-care staff members to implement the teach-back method and brown bag review method.

The cohort of participants at the University of Toledo Medical Center detoxification unit and the University of Toledo Medical Center outpatient psychiatry department lived in northwest Ohio, most commonly in the 43609 and 43605 zip codes. Participants were admitted to the detoxification unit and the outpatient psychiatry department to receive behavioral healthcare or substance abuse healthcare post-detoxification. All cohort participants entering the study (n = 19) were admitted to the detoxification unit for substance abuse disorders that included heroin addiction, alcohol addiction, cocaine addiction, fentanyl addiction, opiate addiction, or Xanax addiction. Of the 19 participants who completed the first intervention session, 10 completed the second intervention session. The average age of the participants was 38 years, with an age range of 23 to 58 years (see Table 1).

Medicaid recipients accounted for 74% (n = 14) of participants, while Medicare recipients accounted for 16% (n = 3), and private insurance patients accounted for 11% (n = 2). The cohort consisted of 68% (n = 13) males, 26% (n = 5) females, and 5% (n = 1) identified as both male and female. The study included a diverse racial and ethnic population, including 68% (n = 13) Caucasians, 21% (n = 4) Latinos/Latinas, and 11% (n = 2) African Americans. Educational demographics indicated that 5% (n = 1) completed less than a high school education, 21% (n = 4) completed some high school, 53% (n = 10) obtained a high school diploma or GED, 11% (n = 2) completed some college, 5% (n = 1) completed an associate’s degree program, and 5% (n = 1) completed a bachelor’s degree program (see Table 5).
The clinician participants (n = 17) for the study included registered nurses, counselors, occupational therapists, and social workers employed at the University of Toledo Medical Center detoxification unit. The level of clinician education ranged from associate’s degree to doctorate, and the average number of years in practice was as follows: 0-2 (35%, n = 6), 3-5 (24%, n = 4), 6-8 (12%, n = 2), and 9+ (29%, n = 5) (see Table 15). Staff members were under no obligation to participate in the self-administered feedback survey.

**Roles and Responsibilities**

This project consisted of an investigator, a chair, and two committee members. The role of the investigator was to (a) collect and critically appraise supporting literature for the teach-back method and brown bag review, (b) establish a recruitment site, (c) recruit and follow up with participants, (d) administer the evidence-based intervention in real-time, and (e) evaluate and disseminate results. The investigator and chair worked together to ensure compliance with the institutional review board and to ensure that the written defense met all relevant criteria. Committee members provided additional support and guidance regarding the project’s methodology, the statistical analysis process, and the final written project.

**Barriers and Facilitators**

The facilitators of the project included receptive management personnel who provided a private space for interviews, a no-cost health literacy toolkit, and an experienced chair and committee members. Strategies recommended in the toolkit were easy to execute and required minimal time. The teach-back method provided a protocol that (a) allowed discussion of proper medication administration, (b) provided patient support in the use of the teach-back method and brown bag review method, (c) recommended evidence-based interventions, and (d) fostered a progressive healthcare climate.
The management voiced a desire to continue implementing evidence-based practice measures after completion of the project due to the high rates of low health literacy in the geographic area where the facilities are located. Management personnel and staff members were open and willing to support the investigator by providing a private location for consenting participants. The patients in the detoxification unit who participated in the study were open to discussing their medications, their health literacy, and their perceived medication adherence. The direct-care staff members were receptive to the teach-back method education session and to providing the investigator with anonymous feedback about the use of the teach-back method. The chair and committee members were experienced in evidence-based practice interventions, implementation of evidence-based practice interventions, and statistical analysis of the intervention outcomes. Their guidance created a supportive environment for the investigator.

A significant barrier during the implementation of the evidence-based practice project was a failure to follow up for the BBR by 50% of the participants. Members of this population have reported higher rates of homelessness, co-occurring mental illnesses, lack of insight into disease processes, and lack of transportation to and from outpatient appointments as described by staff members who completed the qualitative feedback survey. Of the 52.6% (n = 10) of participants who attended the second session, 50% (n = 5) brought their prescriptions for the brown bag review portion of the intervention.

**Recommended Practice Change**

Medication adherence scores from the Medication Adherence Rating Scale (MARS) averaged a score of 8 at baseline, and medication errors averaged 1 at baseline. Adherence was defined as >80%, partial adherence was considered 60-80%, and non-adherence was considered <60% treatment compliance, according to the Substance Abuse and Mental Health Services
Administration and the Health Resources Services Administration (Parks, n.d.). The median literacy score of participants was 1, with scores ranging from 1 to 4.

The teach-back method has been shown to improve self-efficacy (Jager, Steinhaeuser, Freund, Szecsenyi, & Goetz, 2015), reduce hospitalization (Jansen et al., 2018), and increase comprehension of clinician-provided information related to disease knowledge and treatment (Akazawa et al., 2012; Becker, 2015; Ha Dinh et al., 2016; Miller, 2016; Osborn et al., 2010; Zhang et al., 2014). Evidence-based practice improvement methods aimed at improving and identifying health literacy is imperative in order to successfully decrease unnecessary hospitalizations and emergency room usage (Jansen et al., 2018; Levy & Janke, 2016; U.S. National Library of Medicine, 2019), improve medication adherence (Akazawa et al., 2012; Becker, 2015; Ha Dinh et al., 2016; Miller, 2016; Osborn et al., 2010; Zhang et al., 2014), decrease errors (Akazawa et al., 2012; Becker, 2015; Ha Dinh et al., 2016; Miller, 2016; Osborn et al., 2010; Zhang et al., 2014), increase overall health (Levy & Janke, 2016), and decrease morbidity and mortality rates (Cavanaugh et al., 2010; U.S. National Library of Medicine, 2019; Ventura & Piña, 2018).

Providers and direct care staff members are in an optimal position to improve medication adherence and decrease medication errors. High-quality care starts by implementing casual communication using plain terminology and educating clients using a variety of methods to develop provider-patient partnerships (DeWalt et al., 2010). The teach-back method was featured to clarify medications and open a line of provider-patient communication (Joint Commission on Accreditation of Healthcare Organizations, 2007).

It is recommended that upon completion of this evidence-based practice project, direct care staff members continue to use the teach-back method in the detoxification unit. The
investigator has conducted multiple education sessions to provide a foundation for direct care staff members. It is recommended that all direct care staff members in all specialties receive educational training about the teach-back method. The investigator plans to build a test bank or manual for all new-hires in the detoxification unit. As supported by the average errors (median of 1 error per participant) during the first session, there is a need for continuous use of the teach-back method, especially while patients remain on the unit. Continuous use during acute care will reinforce the education.

**Implementation Process**

The implementation process included two teach-back method sessions and one brown bag review session guided by the investigator with consented inpatient detoxification participants. An educational session related to implementing the teach-back session from a provider standpoint was introduced to direct care inpatient staff members followed by a feedback questionnaire.

**Detoxification Unit Patient Participant**

The implementation of this evidence-based project was guided by the Iowa Model and the theory of planned behavior. Participants at all health literacy levels were provided an opportunity to be enrolled in this evidence-based practice project. The goal of the project was to improve medication adherence and decrease the number of medication errors. The study protocol included six steps conducted sequentially.

Step 1 consisted of assessing the need for this evidence-based practice project. The Northwest Ohio area reported high levels of limited health literacy and low health literacy (National Health Literacy Mapping to Inform Health Care Policy, 2014). Individuals who belong to a vulnerable population are at a higher risk of experiencing healthcare disparities, which
include limited and low health literacy (HealthyPeople, 2019). Stakeholders from the parent organization were agreeable to the evidence-based practice project because the project is valuable to the substance abuse population (see Figure 11, Figure 12, and Figure 13).

Step 2 consisted of distributing the flyers at the recruitment site. These easy-to-read flyers provided participants with educational information about the evidence-based practice project before agreeing to participate and signing an informed consent form.

Step 3 consisted of obtaining informed consent and was implemented after the recruitment flyers were disseminated (see Figure 10). The patients who indicated interest and met inclusion criteria were accepted as participants in the project. Informed consent forms, along with the frequently-asked-questions sheet (see Figure 9), were reviewed and signed by managers before administering the teach-back method and brown bag review with participants.

Step 4 consisted of ensuring that participants completed (a) the 10-item Medication Adherence Rating Scale (MARS) (see Figure 5), (b) the Single Item Literacy Screener (SILS) (see Figure 4), and (c) the demographic questionnaire items (see Figure 1). If a participant requested help reading the questionnaire, demographic sheet, or literacy screener, the investigator read the question(s) aloud for the participant. Demographic information included DSM-5 diagnosis, zip code, gender, race, type of insurance, the highest level of education completed, and age.

After the investigator administered the MARS-10 and health literacy screener, participants were asked to talk about each of their psychiatric medication(s)/detoxification medications(s) in their own words. Participants were asked to provide information about the reasons why the medication had been prescribed, dosage, route, and the number of times per day the medication should be taken. The investigator documented the medications and whether
participants committed any errors when describing information. The participants were provided with a medication carrying bag and pill sorter at the first encounter. The participants were instructed to bring all psychiatric medication(s)/detoxification medication(s) to the second session. The second session was conducted in the outpatient setting and was pre-scheduled for the detoxification patient prior to discharge from the detoxification unit. During the first session, the investigator administered the teach-back method only; however, during the second session, the investigator administered the teach-back method and introduced the brown bag review. Each participant responded “yes” or “no” in response to whether they had received a reminder call prior to the TBM-BBR session (see Table 8).

If participants committed any errors in reporting their medication regimen, the errors were corrected, and the investigator discussed them with the participants. The errors were compared (a) to the prescription information provided by their clinician in the detoxification unit, (b) to written discharge prescriptions, or (c) to printed discharge instructions. Patients’ prescription plans on the detoxification unit were accessible through their assigned registered nurse.

Step 5 consisted of administering the second TBM session, and the first brown bag review session and was conducted within eight weeks of the first session. If participants provided a contact phone number, then they received a reminder phone call in which the investigator read a verbal script reminding them of their upcoming TBM-BBR session prior to their regularly scheduled follow-up appointment. The telephone encounter was scripted and dialed from a secure line. One call per participant was made to participants who provided their phone number.

During the brown bag review sessions, participants reviewed the medication they brought in the carrying bag (brown bag). The investigator asked participants to explain all their
medications again during their second teach-back method session. If participants committed errors in reporting or describing their medication regimen, the errors were corrected, and the investigator discussed them. The medications participants described were compared to the medication they brought in during the brown bag review. After the teach-back method and brown bag review had been conducted and corrections, if any, were made, participants completed the second MARS-10 questionnaire in a private space. If a participant requested help reading the questionnaire, the investigator read the question(s) aloud for the participant. An optional one-question participant satisfaction survey also was administered at the end of the brown bag review and immediately after completion of the post-intervention MARS-10 questionnaire. Upon completion of the brown bag review and post-intervention questionnaire, participants were given a $10.00 prepaid Visa gift card.

Step 6 consisted of closing the evidence-based practice project at the end of the 19-week data collection period. The signed informed consent forms were securely stored and will be kept for three years in a locked file. After three years, the documents will be shredded following institutional review board requirements. An Excel spreadsheet on a password-protected laptop computer was used to store each participant’s assigned identifier, SILS score, demographic data, MARS score, and the number of identified errors. Participants were provided a unique number that served as their patient identifier.

**Detoxification Staff Participation**

To elicit participants, a recruitment script was read to the University of Toledo Medical Center direct care detoxification staff members at the nursing station or social work office on the detoxification unit during their downtime. The first recruitment script informed staff members of the educational session related to the teach-back method. The investigator indicated that staff
members were permitted to attend only the education session if they preferred not to participate in the investigator-designed feedback questionnaire.

The investigator then provided staff members with written educational materials that were supplied in the AHRQ Health Literacy Universal Precautions Toolkit (see Figure 8). These educational materials consisted of an overview of the importance of implementing the teach-back method, the sources supporting and endorsing the use of the teach-back method, assessment scales designed for use by staff members to evaluate their use of the teach-back method, and other relevant tools (Agency for Healthcare Research and Quality, 2010). The investigator answered any questions from staff members regarding the teach-back method.

After conducting the group education session, the investigator read the second script. Staff members who elected to participate in the investigator-designed feedback questionnaire signed an informed consent form. The investigator then administered a hardcopy version of the questionnaire. The staff participants submitted their completed questionnaires to the investigator without any names or identifiers (see Figure 7). After staff members submitted a completed questionnaire, the investigator distributed a $5.00 Starbucks gift card to each participant.

**Outcome Measures**

The outcome measures for this evidence-based practice project included the Single Item Literacy Screener (SILS), Medication Adherence Rating Scale (MARS), participant satisfaction questionnaire, and the investigator designed-feedback questionnaire.

**Single Item Literacy Screener**

Screening identifies the need for education strategies that extend beyond simply providing printed materials. The Single Item Literacy Screener (SILS) was used to measure the literacy of participants who volunteered for this project. The SILS is a direct measure of reading
health literacy. It detects limits in reading capability and requires less time to administer than the Short-Test of Functional Health Literacy in Adults (S-TOFHLA) (Morris, MacLean, Chew, & Littenberg, 2006).

Currently, no policy has been instituted to govern health literacy screenings during assessments or during appointments in the detoxification unit. The SILS includes only one item: "How often do you need to have someone help you when you read instructions, pamphlets, or other written material from your doctor or pharmacy?" Response options range from 1 to 5, with 1 being associated with never requiring reading assistance and 5 being associated with always requiring reading assistance. A response of a 3, 4, or 5 indicates low or limited reading health literacy. Without a screening tool, it is difficult to identify patients who may experience limited reading abilities during a routine appointment (Morris et al., 2006).

The Single Item Literacy Screener has displayed sensitivity and specificity in multiple large-scale studies. For example, one Virginia study (n = 999) resulted in the screener having a limited reading sensitivity of 54%, specificity of 83%, and an Area Under the Receiver Operating Characteristics Curve (AUROC) of 0.73 (Morris et al., 2006). A separate study in Italy (n = 174) compared the Newest Vital Sign assessment to the SILS tool to determine the reliability and validity of the SILS in indicating limited health literacy. Accuracy of this screening tool was high, and it demonstrated comparable validity to the Newest Vital Sign assessment (Spearman's rho r = -0.679, p < 0.001) (Brice et al., 2014). Additionally, a larger study (n = 1,796) included a sample from the Veteran's Administration (VA) population and compared three of the top screening tools to the valid and reliable S-TOFHLA and the Rapid Estimate of Adult Literacy in Medicine instrument (REALM). The SILS’s AUROC was 0.72 for measuring inadequate health literacy compared to the REALM and 0.67 compared to the S-
TOFHLA (Chew et al., 2008). The SILS has proven reliable and valid when used by researchers of multiple large-scale studies. The screening tool is easy to use for providers and reads casually (Morris et al., 2006).

**Medication Adherence Rating Scale (MARS)**

The Medication Adherence Rating Scale (MARS) is a valid and reliable outcome instrument. Specifically, the tool has been deemed reliable and valid in its ability to measure self-reporting compliance of psychoactive medication regimen among patients suffering from mental illness (Thompson, Kulkarni, & Sergejew, 2000). The 10-item MARS scale measures adherence to prescribed medications (see Figure 5). Endorsing *no* in response to items 1, 2, 3, 4, 5, 6, 9, 10, and *yes* to items 7 and 8 is considered compliant (Culig & Leppee, 2014). The MARS scale total score ranges from 0 to 10, with a higher score suggesting better adherence (Psychiatry & Behavioral Health Learning Network, 2019). The strengths of the MARS scale include the fact that it is a self-report instrument and its ability to measure attitude and behavior surrounding adherence to medication protocols (Psychiatry & Behavioral Health Learning Network). During a study (n = 230) with participants who had schizophrenia, the MARS displayed an internal consistency of $a = 0.80$ (Owie, Oлотu, & James, 2018). A second study (n = 66) displayed an internal consistency of $a = .75$ with a global alpha of 0.75 and 0.72 (Thompson et al.).

**Appointment Adherence**

The investigator tracked appointment adherence as a "yes" or "no" to indicate whether participants attended the second session of the two-session intervention.

**Participant Satisfaction**

The investigator offered participants an opportunity to complete an optional one-item participant satisfaction questionnaire: “Please circle the answer that best describes how you feel
about your experience. On a 1 to 5 scale, how satisfied were you with the teach-back method and brown bag review? 1 being not satisfied at all and 5 being extremely satisfied” (see Figure 6).

Feedback from participants provided additional insight about their experience in this project.

**Detoxification Staff Feedback Survey**

Following the teach-back method educational session, the investigator provided staff members within the detoxification unit an opportunity to complete a feedback questionnaire. The 10-item questionnaire was administered in a hardcopy format and elicited additional insights from staff members about the teach-back method, its sustainability, its feasibility, characteristics of the method that staff members liked, and areas where the method could be improved. This questionnaire included (a) one check response designed to obtain how many years the participant has worked in the psychiatric setting and (b) nine short-answer items, which required a total of approximately 15 minutes to complete.

**Evaluation Process**

The first questionnaire included 10 items from the Medication Adherence Rating Scale, the one-item health literacy screener (SILS), and demographic items that participants were required to complete before beginning the intervention. The demographic information included DSM-5 diagnosis, zip code, gender, race, type of insurance, the highest level of education completed, and age. After participants completed the questionnaire, the investigator asked them to provide details about each detoxification medication(s) prescribed to them. The investigator then documented any detoxification medication errors that participants reported. Medication errors included reporting the incorrect dosage, route, timing, or purpose of the medication.

During the brown bag review, the investigator reviewed the detoxification medications with participants in a private setting. Subsequently, during the teach-back method, participants
were asked to describe their medication(s). The investigator again documented medication
errors. Medication errors included reporting the incorrect dosage, route, timing, or purpose of the
medication. The 10-item MARS questionnaire was administered after the second session, in
which the teach-back method and brown bag review were both implemented. The investigator
recorded the number of medication errors, and participants documented their medication
adherence by completing the MARS. The medication errors and medication adherence rates were
compared between the first administration of the questionnaire and the second administration of
the questionnaire. Demographic and health literacy screening results were included as part of the
data collection, analysis, and evaluation processes.

The direct care staff members were asked to complete a 10-item, investigator-designed
questionnaire. The questionnaire was administered in hardcopy format to elicit additional
insights from staff members about the teach-back method, its sustainability, its feasibility,
characteristics of the method that staff members liked, and areas where the method could be
improved. Staff members completed these anonymous questionnaires individually following
group education sessions. The questionnaire required approximately 15 minutes to complete (see
Figure 7).

Data Analysis

The data were analyzed using IBM SPSS Statistics (IBM Corp., 2017), a data analysis
software application. Descriptive statistics were calculated for the demographic characteristics,
including DSM-5 diagnosis, zip code, gender, race, type of insurance, the highest level of
education completed, and age. A median score from the SILS was calculated. Based on data
provided by staff members, a mean score for average years working with a psychiatric
population was calculated. The pre-intervention scores and post-intervention scores for
medication adherence and medication errors were calculated. The Wilcoxon Signed-Rank Test was used to determine whether a statistically significant difference in medication errors and medication adherence was evident between pre-intervention scores and post-intervention scores. Median and interquartile ranges were calculated for MARS scores, medication error scores, literacy range scores, and patient satisfaction scores. The McNemar's chi-squared method was used to compare the highest levels of education completed by those who did and did not complete the brown bag review and second teach-back method session. Thematic analysis was used to report the qualitative data from the staff questionnaire.

**Project Outcomes**

All patient participants entering the study (n = 19) were admitted to the detoxification unit for substance abuse disorder. These disorders included heroin addiction, alcohol addiction, cocaine addiction, fentanyl addiction, opiate addiction, or Xanax addiction. Of the 19 participants who completed the first intervention session, 10 participants also completed the second intervention session. The mean average age of participants in the study was 38 years, with an age range from 23 to 58 years. Of the total number of participants, 68% (n = 13) were male, 26% (n = 5) were female, and 5% (n = 1) identified as both male and female. The study included 68% (n = 13) Caucasians, 21% (n = 4) Latinos/Latinas, and 11% (n = 2) African Americans. Medicaid recipients accounted for 74% (n = 14) of participants, Medicare recipients accounted for 16% (n = 3), and participants with private insurance accounted for 11% (n = 2). The majority of participants who completed the first session earned a high school diploma or GED (65%, n = 13); several participants (14%, n = 3) completed some high school; a small number (8%, n = 2) of participants earned an associate degree or some college, and 1 (0.5%)
participant earned a bachelor’s degree. Participants most commonly resided in the 43609 and 43605 zip codes.

The brown bag review completion rate was 50%, and the median participant satisfaction score was 5 out of 5. Participants’ median health literacy score was 1, with scores ranging from 1 to 4. The Wilcoxon Signed-Rank Test for pre-intervention scores and post-intervention MARS scores resulted in a value of \( p = .039 \). The Wilcoxon Signed-Rank Test for baseline and post-intervention errors resulted in a value of \( p = .059 \).

The purpose of the project was to improve medication adherence and decrease medication errors among patients suffering from substance abuse disorders. The teach-back method and brown bag review resulted in a .5 median increase in MARS scores and a decrease in the median number of errors (i.e., from 1 to 0 errors). The number of participants who completed both sessions was small (\( n = 10 \)), but the results indicated a statistically significant p-value in regard to change in MARS score and a clinically significant change in errors. During the implementation of the project, staff members (\( n = 17 \)) were educated and surveyed about the teach-back method. Staff members provided valuable insights and opinions in response to the open-ended questionnaire inquiring about patient dropout rates and staff members’ experience using the teach-back method.

**Themes**

Several themes emerged from the data provided by staff members: (a) feasibility, (b) sustainability, and (c) barrier/facilitator dynamics.
Feasibility. The theme of feasibility of the TBM for use on the detoxification unit was reported as (a) ease of use (toolkit provides a step-wise approach for clinician use), (b) a desire to implement the TBM, and (c) the ability to hold the attention of patients during medication education while in the inpatient setting. For example, one clinician participant reported that administering the TBM very likely would help increase compliance: “Yes, it definitely is a feasible intervention as compliance would be better if information were presented in an understandable fashion. It could be done throughout the [patient’s] stay to continuously reiterate important information and not overwhelm the patient.”

Sustainability. The theme of sustainability of the TBM on the detoxification unit emerged. Staff members described the value of the TBM in terms of the following concepts: (a) ease of use and simplicity of the TBM, (b) no-fee associated with its use, and (c) the desire among clinicians to use the TBM.

Barrier/facilitator dynamics. Around the theme of barriers/facilitators, the majority of clinicians reported a potential lack of patient cooperation, as exemplified by the following statement: “Sometimes, when a patient is not feeling well, they will not cooperate.” Another staff member reported, “Yes, [the TBM is sustainable] because we typically have the time to teach, unlike in other settings.” These responses indicated that there might be resistance to universal use of the TBM in other specialty care areas. However, clinicians also reported various factors that would facilitate the use of the TBM: “I like that it [the TBM] empowers the patient to engage in their own health and situation. Knowledge is the greatest thing we can provide these patients when they leave and we can no longer care for them in an outpatient setting.” All of these themes should be taken into consideration in the planning process before including the TBM in acute care clinical guidelines.
Cost-Benefit Analysis

The cost of materials and time expended to plan, administer, and evaluate this project. Each participant required approximately 60-90 minutes to complete both the teach-back method and brown bag review sessions. The time was calculated based on the average amount of time required for each participant to review the informed consent form, the amount of time required for the investigator to answer questions related to participation, the amount of time required to conduct two teach-back method sessions (psychiatric/detoxification medication(s) only), the amount of time required to conduct one brown bag review (psychiatric/detoxification medication(s) only), and the amount of time required for participants to complete a 10-item questionnaire administered before the first session and after the second session.

The cost of materials included a seven-day pill sorter (approximately $3.98 per sorter from Amazon) and a medication carrying bag (approximately $7.00 for 50 extra-large bags on Amazon). Each participant also received a $10.00 gift card. External funds from the Buchman Fund and the University of Toledo Foundation were used to cover material and project costs. Continuation of the teach-back method beyond the extent of this evidence-based practice project will not add any additional costs to inpatient detoxification staff members. The educational information presented to staff members from the Health Literacy Universal Precautions Toolkit was available at no charge.

Discussion

The follow-up rate for enrolled participants from the Session 1 cohort (inpatient detoxification) to the Session 2 cohort (outpatient recovery services) was 52.6%. The substance abuse population in Ohio has an average follow-up rate of 48% and a remission rate of 5.3%-15.3% (White, 2011). The highest rates of follow-up were observed among participants with
lower levels of education (i.e., less than high school and high school/GED). Given the low follow-up rates, the most significant impact can be achieved by scheduling TBM and BBR sessions while patients remain hospitalized on the detoxification unit.

Increasing medication adherence and decreasing medication misunderstandings and errors may result in lower rates of hospitalization, emergency room use, relapse, poor long-term outcomes, and psychosis (Cavanaugh et al., 2010; Chapman & Horne, 2013; Haddad et al., 2014; Higashi et al., 2013; Jansen et al., 2018; Levy & Janke, 2016; Mert et al., 2015; MPR, 2013). By implementing two teach-back method sessions and a brown bag review, the median adherence score increased from 8 to 8.5, and errors dropped from a median of 1 to 0. The median participant satisfaction score was 5, which represented the highest score for satisfaction.

**Future Recommendations & Conclusion**

Future recommendations are based both on the results of the participant intervention as well as feedback from staff members who participated in the project. The follow-up rate was 52.6% of the participants in the cohort, and the highest satisfaction levels were reported in response to the teach-back method. The completion of the intervention resulted in a slight increase in MARS scores and a decrease in medication error scores.

As a future recommendation, staff members should continue following the educational strategies outlined in the Health Literacy Universal Precautions (HLUP) Toolkit. Education sessions using the teach-back method should be delivered with each medication pass because this interaction provides an opportunity to engage patients while they are on the unit. The creators of the HLUP Toolkit suggest remaining consistent in verbiage and introducing new education in small portions during each medication round (U.S. Department of Health & Human Services, 2018).
The direct care detoxification staff members indicated that the teach-back method was both feasible and sustainable. The staff members recommended that the delivery would be best received after patients are no longer physically ill and prior to their discharge from the unit. Overall, staff members reported that the education session was helpful and that they plan to incorporate it into their medication administration routine. None of the staff members reported any negative feedback related to the teach-back method education, and the majority reported that they already use various (but not all) components of the teach-back method in their work.

The staff members reported that a lack of transportation, housing instability, poor motivation, lack of readiness for change, and relapse were substantial barriers that limited the ability of patients to maintain medication adherence and attend appointments, potentially resulting in relapse from sobriety. Limitations of sessions in which the teach-back method is applied, according to staff members, may include the physical illness that often accompanies detoxification as well as a lack of motivation to participate during the session.

**Sustainability and Feasibility of Implementation**

Managers and current direct care detoxification staff members have been educated about the teach-back method through education sessions that included verbal education, handouts from the Health Literacy Universal Precautions Toolkit, and a question-and-answer session. The investigator and the clinical manager are currently developing a sustainability plan that includes adding a “test bank” of questions that will be manually administered to all newly hired staff members. A teaching manual and testing process will enhance knowledge and improve the practices of direct care staff members. The teach-back method requires little time commitment and no additional costs. The teach-back method is a viable treatment method when staff members initiate it with all new psychiatric medication(s)/detoxification medication(s) and upon
discharge from the detoxification unit. The teach-back method can quickly be initiated at each medication pass. The investigator will serve as a no-fee educational resource following the completion of the evidence-based practice project for detoxification staff members.
References


## Appendices

**Table 1**  
*Frequency Table for Demographic Data*

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Table 2

*Level of Education v Completed Second Session*

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### Bachelors

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### Total

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### Chi-Square Tests

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a. 11 cells (91.7%) have expected count less than 5. The minimum expected count is .47.
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Median and Interquartile Range for MARS

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Table 4
Median and Interquartile Range for Errors

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Table 5
Median and Interquartile Range for SILS Score and Patient Satisfaction

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Table 6
Wilcoxon Signed-Rank Test for MARS Score and Errors

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Wilcoxon Signed Rank Test

a. MARS score post- < MARS Score pre-
b. MARS score post- > MARS Score pre-
c. MARS score post- = MARS Score pre-
d. # errors post- < # errors pre-
e. # errors post- > # errors pre-
f. # errors post- = # errors pre-

Test Statistics

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<tr>
<td>Z</td>
<td>-2.060b</td>
<td>-1.890c</td>
</tr>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>.039</td>
<td>.059</td>
</tr>
</tbody>
</table>

a. Wilcoxon Signed Ranks Test
b. Based on negative ranks.
c. Based on positive ranks.
Table 7
Frequency of Years Worked on Detoxification Unit

<table>
<thead>
<tr>
<th>Years Worked</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>6</td>
<td>35.3</td>
<td>35.3</td>
<td>35.3</td>
</tr>
<tr>
<td>0-2</td>
<td>4</td>
<td>23.5</td>
<td>23.5</td>
<td>58.8</td>
</tr>
<tr>
<td>3-5</td>
<td>2</td>
<td>11.8</td>
<td>11.8</td>
<td>70.6</td>
</tr>
<tr>
<td>6-8</td>
<td>5</td>
<td>29.4</td>
<td>29.4</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>17</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Table 8
Received v Did Not Receive A Reminder Call

<table>
<thead>
<tr>
<th>Attended Second Session * Received Phone Call Crosstabulation</th>
<th>Received Phone Call</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Attended Second Session</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Total</td>
<td>4</td>
</tr>
</tbody>
</table>

Correlations

<table>
<thead>
<tr>
<th>Attended second session/Satisfaction</th>
<th>Attended Second Session</th>
<th>Received Phone Call</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>1</td>
<td>-.231</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>1.341</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>19</td>
<td>19</td>
</tr>
</tbody>
</table>

| Received Phone Call                  | Pearson Correlation     | 1                   | -.231   |
|                                      | Sig. (2-tailed)          | .341                |         |
|                                      | N                        | 19                  | 19      |
### Table 9

**Brown Bag Review**

<table>
<thead>
<tr>
<th>Reference</th>
<th>Sample</th>
<th>Objective</th>
<th>Measures</th>
<th>Conclusion</th>
<th>Level of Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Weiss et al., 2016b)</td>
<td>The health literacy universal precaution's brown bag review was initiated in a private, rural Missouri practice and an urban California teaching practice. Forty-five interviews using the brown bag review were administered during a six-month period.</td>
<td>Can the Health Literacy Universal Precautions Toolkit when used outpatient increase medication adherence and improve medication review</td>
<td>Measures included errors identified and actual participation by patients</td>
<td>The brown bag review from baseline to post-intervention revealed a three-fold increase in the number of participants who brought all their prescription medications to their appointment. There was also a six-fold increase in the overall number of medications brought to in-office visits, and the number of participants doubled who were able to identify problems with prescription regimens and implement corrections in their treatment plans</td>
<td>III</td>
</tr>
<tr>
<td>(Mabachi et al., 2016)</td>
<td>13 of the 20 tools in the Health Literacy Universal Precautions Toolkit that were chosen on a practice-preference basis</td>
<td>The goal of the study was to improve health literacy through the Health Literacy Universal Precautions Toolkit</td>
<td>Qualitative data were collected through check-in calls and in-person interviews related to the toolkit’s use in the primary care setting by primary care staff members</td>
<td>The commonalities among facilities that observed the most improvement and highest satisfaction levels included (a) management and staff members who committed to conducting training/education sessions, (b) an increase in patient-centered care, and most importantly (c) enthusiasm about the evidence-based practice project</td>
<td>III</td>
</tr>
<tr>
<td>(Becker, 2015)</td>
<td>Participants were consenting adults from an outpatient clinic (n= 203)</td>
<td>The brown bag review method with a goal of decreasing medication errors and non-adherence</td>
<td>Medications errors (numerical)</td>
<td>Post-intervention, the clinic noted a decrease of 12.5% (r = .73) in reported medication errors for the intervention group</td>
<td>II</td>
</tr>
<tr>
<td>(Jager et al., 2015)</td>
<td>The study included 344 participants. Participants must be</td>
<td>Aimed to determine whether the brown bag method usage</td>
<td>The study’s outcome measures were the Specific Necessity</td>
<td>There was a positive correlation using linear regression among The Specific Concerns Subscale and comprehension</td>
<td>II</td>
</tr>
<tr>
<td>Reference</td>
<td>Sample</td>
<td>Objective</td>
<td>Measures</td>
<td>Conclusion</td>
<td>Level of Evidence</td>
</tr>
<tr>
<td>-----------</td>
<td>--------</td>
<td>-----------</td>
<td>----------</td>
<td>------------</td>
<td>-------------------</td>
</tr>
<tr>
<td></td>
<td>prescribed multiple medications (polypharmacy) to have been included in the study.</td>
<td>was linked to increased medication memory and personal belief about medications</td>
<td>Subscale, the Believe About Medicine Questionnaire, and the Specific Concerns Subscale</td>
<td>of medication when implementing the brown bag review ($\beta = 0.160, p = 0.02$)</td>
<td></td>
</tr>
</tbody>
</table>
# Table 10

**Teach-Back Method**

<table>
<thead>
<tr>
<th>Reference</th>
<th>Sample</th>
<th>Objective</th>
<th>Measures</th>
<th>Conclusion</th>
<th>Level of Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Ha Dinh et al., 2016)</td>
<td>Systematic review using 12 articles</td>
<td>A systematic review using 12 articles about the teach-back method and its effect on medication adherence, hospital readmission, quality of life, and self-efficacy</td>
<td>Medication adherence, hospital readmission, quality of life, and self-efficacy</td>
<td>Four of the twelve research studies confirmed that patients increased their knowledge of individual diagnoses after participating in the teach-back method. Two of the twelve studies measuring medication management self-efficacy reported statistically significant increases after implementing the teach-back method (p = 0.0026 and p &lt; 0.001). Four of the twelve studies increased medication adherence using the teach-back method (p &lt; 0.001). The teach-back method increases medication adherence, self-efficacy, and disease understanding for individuals who have been prescribed long-term medications or diagnosed with a chronic illness.</td>
<td>II</td>
</tr>
<tr>
<td>(Miller, 2016)</td>
<td>PsychINFO and PubMed databases with a total of 220 articles sampled</td>
<td>Meta-analysis to generate the effect size of the health literacy and medication/treatment adherence</td>
<td>Medication adherence, medication recall</td>
<td>The increase in health literacy correlated with high rates of medication adherence (r = .14). Interventions that aimed at increasing health literacy statistically increased health literacy and medication adherence (r = .22; r = .16). Miller concluded that incorporating the teach-back method as a method of identifying and correcting misunderstandings about medication information can increase medication adherence and increase medication understanding.</td>
<td>I</td>
</tr>
<tr>
<td>Reference</td>
<td>Sample</td>
<td>Objective</td>
<td>Measures</td>
<td>Conclusion</td>
<td>Level of Evidence</td>
</tr>
<tr>
<td>-----------</td>
<td>--------</td>
<td>-----------</td>
<td>----------</td>
<td>------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>(Slater et al., 2017)</td>
<td>Midwestern Emergency Department</td>
<td>Implemented the teach-back method with patients at the end of their emergency department encounter. The researchers administered a pre- and post-teach-back questionnaire to determine participants’ ability to recall their medication, condition, and follow-up instructions.</td>
<td>Medication recall (pre- and post-survey)</td>
<td>The difference in participants’ ability to recall information between the pre-assessment post-assessment was statistically significant. Recall was 82.1% (p &lt; 0.005) after the teach-back method compared to 70.0% before administration of the teach-back method.</td>
<td>III</td>
</tr>
<tr>
<td>(Prochnow et al., 2019)</td>
<td>RNs (n= 25), patients (n= 74), and caregivers (n= 33)</td>
<td>Implemented the teach-back method on patients prescribed a medication that is new to him/her</td>
<td>Confidence, recall, and HCAHPS</td>
<td>The results indicated an increase in confidence related to teach-back method administration among registered nurses (p &lt; 0.001) and an increase in the use of the teach-back method (p &lt; 0.001). Participants also reported an increase in their ability to recall the side effects of the medications. Scores for medication education improved from 6% to 10% on the Hospital Consumer Assessment of Health Care Providers and Systems’ (HCAHPS).</td>
<td>III</td>
</tr>
<tr>
<td>(Grice et al., 2014)</td>
<td>24-mile radius of St. Louis elderly volunteers at an independent living community (n= 147)</td>
<td>Impact on using the teach-back method on volunteers in an independent living community</td>
<td>Satisfaction with health literacy tool (teach-back method), medication adherence, confidence</td>
<td>The researchers found that there was an increased commitment among independent-living participants to improve their medication adherence (p = 0.029) and confidence (p = 0.026) in questioning providers about health-related issues. Almost all (94.1%) of the independent-living participants strongly agreed that the teach-back method improved their medication understanding.</td>
<td>III</td>
</tr>
<tr>
<td>Reference</td>
<td>Sample</td>
<td>Objective</td>
<td>Measures</td>
<td>Conclusion</td>
<td>Level of Evidence</td>
</tr>
<tr>
<td>----------------------------</td>
<td>------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>(Samuels-Kalow et al., 2016)</td>
<td>Emergency department patients awaiting discharge (n = 51)</td>
<td>Perform an in-depth interview to analyze the patient’s perspective of the teach-back method</td>
<td>Qualitative; extracted from in-depth interviews</td>
<td>The results varied among participants; however, the majority of participants agreed that the teach-back method improved communication and comprehension of healthcare informational material. Fifty-one parent participants were interviewed, and 48% were classified as limited literacy.</td>
<td>III</td>
</tr>
<tr>
<td>(Hirsh et al., 2020)</td>
<td>The researchers instructed 46 providers who engaged in a total of 1,737 participant visits</td>
<td>Implemented the teach-back method, brown bag review method, and reminder calls recommended in the Health Literacy Universal Precautions Toolkit with adult patients from a vulnerable immunocompromised population</td>
<td>Medication adherence, patient satisfaction, feasibility</td>
<td>90% of participants participated in the teach-back method, 47% participated in the brown bag review method, and 69% received a reminder call. The results indicated an increase in medication adherence of 22% (p &lt;0.001; by GEE).</td>
<td>III</td>
</tr>
</tbody>
</table>
Table 11  
*Level of Education v Single Item Literacy Scores (SILS)*
Figure 1

_Demographic Sheet_

---

**Participant code #_____**

**Instructions:** Please apply an answer that best applies to you.
You are not required to answer a question if you do not want to.

1. What is your age? ______
2. What is your gender?
   Female ○ Male ○ Prefer not to answer ○
3. What is your psychiatric condition: ____________
4. What is your highest level of education completed?
   Less than high school ○ Some high school but did not finish ○ High school or GED ○
   Some college ○ Associates Degree ○ bachelor’s degree ○ Master’s degree or Doctorate ○
5. With which racial or ethnic category do you identify?
   African American ○ Asian/Pacific Islander ○ Caucasian ○ Latino ○
   Other: _______________
6. What is your insurance?
   ○ self pay/no insurance ○ Medicare ○ Medicaid ○ Private insurance
7. Zip code in which you live in? ______
8. Would you like to provide a phone number so we can remind you of your second session (optional)? ______
**Figure 2**  
*Medication Confirmation Sheet Session 1*

![Image of Medication Confirmation Sheet](image)

```plaintext
**MEDICATION CONFIRMATION SHEET**

Sheet 1 will be administered by the student investigator to the participant at the first session during the teach back session.

Sheet 2 will be administered by the student investigator to the participant at the second session during the teach back and brown bag review session.

Medication Confirmation Sheet
Performed by Student Investigator

Participant code #__
Single Item Literacy Score _

Session 1:
Did you bring your psychiatric medications in with you today?

What is the name of your psychiatric medication?

What is it used for?

How often do you take it?

How do you take it?

Do you know the dosage?

<table>
<thead>
<tr>
<th>Name of medicine</th>
<th>Amount / size of pill</th>
<th>How many pills or doses do you take at</th>
</tr>
</thead>
<tbody>
<tr>
<td>Furazolidone</td>
<td>20 mg</td>
<td>2 morning 2 noon dinner bed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>morning noon dinner bed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>morning noon dinner bed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>morning noon dinner bed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>morning noon dinner bed</td>
</tr>
</tbody>
</table>

Number of Errors __
```

---

Study Number: 300371-UT  
Approval Date: 09/16/2019
Figure 3
Medication Confirmation Sheet Session 2

Participant code # ___
Single Item Literacy Score

Session 2:
Did you bring your psychiatric medications in with you today?

What is the name of your psychiatric medication?

What is it used for?

How often do you take it?

How do you take it?

Do you know the dosage?

<table>
<thead>
<tr>
<th>Name of medicine</th>
<th>Amount/ size of pill</th>
<th>How many pills or doses do you take at</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example: Furosemide</td>
<td>20 mg</td>
<td>morning noon dinner bed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>morning noon dinner bed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>morning noon dinner bed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>morning noon dinner bed</td>
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<td>morning noon dinner bed</td>
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<td>morning noon dinner bed</td>
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<td>morning noon dinner bed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>morning noon dinner bed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>morning noon dinner bed</td>
</tr>
</tbody>
</table>

Number of Errors ___

Attended second session ( ) yes ( ) no

Received a phone call reminder ( ) yes ( ) no

Study Number: 300371-UT
Approval Date: 09/16/2019
**Figure 4**

*Single Item Literacy Screener*

**SINGLE ITEM LITERACY SCREENER (SILS)**

This will be administered at the beginning of the 1st session by the student investigator.

<table>
<thead>
<tr>
<th>Single Item Literacy Screen</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description</strong></td>
</tr>
<tr>
<td><strong>Measurement</strong></td>
</tr>
</tbody>
</table>
**Figure 5**

*Medication Adherence Rating Scale*

**MEDICATION ADHERENCE RATING SCALE (MARS)**

This questionnaire will be completed by the participant at the beginning of the 1st and at the end of the 2nd intervention sessions.

**MARS questionnaire**

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you ever forget to take your medication?</td>
<td>Yes / No</td>
</tr>
<tr>
<td>Are you careless at times about taking your medication?</td>
<td>Yes / No</td>
</tr>
<tr>
<td>When you feel better, do you sometimes stop taking your medication?</td>
<td>Yes / No</td>
</tr>
<tr>
<td>Sometimes if you feel worse when you take the medication, do you stop taking it?</td>
<td>Yes / No</td>
</tr>
<tr>
<td>I take my medication only when I am sick</td>
<td>Yes / No</td>
</tr>
<tr>
<td>It is unnatural for my mind and body to be controlled by medication</td>
<td>Yes / No</td>
</tr>
<tr>
<td>My thoughts are clearer on medication</td>
<td>Yes / No</td>
</tr>
<tr>
<td>By staying on medication, I can prevent getting sick.</td>
<td>Yes / No</td>
</tr>
<tr>
<td>I feel weird, like a ‘zombie’ on medication</td>
<td>Yes / No</td>
</tr>
<tr>
<td>Medication makes me feel tired and sluggish</td>
<td>Yes / No</td>
</tr>
</tbody>
</table>
Figure 6  
*Patient Satisfaction Sheet*

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Please circle the answer that best describes how you feel about your experience. On a 1 to 5 scale, how satisfied were you with the Teach Back Method and Brown Bag Review? 1 being not satisfied at all and 5 being extremely satisfied.

Study Number: 300371-UT  
Approval Date: 09/16/2019
**Figure 7**

*Staff Feedback Questionnaire*

**Detox Staff Survey**

*Please answer the questions below. You may skip any questions that you may not feel comfortable answering.*

1. How many years have you worked directly with substance abuse and/or psychiatric patients?
   - [ ] 0-2
   - [ ] 3-5
   - [ ] 6-8
   - [ ] 9+

2. Please describe your understanding of the purpose of the Teach Back Method?

3. What do you perceive to be the most common reasoning(s) for drop-out/lack of follow up post-detox discharge?

4. Is the Teach Back Method a *feasible* intervention in the inpatient detox setting? Why or why not?

5. Is the Teach Back Method a *sustainable* intervention in the inpatient detox setting? Why or why not?

---

300371-UT Approved
02/17/2020
6. When is the Teach Back Method best delivered to patients (greatest receptivity)?

7. What do you like best about the Teach Back Method?

8. What did you find was most helpful in the education that was provided on the Teach Back Method?

9. What was the least helpful . . .

10. After receiving education on the Teach Back Method what would help you to incorporate it into your daily routine?

### Use the Teach-Back Method

#### Overview
Regardless of a patient’s health literacy level, it is important that staff ensure that patients understand the information they have been given. The teach-back method is a way of checking understanding by asking patients to state in their own words what they need to know or do about their health. It is a way to confirm that you have explained things in a manner your patients understand. The related show-me method allows staff to confirm that patients are able to follow specific instructions (e.g., how to use an inhaler).

- The teach-back and show-me methods are valuable tools for everyone to use with each patient. These methods can help you:
  - Improve patient understanding and adherence.
  - Decrease call backs and cancelled appointments.
  - Improve patient satisfaction and outcomes.

#### Fact
Studies have shown that 40-80% of the medical information patients are told during office visits is forgotten immediately, and nearly half of the information retained is incorrect.

### Action

#### Learn the teach-back method.

- The Always Use Teach-Back! Toolkit describes principles of plain language, teach-back, coaching, and system changes necessary to promote consistent use of teach-back. Its 45-minute Interactive Teach-Back Learning Module includes key content and videos of clinicians using teach-back. The module can be used by clinicians, staff members, in a group setting, or as a self-directed tutorial.

- 5-Minute Teach-Back Video. This 5-minute video gives two examples for clinicians of how to use teach-back with medicine changes.

- Health Literacy and Patient Safety: Help Patients Understand is a 23-minute video from the American Medical Association that includes an example of a clinician using teach-back (see the last 5 minutes of the video).
Practice Experiences

“I decided to do teach-back on five patients. With one mother and her child, I concluded the visit by saying ‘so tell me what you are going to do when you get home.’...She could not tell me what instructions I had just given her. I explained the instructions again and then she was able to teach them back to me... I had no idea she did not understand... I was so wrapped up in delivering the message that I did not realize it wasn’t being received.

—Pediatric office

Try the teach-back method.

- **Keep in mind this is not a test of the patient’s knowledge.** It is a test of how well you explained the concept.
- **Plan your approach.** Think about how you will ask your patients to teach back the information. For example:
  - “We covered a lot today and I want to make sure that I explained things clearly. So let’s review what we discussed. Can you please describe the 3 things you agreed to do to help you control your diabetes?”
- **“Chunk and Check.”** Don’t wait until the end of the visit to initiate teach-back. Chunk out information into small segments and have your patient teach it back. Repeat several times during a visit.
- **Clarify and check again.** If teach-back uncovers a misunderstanding, explain things again using a different approach. Ask patients to teach-back again until they are able to correctly describe the information in their own words. If they parrot your words back to you, they may not have understood.
- **Start slowly and use consistently.** At first, you may want to try teach-back with the last patient of the day. Once you are comfortable with the technique, use teach-back with everyone, every time!
- **Practice.** It will take a little time, but once it is part of your routine, teach-back can be done without awkwardness and does not lengthen a visit.
- **Use the show-me method.** When prescribing new medicines or changing a dose, research shows that even when patients correctly say when and how much medicine they’ll take, many will make mistakes when asked to demonstrate the dose. You could say, for example:
  - “I’ve noticed that many people have trouble remembering how to take their blood thinner. Can you show me how you are going to take it?”
- **Use handouts along with teach-back.** Write down key information to help patients remember instructions at home. Point out important information by reviewing written materials to reinforce your patients’ understanding. You can allow patients to refer to handouts when using teach-back, but make sure they use their own words and are not reading the material back verbatim. Refer to Tool 12: Use Health Education Material Effectively for more information.
Promote the use of teach-back.

- **Train non-clinical staff.** Non-clinical staff members who interact with patients should also use teach-back. For example, staff making appointments may use it to ensure the patients understand what is required of them at the next visit such as arrival time, insurance documentation, bringing medicines, fasting, and details about referrals to other clinicians.

- **Share teach-back stories.** Ask one person at each staff meeting to share a teach-back “Aha!” moment. This serves as a reminder of the importance of using teach-back consistently.

**Track Your Progress**

The Conviction and Confidence Scale should be filled out before you start using teach-back and then 2, 6, and 12 months later to track your progress. Calculate the percentage of staff who have completed the scale at least twice in the past 12 months. The results can help you identify ways to build conviction and confidence in using teach-back.

The Teach-Back Observation Tool should be used by a designated observer as clinicians build their skills and confidence with teach-back. Use the findings to guide evaluation, coaching, additional learning, and establishment of consistent habits.

If you field questions from the Health Literacy Patient Survey, calculate what percentage of patients responded “Always” to question #12.
Figure 9

*Frequently Asked Questions Handout*

**Frequently Ask Questions**

- **Who are you?**
  - I am a DNP (Doctor of Nursing Practice) student at the University of Toledo

- **Do I have to sign up for the study?**
  - No! Enrollment is voluntary and kept private

- **If I don’t sign up, will I get in trouble?**
  - Absolutely not! You are under no obligation to participate in the study.

- **Can I stop after the first session?**
  - Although we would like to have you complete the study you are under no obligation to do both sessions

- **Will you change my meds?**
  - No. We will only discuss the psychiatric medications that you are currently prescribed by your provider. No new meds will be added by the student researcher. Student researcher will be using current prescription to base education off of.

- **What will I gain?**
  - Experience in participating in a research project
  - Our goal is to increase your confidence in taking your meds correctly without error

- **What is the Teach Back Method?**
  - It’s talking in your own words about your medication

- **What is the Brown Bag Review?**
  - It’s when you bring your psychiatric medications to the office to discuss

- **When will I get the gift card?**
  - After finishing the second session

- **Are there risks?**
  - Personal information breach is possible but safety measures are in place
Research Opportunity

Patients with Difficulty Comprehending Written Health Material

Would you like help reading and understanding health related materials? If so, we are interested in your time.

We would like to invite you to join our 2 sessions that will take roughly 30 minutes each:

- We will start with asking a single screening question about reading medical papers
- We will ask you to complete 10 questions at the 1st session.
- During the 1st session we will talk about your psych meds
- At the 2nd visit you will be asked to have all your psych meds with you to discuss
- We will end with filling out a 10-question survey

Your participation is confidential and voluntary (kept secret). We will collect the survey and go over medications/discussion in private.

After your 1st session you will receive a small medication carrying bag to bring your meds to your 2nd visit in and a pill sorter. At your 2nd session you will receive a $10.00 pre-paid visa gift card. Thank you for your consideration.

For more info, please contact
Kori Pfeiffer
Figure 11
Letter of Support for Staff Recruitment

University of Toledo Medical Center
3000 Arlington Ave
Toledo, Ohio 43614

February 11, 2020
Kori Pfeiffer, RN

Dear Kori Pfeiffer,

I am excited to confirm our partnership on the proposed evidence-based practice project, Teach Back Method and Brown Bag Review in the Psychiatric Population: An Evidence-Based Practice Project, that has funding from the Buchman Endowment. Providing the direct care detox staff with education on the Teach Back Method is supported by the University of Toledo Medical Center Detox Unit.

The administration and clinicians of the University of Toledo Medical Center Detox Unit supports this partnership. As such, we are happy to promote your evidence-based practice project by allowing staff to be educated on the Teach Back Method and allowing recruitment into the evidence-based research project. We understand there will be use of evaluation methods, such as, voluntary staff research surveys at the University of Toledo Medical Center Detox Unit.

I understand that this letter of collaboration will be included in the application for the protection of human subjects, University of Toledo. If the approval is not secured, then the collaboration will be withdrawn. I accept the protections as stipulated by the University of Toledo review board for the protection of human subjects.

The knowledge to be generated by this evidence-based practice project may have a substantial effect on health care staff education. We wish you the best in your evidence-based practice project and look forward to our collaboration.

Sincerely,

Todd A. Stec

Todd A. Stec RN
Operations Supervisor
Senior Behavioral Health/ Recovery Services- Inpatient Unit
419-383-5156
Figure 12
Letter of Support for Inpatient Recruitment

University of Toledo Medical Center
3000 Arlington
Toledo, Ohio 43614

July 10, 2019
Kori Pfeiffer, RN

Dear Kori Pfeiffer,

I am excited to confirm our partnership on the proposed evidence-based practice project, *Teach Back Method and Brown Bag Review in the Psychiatric Population: An Evidence-Based Practice Project*, that has funding from the Buchman Endowment. Health literacy and reading comprehension is key to assisting our patients with their confidence and medications. Screen health literacy levels and implementing tools to assist with those with limited reading levels and those who are a part of a vulnerable population poses great interest to us.

The administration and clinicians of the University of Toledo Medical Center Detox Unit supports this partnership. As such, we are happy to promote your evidence-based practice project by allowing recruitment, implementation, and data collection at University of Toledo Medical Center Detox Unit.

I understand that this letter of collaboration will be included in the application for the protection of human subjects, University of Toledo. If the approval is not secured, then the collaboration will be withdrawn. I accept the protections as stipulated by the University of Toledo review board for the protection of human subjects.

The knowledge to be generated by this evidence-based practice project can have a substantial effect on the nursing care of vulnerable adults. We wish you the best in your evidence-based practice project and look forward to our collaboration.

Sincerely,

Todd A Stec Rn
Operations Supervisor
Senior Behavioral Health Unit and Recovery Services - Inpatient unit
July 10, 2019

Kori Pfeiffer, RN

Dear Kori Pfeiffer,

I am excited to confirm our partnership on the proposed evidence-based practice project, *Teach Back Method and Brown Bag Review in the Psychiatric Population: An Evidence-Based Practice Project*, that has funding from the Buchman Endowment. Health literacy and reading comprehension is key to assisting our patients with their confidence and medications. Screening health literacy levels and implementing tools to assist those with limited reading levels and those who are a part of a vulnerable population poses great interest to us.

The administration and clinicians of the University of Toledo Medical Center psychiatry outpatient clinic supports this partnership. As such, we are happy to promote your evidence-based practice project by allowing recruitment, implementation, and data collection at University of Toledo Medical Center psychiatry outpatient clinic.

I understand that this letter of collaboration will be included in the application for the protection of human subjects, University of Toledo. If the approval is not secured, then the collaboration will be withdrawn. I accept the protections as stipulated by the University of Toledo review board for the protection of human subjects.

The knowledge generated by this evidence-based practice project can have a substantial effect on the nursing care of vulnerable adults. We wish you the best in your evidence-based practice project and look forward to our collaboration.

Sincerely,

[Signature]

David Kubacki, MLA
Department Administrator
Department of Psychiatry
University of Toledo Medical Center
Approval of Project

Instructions: This form must be submitted by the last day of term. No exceptions, waivers, or extensions to this deadline will be granted. Please complete the on-line fillable portions, print, and obtain original signatures.

<table>
<thead>
<tr>
<th>Student’s Name:</th>
<th>Kori Pfeiffer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree:</td>
<td>Doctor of Nursing Practice</td>
</tr>
<tr>
<td>Rocket ID:</td>
<td>[Redacted]</td>
</tr>
<tr>
<td>Major:</td>
<td>FNP</td>
</tr>
<tr>
<td>Month/Year of Graduation:</td>
<td>[Checkmark] May [ ] August [X] December</td>
</tr>
<tr>
<td>Title of Project:</td>
<td>Teach-Back Method and Brown Bag Review in the Psychiatric Population: An Evidence-Based Practice Project</td>
</tr>
</tbody>
</table>

I hereby certify that the above titled document does not contain any copyrighted material, or that I have obtained permission from the publisher to include any copyrighted material.

Student’s Signature: [Signature]

Date: 4-15-2020

We certify that we have read the above titled document, and our signatures indicate final approval of the project.