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Using an Educational Session to Improve the Knowledge, Confidence, and Beliefs about Psychopharmacology for Behavioral Health Clinicians

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Using an Educational Session to Improve the Knowledge, Confidence, and Beliefs about

Psychopharmacology for Behavioral Health Clinicians

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By

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Abstract

Background: Psychiatric illness is unpredictable, has spasmodic tendencies, and represents one of the most reported types of disabilities in the United States. Behavioral health clinicians are frontline responders and considered a major ally to providers by supporting medication management recommendations and referring new patients for medication management. Basic evidence-based psychopharmacology improves behavioral health clinicians' knowledge, however, is inadequate in curricula, and many undergraduate and graduate programs lack one dedicated psychopharmacology class. This abbreviated knowledge contributes to inadequate referrals for treatment and poor confidence in supporting the practitioners' medication recommendations.

Method: This project examined behavioral health clinicians' knowledge, confidence, and beliefs, and identified ways to influence positive clinical behaviors, primarily by optimizing medication literacy through an educational session and resources for their use after the initial session. In addition, the project compared referral rates before and after the educational session.

Results: This project validates evidence that optimizing clinicians' medication knowledge through a multi-modal faceted approach, in which practitioners facilitate education to collaborative teams, improves confidence and positive beliefs and may contribute to increased referral rates for medication management.

Conclusion: This project provided an educational session to behavioral health clinicians about common mental health medications to determine if it would promote medication knowledge, strengthen confidence, and influence positive belief systems. Additionally, it identified patterns that may suggest accelerated referrals for medication management after expanded medication

knowledge. Ultimately, it was anticipated that shared decision-making through a collaborative

approach can guide superior patient outcomes.

Keywords: psychopharmacology, therapist, behavioral clinician, mental health literacy,

outcomes, knowledge, confidence, beliefs

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Problem Description

The burden of mental health illness can have remarkable consequences on disability and global costs. It is the leading cause of disability with over 400 million employee disability days claimed and is associated with over 83 billion dollars annually in costs (CDC, 2015). Mental health disorders are associated with the frequency, intensity, and resolution of several chronic illnesses, such as cardiovascular disease, asthma, and obesity (CDC, 2015). Patient stability and chronicity are always transforming because mental illness can fluctuate from mild to severe and patients can experience mental health stability for months, even years, but abruptly suffer an acute exacerbation that can require hospitalization. Outpatient mental health clinics are unique since the range of patient diagnoses varies from depression and anxiety to personality disorders, attention deficit disorders, schizophrenia, and bipolar disorder. Fifty-four percent of adult Idahoans did not receive treatment for their mental health in 2013 (Behavioral Health Barometer, 2014), which emphasizes how crucial behavioral health clinicians are to connecting patients to a provider.

Twenty-five percent of the people in the United States (U.S.) will experience some type of mental health disorder in their lifetime (CDC, 2013). The disability consequences are functional, emotional, and financial. Functional and emotional impairments are characterized by defects in social and occupational elements of an individual's life (Miklowitz, 2011). Financial damages can result in patient loss of income and subsequently increased costs to the public. The stigma of mental health illness can further discriminate against this population and lead to perceived reduced quality of life. People with mental health issues have more absenteeism in the

workplace and higher rates of unemployment (CDC, 2013). Nationally, the financial impact is over 300 billion dollars in turnover, loss of productivity and unemployment costs (CDC, 2013). Positive mental health is associated with improved health outcomes; these associations include patient perception of stability, reduced provider visits, no admissions, and functional productivity; however, only 17% of the population considers they are at their ideal mental health (CDC, 2013).

Evidence supports the treatment of moderate to severe cases of mental health illnesses with medications but combining psychotherapy (cognitive-behavioral counseling and other non-medication treatment of mental health illnesses) can provide superior results compared to medications alone. The combination can expedite remission and impart lifelong techniques to reduce the risk of relapse of symptoms once off medications (Feros et. al, 2010). Psychopharmacology is considered a standard component of mental health care, and frequently co-occurs with psychotherapy.

Behavioral health clinicians or "clinicians are collaborators in the mental health setting and see patients more frequently than medication prescribers. They provide psychotherapy (i.e. marital, family, and individual treatment) to improve their client's ability to function with others, socially and mentally. In addition, they provide drug and alcohol treatment to develop sobriety and improve the length of remission. Clinicians, however, do not have prescriptive authority or educational preparation in pharmacology and must be allied with medication providers to support psychopharmacology recommendations and improve appropriate referrals. Skilled clinicians must discern subtle clues that can indicate changes in symptoms, such as possible need for referral to a medication provider or problems with the current medication regimen, in order to prevent full relapse of mental health illness. The ability of clinicians to respond appropriately,

however, to these important cues is influenced by their knowledge, beliefs, and confidence

regarding psychopharmacology (Springer & Harris, 2010). Psychopharmacology deficits

translate into clinicians' inability to identify the severity of mental illness that may require

medication management, thus resulting in inadequate referrals and substandard recognition of

disease processes. Negative clinician beliefs about psychopharmacology can unknowingly

surface as unchecked biases, in which clinicians deter patients in seeking medication

management and fail to support the practitioner's recommendations. Poor clinician confidence

associated with psychopharmacology familiarity can obstruct collaboration between patient and

practitioner because they lack self-assurance regarding their ability to support and discuss

medication management issues.

 Knowledge and attitudinal barriers can inadvertently be directed to mental health

patients who seek reassurance or guidance about efficacy and the necessity of their provider's

medication recommendation. If the patient gauges that the clinician has a negative response to

medications (influenced by lack of knowledge), adherence or a referral could be affected (Feros

et al., 2010). Educational programs in the workplace can improve behavioral health clinicians'

knowledge, confidence, and beliefs, which can ultimately generate improved patient outcomes.

 It is essential to incorporate evidence-based pharmacologic instruction to develop astute,

supported, and trained clinicians to promote improved patient outcomes and improve the global

financial burden. Therefore, the purpose of the project was to describe whether a

psychopharmacology educational session, medication resources, and consultation with a

provider, improved clinician's knowledge, confidence, and beliefs about psychopharmacology

management, and improved referral rates for medication management.

Available Knowledge

The PICO question was: Do behavioral health clinicians in an outpatient mental health clinic (P) have improved knowledge, confidence, and beliefs about psychopharmacology management (O) when provided with a basic psychopharmacology educational session and resources? The PICO question guided the search terms. A literature search was completed using four computerized databases: CINAHL, PsychINFO, ERIC, PubMed. Search terms were selected to extract information precisely relevant to the PICO question and included psychopharmacology, therapist, behavioral clinician, mental health literacy, outcomes, knowledge, confidence, beliefs, pharmacology practice guidelines, APNs and collaborative care. The total number of articles obtained from these databases was 294. The number appropriate for review was 57, but 34 were selected for specificity and applicability (see Appendix A for Table of Evidence).

The articles that were reviewed discussed barriers that may interfere with clinician recognition of mental health diseases, screening for medication management, medication educational interventions, medication knowledge and experience, and the relationship to confidence, beliefs, and knowledge, applying gold-standard testing and treatment, organizational constraints, mental health outcomes, and the evidence for using current clinical guidelines to direct practice. Four of the studies helped to define current clinical practice guidelines for screening mental health illnesses and influencing other clinicians through the application of these guidelines used in practice (Bentley & Kogut, 2008; Cohen, 2002; Graham, James, & Cowan, 2000; Kates & Mach, 2007;). Eight studies addressed the deficiency of psychopharmacology in clinician programs, tailoring educational programs to improve behaviors toward psychopharmacology, efficacy of educational sessions, and compared levels of medication

knowledge and specific educational concept models that improve clinician knowledge and

confidence (Burgermeister, Kwasky, & Groh, 2011; Haddad et al., 2015; Hughes & Cohen,

2010; Moses & Kirk, 2006; Osborn et al., 2013; Shirazi et al., 2009; Thompson et al., 2000;

Vincente et al., 2007). Eleven articles investigated clinician knowledge, confidence, and beliefs

in treating mental health disorders (Baik et al., 2008; Bride et al., 2013; Burgermeister et al.,

2011; Byrne et al., 2004; Casini et al., 2013; Feros et al., 2010; Hemingway et al., 2014; Liu et

al., 2008; Naji et al., 2004; Rice et al., 2010; Shirazi et al., 2009). Three articles provided

screening guidelines to improve recognition of mental health illness, reinforcement of EBP

recommendations, screening tools that can contribute to EBP referrals for medication

management, and screening scales to measure clinician's knowledge, confidence, and beliefs

(Babor, Walsh, & Rosemary, 2007; O'Connor, 2009; Sui, 2016). Finally, three articles discussed

medication referral criteria, influencing factors for referring appropriately for medication

management, knowledge foundation and likelihood to refer, and attitudes that can conflict with

referral practices (Dziegielewski & Leon, 1998; Farinde, 2014; Springer & Harris, 2010; Stern et

al., 1999).

Suggestions from the Literature

The surveyed articles were published from 1998 to 2016 and the years of publication

were extended to improve interpretation and dissemination of results. Despite significant pre-

existing evidence that suggests that the use of EBP guidelines improves mental health outcomes,

there is minimal data to evaluate the knowledge, confidence, and beliefs of clinicians,

specifically behavioral health clinicians. Subsequently, the major limitation of these studies was

the absence of evidence addressing clinician knowledge, confidence, and beliefs in relation to

psychopharmacology; however, high-quality research studies exist on general practitioners'

qualities, which may be applicable to clinicians on a more basic level. Overall limitations and

weaknesses were low sample size, lack of educational recommendations that improve outcomes,

lack of a pragmatic evidence base, homogeneity, short-term RCT trials, attrition, low response

rates, and the inability to acknowledge the full role of clinical behaviors and variables in the

education delivered (Baik et al., 2008; Casini et al., 2013; Hemingway et al., 2014; Liu et al.,

2008; Shirazi et al., 2009;). The particular strength in these research articles is the large body of

evidence that supports clinician insecurity with psychopharmacology, inadequate

psychopharmacology knowledge, and how core beliefs can affect practice decision-making.

Optimizing psychopharmacology education can improve clinician knowledge, confidence, and

beliefs (Casini et al., 2013; Hemingway et al., 2013; Shirazi et al., 2009).

  While there is already pre-existing research and evidence that supports the use of

evidence-based psychopharmacology principles in practice, the research articles provide an

argument that ambivalent clinician beliefs and confidence may influence patient receptivity,

adherence, and decision-making about medications. Improving psychopharmacology literacy

can produce positive clinical behaviors towards a provider's medication recommendations and

promote positive influences on EBP clinical decision-making (Hemingway, Rogers, & Elsom,

2014). This may ultimately cultivate improved mental health outcomes in patients in the long-

term. More research is required to understand what educational interventions would improve not

only clinicians' clinical behaviors, but also mental health outcomes.

  This synthesis gives direction for future foci and offers early evidence-based implications

to the PICO question. Despite tangible evidence that EBP, if utilized, can improve patient

outcomes, it is clear that clinicians lack actual application in practice. This can be a result of

insufficient training, continuing education, or poor confidence and beliefs, which can impede

application of EBP decisions. Further research needs to be directed at clinician specific

knowledge, beliefs, and educational interventions that can improve confidence while

encouraging management of mental health that is in line with gold-standard EBP

recommendations.

Rationale

A major component that can influence clinicians' clinical behavior is the lack of

knowledge, confidence, and beliefs with psychopharmacology rationale and management

(Springer & Harris, 2010). Attitudinal barriers can inadvertently be directed to mental health

patients who seek reassurance or guidance about the efficacy and necessity of their provider's

medication recommendation.

This assumption can positively influence clinic stakeholders by reinforcing the need for

the educational pilot program, encouraging engagement and motivation to participate. It was

anticipated that validating this assumption with the clinic owners and clinicians during the

program planning meetings would help strengthen participation. Another assumption is that

psychopharmacology training in the workplace can improve clinicians' knowledge, confidence,

and beliefs, which can ultimately generate improved patient outcomes (Bee et al., 2008). This

assumption can be a positive one because the long-term goal of the project is to affect patient

mental health outcomes.

The Theory of Planned Behavior was developed by Ajzen (2001), who hypothesized that

behavior influences an individual's intent to implement a behavior and intention is decided by

current attitudes, perceived behavioral control, and subjective norms (see Appendix B for Theory

of Planned Behavior). Educational information, that models positive beliefs and positive

attitudes, improves clinical confidence toward the proposed behavior and can increase the chance

that it will be implemented in practice (Thompson-Leduc et al., 2014). The proposed project

identified clinicians' knowledge and confidence about psychopharmacology and tailored an

educational session to improve those characteristics that follow and are supported by evidence-

based research. The objective of applying these theories was to support improvement of

clinicians' clinical behaviors to facilitate the initiation of positive knowledge, confidence, and

beliefs about psychopharmacology in practice. The desired end result is to establish a new

model of care built on evidence, thereby improving collaborative relationships with medication

providers, and improving clinical outcomes of patients receiving psychopharmacology.

Composing a logic model was necessary for this project and provided guidance and

information that was easily adaptable into future results and used to evaluate the success of

goals. A logic model can be translated and interpreted by all stakeholders and offers key

information about what outcomes are expected from the project (W.K. Kellogg Foundation

Logic Model Development Guide, 2006). Combining the logic model with the Theory of

Planned Behavior, as a foundation, allowed the DNP to influence positive behaviors by

improving attitudes, perceived behavioral control, and subjective norms. The outcomes in this

project were designed to follow the recommendations of this theory.

Specific Aims

The purpose of this scholarly project was to describe whether a psychopharmacology

educational session, medication resources, and consultation with a provider, improved clinicians'

knowledge, confidence, and beliefs about psychopharmacology management, and improved

referral rates for medication management. This project sought to improve attitudes that may be

impeding positive clinical behaviors, such as support of medication recommendations and

referrals for medication management, thus influencing outcomes for mental health patients. The

doctoral nurse practitioner (DNP) student measured knowledge, confidence, and beliefs with pre-
and post-questionnaires, before and after the initial educational session, and then again two
months later, to assess for changes in response and to determine whether any educational benefit
was retained. In addition, comparison of referral rates from before the educational session and
again two months after, was evaluated (see Appendix D for the project short-term outcomes).

Context

The population for this scholarly project included clinicians in three outpatient mental
health facilities. The proposed project originated in three mental health clinics in Meridian,
Nampa, and Boise, Idaho. All of the mental health clinics are clinician-owned, the medical
providers are contracted positions, and memorandums were obtained by each owner (see
Appendix F for memorandums). The three clinics offer a variety of services, including
individual psychotherapy, family psychotherapy, group therapy, day treatment, and
community-based therapy

All types of mental health conditions and chronicity are managed in the included
practices, including bipolar disorder, attention deficit disorder, depression, schizoaffective
disorder, schizophrenia, anxiety, post-depression disorder, behavioral disorders, and sleep
disturbances. The DNP student conducted a research review, developed an educational
intervention, implemented teaching, processed results, and disseminated the program to
instructors and cohorts. Although the DNP project is geared towards clinicians, the ultimate
goal of this project is to improve mental health.

There are inherent risks in all projects increase the potential of impeding the project's
progress. Some risk factors for this project included not being able to engage clinicians to
participate, not convincing the clinics to invest time to train participants, access to live

consultation, conflicts with clinician workloads, and the inherent complexity of

psychopharmacology data. Lack of engagement could lead to a smaller sample size and hinder

the opportunity to extract meaningful information. To prevent poor participation, the educational

session was conducted at monthly meetings. To improve the chances that clinics would allow

the use of meeting times to deliver the education, the plan included emphasis on costs savings

and patient benefits, both short and long-term.

The live resource was designed to be flexible so that each clinician who wanted

consultation could receive it. The laminated resource was placed conveniently on each desktop.

Prior to and after the educational session, clinic managers were given a summary of the key

differences in knowledge, confidence, and beliefs reflected in the pre-and post-

questionnaires. To engage clinic manager involvement and acceptance of the project, *positive*

influential factors were emphasized, which can be used to strengthen the purpose and goals. It

was equally important to identify any factors that could potentially impact project goals

negatively (W. K. Kellogg Foundation Logic Model Development Guide, 2006).

The organizational culture of all three clinics was motivated by deficiencies in

psychopharmacology and a willingness to improve cooperation between providers and clinicians

in order to impact patient health outcomes. Prior to the start of the project, program planning

meetings with owners and clinicians clearly identified this need for education and support for the

project.

Interventions

The goal of this project was to develop a psychopharmacology educational program

tailored to clinicians to improve attitudinal responses towards medications management. The

aim of the educational program was to engage positive clinical responses by improving the

knowledge, confidence, and beliefs of clinicians.

These short-term outcomes, as measured, were achieved during the pilot project:

- Outcome 3: By August 2016, a demographic tool, knowledge, confidence, and beliefs

  questionnaire, and follow-up resource questionnaire, will be created and ready for

  implementation by May 2017.

- Outcome 9: By July 2017, clinician scores on the knowledge questionnaire (time 2)

  increased by 10% from baseline (time 1);

- Outcome 10: By September 2017, clinician scores on the knowledge questionnaire (time

  3) increased by 15% compared to the baseline questionnaire (time 1);

- Outcome 11: By September 2017, there was a 10% increase in the three clinics' database

  for referrals for medication management, compared to referral rates before the

  educational session; and

- Outcome 12: By September 2017, of the 20 participants who received training, at least

  20% used the resources evidenced by quantitative data from the resource follow-up

  questionnaire 2017.

The development of short and long-term outcomes was a result of quality feedback from

clinicians and the involvement of 18 participants. The short-term outcomes were developed to

improve clinician knowledge, confidence, and beliefs in psychopharmacology management. The

long-term outcomes are intended to influence clinician intent to refer for medication

management and then also to improve patient mental health outcomes. It was anticipated that the

long-term outcomes would be accomplished within 3 to 5 years after the pilot project. For long-

term outcomes refer to Appendix D.

The first step in the intervention process focused on outcomes one and two of the program, which assessed the clinicians' needs by conducting program-planning groups and obtaining memorandums of agreement from the three clinic owners. These planning groups helped establish a foundation about what was most important for clinicians to know about psychopharmacology and what educational interventions could be tailored to fit those needs. Thus, the content of the educational session was based on feedback from clinic owners and clinicians, and addressed the common antidepressants, antipsychotics, mood stabilizers, anxiolytics, hypnotics, and stimulants (see Appendix H).

The next step was to obtain baseline referral rates for each of the three clinics from February to April 2017. Data were collected for comparison, after the educational intervention was completed. A welcome letter was given to the clinicians before starting the educational session to explain the intent and purpose (see Appendix G). Participants completed baseline demographic information (see Appendix J) and baseline (time 1) knowledge, confidence, and beliefs questionnaires, since negative and positive responses can influence clinical behaviors (see Appendices H & I).

An educational session constructed on basic EBP pharmacologic principles was offered by face-to-face instruction during mandatory organizational monthly meetings. Each participant attended only one educational session. Knowledge, confidence, and beliefs were tested after the educational session with the same questionnaire given prior at baseline (time 2). After the educational session, the clinicians had access to a variety of resources. First, a double-sided laminated resource was given to participants upon completion of the questionnaires and educational session. The resource included common medications, side effects, and indications. This resource was loaded on the desktop of each clinician. In addition to the laminated resource,

the clinicians had access to live one-hour open consultations per week, in which the DNP student

was available for telephone, email, or in-person consultation. The purpose of the open

consultation was to address any medication consultation needs, and to serve as an additional

resource for referrals or other questions. Participants were given the option of 15-minute time

slots within one-hour blocks each week. The one-hour open consultation was set up via private

(invite only) email. All participants were added to the email group and the DNP student sent out

the scheduled blocks of time. The participants could schedule a time for consultation directly

after the educational session or contact the DNP student via email to schedule an appointment.

The DNP student updated the blocks of time as they were filled. The days of the week and the

times were changed weekly to reflect the complexity of diverse clinician schedules and to offer

more availability to all participants. If these times did not work for the clinician, email was an

additional possibility for consultation. The open consultation resource ran from May 2017 until

September 2017. During this time, clinician use of the open consultations was documented on

run charts.

In September, the referral data from May to August 2017 were collected and compared to

baseline referral rates. In September, the DNP student followed up with the clinicians at their

monthly mandatory staff meetings for fifteen minutes to complete the same post-educational

questionnaire (time 2 versus time 3) and a resource follow-up questionnaire (see Appendix L)

that provided closed and open-ended questions to evaluate the resources. The post-educational

data was compared to the post-questionnaire given at the initial education session. This offered

data to support the utility of the live consultation and laminated resource. The outcomes were

positive and supported clinical behaviors based on EBP guidelines for recommendations of

annual training programs and will be suggested for use at other local clinics.

Timeline

To ensure a successful and viable project that was realistic and manageable, a timeline

with all the necessary steps was created (Moran, Burson, & Conrad, 2014). The DNP student

modified the timeline to reflect the discussions with the faculty project mentor (see Appendix K).

The assessment and planning of the project started in August 2015 and continued to January

2017, and included literature review, obtaining MOUs, holding focus groups to refine the

objectives, developing the educational session with sustaining resources, and creating a viable

timeline for the project. In May 2017, five educational sessions were given at the three clinics

and data collection (a demographic sheet, information sheet, pre- and post-questionnaires)

started. In September 2017, the post questionnaire was repeated along with a resource use

questionnaire. Analysis of the data started in August 2017 and continued until spring of 2018.

Measures

To ensure that the surveys gathered dependable data, the author used valid and reliable

preexisting questionnaires that were modified to match the project outcomes. Several measures

were used to collect data for this project, including a demographic data questionnaire, pre-and

post-questionnaire (baseline, post-educational session, and two months after the educational

session), frequency of clinician-initiated referrals (baseline and two months after the educational

session), use of resources questionnaire and an open-ended questionnaire after the project was

completed.

The demographic data questionnaire was utilized to identify trends and patterns of

participants (see Appendix J). First, a demographic questionnaire, constructed by the project

leader, was used to document various participant characteristics, such as highest level of

education, years of experience, and gender. The informational characteristics were useful in

recognizing if particular segments needed additional resources, noting trends related to experience, age, gender, or education, and identifying future program modifications and refinements that needed to be considered for certain demographics.

Second, a valid and reliable questionnaire adapted from the knowledge, attitude, and practices (KAP) model developed in the 1950s (Launiala, 2009) and was modified to evaluate baseline clinician knowledge, confidence, and beliefs before after the educational session, at different intervals (before, directly after the educational session, and two months after the project completion; see Appendix H). Referral rates from each clinic documenting referral rates at baseline and two months after the educational session were measured to note any changes in the clinicians' patterns of referrals. Finally, a follow-up questionnaire regarding the use and practicality of resources was given two months after the educational session (see Appendix I). This open-ended questionnaire was included in the last data collection time point. The questionnaire was developed by the author to determine if the resources were used and advantageous to the clinicians after the educational session.

The project expenses used to measure the data were consistent with the anticipated budget and were relatively low. Detailed data was listed in the statement of operation and 3-5-year budget plan (see Appendices L and M). There were no unexpected costs to the project.

Analysis

Targeted objectives were evaluated, and the comparison of intended goals was summarized. Outcomes one and two were related to the primary input of obtaining the endorsement and engagement of clinic owners (see Appendix F for MOUs). The measures to meet the project objectives were direct consultation with clinic owners, subsequent face-to-face meetings with clinic owners, and attendance at participant monthly meetings before and after the

project. The actions for this input included sending letters of participation and having two to five

program planning meetings at each clinic facility. Outcomes three through five were associated

with inputs targeted at the development of an educational program that sought to improve

clinicians' psychopharmacology literacy. These outcomes also developed and implemented the

survey tools used in the project.

The statistical design used to analyze the demographic and pre-and post-questionnaires

was quantitative data analyses. Descriptive statistics were used to describe demographic

characteristics, such as highest level of education, age, gender, and years of experience, and

allowed the project leader to understand if possible relationships existed between these variables.

The demographic data, in outcome eight, was then analyzed by measuring means and standard

deviation statistics for age and educational experience. Findings supported outcomes nine and

ten. Providing clinicians education about psychopharmacology increased knowledge,

confidence, and beliefs by at least 10% directly following the session and by 15% two months

after the session, when combined with the educational resources.

The summation of outcomes nine and ten hypothesized improved clinician education

about psychopharmacology positively, which would influence knowledge, confidence, and

beliefs by at least 10% directly following the session and by 15% two months after the session,

when combined with the educational resources. Outcomes nine and ten were associated with

data collected from the two surveys (pre-and post-time 1 versus time 2, and time 2 versus time 3)

and were analyzed using counts, percentages, means and standard deviations and comparison of

t-scores (see Appendix N). Identification of trends and patterns among the data was considered.

The t-test analysis looked at the difference in percentages and any relationship between

variables.

Clinic referral rates increased by 10%, and at least 20% of clinicians were projected to access one of the resources after the session in outcomes eleven and twelve. This information was reported in a table (see Appendix N). Outcome 11 was analyzed by obtaining retrospective chart audits to record the number of referrals per month. Baseline referral rates were collected for three months (March to May 2017) prior to the start of the project and during the project, from June until August 2017. This was displayed in a run chart (see Appendix N). This type of analysis was used to evaluate whether clinician referrals to medication management changed, and to assess referral trends after the educational session and resources were made available.

Outcome 12, which was to have at least 20% of participants, by September 2017, access one of the resources after the educational session, initially was going to be analyzed by using counts, percentages, means, and a run chart; however, because of lack of participation, only a count was performed. In addition, an open-ended questionnaire was given to participants to seek further information regarding use of resources. The data were ranked categorically to determine if there were any common requests or issues. This analysis offered insight about frequency of use resources, applicability, utility of the resources and any necessary modifications needed to make the resources more useful.

Ethical Considerations

Protecting the basic human rights of the program participants was paramount in the project (Issel, 2014). Only clinicians were considered as participants in the project, but it was understood that any person potentially affected needed to be considered and protected as well. To protect the participants in the project, the project approval from the Boise State University institutional review board (IRB) was prior to being initiated. There were no notable conflicts of interests.

Names or other identifying characteristics were not collected. Participation was

confidential and voluntary. The questionnaires were not shared with the clinic owners to

maintain confidence with participants and to prevent reprisal. The questionnaires were collected

in a secured lockbox placed at the front reception areas at each office and the DNP student had

the only key to the lock box. The boxes were not in patient accessible areas.

Controlling for bias in quantitative models improves reliability and confidently reports

that objective goals were met. In this project, selection bias and response bias were assessed.

The attempt to reduce selection bias was made by using clinicians from 3 different outpatient

clinics in two counties and from unrelated clinics. Also, employing a prospective design, rather

than retrospective, offered more rigorous criteria.

To protect against response bias, the evaluator issued a welcome letter that clearly stated

the confidentiality protection and the purpose of the project. Completed pre-and post-

questionnaires were placed in return boxes that were secured in the front reception areas, which

this author did not frequent during the project. These methods were designed to strengthen the

confidence of the participants that all feedback would be confidential and that they could respond

without worrying about retribution or pleasing the evaluator.

Results

Referral rates steadily increased during the implementation phase, and, by September

2017, the outcome 11 goal was met. There was at least a 10% increase in the three clinics'

database for referrals for medication management, compared to referral rates before the

educational session. The baseline referral rate at clinic one was 10 referrals per month (March

2017-May 2017) compared to 11.6 referral calls per month during the implementation phase

(June 2017-August 2017), a 1.6% increase. Clinic two had 7.6 referrals from March to May, and

8 referrals from June to August, representing a 1% change in quantity of referrals (see Appendix

N). Clinic three demonstrated the most significant difference in referrals before and after the

educational session, with 14.6 referrals during the baseline time period, followed by 21.3

referrals per month from June 2017 to August 2017, a 48% growth (outcome 11).

The tool had three subscales: knowledge, beliefs, and intentions (or attitudes). A t-test

was used to determine whether outcomes 9 and 10 showed differences in knowledge, beliefs, and

intentions before and after the educational session (see appendix N). In evaluation of the beliefs

data *before* the educational session (time one) compared to directly after the educational session

(time two), means did not show statistically significant differences. Two variable factors,

however, did have variations in time two versus time three. Clinicians who strongly agreed that

they should have a working knowledge of psychopharmacology to improve effectiveness and

who agreed there is a lack of clinician knowledge improved in time two versus time one, $t(17) =$

1.84, $p = 0.04$ (see Appendix N). The knowledge questions were related to the improved

comfort with psychopharmacology after the educational session. Eight out of the nine

knowledge data sections indicated significant differences between time one versus time two, and

half of these educational scores improved in time two versus time three (see Appendix N).

Intention values were all significantly changed after the educational session, represented in time

one versus time two (see Appendix N). The clinicians' intent to use evidence-based practices

persisted in time two versus time three, $t(17) = 2.91$, $p = 0.004$).

All of the clinicians completed the demographic questionnaire (outcome 8). The

clinicians who participated in this project were majority female and had a minimum of a master's

degree (see Appendix N).

The open consult objective in outcome 12 was not met since none of the clinicians sought

an open consult by September 2017, which was a standard of participants who received training

using at least 20% of the resources evidenced by quantitative data from the resource follow-up

questionnaire. The data, however, obtained in the resource questionnaire, displayed a 27% use

of the paper and desktop resources. After the educational session, resource use was steady; six

times in May, five in June, seven in July and four times in August (see Appendix N). There was

no open-ended feedback to evaluate.

One contextual element that may have impacted the results is the size of the clinics. Two

of the three are relatively small in comparison to the last. More patients are seen and referred to

the largest clinic, because it is the most recognized in the general geographic area. Another

contextual element is the fact that the author has a longer relationship with the larger clinic,

which might have influenced participation and the use of resources. The last contextual element

is the turnover of clinicians at one of the clinics that saw the lowest change in referral quantity.

Two clinicians left this practice in the middle of the project, and they both were considered,

informally, as the most motivated clinicians.

One unanticipated issue was a complete lack of engagement and participation in the

offered live consult resource. None of the clinicians used this resource at any point in the

program. Frequent focus groups did not reveal obvious modifications that would improve use,

and, during these focus groups, clinicians suggested that they were motivated to use the live

consult, but this was not validated by the data. Further evaluation is required to determine what

modifications can be made to this resource to make it more immediately appealing to

participants. Another unintended issue was missing data from one pre-questionnaire. This

changed the number of participants in time one versus time two to seventeen. This participant did, however, complete the subsequent questionnaires.

From a budgetary standpoint, the project was relatively low-cost and there was no external funding. The budget was covered by the DNP student and in-kind donations from the organization. The highest cost was attributed to the DNP student's consultation time. The estimated expenses were consistent with the actual expenses. There were no unexpected costs. Quarterly consultation was $750.00, which provided two hours of consultation at each clinic. There were no consultation calls, but time was allotted and considered on the same basis as a paid call. Printing materials, supplies, and equipment were $150.00 (see Appendix L).

Summary

This project explored the baseline knowledge, confidence, and beliefs of common medications used in a mental health clinic setting, held by behavioral health clinicians. It also looked at combined educational sessions and medication resources to influence and sustain positive behaviors. Poor knowledge of psychopharmacology principles and rationale can affect clinicians' clinical decision responses and attitudinal biases, which can affect clinical behaviors. Clinicians who have negative beliefs about psychopharmacology can inadvertently influence the patients' receptiveness towards referrals and medication compliance (Moses & Kirk, 2006), resulting in poor patient compliance, untreated mental health illness, continued financial burden, and poor resolution of the genuine issue (Bride et al., 2013). The project assessed the relationship between clinician self-reported psychopharmacology knowledge, beliefs, and confidence and differences in repeated self-reported questionnaires after an educational session at two different intervals. In addition, the use of self-reported scores were evaluated in conjunction with referral rates of clinicians and the use of the medication resources. It was

anticipated that the information gained from this inquiry would help refine an educational session and resources for sustainability.

Interpretation

Beliefs

Beliefs are problematic to transform once habituated (Kurz, Gardner, Verplanken, & Abraham, 2015). This makes the task of altering beliefs challenging. The project leader considered the difficulty in changing beliefs with one educational session. Although there was not a statistically significant difference between the different time points in the beliefs questionnaire, the mean score consistently improved over the three intervals. This may be because clinicians' beliefs were already favorable toward the use of medications before education. For example, clinicians responded to the following three items as strongly agree to agree: medication can improve effectiveness of mental health; patients can overcome mental health illness; and basic medication literacy is their responsibility. During time two versus time three, the belief that clinicians should have a working knowledge of medications and clinicians' lack of knowledge scores were statistically significant. This may suggest that the information gained further uncovered the absence of knowledge among clinicians, and with more they learned during the educational session, the more they may have decided medication literacy was a responsibility of clinicians. The results follow previous research that showed that clinicians do feel a responsibility to improve their knowledge base about medications and viewed it as part of their occupational role (Hughes & Cohen, 2010; Osborne et al., 2013).

Knowledge

The knowledge section asked if clinicians understood mental health medications and mental health symptoms. In addition, six commonly used classes of medication were assessed. Every section of the knowledge questionnaire had consistently elevated means at all three intervals, suggesting strongly that basic knowledge improved directly after the educational session, and 80% of the scores improved from time two to time three, suggesting that education was sustained over the last two months (see Appendix N). During time two versus time three the most significant change was seen in the clinician's ability to recognize that medical issues can present as mental health issues and their understanding of mental health medications. This indicates that in subsequent questionnaires, clinicians retain knowledge about the medications. The project complemented studies that exposed clinicians' inadequate training, education, and comfort with psychopharmacology rationale and that enhancing knowledge improved basic skills (Bentley et al., 2005; Casini et al., 2013; Hemingway et al., 2014; Shirazi et al., 2009).

Attitudes

Intention and confidence, as a variable, was measured based on self-reported scores (see Appendix N). All confidence and intention scores improved compared from time one to time two, but the most significant circumstance occurred when the clinicians felt prepared in psychopharmacology. Time one scores, before the educational session, were consistently reported in the "disagree" and "neutral" categories. Directly after the educational session (time two), mean scores were steadily reported in the "agree" category. Lastly, in time three, clinicians continued to rate more confidence in feeling prepared in psychopharmacology. Overall, clinicians appeared to feel more confident, prepared to discuss and consult medications with patients and providers, and had a clear resource, after the educational session. These results

are consistent with previous studies that psychopharmacology education improved clinician

confidence and beliefs about medications (Mitz, 2005; Thompson et al., 2000).

Referrals

Referral rates increased steadily at two of the clinics and increased significantly at one

clinic. The trend of referral rates suggested improved referral for medication management after

the educational session. The consistent increase in referrals after educational sessions reiterated

the literature that clinicians with more experience and knowledge about medications had more

positive responses towards medications and the positive advantage of treatment predicted the

likelihood to perform new behaviors, such as referring for medication management when

appropriate (Moses & Kirk, 2006; Perkin, et. al., 2007). These referrals also reinforced previous

observations that clinicians can reduce the severity of missed opportunities in medication

adherence by reinforcing basic pharmacology principles to their patients and offering direct

guidance for referrals (Bee et al., 2008; Fortney et al., 2011; Gilles et. al., 2015; Martinez-

Gonzalez et. al., 2014).

Resources

The lack of taking advantage of the open consult was unexpected, but the use of the

medication paper and desktop resource was substantial, indicating references given at the

educational session were useful after the initial session. Clinicians actively applying current

evidence in practice supported the applicability of the educational session and appropriateness in

practice. The results lend support to the concept that educational programs which reinforce basic

pharmacology principles in the workplace can improve clinicians' knowledge, confidence, and

beliefs, which can ultimately generate improved patient outcomes (Bentley, Walsh, & Farmer,

2005; Bentley & Kogut, 2008; Breggin, 2016).

Summary of Interpretation

The project confirmed previous studies and trials that examined improving clinicians' knowledge, beliefs, and confidence about psychopharmacology through basic educational sessions, thus changing negative beliefs about medications, improving confidence, and predicting appropriate referrals for medication management (Baik et al., 2008; Bride et al., 2013; Burgermeister et al., 2012; Hemingway, Rogers, & Elsom, 2013; Liu et al., 2008, Casini et al., 2013). The project noted the greatest benefit for all self-reported categories directly after the educational session. The beliefs and confidence scores did not differ much from time two to three. Knowledge scores, however, did show consistent improvement over two months, which may direct project refinement to focus on beliefs and confidence for future sessions. The most significant change in self-reported scores was in clinician confidence, in which they "felt well prepared in psychopharmacology." Time one represented scores associated with "neutral" agreement, time two and three scores associated more closely with "agree" (see Appendix N).

The results of these questionnaires met outcomes nine and ten, which were related to self-reported scores improving at least 10% in time one versus time two and time two versus time three.

Previous studies have illustrated that clinicians' knowledge and confidence with psychotropic medicines was predictive of appropriate referral for medical management, and the increased likelihood that clinicians would recognize appropriate referrals and improve coordination with providers (Bentley et al., 2005; Stern et al., 1999). Referral rates were gradual after the educational session. Referral rates also met project outcomes eleven in two clinics, but one clinic had an unexpectedly highest average after the educational session. One assumption for the differences in rates from the other clinics is that the high average clinic was the largest,

most recognized in the area, and the busiest. Another development is that the clinic lost two

clinicians in April, then subsequently hired three additional therapists who came with an existing

patient load. This patient load may have been considered "new medication referrals" because the

clinic did not separate the data. Those incoming clinicians were offered the educational session

too, so it is unclear exactly why the rates were elevated in comparison to the other clinics. In

future projects, the goal will be to examine clinics by controlling for significant turnover as a

new variable.

Although use of the live consult resource was poor, the use of the laminated and desktop

resources met objectives in outcome twelve. The laminated and desktop resources were accessed

about six times a month. The sole use of the laminated and desktop references (combined with

an educational session) may support that clinicians felt those resources were sufficient enough to

guide them and did not require more intensive live consultation.

Policy Implications

The project was not actively pursued for policy or political development in this primary

stage. Although this project was not directly political, it does validate future political and policy

implication analyses related to mental health care coverage, access, and funding. Under the new

health care proposal, there will be continued reductions to health care coverage and access. The

insurance gap will widen due to restructured income qualifications, reduced tax subsidies,

deregulation of health care payers, removing mental health care as an essential benefit, and

escalating premiums (Closing the gap, n.d.). As a result of these significant changes, millions

will be displaced from being insured (Busch, 2012).

The next step for policymakers is to ensure that access to mental health care is available,

affordable (both to the organization and individual), that quality health care is reimbursed, and

that the divide is reduced between who can and cannot afford health insurance. There are many

policy and political movements occurring in both national parties to improve health coverage,

but there remains a sharp divide and lack of consensus on what will shape the new standards

(Barry, Huskamp, & Goldman, 2010). The recommendations from a mental health care

perspective are to ensure policy is implemented with best practice, high-quality *integrated*

evidence. This evidence should be made available by federal and state agencies for providers via

tool-kits, algorithms and online resources. Mental health illness is variable, and response is

diverse; therefore, it requires policymakers to acknowledge individuality in prescribing. This

means access to an open formulary for customized treatment. Prescribing should not be guided

by the available formulary, but, instead, policymakers should support policies that ensure that

safety, tolerability, clinical appropriateness, and affordable costs are the main guides to treatment

choices. Additionally, policymakers need to address controlling the costs of medications from

pharmaceutical companies so that limitations are not based purely on costs but clinical

significance, appropriateness, utility, patient response and provider judgement (Parks, Radke, &

Tandon, 2008).

Limitations

Several study limitations necessitate mention. Foremost, the sample size, 18, was small

and may have impacted results. The student actively reminded clinicians, at least weekly, of the

ongoing program in an effort to encourage more participation. During the interpretation phase of

the project, attendance at staff meetings was consistent, to preserve open dialog about the

resistance to the use of consultation. Feedback consistently found that it may have been

unnecessary. Perhaps, future efforts could include obtaining more participants in different types

of clinics in both urban and rural areas.

Another limitation was selection bias, which occurred in the data collection because participants were not adequately randomized. This can prevent generalizability to the larger population. The attempt to reduce selection bias was by means of using clinicians from three different outpatient clinics in two counties and from unrelated clinics. For future comparisons, using clinicians from multiple clinics and counties would be desirable, as a way to further reduce selection bias and improve generalizability.

Additionally, relying on self-reported data limits the ability to independently verify the information. Self-reported material can contain other biases, such as attribution and exaggeration. Lastly, there were no calls for individual consult. A low number of participants reported using the laminated resource, yet questionnaire scores continued to increase from time 1 versus 2 and 2 versus 3. This may suggest that perhaps the educational session was sufficient, and that clinicians did not feel like they needed to use any additional resources. However, the resources will need to be evaluated for practice applicability and modified in order to make it meaningful to clinicians.

Conclusion

The objective of this project was to generate new clinician knowledge and confidence that supports patients who are prescribed medications, while also improving new referral rates for medication management, by presenting an educational session that influenced positive clinical behaviors, based on previous research evidence (Thompson-Leduc et. al., 2014). The project met the majority of the outcomes and did support previous findings in the literature. This project was well-received and embraced by the clinic owners and clinicians, highlighting the need for continued education services. The usefulness of these findings in practice can be beneficial to the clinicians, clinic owners, prescribers and, eventually, patients. For clinicians,

the improved knowledge will promote confidence, align beliefs with current available evidence, and enhance the referral process. For clinic owners, it provides astutely-trained clinicians, and collaboration and cohesion between medication management and therapy, which is superior for patient mental health outcomes.

To encourage sustainability, the evaluator will recommend that each clinic conduct continuing annual education services and provide a resource tool for common psychopharmacology medications for use after the educational sessions. These services will be offered through arrangement of being compensated based on the evaluator's current hourly rate.

The next step would include refining the resources, making them more valuable to the clinicians, and then advertising services to the pilot clinics for reimbursed implementation. Long-term objectives would include having the clinics establish a new model of care built on evidence reinforced by this pilot project, improving collaborative relationships with prescribers, and improving clinical outcomes of the patients receiving medications.

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Appendix A

Table A1

Synthesis of the Evidence

Article #	Author & Date	Evidence Type	Sample, Sample & Setting	Study findings that help answer the EBP question	Limitations	Level & Qual
1	Baik et al., 2008	RCT	8 providers	Describes the significance that clinical experience plays in recognition and management of depression	Small sample, limited longitudinal data, specific setting	2B
2	Burger-meister, Kwasky, & Groh, 2012	Narra-tive review	N/A	Inclusion of mental health literacy In nursing practice curriculum can improve provider confidence	Not a RCT, narrative review non-experimental	3B
3	Casini et al., 2013	Quasi RCT	816 primary care providers	Teaching basic skills for recognition and management for depression can improve provider confidence and comfort	Generalizability is limited, unexpected finding of poor confidence, may need qualitative study to answer questions, education needs to be tailored to experience	2A

				□		
4	Graham, James, & Cowan, 2000	Clinical practice guide-lines		In order to evaluate the utility of clinical guidelines in practice and provider adherence it must be measurable extrapolate meaningful information	Specific population, not generalized, homogeneity	4B
				□		
5	Hemingwa Rogers, & Elsom, 2013	RCT	67 APN students	Mental health literacy and APN students' confidence can improve with specific education in the curriculum	Small sample size, results no followed, student bias, no lir in interventions and patient outcome	1B
			N			
6	Liu, Lu & Lee, 2008	RCT	375 non-physici providers	Poor confidence, knowledge of depressio it suggest that beliefs and attitudes are influenced by this	Geographically located may difficult to generalize, more male providers, already received depression training weak correlation	2A

				□		
7	O'connor, 2009	Syste-matic review with meta analysis	33 articles synthesized	Screening and recognition of depression is unlikely to influence outcome without additional support □	Targeted area of concentration poor generalizability, short follow up, high placebo rates small sample size	1B
8	Naji et al., 2004	Quali-tative	442 practice nurses	Practice nurses do not feel prepared to work with depressed patients □	Low response rate, clinical behavior not well established	3A
9	Shirazi et al., 2009	RCT	192 general prac-titioners	Provider behavior towards Management of depression can be influenced positively by tailoring education to each provider	Control arm received 8 hours Of training while the Interventional arm received 12 hours, high attrition, small sample size	1A

			□			
10	Siu, 2016	Clinical practice guide-lines	N/A	Reinforcement of current gold-standard EBP recommendations for scree of depression	Does not discuss ways to improve practical use in practice	4A
11	Thompson al., 2000	RCT	232 prac-tices with 4192 patients with depression	Outcomes of depression in patients did not improve however, it did highlight improved provider confidence and education was well receiv	Depressives were studied bu not depression as a diagnosis ceiling effect, trial design	1A
12	Vicente et al., 2007	RCT	37 MDs, 2598 pts evaluat	Improving provider training and compete can improve management of depression	Limited longitudinal data, varying demographics, 11 month follow up, low	1A

				□		

13	Springer & Harris, 2010	RCT	322 marriage and family therapist, outpatient therapy setting	Over 80% of the therapist felt inadequately trained in psychotropic medications, therapist with a psychopharmacology class in their curriculum identified a medication referral earlier	Self-reported information, inflated responses, no scales to measure therapist attitudes on medications, generalizabilit Anglo, marriage/family therapist, internet data collection, response rate	
14	Rice et al., 2010	RCT	180 therapist from Socia Workers Association randomly Divided into 2 groups	Negative attitudes toward EBP, lack of knowledge and skills for using EBP	Small sample size, testing was modified to fit therapist	1B
15	Feros et al., 2010	Non-ex-perimenta study, descript-tive	72 health clinicians	Ambivalent attitudes towards medication in general and in effectiveness in depression, providers with prior medication training had more positive attitudes with medications and felt more that it was part of their role to facilitate adherence	Small sample size, specific sample size, not a RCT	3A

16	Bride et al., 2013	Non-experimental study	1227 counselors, social workers and therapist	Therapist with higher degree Levels had more positive attitudes towards EBP practice support use of medications in SUD treatment	Self-reported data, response bias, limited ability to determine causality, specific setting	3A	
17	Moses & Kirk, 2006	Cross-sectional survey	260 social workers and therapist from national social worker association	Social workers and therapist with more experience and knowledge with medications had more positive responses, social workers and therapist may benefit from psychopharmacology education from medical professionals	Self-reported response, response bias, poor diversity of respondents, poor response rate	3A	
18	Hughes & Cohen, 2010	Systematic Review	175 RCTs	Social workers have a role in further understanding patients' drug effects	Not a RCT, inconsistent assessment models, heterogeneity	3A	
19	Dziegielew Leon, 1998	Quasi-experime	169 social workers and therapist	Social workers equipped with basic knowledge of commonly used drugs allows social work to actively participate in the interdisciplinary team and provide information to providers about patient response and adherence	Not randomized, specific sample	2A	
20	Cohen, 2002	Systematic review without Meta analysis	368 studies	Social workers and therapist can look at clinical studies and research through EBP methods and improve their personal knowledge which can influence other	Not a RCT, specific sample	1B	

				social workers and therapist			
21	Stern et al., 1999	Non-experimental study	74 physician non-physicians, psycho-therapist	Attitudes of health care professionals can influence patients' access to depression treatment	Small sample, old study, poor generalizability given new standards of care and development of newer antidepressants	2B	
22	Byrne et al., 2004	Quasi experi-mental study	23 mental health care worker	Basic medication and medication adherence educational opportunities improved the knowledge of mental health care workers	Sustainability, did not measure response in actual clinical practice, interrater reliability, not randomized	2B	
23	Ng et al., 2012	Non-experime study	119 mental health patients with affective and psychotic disorders	Patients' attitudes and beliefs towards medications should be assessed by all mental health clinicians because attitudes and beliefs can influence medication adherence	Heterogeneity, self-reported, cross-sectional, selection bias, not a RCT	3A	
24	Mintz, 2005	Expert profess-ional opinion	Medical residents during their residency	Integration of a specific psychopharmacology course during residency improves sk and confidence	Not a RCT, level 4 evidence, specific setting	4B	
25	Bentley, Walsh, & Rosemary, 2005	Systemat review of RCTs, non-experime studies, qualitativ studies	52 RCTs, non-experiment studies, descriptive studies	Evidence-based education an information given to social workers can improve EBP referrals	Not a RCT, specific setting, external validity	3B	
26	Babor, McRee, & Kasse-baum,	Systemat review of RCTs, guideline non-experime studies o	26 self-reported test to screen for	These screening test are brief and manageable to add to a social worker's patient evaluation and could lead to	Not a RCT, specific setting, specific population, external validity	2A	

	2007	reported testing	drug and alcohol test	EBP referrals for medication management of drug and alcohol recovery			
27	Farinde, 2014	Systematic review without meta analysis	Could not determine	Improved collaboration with pharmacist and therapist can improve timely referrals, increase patient consultation with pharmacist about psychotropic medications and opportunity to improve patient outcome	No meta-analysis, not a RCT, small sample, specific setting and population, external validity	3A	
28	Haddad et al., 2015	RCT	1213 healthcare professional	The revised scale is reliable for evaluating training that looks at therapist and social workers' attitudes towards depression	Convenience sample, specific setting, limited applicability, response rate, selection bias, external validity, missing data	1A	
29	Gunn et al., 2010	Quasi experi-mental study	5 private owned clinics and 1 community health care center	Shared understanding of conceptual frameworks are recommended to improve collaborative care among healthcare providers	Limited involvement in the organization's policies or procedures, input of data inconsistent, limited staff commitment, immense data	2A	
30	Thota et al., 2012	Systematic review With meta analysis	69 RCTs	Collaborative care models are effective at improving networking, support and public health outcomes	Selection bias, differential effects by severity of depression, attrition bias, referral bias, only use of RCTs	1A	

| 31 | Rush & Trivedi, 2009 | Non-experime study | N/A | Measurement tools can help establish a diagnosis, measure symptomatic outcomes and adverse effects. Can provide more clinical information | Self-reported, not a RCT, specific setting and population, external validity | 3A | |
| 33 | Osborne et al., 2013 | Non-experi-mental study | N/A | HLQ supports validity in intervention evaluation and surveys of the capabilities of individuals. May use as a tool to measure therapist health literacy | Low response rates, specific setting, lower reliability, absence of data | 1B | |

Appendix B
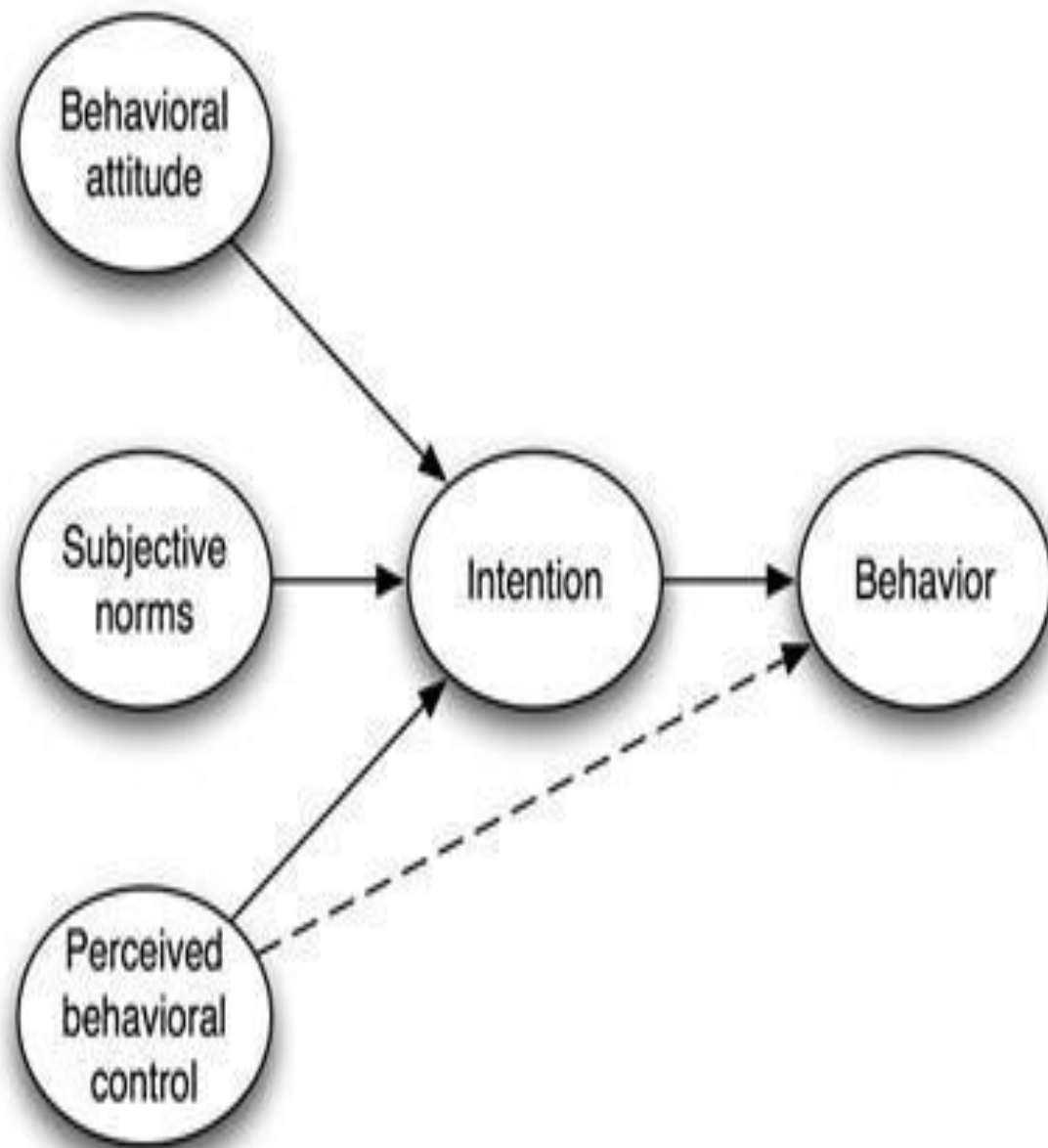
Figure B1. Theoretical framework (Thompson-Leduc et al., 2014).

Appendix C

Table C1

Project Framework Iowa Model
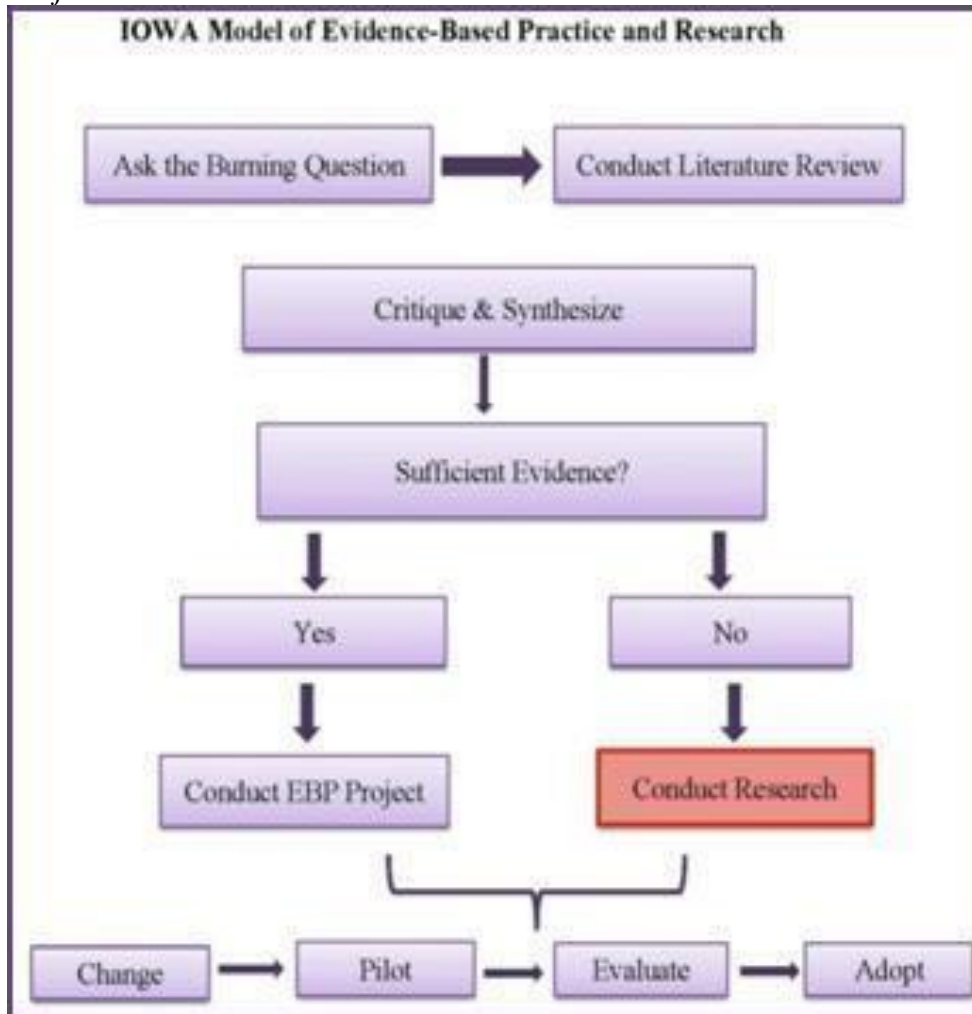
Note. Adapted from "Nurse Practitioner Care Model: Meeting the Health Care Challenges with A Collaborative Team" by J. Kutzleb, R. Rigolosi, A. Fruhschien, M. Reilly, A. M. Shaftic, D. Duran, and D. Flynn, 2015, *Nursing Economics*, *33*, no. 6 (2015): 297.

Appendix D

Table D1

Logic Model

Resources/Input	Activities	Outputs	Outcome Short term	Outcomes: Long term	Impact
Includes the human, financial, organizational, and community resources a program has available to direct toward the work.	Includes the processes, tools, events, technology, and actions that are intended to bring changes or results.	Direct products of program activities and may include types, levels and targets of services to be delivered by the program.	Specific changes in program. SMART.	Specific changes in program. SMART.	Fundamental intended or unintended change occurring as a result of program activities in 7-10 years.
Endorsement and engagement of 3 clinic owners	Write a proposal to present to clinic owners for an educational program that will improve clinicians' knowledge about psychotropic medication management and rationale for referral Develop and strengthen relationship with clinic owners	At least 1 face-to-face meeting with clinic owners to initiate program and at least 1 email about proposal	1. By August 2016, quarterly consultation with 50% of clinic owners regarding the development and delivery of the educational program will occur	13. By 2020, the educational program is conducted at all 25% of the clinic sites annually	Majority participation of local outpatient mental health clinics in the educational program

		Face-to-face or phone call once a month to update progress or discuss issues Attend staff meetings monthly before and after educational program is piloted		14. Quarterly consultation with 60% of clinical owners regarding the development and delivery of the educational program, starting March 2019	The psychopharmac ology educational session will become standard practice for clinicians
Behavioral Health Clinicians	Conduct program development groups to determine priority, gaps and needs of psychotropic medication literacy	Develop program development groups of 2-5 clinicians at each clinic	2. By Sept. 2016, will have at least 1 program planning meeting at one of the mental health clinic facilities	15. By March 2019, clinicians have improved knowledge. confidence. and beliefs by 10% in the first post questionnaire (time 1)	Clinicians can develop own program planning groups to modify the educational program content to match their needs
	Develop participation and welcome letter about purpose of the project, contact information and goals	Develop and write the welcome letters to 100% of participants and clinic owners, estimate about 20 participants.		16. By March 2019, there will be a 20% increase in referrals for medication management at all 3 clinics	Participants are confident about using the letter to broach other clinicians to attend an annual psychopharmac ology educational session

		(May consider sending via email to reduce cost)			
Development of educational program to improve clinicians' psychopharmacology literacy	Identify demographic tools	Research preexisting demographic questionnaires for background information to identify trends and patterns	3. By August 2016, a demographic tool, knowledge, confidence and beliefs questionnaire, and follow-up resource questionnaire is chosen and ready for implementation by May 2017	17. By March 2019, the educational program is offered to 2 other local clinics in the Boise area	The demographic tool will be standardized and used by other local clinics before initiating training for the psychopharmacology educational session
		Implementation of a knowledge, confidence and beliefs questionnaire to evaluate efficacy of the psychopharmacology educational session		18. By March 2019, of participants who receive training, 30% use the resources evidenced by quantitative data from the resource follow-up questionnaire	
	Identify, research tools to measure knowledge, beliefs, confidence to measure response to the psychopharmacology educational session		4. By Sept. 2017, 50% of the participants in the three clinics complete the second post knowledge, confidence and beliefs questionnaire and resource follow up questionnaire		
	Develop an EBP educational program about psychopharmacology	Analyze and synthesize results knowledge, confidence and beliefs questionnaire and disseminate to faculty advisor			The tools will be recognized as standard applications in national mental health clinics in conjunction with offering a psychopharmacology educational session

	educational session			
Development of a resource for participants to use after training (web-based application, algorithm or pocket guide) and provide training to use them	Develop estimated 45min educational intervention to participants at mandatory monthly meetings			The knowledge, attitude and beliefs questionnaire will be recognized as standard in all national mental health clinicians
	Educate participants about how to use the resource materials and distribute to each clinician after the educational program	5. 80% of all participants trained on the use of the resource and has a copy or access to the resource by June 2017		Become a consultant for training other practitioners to provide the training to clinicians in other states and clinics
				Improved self-reported patient quality of life, reduced disability
				Decreased financial global burden
				Nationally recognized resource for

					other mental health clinics
Implementation of a psychopharmacol ogy educational session	Training and guidance to clinicians about the psychopharmac ology educational session	A 45-min educational training program will be given at the 3 clinics to 75% of participants once every week from May 2017 until November 2017 Evaluate responses and feedback weekly, from implementation May 2017 to November 2017 Analyze and synthesize the results by November 2017	6. By July 2017, 50% of participants in all three clinics complete the initial pre-and post-knowledge, confidence and beliefs questionnai re 7. By Sept. 2017, 50% of participants in the three clinics complete the second post knowledge, confidence and beliefs questionnai re	19. By March 2019, at least 1 clinic applies the psychopharmac ology educational session through a policy change 20. By March 2019, a 20% increase in the clinics' data base for referrals for medication management in all 3 clinics	Improved provider and clinician collaboration Improvement in undergraduate and graduate universities adding and/or emphasizing the psychopharmac ology in clinicians' curriculum Improved patient adherence to medications Appropriate and prompt referrals for medication management
Evaluation of educational program	Give participants the demographic and knowledge,	Analyze and synthesize survey tools	8. By July 2017, 60% of clinicians complete the demographic questionnaire and baseline	21. In 1-2 years clinicians report a 30% improvement of post questionnaire	Standard use of evaluation practices in other clinics nationally

			knowledge questionnaire (time 1)	knowledge scores	Nationally recognized improvements of attitudinal responses and knowledge to psychotropic medications after using the educational program
confidence and beliefs surveys					
			9. By July 2017, clinicians scores on knowledge questionnaire (time 2) will increase by 10% from baseline (time 1)	22. Continued correspondence with BSU faculty 1 year after the program pilot for guidance and support of continued program efforts	
Evaluate Post-training goals	Meet with faculty advisor to discuss program goals and future progress		10. By September 2017, clinicians scores on knowledge questionnaire (time 3) will increase by 15% compared to the baseline questionnaire (time 1).		Long-term collaborative relationship with BSU faculty
	Disseminate results to faculty and cohorts		11. By September 2017, there will be 10% increase in the 3-clinic's database for referrals for medication managemen t compared to referral rates before the educational session.		

			12. By September 2017, of the 20 participants who received training, 20% use the resources evidenced by quantitative data from the resource follow-up questionnaire by Sept. 2017.		

Appendix E

Table E1

Outcome Evaluation Plan

Outcome	Outcome Instrument Data	Analysis Goal	Analytic Technique
8) By July 2017, 60% of clinicians complete the demographic questionnaire and baseline knowledge questionnaire (time 1).	**Demographic survey questionnaire: age, educational level, experience**	**To determine if the population is representative of the general population, observation of trends.**	**Descriptive statistics look at variable data such as highest level of education, age, gender years of experience and allows the student to understand if possible relationships exist between variables. I will use statistical analysis for discrete data; measure frequency statistics, percentage statistics for age, educational experience, etc. and also use measures of central tendency for continuous data. Evaluating the frequency of data can improve interpretation by determining the frequency and then figuring out the percentage of that particular data.**
9) By July 2017, clinicians scores on knowledge questionnaire (time 2) will increase by 10% from baseline (time 1).	**Pre/post education questionnaire. The questionnaire is adapted from the knowledge, attitude and practices (KAP) model, which has been widely used in previous studies and has established reliability and validity (Launiala, 2009).**	**Descriptive statistics using counts, percentages, means and standard deviations from the pre-educational questionnaire. Establish baseline data of attitudes, beliefs and knowledge perceptions of participants' rankings before implementation of the educational, will be used in statistical analysis to see if improvements were noted after the educational sessions**	**Likert style questions may offer open-ended questions that will require quantitative and qualitative approaches to evaluate the results. The closed-ended questions will have Likert scales that are ordinal, will look at the difference in percentages using a t-test, which looks at the relationship between variables. For this project examining the difference in scores after the educational session will be examined more closely with the statistical analysis**
10) By September 2017, clinicians scores on	**Retrospective chart audit that**	**Provide strength that the**	**Will use interval data from the organization's medical record to evaluate if per clinician referrals**

knowledge questionnaire (time 3) will increase by 15% compared to the baseline questionnaire (time 1).	looks at number of referrals per month from internal and external sources	educational intervention optimized referrals for medication management	to medication management changed. This can better assess trends after the educational intervention. A run chart could be used to compare data about the trend of referrals. The run chart would be from before the educational session was given then 2 months after.
11) By September 2017, there will be 10% increase in the 3-clinic's database for referrals for medication management compared to referral rates before the educational session.	Pre/post education questionnaire. The questionnaire is adapted from the knowledge, attitude and practices (KAP) model, which has been widely used in previous studies and has established reliability and validity (Launiala, 2009).	Describe and summarize data between pre/post educational intervention scores, measure of variability to assess which scores differ around the average, note themes between attitudinal response, did these improve after the intervention. The surveys will help note changes in therapists' referral intentions, changes in patterns of response to patient and medication, self-reported attitudes and behaviors. Measure perception of knowledge, skill building, attitudes and intent to change practice. Gives me more insight about the educational intervention and its effectiveness	Quantitative methods will be used to evaluate the survey. Therapists will participate in one educational session. The questionnaires will be given to each therapist at their respective clinics before and after each educational session. Plan to use the paired T-test to compare the means of the pre/post surveys. In the surveys obtained from participants I will interpret any difference in the mean of therapists' attitudinal responses before and after the educational session. The t-test would evaluate the demographic survey by identifying the means of experience, age, years of school, which would be helpful to identify commonality. Will measure for variability to assess which scores differ around the average of scores. Inferential statistics will be used to review the means with the use of SD. Will calculate the mean and the SD separate in the pre/post surveys then compare. Determining the mean will help me summarize the variables across all the participants and how much each varies from the mean. Making inferences based on these statistics can improve my ability to infer that the results of using my educational intervention could be generalized to the other populations. Will use T-test and P-values to evaluate probability that inferences can be made. T test is appropriate for small sample sizes; my project will be around 20. My sample is not a random sample (it's a convenience sample).

12) By September 2017, of the 20 participants who received training, 20% use the resources evidenced by quantitative data from the resource follow-up questionnaire by Sept. 2017.	**Pre/post education questionnaire (same as above)**	**Observation of trends using descriptive statistics. Use counts, percentages, means**	**Analysis of the resource follow-up with a run chart. Necessary to give insight about frequency of use, applicability, utility of the resources, modifications of resources**
			Launiala, A. (2009). How much can a KAP survey tell us about people's knowledge, attitudes and practices? Some observations from medical anthropology research on malaria in pregnancy in Malawi. *Anthropology Matters*, *11*(1).

Appendix F

*MOU available on request

Appendix G

Welcome Statement

Cover Letter and Introduction

Educational Session to Improve Behavioral Health Clinicians' Knowledge,

Confidence, and Beliefs About Medications

The purpose of this project to investigate whether an educational program about basic

psychopharmacology improves behavioral health clinicians' knowledge, confidence, beliefs, and intention

to refer when appropriate. The project evaluator, who is a Boise State doctoral nursing student, will

present an educational session about psychopharmacology and then two short questionnaires will be given

directly after. Two months later, two follow-up questionnaires will be given. All feedback will be

confidential and voluntary; no identifying characteristics will be used. Please return responses promptly

in the designated box at the front desk.

As discussed at the end of the educational session, here is the email address to schedule consultation for

medication management questions: Sharcost5@icloud.com. If you have any questions or concerns about

this program, please contact Sharon Bennett at 208-863-6151 or sharoncostner@u.boisestate.edu. Further

questions can be directed to the principal investigator, Dr. Cara Gallegos at (208) 426-2643 or

caragallegos@boisestate.edu.

You may obtain a copy of the results at the Boise State University library after the project has been

completed, in June of 2018. Thank you for participating in this project.

Appendix H

IRB Approval

IRB approval

March 10, 2017

To: Cara Gallegos cc:

Sharon Bennett

From:

Office of Research Compliance (ORC)

SB-IRB Notification of Exemption - 187-SB17-045 Development and Implementation of an Evidence-Based Educational Session to Improve Behavioral Health Clinicians' Knowledge, Confidence and Beliefs About Psychopharmacology

The Boise State University ORC has reviewed your protocol application and has determined that your research is exempt from further IRB review and supervision under 45 CFR 46.101(b).

Protocol Number: 187-SB17-045

Approved: 3/10/2017

Application Received: 2/28/2017 Review: Exempt Category: 2

This exemption covers any research and data collected under your protocol as of the date of approval indicated above, unless terminated in writing by you, the Principal Investigator, or the Boise State University IRB. All amendments or changes (including personnel changes) to your approved protocol must be brought to the attention of the Office of Research Compliance for review and approval before they occur, as these modifications may change your exempt status. Complete and submit a Modification Form indicating any changes to your project.

Annual renewals are not required for exempt protocols. When the research project is completed, please notify our office by submitting a Final Report. The exempt status expires when the research project is completed (closed) or when the review category changes as described above.

All forms are available on the ORC website at http://goo.gl/D2FYTV

Please direct any questions or concerns to ORC at 426-5401 or humansubjects@boisestate.edu.

Thank you and good luck with your research.

Office of Research Compliance

Educational Session Presentation

Introduction

- Medications are a common feature of treatment for behavioral health patients
- Behavioral clinicians are front line providers
- Evidence support improvements needed in education of basic pharmacology to improve confidence, knowledge and attitudes of behavioral clinicians
- This presentation will improve basic knowledge of commonly used medications, collaborative tools and resources for practice
- The trainer is a family nurse practitioner and DNP student, specializing in behavioral health

Training Outline

- Lesson 1: Antidepressants
  - Indications, side effects, outcomes desired, basic pharmacokinetics
- Lesson 2: Anxiolytic
  - Indications, side effects, outcomes desired, basic pharmacokinetics
- Lesson 3: Antipsychotics
  - Indications, side effects, outcomes desired, basic pharmacokinetics
- Lesson 4: Sleep agents
  - Indications, side effects, outcomes desired, basic pharmacokinetics

Training Outline

- Lesson 5: Stimulants/Non-stimulants
  - Indications, side effects, outcomes desired, basic pharmacokinetics
- Lesson 6: Anti-leptics/Mood stabilizer
  - Indications, side effects, outcomes desired, basic pharmacokinetics
- Lesson 7: Referral
  - When to refer
  - Who to call
  - What to know

Objectives

After the educational session participants:

- Will be able to identify the most common medications for depression
- Define outcomes desired, basic pharmacokinetics of the medications presented
- Participants will recognize common side effects of the medications.
- Differentiate classes of medications and indications for use
- Participants will recommend referral when appropriate

Lesson 1: Antidepressants

- Goal is remission and return patient to baseline function
- SSRIs first line
- SNRIs if 2 or more SSRIs don't work after adequate initiation
- Atypical may be used alone or adjunctively
- Tricyclics caution with side effects, SSRIs/SNRIs safer side effect profiles

Antidepressants continued

- Common side effects-usually minor and improve
- How long it takes to work-need at least 2 months consistent use and may still need to optimize the dose
- Used for chronic anxiety as well
- Expect improved depression, function, anxiety, sleep

Lesson 1: Antidepressant Wrap-up

- Medications used until resolution
- May be used indefinitely
- Psychotherapy with psychopharmacology superior for remission
- Most common side effects improve with time
- Consult with provider if patient is experiencing significant side effects and refer patient back to provider for an appointment

Lesson 2: Anxiolytics

- For chronic anxiety, may need an antidepressant/antianxiety medication presented in lesson 1
- Anxiolytics described in this section are for acute anxiety except for buspar
- Benzodiazepines are intended for short-time management
- Benzodiazepines high risk in substance abuse history, elderly, co-occurring CNS depressants
- If used long-term will require a taper to avoid life threatening withdrawals, can cause depression
- Benzodiazepines linked to dementia and Alzheimer's
- Vistaril for substance abuse patients, non habit forming

Anxiolytics continued

- Common side effects-usually minor and improve
- How long it takes to work-immediate but buspar can take up to 3 weeks
- What to expect if it works-remission of anxiety and return of function, decreased frequency of acute attacks

Lesson 2: Anxiolytics Wrap-up

- Benzodiazepines require strict evaluation and they may not meet criteria to be safe
- Most providers likely will not continue benzodiazepine with an opiate
- In SUD patients consider vistaril or buspar
- Once controller medications are efficacious, begin transition off these PRNs
- Slow taper off benzodiazepines

Lesson 3: Antipsychotics

- Antipsychotics used in bipolar, schizoaffective and schizophrenia
- Block dopamine
- Goal is remission and return patient to baseline function if possible but generally schizophrenia does not return to baseline, in this population a 1/3 improvement is considered successful
- Schizophrenia is a step down with each relapse, generally not returning to baseline
- First line antipsychotics vs second generation antipsychotics (SGA) are usually few side effects

Antipsychotics continued

- Can take up to 2-3 months for medication to be efficacious
- Antipsychotics can reduce positive and negative symptoms, anger agitation
- Can have many side effects such as weight gain, elevated cholesterol and elevated blood sugar
- Key is to prevent exacerbation
- First line is a SGA, choose metabolic friendly, injectable for chronic schizophrenia who are non-compliant

Lesson 3: Antipsychotic Wrap-up

- Often under dosed in clinical practice
- Some of these medications have utility in depression adjunctively, like abilify
- These are not used as monotherpay for depression
- Costs of the newer antipsychotics are very expensive
- Encourage injectable option if patient is non-compliant with medications

Lesson 4: Mood Stabilizer

- Used for bipolar, schizophrenia, schizoaffective DO
- Medications used until resolution
- Takes 1-2 months to work, may be used indefinitely
- Psychotherapy with psychopharmacology superior for remission
- Most common side effects improve with time
- Consult with provider if patient is experiencing significant side effects and refer patient back to provider for an appointment
- Some mood stabilizers will require lab draws to monitor levels

Mood Stabilizer Continued

- Lithium has a very narrow therapeutic range, labs need to be check frequently until stable
- Depakote and lithium works best for mania symptoms
- Lamictal and tegretol work on depression in bipolar DO
- Can be used adjunct to SGAs to reduce psychosis and stabilize moods

Lesson 4: Mood stabilizer Wrap-up

- These patients may require closer medication provider appointments inititially
- Avoid abrupt withdrawal on this class
- The medical provider should be watching BMI and obtaining fasting labs once a year

Lesson 5: Hypnotics

- Goal is to improve quality and duration of sleep
- Reduced number of awakenings
- Used for short term relief of insomnia
- Improve sleep hygiene while using short-term use for sleep disturbances
- Hypnotics first line if no substance abuse hx, can use trazodone instead
- Must check and see if symptomology in line with medical conditions like sleep apnea if sleep doesn't improve

Hypnotics Continued

- Work selectively on GABA, work immediately
- Do no combine hypnotic sleep aids with other controlled substances
- Hypnotics: ambien, lunesta, sonata, restoril avoid with other CS
- Use trazodone, doxepin or vistaril as alternatives
- SLEEP HYGEINE!
- Side effects typically minor and will improve over time

Lesson 5: Hypnotic Wrap-up

- Consider PCP referral for sleep study if more than 2 agents do not work and meets criteria for sleep apnea
- Trazodone and doxepin have dual use for depression and anxiety

Lesson 6: Stimulants/Non-Stimulants

- Goal is reduction of ADHD/ADD symptoms by enhancing dopamine, blocking reuptake of dopamine
- Continue until all symptoms are resolved or stable
- Reassess need periodically
- Treatment begun in childhood may need to be continued in adolescence and adulthood if legitimate benefit is well documented and necessary
- Recommend neuropsychological testing to refine and rule out other illnesses
- Stimulants often first line in kids
- Work quickly and able to taper as needed

Stimulant/Non-stim Continued

- Stimulants work immediately
- Strattera (non-stimulant) can take up to 3-6 weeks and must be taken regularly
- Side effect typically improve with time but some complain of nausea with strattera the entire time
- Must watch weight, height, BMI, VS

Lesson 6: Stimulant/non-stimulant Wrap-up

- Reassess the need frequently, during school breaks or the summer
- Can take summers and weekends off stimulants to allow for growth if symptoms are manageable without by parents
- Generally, not a disease found in early/mid or late adulthood
- Suggest neuropsychological testing to refine diagnosis

Referral Process and Pearls

- Establish working relationships with providers in the office
- If moderately ill patients are seeing a clinician for months without modest improvement refer to a provider
- Be realistic. Symptom resolution not a short-term goal with medications
- If the patient is psychotic, frequent SI, not sleeping refer to a medication provider
- If a clinician has a patient that does not meet the above criteria but would like consultation, utilize the asynchronous/synchronous DNP student consultation

Assessment and Evaluation

- Survey for participants
- Resource sheets and email address given for consultation
- Will return in 2 months with a survey to see if the resource is applicable to participants
- Thank you for participating

Questions??

Pre/post Questionnaire

Pre/post Questionnaire

Educational Session to Improve Behavioral Health Clinicians' Knowledge,

Confidence, and Beliefs About Medications

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Beliefs					
I believe clinicians should have a working knowledge of psychopharmacology to improve effective treatment planning					
I believe a working knowledge of psychopharmacology can increase therapeutic effectiveness					
I believe medications can be an effective way to treat mental health disorders					
I believe clinicians have a lack of knowledge of medications used in the treatment of mental health disorders					
I believe that patients can overcome mental illness without the use of medications					
I believe basic psychopharmacology literacy is part of my responsibility					
Knowledge					
I have an understanding of the medications most commonly used to treat mental disorders and know that mental health symptoms can be mimicked by other medical causes					
I have an understanding of symptoms caused by mental disorder medications					
I understand the medications my patients are taking					
I have the knowledge of medications that are used to treat sleep					

I have the knowledge of medications that are used to treat anxiety					
I have the knowledge of medications that are used to treat depression					
I have the knowledge of medications that are used to treat bipolar disorder					
I have the knowledge of medications that are used to treat schizophrenia/schizoaffective disorder					
I have the knowledge of medications that are used to treat ADHD					
Intentions/Confidence					
I use evidence-based referral practices					
I have confidence in discussing basic medication management with my patients					
I feel confident reinforcing medication management recommendations					
I feel comfortable consulting with medication management providers if I have questions about medications					
I have a resource for psychopharmacology questions					
I feel well prepared in psychopharmacology					
I have the skills to discuss basic psychopharmacology with patients					
I know whom to contact with questions					
Additional Comments:					

Appendix I

Resource Follow-Up Questionnaire

Resource Follow-Up Questionnaire

Instructions

Please read each question and circle the response that best represents your answer or fill in the blank with your answer.

How many times did you access the laminated resource?

_____

1-3 times

More than 3 times

How many times did you access the live resource consultation?

_____

1-3 times

More than 3 times

Was the laminated resource helpful? If no, why?

_____

yes

no

_____

Was the live consultation resource helpful? If no, why?

_____

yes

no

_____

Were the live resource times convenient for you? If no, what hours would better accommodate your schedule?

_____

yes

No

Appendix J

Demographic Questionnaire

Demographic Questions

Instructions

Please read each question and circle the response that best represents your answer or fill in the blank with your answer.

1)   How many years have you been working in the mental health field?

_____

2)   _____What is your highest level of education?

     a.   Bachelor's degree

     b.   Master' degree

     c.   Other_____

3)   In what discipline is your undergraduate major?

_____

     a.   Social Work

     b.   Counseling

     c.   Psychology

     d.   Other_____

Appendix K

Table K1

Timeline

Project: Educational Session to Improve Behavioral Health Clinicians' Knowledge, Confidence, and Beliefs About Medications								
Activity	8/15	1/16	5/16	8/16	1/17	5/17	8/17	1/18
Literature Review, mission, vision, problem statement, timeline for project		(green)	(purple)					
Timeline		(green)	(purple)					
Project Goals and Objectives	(olive)	(green)	(purple)	(blue)				
Gain approval by IRB					(orange)			
Develop education modules, research survey tools.			(purple)	(blue)	(orange)			
Make contact with providers			(purple)	(blue)	(orange)			
Develop educational session, resources				(blue)	(orange)	(green)		
Educate and train therapist						(green)	(navy)	
Get returned feedback from therapist, synthesize results						(green)	(navy)	
Disseminate results to clinic owners and therapist								(red)
Final report								(red)
Obtain memorandum of agreement					(orange)			
Focus groups				(blue)	(orange)			
Implementation of educational session						X		
Implementation of 2-month post-questionnaire							X	

Appendix L

Statement of Operations

Statement of Operations	
Revenues	
Facility Expense Room expense, utilities at the 3 clinics to present educational sessions, 3 hours per facility at $50 for each hour (estimated by clinic owners, in-kind donation from clinics)	450
Grants (none applied for in year 1; anticipate applying in year 2)	0
Evaluation and Assessment Costs for student's time (in-kind) for preparation of evaluation, analyses of surveys, administration time to process results for dissemination, $75/hr. for 11 hours at 3 clinics	2475
Educational Initial Training Salaries for the student (in-kind donated hours), $75/hr. for 10 hours per clinic This is for the student's contracted rate	2250
Salaries for therapists (in-kind donation from clinics), $28/hr. for 20 therapists for 1 hour	560
Total $5,735	
Expenses	
Administrative Supplies Printer cartridges, printer, paper, copying, pens, phone services Educational material, laminated resources, training material, surveys	150
Evaluation and Assessment	2475

Costs for student's time (in-kind student donation) for preparation of evaluation, analyses of surveys, administration time to process results for dissemination, $75/hr. for 11 hours at 3 clinics	
Travel Expenses Costs to travel to and from offices	60
Educational Initial Training Salaries for the student (in-kind student donated hours), $75/hr. for 10 hours per clinic This is for the student's contracted rate	2250
Salaries for therapists (in-kind donation from clinics), $28/hr. for 20 therapists for 1 hour	560
Marketing and Advertising Fliers for project proposal ($30), 5-dollar coffee cards for participants ($100)	30
Facility Expense Room expense, utilities at the 3 clinics to present educational sessions, 3 hours per facility at $50 for each hour (estimated by clinic owners, in-kind donation from clinics)	450

Total $5975

Operating Income $-240

*Noted that this is a negative value (operating loss). Anticipate grant funding in subsequent years to change the value to a positive figure

Appendix M

Table M1

Scholarly Project 3-5 Year Budget Plan

	Budget Year 1	Budget Year 2	Budget Year 3	Budget Year 4	Budget Year 5
Revenues					
In-kind student donations	5060	0	0	0	0
Grant Cycle Year 2 and 3		2500	0	0	0
Grant Cycle Year 4 and 5		0	2500	2500	2500
Total	*5735*	2500	2500	2500	2500
Expenses					
Facility Expense Room expense, utilities at the 3 clinics to present educational sessions, 3 hours per facility at $50 for each hour (estimated by clinic owners, in-kind donation from clinics)	450	450	450	450	450
Evaluation and Assessment Costs for student's time (in-kind) for preparation of evaluation, analyses of surveys, administration time to process results for dissemination, $75/hr. for 11 hours at 3 clinics	2475	2475	2475	2475	2475
Administrative Supplies Printer cartridges, printer, paper, copying, pens, phone services Educational material, laminated resources, training material, surveys	150	150	150	150	150
Travel Expenses Costs to travel to and from offices	60	60	60	60	60
Educational Initial Training Salaries for the student (in-kind student donated hours), $75/hr. for 10 hours per clinic	2250	2317	2386	2457	2530

This is for the student's contracted rate (average 3.22% inflation per year) Salaries for therapists (first year only in-kind donation from clinics), $28/hr. for 20 therapists for 1 hour	560	576	593	610	628
Marketing and Advertising Fliers for project proposal	30	30	30	30	30
Total	*5975*	*6058*	*6144*	*6232*	*6323*
Operating Income	*240*	*2883*	*2969*	*3057*	*3148*

Appendix N

Table N1

Demographics

	Mean	SD
Years of experience	10.35294118	5.851721717
Level of Discipline	2.941176471	0.826936231
Title Level	1.411764706	0.507299656

Table N2

Run Charts for Referrals

Clinic 3 Referrals

Clinic 3

Resource use
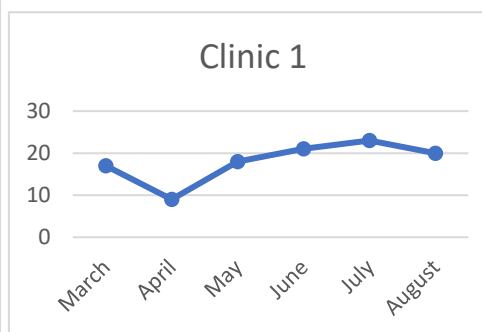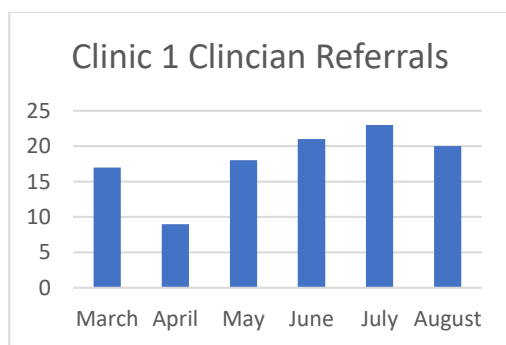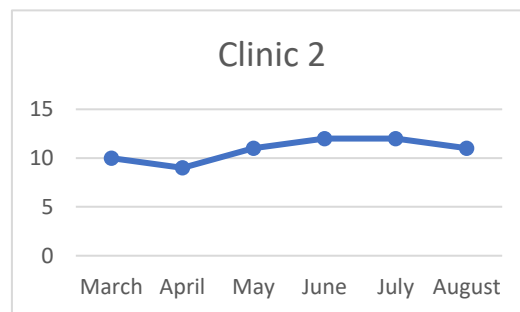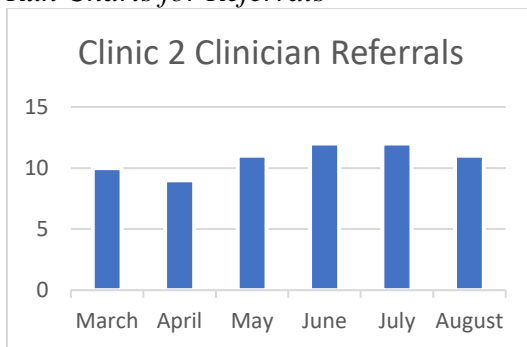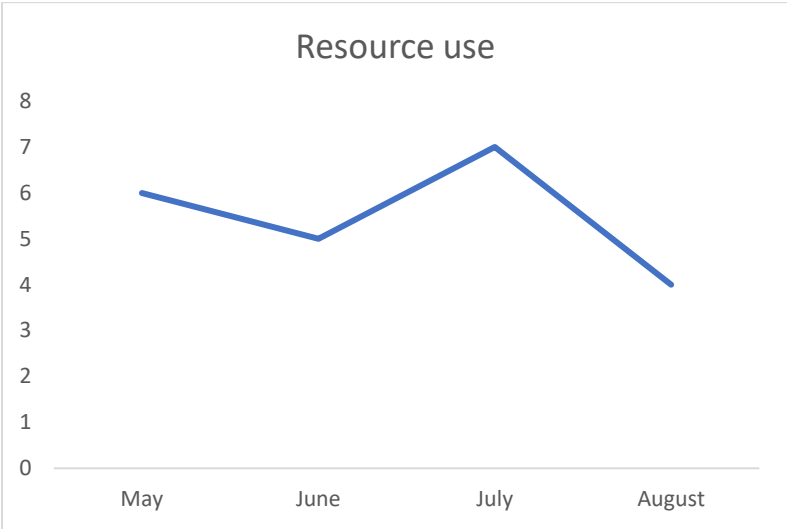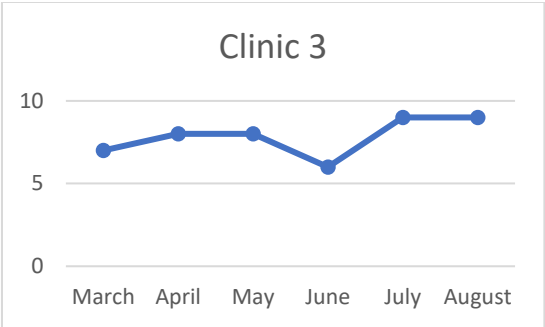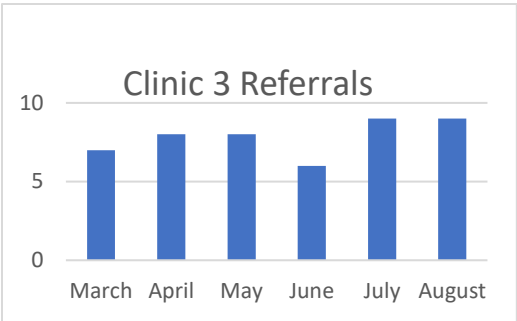
Table N3

Statement of Beliefs, Knowledge, and Confidence

Statement	Baseline M (SD)	Time 1 Post Test M (SD)	Time 2 Post Test M (SD)	t test Time 1vs2 Time 2vs3
Beliefs				
I believe clinicians should have a working knowledge of psychopharmacology to improve effective treatment planning	1.4 (0.50)	1.2 (0.42)	1.0 (0.23)	1.37 1.84 **
I believe a working knowledge of psychopharmacology can increase therapeutic effectiveness	1.2 (0.61)	1.3 0(.59)	1.2 (0.42)	1.75 1.45
I believe medications can be an effective way to treat mental health disorders	1.2 (0.62)	1.5 (0.61)	1.2 (0.46)	0.00 1.79
I believe clinicians have a lack of knowledge of medications used in the treatment of mental health disorders	2 (0.61)	2.1 (0.90)	1.6 (0.68)	-0.56 2.56 **
I believe that patients can overcome mental illness without the use of medications	2.2 (0.68)	2 (0.50)	2.2 (0.83))	1.3 -1.07
I believe basic psychopharmacology literacy is part of my responsibility	1.6 (0.61)	1.4 (0.50)	1.2 (0.043)	1.73 1.3
Knowledge				
I have an understanding of the medications most commonly used to treat mental disorders and know that mental health symptoms can be mimicked by other medical causes	2.4 (0.71)	1.6 (0.48)	1.4 (0.51)	4.19 ** 1.45
I have an understanding of symptoms caused by mental disorder medications	2.4 (0.71)	1.8 (0.75)	1.5 (0.61)	2.52 ** 2.91 **
I understand the medications my patients are taking	2.8 (1.0)	2.1 (0.83)	1.7 (0.73)	2.40 ** 2.91 **
I have the knowledge of medications that are used to treat sleep	2 (0.70)	1.7 (0.66)	1.7 (0.73)	1.5 -1
I have the knowledge of medications that are used to treat anxiety	2.2 (0.46)	1.7 (0.66)	1.6 (0.68)	2.78 ** 1
I have the knowledge of medications that are used to treat depression	2.5 (0.42)	1.6 (0.68)	1.6 (0.69)	2.38 ** 1
I have the knowledge of medications that are used to treat bipolar disorder	2.7 (0.77)	1.7 (0.73)	1.7 (0.66)	3.39 ** 0.23
I have the knowledge of medications that are used to treat schizophrenia/schizoaffective disorder	2.5 (1.0)	1.7 (0.64)	1.7 (0.64)	4.19 ** 4.00 **
I have the knowledge of medications that are used to treat ADHD	2.3 (0.75)	1.7 (0.66)	1.7 (0.66)	2.21 ** 2.00 **
Intentions/Confidence				
I use evidence-based referral practices	1.7 (0.43)	1.4 (0.51)	1.1 (0.32)	2.58 ** 2.91 **
I have confidence in discussing basic medication management with my patients	2.4 (0.79)	1.7 (0.54)	1.7 (0.57)	2.63 ** 1
I feel confident reinforcing medication management recommendations	2 (0.95)	1.6 (0.76)	1.4 (0.51)	1.92 ** 1.71
I feel comfortable consulting with medication management providers if I have questions about medications	1.5 (0.61)	1.2 (0.42)	1.2 (0.42)	2.40 ** 0
I have a resource for psychopharmacology questions	2.0 (1.1)	1.1 (0.38)	1.2 (0.54)	2.98 **

|	time one	time two	time three	
				-0.32
I feel well prepared in psychopharmacology	3.1 (0.80)	2.2 (0.80)	1.9 (0.53)	4.51 ** 1.42
I have the skills to discuss basic psychopharmacology with patients	2.7 (0.84)	1.6 (0.48)	1.6 (0.48)	4.51 ** 0
I know whom to contact with questions	1.7 (0.58)	1.2 (0.46)	1.1 (0.32)	2.42 ** 1.3

**p<0.05

Table N4

Time Comparisons

Should have working knowledge		
time one	time two	time three
1.411764706	1.222222222	1.055555556
0.507299656	0.427792632	0.23570226
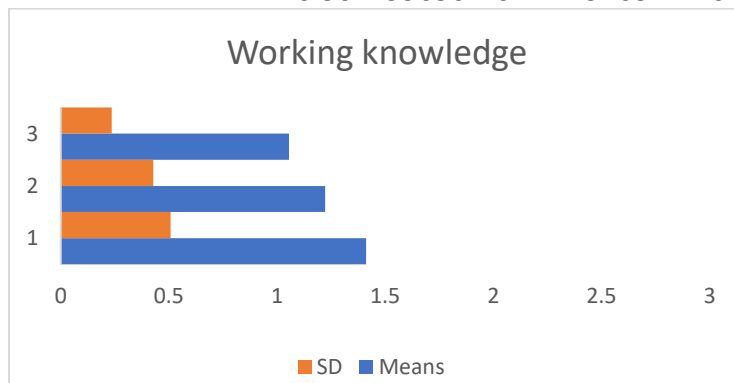
Working knowledge +effectiveness		
1.229847495	1.333333333	1.222222222
0.618346942	0.594088526	0.427792632
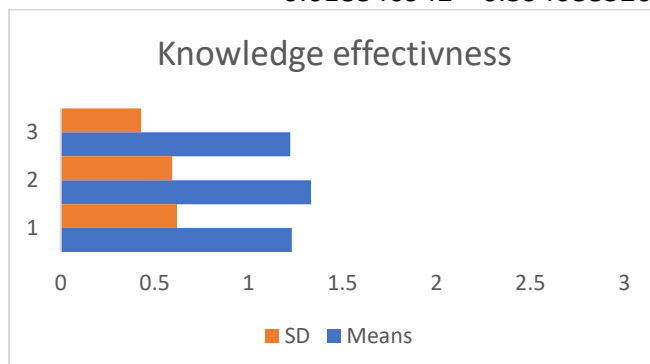
Medications effective

1.245824256	1.5	1.277777778
0.624264273	0.618346942	0.460888599
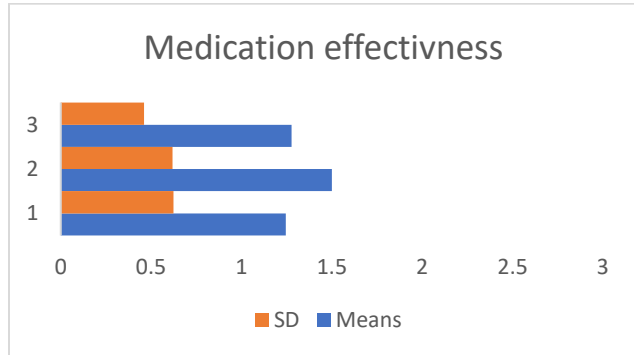
Lack of knowledge

2	2.111111111	1.666666667
0.612372436	0.90025414	0.685994341
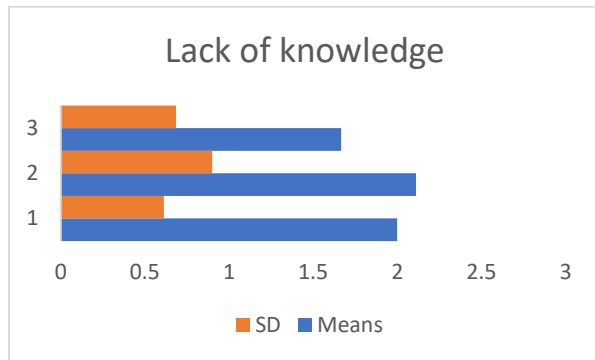
Overcome illness

2.25	2	2.235294118
0.683130051	0.5	0.831370237
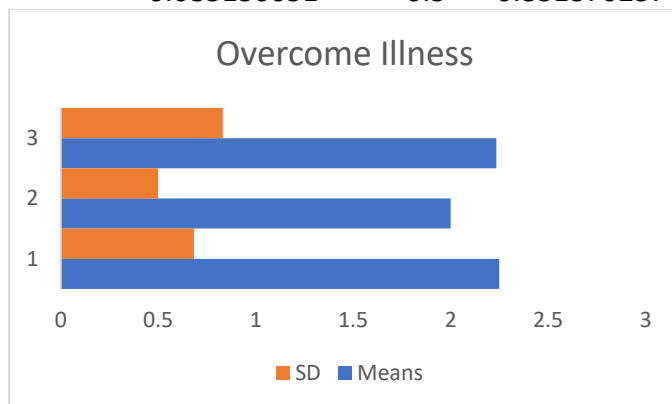
med literacy

| | 1.625 | 1.411764706 | 1.235294118 |
| | 0.619139187 | 0.507299656 | 0.437237316 |

Med Literacy
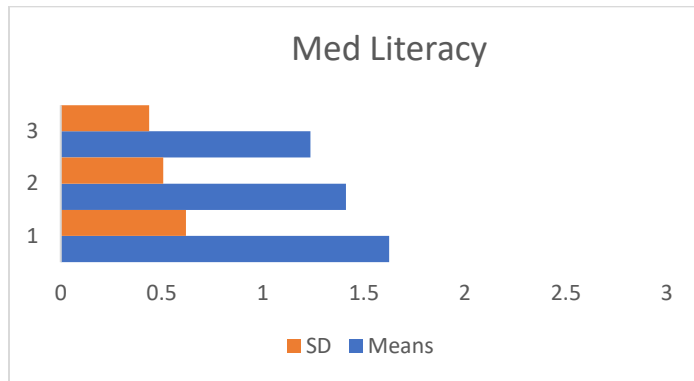
Mimic		
time one	time two	time three
2.470588235	1.666666667	1.444444444
0.717430054	0.48507125	0.511309993

Mental illness mimicks

Understand sx		
2.470588235	1.888888889	1.555555556
0.717430054	0.758395279	0.615698763
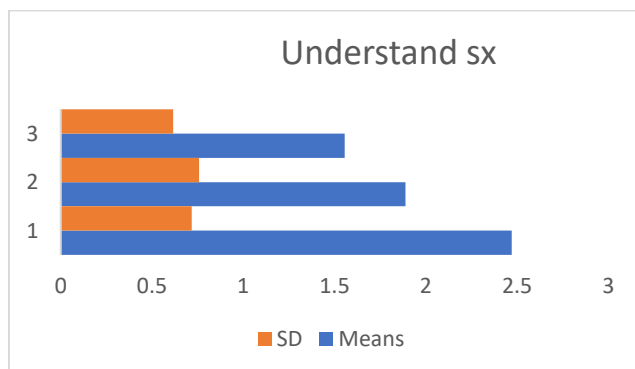
Understand sx

Understand meds

| 2.823529412 | 2.111111111 | 1.777777778 |
| 1.014599312 | 0.832352364 | 0.732084498 |
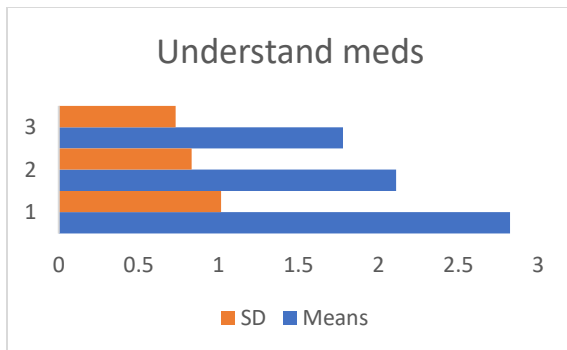
sleep

| 2 | 1.722222222 | 1.777777778 |
| 0.707106781 | 0.669113158 | 0.732084498 |
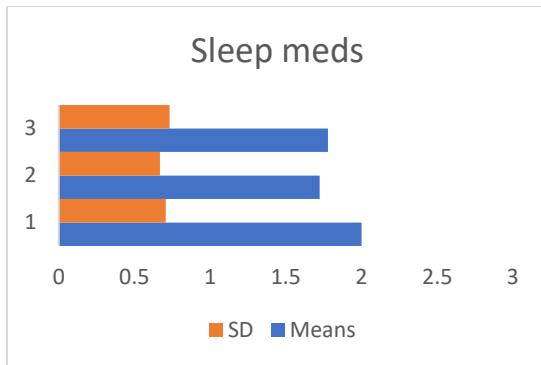
anxiety

| 2.294117647 | 1.722222222 | 1.666666667 |
| 0.469668218 | 0.669113158 | 0.685994341 |
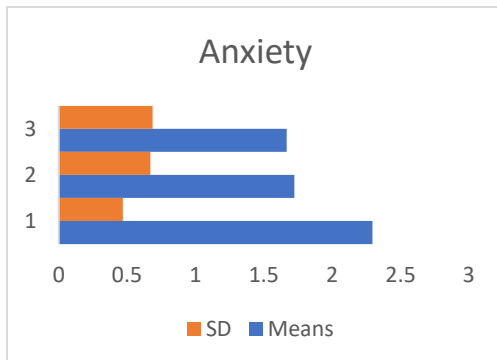
depression

| 2.058823529 | 1.666666667 | 1.611111111 |
| 0.428746463 | 0.685994341 | 0.697802339 |

Depression
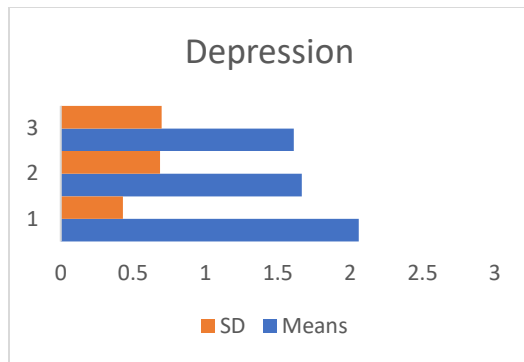
bipolar

2.705882353	1.777777778	1.722222222
0.771743633	0.732084498	0.669113158

Bipolar
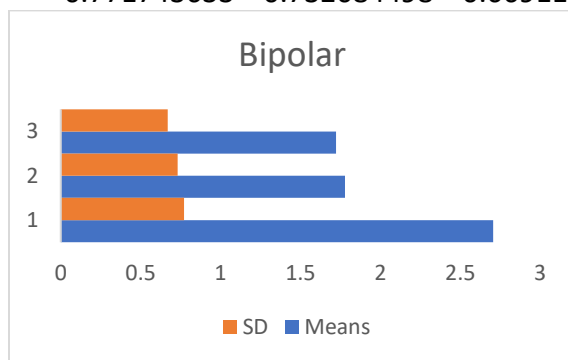
schizo

2.588235294	1.777777778	1.777777778
1.003669737	0.646761667	0.646761667

Schizo
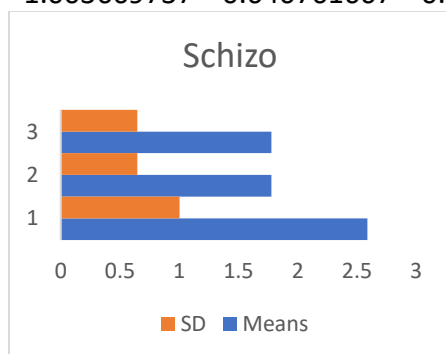
ADHD

2.235294118	1.722222222	1.722222222
0.752446989	0.669113158	0.669113158

ADHD