

The Use of Telehealth to Increase Mental Health Services Access
and Promote Medication Adherence in Rural Locations

Irene Talarico

Jacksonville University

DNP Project Chair: Pam Rillstone, PhD

DNP Statistician Support: Shiva Gautam, PhD

February, 2020

Abstract

Fifteen million residents living in rural locations in the U.S. struggle with mental illness, substance dependence, or co-morbid conditions, and are not receiving adequate healthcare (CDC, 2017). In 2025, there will be a need for 15,600 psychiatrists, with only an anticipated 6,090 practicing in the specialty. In 2014, 13,815 advanced psychiatric nurse practitioners (APRNs) were certified in the specialty (Wei, 2017). The shortage of mental health providers contributes to the number of untreated persons with significant mental health concerns and the lack of access to services (Hilty, 2015). The purpose of this project was to determine if a telehealth quality improvement intervention for patients 18 years of age and older who are diagnosed with schizophrenia, bipolar, major depression, post-traumatic stress disorder, anxiety, or substance abuse in a NE Florida specialty mental health treatment facility improved access to providers supporting medication adherence. A secondary purpose was to determine patient satisfaction with the use of telehealth. A convenience sample of 40 adults who met the criteria were enrolled in this project. The measurements (medication survey, patient satisfaction survey, medication refill adherence, and appointment access) collected during this project reflected that the use of telehealth provided improved access to the APRNs with the same level of care as compared to face-to-face consultations. Participant responses showed overall 89.7% satisfaction and willingness to continue to use telehealth as an alternative venue. Expansion and utilization of this venue is a viable option in this facility's rural locations improving shrinking provider resources while attempting to meet the needs of mental health and dual diagnosis patients.

Key Words: Telehealth, mental health access, medication adherence, psychiatrist, advanced practice registered nurse, and teleconferencing.

Table of Contents

Abstract	2
Introduction	5
Background of Problem.....	6
Purpose of Project	10
Problem Statement	10
Theoretical Framework	17
Relationship-based Care Model.....	17
Definition of Terms	16
Review of Literature	11
Summary	16
Project Design.....	20
Objectives.....	20
Setting	20
Participants.....	21
Timeline	25
Procedures	22
Tools	23
Data Collection and Analysis.....	24
Financial Considerations	25
Ethical Considerations	26
Data Analysis Plan	26
Overview of Findings	29
Description of Sample.....	27
Figure 1: Sample by Age.....	Error!
Bookmark not defined.7	
Figure 2: Sample by Ethnicity.....	Error!
Bookmark not defined.8	
Figure 3: Sample by Diagnosis	Error!
Bookmark not defined.8	

Objective 1: Access	29
Table 1: Appointments Prior to Telehealth.....	Error!
Bookmark not defined.0	
Table 2: Appointments After Telehealth.....	Error!
Bookmark not defined.0	
Table 3: Three months before and after implementation of Telehealth.....	30
Figure 4: Pre and Post Telehealth	Error!
Bookmark not defined.1	
Objective 2: Medication Adherence.....	32
Figure 5: Top Reasons Miss/Skip Medications by Gender.....	Error!
Bookmark not defined.3	
Figure 6: Missing Medications by Diagnosis.....	Error!
Bookmark not defined.3	
Figure 7: Medication Pick Up 30 days and 60 days from Telehealth.....	Error!
Bookmark not defined.4	
Figure 8: Medications at 30 and 60 day.....	Error!
Bookmark not defined.6	
Objective 3: Follow-Up Appointments.....	36
Objective 4: Patient Satisfaction.....	37
Figure 9: Telehealth Confidentiality and Privacy.....	37
Figure 10: Use Telehealth again.....	Error!
Bookmark not defined.8	
Figure 11: Recommend Telehealth to others.....	Error!
Bookmark not defined.8	
Conclusions	39
Limitations/Strengths/Future Projects.....	41
Sustainability.....	26
References.....	42
Appendices	49
Appendix A: Consent to Participate in Research	49
Appendix B: Informed Consent to Participate.....	50

Appendix C: Recruitment Announcement.....	55
Appendix D: Medication Survey.....	56
Appendix E: Permission to use self-reported medication survey.....	58
Appendix F: Telehealth Patient Satisfaction Survey.....	59
Appendix G: Telehealth Data Collection Tool.....	60
Appendix H: Expert Validation from APRN.....	61
Appendix I: Expert Validation from Psychiatrist.....	62
Appendix J: Mentor Agreement.....	63

The Use of Telehealth to Increase Mental Health Services Access
and Promote Medication Adherence in Rural Locations

The lack of access to mental health services presents an enormous challenge to more than 15 million Americans who live in rural areas. This population is vulnerable because it is generally older, low-income individuals with medical co-morbidities who are at high risk for mental health complications. Geographically, they are challenged by limited or no access to mental health providers, and are faced with concerns related to access, cost, transportation, and distance to a specialty mental health treatment facility. To meet their mental health needs, it is vital to build capacity and look beyond the traditional healthcare delivery model to reach individuals in rural areas (Cummings, Allen, & Clennon, 2019). Telehealth provides an alternative to traditional face-to-face consultations that is becoming more feasible and acceptable in the field of mental health to provide medication management (Shore, 2015).

Several northeastern (NE) counties in the state of Florida are faced with a declining number of psychiatrists and psychiatric nurse practitioners impacting access to mental health care. Wei (2017) reported that 55% of the 3,075 rural communities in the United States lack

psychologists, psychiatrists, or social workers. It is estimated that 90% of psychiatrists live and work in metropolitan areas because of better salaries, more recreational opportunities, and a reasonable distance to drive to work. Telehealth is an alternative to increase access to providers. The expansion and success of telehealth as a venue in rural locations will be influenced by the ability of telehealth to maintain the same level of clinical care as traditional face-to-face consultation and patient satisfaction.

Background/Significance

Mental healthcare access is an increasing problem for over 56.5% of the adult population (Chari, Simon, & Defrances, 2016). Statistics reveal that one in five adults, or 44.7 million people in the United States lives with a mental illness (NIMH, 2016). The National Alliance on Mental Illness (NAMI, 2018) reported that only 41% of these adults receive appropriate services. When isolated to the population with serious mental illness, only 62.9% of those with debilitating symptoms receive mental health services, and it is estimated that \$193.2 billion of lost earnings annually are related to patients with serious mental illnesses (NAMI). There are 20.2 million adults diagnosed with substance use disorder, of which 50.5% have co-occurring mental illness, which qualifies them as persons with a dual diagnosis increasing the demand for providers (Center for Disease Control and Prevention [CDC], 2017).

Mental Health America (2018) reported that the underserved, are culturally diverse individuals with a low socioeconomic status who live in rural locations and are at highest risk of not receiving mental healthcare services. Approximately 20% of the 15 million rural residents age 55 or older have a mental disorder and are at high risk for suicide. Compared to urban residents, rural residents have distinct mental health disparities (Mental Health America). A CDC report identified 15 million residents living in rural locations who struggle with mental

illness, substance dependence, or co-morbid conditions, and are not receiving care (CDC, 2017). Hilty et al. (2015) noted that the general health of the population in rural areas is poor and is exacerbated by lack of access to services. The shortage of services compounded by the need to travel and the stigma of needing help for a mental illness all contribute to the number of untreated persons with significant mental health concerns (Hilty, 2015).

Braun (n.d.) noted that rural areas have a lower population density, geographic barriers, and distance to metropolitan areas which contribute to the likelihood of fewer opportunities for full-time employment and health benefits. In a study the University of Maryland conducted, barriers to care included cost, accessibility to services, lack of knowledge, isolation, and stigma. Forty-one percent of rural females were depressed or anxious compared to less than 20% of females in urban areas. Poverty also contributed to the high prevalence of mental illness. Warshaw (2017) noted that 15% of the US population faces a complex mix of deep-rooted disparities in rural areas related to social, racial, geographic, and economic factors compounded by the limited number of healthcare providers that intensifies both medical and mental health concerns. Lack of preventive care and mental healthcare manifest in conditions that affect mortality and morbidity overall. Reshaping the healthcare delivery model and creating partnerships to address social determinants, such as transportation challenges, and programs to address population-based needs, have the potential to improve access to care (Warshaw, 2017).

Cummings, Allen, Clennon, Ji, and Druss (2017) reported the geographic concentration of specialty mental health treatment facilities by zip code and household income. The federal Substance Abuse and Mental Health Services Administration (SAMHSA) identified 7,770 outpatient facilities that provided mental health services throughout the United States. Forty percent of high-income communities had mental health treatment facilities that were easily

accessible and office-based psychiatrists also were available, 90% of whom accept Medicaid. In contrast, 1.6% of underserved and vulnerable populations in rural areas had access to a mental health specialty facility (Cummings et al., 2017).

Fuller-Torrey et al. (2014) reported that 40% of Americans with serious mental health diagnoses have been in the criminal justice system. There are 356,000 inmates in the state of Florida each year, representing 20% of those incarcerated in jail and 15% in prison, that have serious mental illness and need treatment. There are ten times more jail or prison inmates in the state of Florida with mental illness compared to the total number of mentally ill individuals treated in state mental health hospitals. The average stay for an inmate with a serious mental illness, such as schizophrenia, schizoaffective, treatment resistant depression, and psychotic disorders, is two times that of an inmate with no mental illness. Further, discharge planning for the seriously mentally ill is delayed because of limited access to mental health providers to prescribe medications after release (Fuller-Torrey et al., 2014).

Weiner (2018) noted that the shortage of psychiatrists is becoming a crisis. In 2025, 15,600 psychiatrists, with an anticipated 6,090 practicing in the specialty, will be needed. The aging workforce, reimbursement, documentation requirements, burn out, and restrictive regulations all have contributed to a lack of interest in the field of psychiatry, as well as current psychiatrists' early retirement. Currently, over 60% of practicing psychiatrists are over the age of 55, which is the highest percentage compared to all other specialties (Weiner). In 2014, 13,815 advanced psychiatric nurse practitioners (APRNs) were certified in the specialty (Wei, 2017). Chapman, Phoenix, Hahn, and Strod (2018) reported that enrollment in psychiatric nurse practitioner programs nationwide increased from 1,620 to 5,000 between 2010 and 2015.

Advanced Practice Registered Nurses (APRNs) in rural locations completed a semi-structured interview and identified barriers that included: being able to practice fully, lack of appropriate job descriptions, and confusion related to nurse practitioners' scope of practice. Advanced practice registered nurses were highly interested in serving rural and underserved populations and were willing to provide services through technology. Fiscal analysis indicated positive net contributions from the services APRNs provided. The persistent shortage of the behavioral health workforce highlights the need to fully use the skills of APRNs and to expand the availability of services, particularly in rural settings (Levin, 2017).

Hilty et al. (2013) reported telehealth's cost effectiveness with respect to consultations and governmental savings in rural areas. Based on 249 consultations per year, the fee for consultations that are referred to as "store and forward services," which store documentation, are \$68.18 per consultation, telehealth is \$107.50, and face-to-face consultations are \$93.36. Telehealth provided a larger platform with which to provide integrated services, such as mental health screenings, therapy, education, and medication management. Hilty et al. (2015) indicated that patient-centered care and interdisciplinary teams have promoted the use of telehealth through the clinical versatility of coordinated care on the part of nurse practitioners, psychiatrists, social workers, case managers, family therapists, psychologists, nurses, and primary care providers through real time interaction using technology (Hilty,2013).

Shrinking resources and lack of mental health services affect everyone in society. Seriously mentally ill patients who are unattended increase the homeless population and poverty levels, influence safety and crime rates, and can disrupt families and communities. The indirect costs to a community attributable to the chronic disability of the seriously mentally ill pose economic and social burdens (Levine, 2018). Warsaw (2017) and Cummings et.al (2017)

stressed the need in rural locations as it relates to demand for mental health services and need for improved access to providers. Underserved and rural populations have less access to mental health services that presents a dilemma attributable to shrinking professional resources and increasing need for timely care. Developing an alternative platform that has the capacity to bring services to persons with mental illness, improve resource use, and create versatility in orchestrating care among providers has been coupled with telehealth technologies, which has the potential to provide access, exchange information, and collaborate in real time settings. The acceptance of technological advances has expanded the traditional face-to-face consultation with a provider and includes privacy, confidentiality, and health equity (Kilbourne, 2018).

Purpose of the Project

The purpose of this project was to determine if a telehealth intervention for patients 18 years of age and older who are diagnosed with schizophrenia, bipolar, major depression, post-traumatic stress disorder, anxiety, or substance abuse in a NE Florida specialty mental health treatment facility improved access to providers supporting medication adherence. A secondary purpose was to determine patient satisfaction with the use of telehealth.

Problem Statement

The patients who receive care at this mental health treatment facility were expected to be seen every three-months in a follow-up appointment with a psychiatric nurse practitioner for medication management to include (a) checking therapeutic drug levels, for example lithium , valproic acid and carbamazepine levels, (b) reviewing laboratory results, for example kidney and hepatic function, thyroid, and blood glucose, and (c) management of long-term injectable antipsychotics. Further, the limited number of psychiatric nurse practitioners with prescriptive authority at the specialty mental health facility were limited. Thus, the specific problem

addressed by the quality improvement project was the lack of access to services and delays in patient appointments six to eight weeks beyond their regular three-month timeframe. This resulted in the patient's inability to fill prescriptions. In some cases, prescriptions were filled without an appointment, but medication dosages were not adjusted leading to poor patient outcomes. The specialty facility established a nurse line for patients to call for prescription renewals, but the volume of requests was too high for psychiatric nurse practitioners to manage beyond their current patient load. The lack of access resulted in toxic lithium levels, increased auditory and visual hallucinations, and suicidal attempts or ideations which resulted in mental health decompensation requiring inpatient hospitalization, increased emergency room visits including Baker Acts (involuntary admission for a mental health evaluation), and incarcerations. Thus, an alternative was necessary to meet the needs of the current patients and the use of telehealth was being considered a viable alternative with a psychiatric nurse practitioner to provide medication management on-site at the NE Florida specialty mental health facility.

Literature Review and Key Terms

A comprehensive search of the healthcare medical literature available was performed with Medline (Ovid and PubMed) and CINAHL using the following search terms (a) telehealth, (b) mental health access, (c) medication adherence, (d) psychiatrists, (e) advance practice registered nurse, (f) videoconferencing, and (g) relevant articles were assessed for pertinence to this project. Most of the studies on the impact of telehealth on rural locations were conducted between 2000 to 2007. Telehealth has been more widely accepted in the past 12 years and the focus of the articles shifted to cost effectiveness and use of the technology connecting different specialities caring for the same patient.

Saeed and Pastis (2018) reported that telehealth reduces geographic and socioeconomic disparities accompanied by better consumer compliance. Telehealth is real time and technology supports remote access to a provider as a means of a practical and effective virtual venue to deliver care. This supports the direct care model in specialty clinics supporting direct access to a provider and medication management. Telehealth is improving the recruitment and retention of mental health professionals providing more access to the underserved and rural areas (Saeed & Pastis, 2018).

O'Reilly et al. (2007) conducted a randomized controlled clinical trial of patients between the ages of 18 to 65 years of age with a total of 495 patients (n=254 face-to-face and n=251 telehealth) in a remote and underserved region of Canada. The study design included a Brief Symptom Inventory (BSI), a 53 question self-reported inventory, a Global Severity Index (GSI) standard test of functionality, and an eight question self-reported patient questionnaire. The BSI yielded a 20% decrease in symptoms in both the face-to-face and telehealth with a shift in GSI from dysfunctional to functional over a four-month period. The results of the patient satisfaction questions resulted in a moderate degree of satisfaction (O'Reilly, et al., 2007).

Fortney et al. (2007) conducted a randomized trial of 395 patients who scored greater than or equal to 12 on the Patient Health Questionnaire depression scale (PHQ9) and developed a collaborative care team to address depression focusing on medication adherence, remission, treatment response, and treatment satisfaction. The patients were treated through telehealth technologies and the sample was largely elderly, white, males as they were treated at a small Veterans Administration community-based outpatient clinic. Patients were referred from their primary care physician and consultation was managed through telehealth. They referred to the intervention as “watchful waiting” or antidepressant treatment. The patients were started on an

antidepressant and followed at four-week intervals for six to twelve months. Patients with severe side-effects or problems, problems with non-adherence, or not responding to antidepressants would fall off the protocol and would progress to a different treatment recommendation. Six-month data revealed 70%, and at twelve-month 77.5% prescription compliance. The findings supported that patients responded to telehealth when treating depression in small isolated clinics when it is not feasible to employ on-site providers (Fortney, 2007).

Rohland, et al., 2000 conducted a survey by telephone of 75 rural midwestern residents to determine if they would be willing to receive their mental health care by telehealth. Forty-five of the patients surveyed responded that they would try telehealth with three-quarters of these responding that they would recommend telehealth to a friend after their first experience. (Rohland, et al., 2000). Rohland (2001) in a second longitudinal study conducted over a 24-month as part of a three-year project he compared patient satisfaction with telehealth versus traditional face-to-face consultation in two rural clinics. Twenty-six adults with schizophrenia, bipolar, major depression, panic disorder, and anxiety participated with 53% of the visits by telehealth and 47% of the visits by face-to-face consultation. A 12-item self-reported patient satisfaction survey was completed by the patient after each visit. Clinical outcomes of care were measured by the Global Assessment Functioning (GAF) measurement. Telehealth was ranked higher in convenience, technical skills, ease, attention given, and time spent with patient. The traditional face-to-face was ranked higher in helpfulness, eye contact, and overall satisfaction. The GAF score had no statistically significant impact on the two groups (Rohland, 2001).

Deslich, Thistlethwaite, and Coustasse (2013) conducted a meta-analysis of 60 scholarly articles on telehealth for mental health concerns over a 12-year period. The benefits included: access to, and quality and continuity of care. The authors found that 83% of those who use

telehealth had received mental health examinations that led to a mental health diagnosis.

Randomized clinical trials that compared face-to-face consultations with telehealth demonstrated no difference in satisfaction or patient care outcomes, and individuals showed an increased interest in using telehealth compared to face-to-face consultation. Continuity of care often could be maintained when providers were out of town, as other providers could administer services in their absence. Telehealth allowed psychiatrists to see their patients in rural settings more often. The use of telehealth with college students and those in prisons was received well and provided patient flexibility in meeting with psychiatrists when they are in crisis or anxious versus waiting for an appointment. Telehealth demonstrated significant timely access to mental healthcare and addressed some of the concerns with geographic distance, transportation difficulties, time limitations, and access (Deslich, Thistlethwaite & Caustasse, 2013).

Lauckner and Whitten (2016) conducted a meta-analysis of 68 studies and 27 programs that provided psychiatric telehealth services and focused on sustainability and the future use of telehealth. The 27 services included: VA/military 25.0 (n=17), mental health facility 23.5 (n=16), community health center 14.7 (n=10), primary care 10.3 (n=7), emergency room/hospital 9 (n=6), specialized medical center 5.9 (n=4), school/university 5.9 (n=4), and correctional facility 4.4 (n=3). Funding sources were reported as: internal 33.8% (n=23), federal 32.4% (n=22), private grant 23.5% (n=16), state/local 10.3% (n=7), and Medicaid/Medicare 2.9% (n=2). They conducted a qualitative study of the 27 programs with three open-ended questions that addressed utilization, satisfaction, and funding. The results demonstrated high utilization and good relationships between patient and provider, with the most common enrollment through referrals 45.6 (n=31) (Lauckner & Whitten, 2016).

Mallow et al. (2016) conducted a retrospective chart review of a remote naval military center with an established clinic that struggled to provide services. They reviewed 81 records and focused on 30 face-to-face consultations and 51 telehealth in which at least two visits, including a Global Assessment of Functioning, were conducted via telehealth. Ninety-four percent of patients demonstrated medication compliance within 30 days using telehealth compared to 89% who had face-to-face consultations (Mallow et al., 2016).

Richardson, Frueh, Grubaugh, Egede, and Elhai (2010) conducted a meta-analysis of 143 studies that compared telehealth using patient interviews as a mode of care delivery for medication management, assessment and evaluation, counseling, psychoeducation, and case management. Peer review provided strong evidence of neuropsychological testing, mental health exams, and clinical interviews. Provider satisfaction reflected moderate to high success in establishing a relationship with patients through telehealth like that experienced in face-to-face consultations. One randomized controlled study of 495 patients over one year with four monthly follow-up sessions compared self-reported clinical outcomes, patient satisfaction, and psychiatric admissions over a 12-month period and reported reduced symptomatic distress and decreased hospitalizations at a cost 10 % less per patient and 16 % less per visit compared to face-to-face consultations (Richardson et al., 2010).

Grelwe (2018) reported that telehealth constitutes up to one-fourth of the health-related technology market, and seven million individuals used the service in 2018. Half of the U.S. hospitals have current telehealth programs and the predicted budget for 2019 is \$20 billion. Patients who used telehealth demonstrated a 51 % reduction in hospital readmissions and a savings of \$86.64 every time a medical telehealth application was used rather than a face-to-face emergency or urgent care visit. Iafolla (2015) noted that of 84% of healthcare executives

surveyed, 52% considered telehealth very important, and 32% important. Iafolla (2015) reported that telehealth constitutes one-fourth of health information technology (HIT) and is anticipated to grow in the future. The benefits identified throughout the literature include improved access to, and quality and continuity of care (Grelwe, 2018).

Semahegn et al. (2018) emphasized the correlation of access to mental health to promote medication adherence. In a systematic review of psychotropic medication nonadherence including observational studies (cross-sectional, case-control, cohort or longitudinal, survey and surveillance reports) the lack of connection to a provider resulted in the following: discontinuation of the medication, taking more or less of the medication than needed, taking doses at the wrong time impacting sleep or daily activities, and side effects of the medication. Non-adherence to medications leads to poor outcomes, morbidity, disability and mortality, noting that a person with schizophrenia has a 40-60% chance of dying prematurely as compared to those without a mental illness. The lack of access to care and medication nonadherence is estimated to cost the United States \$6 trillion by the year 2030 (Semahegn, et al. 2018).

The literature reviewed above suggests that telehealth is a viable option to provide access to psychiatrists and medication management by psychiatric nurse practitioners with prescriptive authority, particularly for underserved populations, including those living in rural areas. O'Reilly et.al (2017), Fortney et. al (2007), Rohland et all (2001), Deslich, Thistelewaite & Coustasse (2013), Mallow et. al (2016) and Richardson et al. (2010) supported that the clinical outcomes were not impacted by providing a telehealth consultation compared to a face-to-face. Laukner & Whitten (2016) referenced the sustainability of telehealth through the Veterans Administration and impact on future use. Access increased with telehealth in which oversight providers supported patients with more timely care when their provider was not available. Patients

responded positively to telehealth as an alternative method of care as compared to the traditional face-to-face consultation.

Key Terms

Telehealth: Remote delivery of medical, in this case, psychiatric services, such as health assessments, consultations, medication management, and counseling. It provides a way for a provider to diagnose and treat individuals without a face-to-face consultation (Wei, 2017).

Mental health access: Ability to access a licensed mental health provider and obtain prescription for medications to treat mental illness (Kilbourne, 2018).

Medication adherence: Individuals' voluntary cooperation in taking medication as prescribed, including time of medication, dosage, and frequency (Mallow et al., 2016).

Psychiatrist: A medical practitioner specializing and licensed to treat mental illness (Kilbourne, 2018).

Advanced practice registered nurse: A post graduate nurse prepared with advanced training to treat in a specialty and certified to assess, diagnose, and manage patient problems, order tests, and prescribe medications (Kilbourne, 2018).

Videoconferencing: Two or more locations communicate by two-way video and audio transmission. This term often is interchangeable with telehealth (Iafolla, 2015).

Theoretical Framework

The relationship-based care model Koloroutis (2004) developed provides the theoretical framework for this project. The seven core components of the model include (1) caring and healing environment, (2) leadership, (3) teamwork, (4) professional nursing practice, (5) patient care delivery, (6) resource driven practice, and (7) outcome measurement.

Relationship-Based Care Model

The relationship-based care model represents a framework for a continuous therapeutic relationship over time to achieve positive outcomes. Among its seven concepts, the first focuses on a caring and healing environment, which encompasses a conscious sense of purpose, clarity regarding roles, and sustaining a therapeutic relationship. The central focus of this concept is to build trust with the individual so that care can be provided effectively. The second concept focuses on leadership, a shared vision, and to begin where the patient is at present. Leadership incorporates the support system applicable, such as family members, spouses, or significant others. The third concept reflects teamwork, in which the incorporation of medication management, counseling, therapy, case management, and other supports contributes to each individual's needs. The fourth concept of professional nursing practice represents six practice roles (a) guide, (b) healer, (c) collaborator, (d) teacher, (e) leader, and (f) sentry. Professional nursing has a voice and reflects the roles that mold the practice of caring. The fifth concept focuses on patient care delivery. The central focus of this model is that care is the experience in which one human bonds with another. The provider's integration of compassion, knowledge, and experience creates an environment in which the mentally ill person's priorities and needs can be operationalized as a treatment plan. The environment is the essence of trust and understanding the person's unique needs, not the actual physical location. This model reflects being in the moment with the person and the healthcare team members demonstrating the essence of caring. The sixth concept focuses on a resource driven process that examines the distribution of resources and the way to maximize them to meet the environment's demands. The seventh concept focuses on measuring outcomes. Quality outcomes are achieved when the provider and the person being treated in a caring environment reach mutual goals. These seven concepts

represent the theoretical framework of this QIP to provide care, improve access, and support medication management for the mentally ill in rural areas (Koloroutis, 2004).

Continuous Improvement Model

The four-step quality improvement model centers on the implementation of a new approach to deliver care with the goal to provide a consistent and embedded process that becomes familiar to individuals. This project used the Deming model, which is a wheel that represents an iterative four-step method referred to as Plan-Do-Check-Act (PDCA) for the control and quality improvement process (Patel and Deshpande, 2017).

PDCA model. The PDCA model, or the Deming Model, is a systematic approach to improve a process, such as access to APRNs in a mental health treatment organization. The method is intended to change traditional techniques and ultimately improve productivity and the organization's quality. The initial identification of the problem outlined the reasons that led to the need for change Step 1: "Plan" attempted to identify the root causes of the limited access to care. This was considered the project's baseline and factors that influenced the need for change were identified. When identifying the causes, a cause and effect tool, such as a fish-bone diagram, aligns the causes with thoughts and ideas. During this phase, an improvement theory identified who the change affects and the way in which the change influenced the results. The formulation of an action plan outlined the way the data was managed and who was responsible for doing so. Step 2: "Do" was a trial run of telehealth. During this phase, data collection was conducted that documented unexpected observations, knowledge acquired, and potential lessons learned. Step 3: "Check" was a method of analysis which verified whether the solutions implemented achieved expectations. This often is referred to as the "testing phase," where the results are compared to the measurable objectives, in which the clinical outcomes are the same or

better when telehealth is used compared to a face-to-face consultation. Step 4: “Act” entailed standardizing the measurable improvement and integrating it into the organization. If the changes did not result in improvement, then the new process would be abandoned. If the changes were successful, telehealth would be expanded to other locations to improve access to APRNs. This model was a continuous process in which the cycle was repeated to achieve a higher level of acceptance of the success. PDCA is a data-based framework and was based on a scientific method (Patel and Deshpande, 2017).

Project Design

Objectives

The main objectives of this Quality Improvement Project (QIP) were as follows. Individuals will have (1) increased access to APRNs in the mental health specialty facility through the use of telehealth, (2) achieve 80% medication adherence, as evidenced by picking up prescribed medications 30 and 60 days after the initial Telehealth appointment, (3) keep follow-up appointments within three months of the initial Telehealth appointment, and (4) have a positive response to the telehealth venue, as demonstrated by responses to the patient satisfaction survey. The overall aim of the project was that individuals would have improved access to APRNs through telehealth while receiving the same level of care and clinical outcomes compared to face-to-face consultations.

Setting

Telehealth was conducted on-site at the specialty clinic. A telehealth room was supported and established in this specialty facility that functions eight hours per day, three days a week staffed by a full-time telehealth nurse practitioner. The room was one of the APRN offices that was decorated with a carpet and pictures like an office other APRNs in the facility use. An

offsite APRN contacts the site remotely using the same documents, resources, and format the other APRNs use who see individuals face-to-face at the same location. The routine process for all individuals who were treated at the facility was the same, regardless of whether they were participants in this project. The process included consent for treatment, authorization to review medical records, demographic information, and medication lists from all providers who cared for the individual. The patient came on-site at the NE Florida specialty mental health treatment facility and the APRN was remote.

The Senior Vice President of Clinical Operations granted verbal permission to conduct this QIP on behalf of the Chief Operating Officer, and a physician who is dual accredited as a Clinical Psychologist and Primary Care Physician working in mental health was assigned as oversight and Research Mentor (Appendix J). Stakeholders included senior leadership (Chief Operating Officer, Chief Financial Officer, Chief Information Officer, Senior Vice President of Clinical Operations, and Senior Vice President of Human Resources), all of whom were extremely vested in finding an alternative approach to manage the facilities' patients receiving mental health care. The organization's readiness for change was observed, as they had been exploring other venues to deliver care and had contacted other mental health organizations to discuss the option of Telehealth.

QIP Participants

A convenience sample of 40 adults who were 18 years of age and older and were diagnosed with schizophrenia (F25.0, F25.1, F20.1 and F20.0), bipolar (F31.0-F31.9), major depression (F30-F39), post-traumatic stress disorder (F43.1-43.11), anxiety (F40-F48), or substance abuse (F40-F48) were eligible to participate in this project. Patients with a dual diagnosis (mental illness and substance abuse) were noted at the request of the NE Florida

speciality mental health facility. Individuals who were pregnant, placed under a Baker act within the past 30 days, or incarcerated within 90 days before the project were excluded. If participants became pregnant during the three months of the project they would have been withdrawn, as when individuals become pregnant, the APRN typically discontinues mental health medications or prescribes only medications that are medically necessary. Patients who became unstable requiring an admission were also withdrawn from the project. The project included 40 individuals who received care in the NE Florida speciality mental health treatment facility.

Process

Before the QIP began, all clinical staff at the NE Florida speciality mental health facility were provided an overview session of the project. One offsite APRN and two licensed practical nurses (LPN) were assigned to telehealth and received a detailed orientation that outlined individuals' eligibility to participate, the informed consent process, and data collection tools the Project Leader (PL) provided. Only patients who were competent and currently able to sign for their own care in the outpatient setting were asked to participate and give informed consent. All appointments were made through the access center. The LPN checked-in all patients scheduled for telehealth. If the patient had at least one prior face-to-face appointment with an APRN at the NE Florida speciality mental health facility, s/he was eligible to participate in the project. The LPN inquired about the individual's interest in participating, and if s/he agreed, the PL secured an informed consent (see Appendix B). Participants were informed that if they elected not to participate or to withdraw at any time, they would still receive the same level of care provided to all patients treated at the facility.

Step One: The PL obtained the informed consent to participate and explained the objectives and tools that would be used during the project. All participants had one face-to-face

visit with an APRN within the organization before they participated. To maintain confidentiality, individuals were assigned a project number.

Step Two: Once the individual agreed to participate and signed the consent, s/he completed a self-reported medication survey (see Appendix D) independently before the visit with the offsite APRN, which was held in the telehealth room on-site. The LPN assisted those individuals who could not read.

Step Three: After the completion of the telehealth visit, the individual filled out a patient satisfaction survey (see Appendix F). Then, the LPN completed the discharge and reviewed the plans for the follow-up appointment. Forms were given to the PL and secured in a locked drawer in the PL's office as they were completed.

Tools

The University of Wisconsin School of Medicine and Public Health developed the self-reported medication nonadherence survey (see Appendix D) and permission to use this tool was obtained (see Appendix E). The survey included two parts, the first of which measured the extent of nonadherence to medications on a Likert scale of five responses with respect to the frequency of missed medications. The higher the score on the 3-item extent scale indicated greater nonadherence to medications. The second part listed eighteen reasons to choose from for not taking medications over the seven days before the appointment. The scale was based on qualitative methods that use the modified version of frequency, including never, rarely, sometimes, often, or always. The medication survey was administered by the LPN prior to the first visit .

After their first telehealth visit, participants completed a patient satisfaction survey (Appendix F) with twelve questions. The first seven questions asked the participants to rate the

environment and introduction to telehealth with 4 possible responses (poor, fair, good or excellent) and the remaining questions requested a “yes” or “no” response indicating whether the individual would use telehealth in the future and whether s/he would recommend it to others. The PL developed the patient satisfaction survey and an APRN who has been practicing for seventeen years (see Appendix H) and a psychiatrist who has been practicing for seven years and owns a telehealth practice (see Appendix I) completed an expert validation instrument supporting the survey’s use.

Data Collection and Analysis

An excel spreadsheet (see Appendix G) was used to collect data. The Project Lead (PL) obtained participants’ demographic information from the electronic medical records, including gender, race, age, and dwelling by county or homeless status. All primary diagnoses and those who met the dual diagnosis criteria was noted. After the first telehealth visit, the PL monitored each individual for monthly medication refills at days 30 and 60 by accessing the pharmacy database or calling the specialty pharmacies that provided medications for the patient. Patients typically pick up their medications every thirty days at the pharmacy on site. The PL noted 100% refills of all medications prescribed, those with 80% refills of those prescribed, and those with less than 80% refills of medications prescribed at the 30-day and 60-day intervals. The PL monitored three-month follow up appointments noted through the scheduling database. If an appointment was not made or the individual was a “no-show,” the LPN called the patient to determine whether s/he was hospitalized, incarcerated, relocated, or expired. The data reflected medication adherence and access to appointments through telehealth. Patients responded to the patient satisfaction survey and responses were aggregated to provide feedback on the telehealth room and experience.

Evaluation Plan

The evaluation plan after the completion of the 90-day data collection period included only those individuals who met the criteria stated above. Those who became pregnant, were admitted to the hospital, crisis unit, admitted under a Baker act, and/or incarcerated were omitted. The spreadsheet was updated, and all names/medical record numbers were de-identified (see Appendix G). The final report included: (1) an analysis of all demographics (gender, age, race, dwelling, homeless status), (2) diagnoses represented by the percentage of primary and dual diagnoses, (3) results of medication survey, (4) the percentage of medication refill adherence tracked at 30 and 60 days after the initial telehealth visit, (5) the percentage of follow-up appointments within 3 months of the initial appointment and (6) the results from the patient satisfaction surveys. The organization's performance measurement appointment report was run for the QIP timeframe to determine if the addition of telehealth impacted access as demonstrated in the percentage of appointments made within the three month and 7-day period following their initial telehealth appointment. Statistical analyses were performed with Statistical Processing Software System (SPSS).

Timeline

Starting in October 2019, recruitment of participants took three weeks. Data collection took place over a three-month period with two additional weeks to collect missing information related to Baker acts, incarcerations, or inpatient crisis unit admissions. Data was aggregated over a three week period and final defense was given February 2020.

Financial Considerations

The mental health facility incurred the costs, as agreed, of copying the tools that were used to collect data. The cost for the proof of the final project was the standard cost per page,

approximately three hundred dollars, which was the PL's responsibility. No other costs were incurred.

Ethical Considerations

Upon the DNP proposal committee's approval, the proposal was submitted to the Jacksonville University (JU) institutional review board (IRB) for approval. The NE Florida speciality mental health organization required no IRB submission, as they do not have an IRB approval process and accepted the university's approval. Failure to participate in the project did not impact the quality of patient care. One patient-participating in the project became unstable requiring a hospital admission and was withdrawn from the study. No participants became pregnant during the project, so this was not an issue. Patient confidentiality was maintained. The individuals signed and printed their names on the informed consent, which were kept separate from the data collection tools that were identified with a project number. All consents were maintained in a locked drawer in the PL's locked clinical office, and only the PL had access to the drawer or any patient identifiers. The electronic record was password protected. The data analysis was conducted using the project numbers, and the PL maintained the password-protected data collection spreadsheet. All data transfer was accomplished through One Drive maintained on the Jacksonville University mainframe with only project numbers identifying the information.

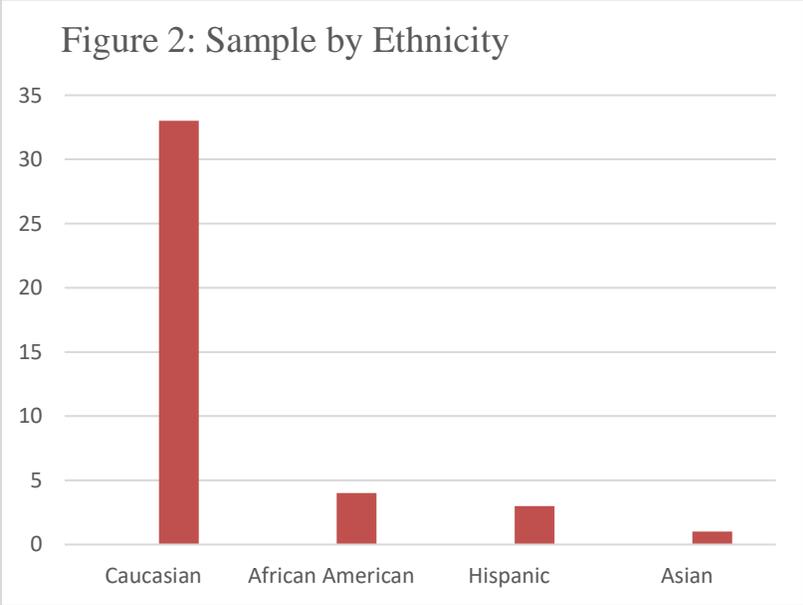
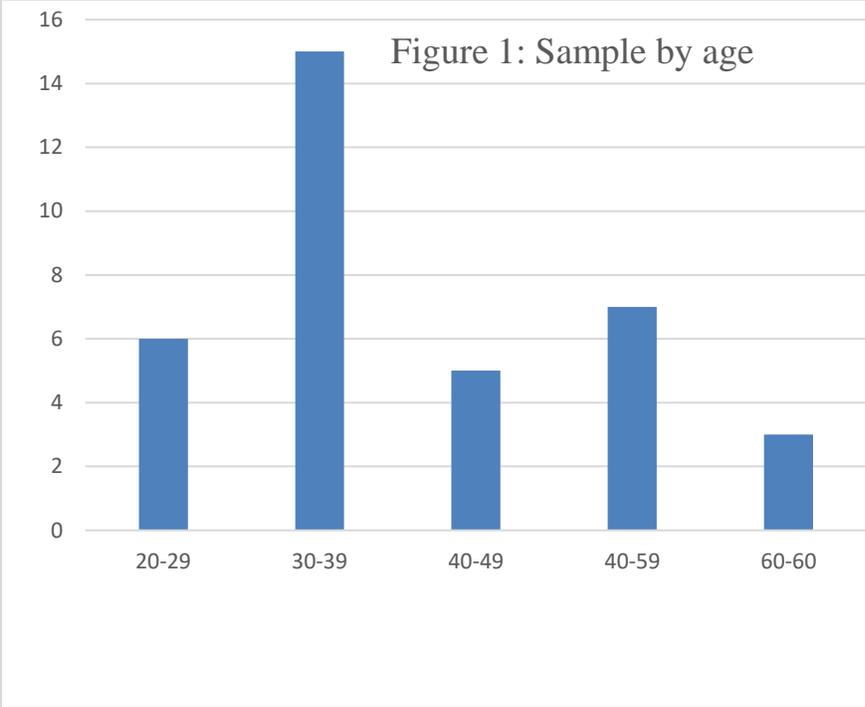
Sustainability

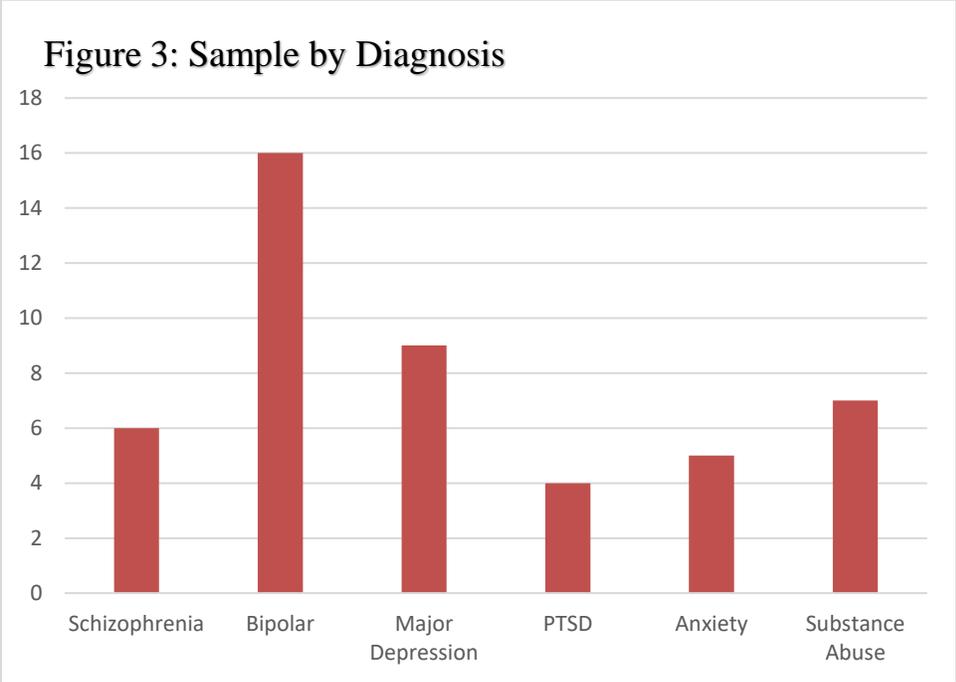
At the end of the QIP, the PL presented the findings to the mental health specialty organization's leadership in both a written report and an oral presentation. The data collected,

including medication adherence, and patients' satisfaction, were of significant interest to the leadership team. Because of the shortage of APRNs in the NE region of Florida, the current dilemma created delays in care and loss of continuity of care, and the organization was vested in validating telehealth as a viable venue to support current practices. Results validated this and demonstrated increased access to care therefore, the organization has made the decision to expand the use of telehealth with APRNs to other rural locations.

Description of Sample

A convenience sample of 40 patients of which 42% were male and 58% female were monitored (Figure 1). Thirty-seven percent of the participants were Caucasian, 1% African American, 1% Hispanic, and 1% Asian (Figure 2) The counties of residence included 35% Volusia county and 15% Flagler county. Fifteen percent identified themselves as "homeless." Primary diagnoses included: 15% schizophrenia, 40% bipolar, 22% major depression, 10% post-traumatic-stress-disorder, 13% anxiety, and 18% with co-existing mental health and substance abuse disorder (Figure 3). The overall population identified was representative of the patients that were treated by the APRN at the NE Florida specialty mental health facility. The participants were also representative of the overall clinic population demographics.





Overview of Findings

Forty patients met the criteria to participate in the project. One participant was withdrawn after completing all assessments but prior to 30 day prescription refill because s/he was admitted to the inpatient psychiatric unit. Of the 40 participants, only seven met the criteria for a dual diagnosis. Two of the four objectives were successfully met, one partially met, and one not met.

Objective 1: Access

Objective 1 focused on increased access to APRNs in the mental health specialty facility using telehealth. The patients monitored in this convenience sample received mental health care by telehealth onsite at a mental health specialty facility. The outcome projected was demonstrated as patients receiving telehealth had improved access to the APRN reflected in the organization's Performance Measurement tool that tracks appointments. To meet compliance, patients were scheduled no more than three months and seven days from their last telehealth appointment. This was monitored by the organization's compliance division and reported to their leadership.

This QIP was specific to a NE Florida specialty mental health treatment organization that serves 23,600 individuals annually (United States Bureau of Statistics, 2018). The overall organization services 649,202 residents inclusive of two counties in this NE Florida region, with many of their mental health offices experiencing the same difficulties providing timely appointments. The facility where this project took place was staffed by APRNs who provide medication management. One of the NE Florida specialty mental health facility's performance measures was to schedule appointments every three months with an APRN. Table 1 below reflects the efficiency performance measure for appointments scheduled prior to starting

telehealth from January 1, 2019 to March 30, 2019 capturing data on the number of appointments made within three months and one week of the last appointment:

Month	Number scheduled appointments	Number appointments scheduled 3 months + 7 days from last appt	Percentage of appointments scheduled 3 months + 7 days from last appointment
January	1407	45	3.2
February	755	25	3.31
March	594	64	10.77
	Total = 2756	Appt 3m + 7 d = 134	Percentage of appts 3m + 7d = 4.86

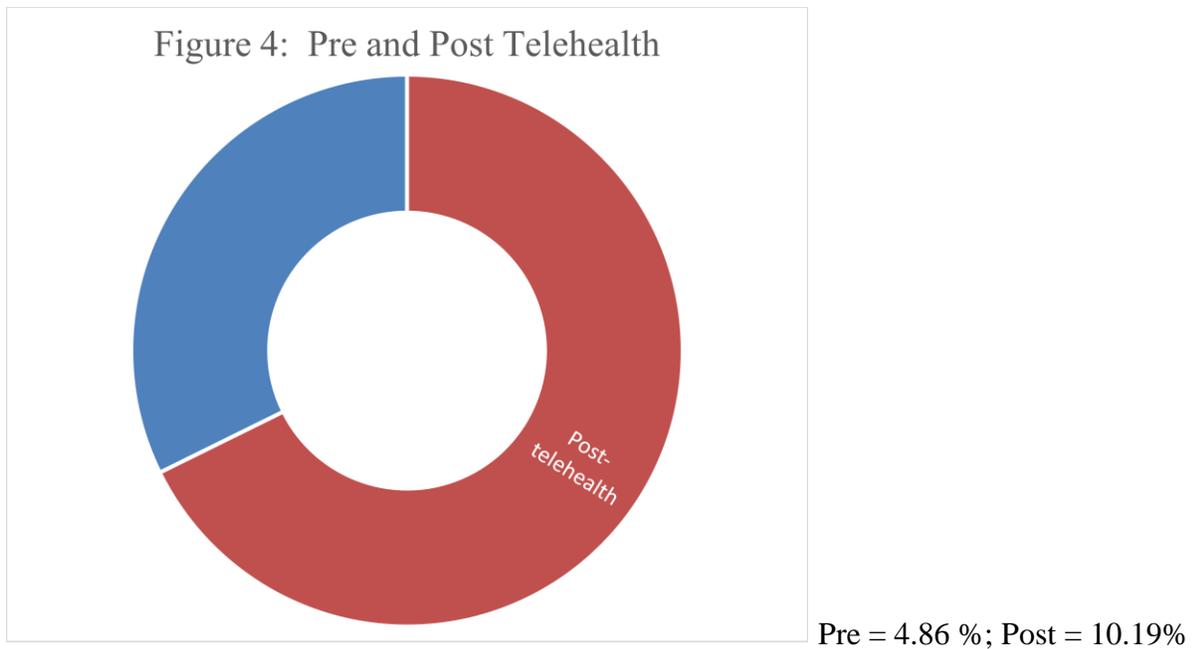
Table 1: Appointments Prior to Telehealth (Performance Measures Appointment Schedule Three Months and Seven Days from last appointment, prior to the implementation of Telehealth, January through March 2019)

Table 2 represents the appointments three months and seven days after the initiation of telehealth, reflected in the time period from April through December 2019.

Month	Number scheduled appointments	Number appointments scheduled 3 months + 7 days from last appt	Percentage of appointments scheduled 3 months + 7 days from last appointment
April	498	106	21.29
May	151	18	11.92
June	311	40	12.86
July	547	41	7.49
August	560	35	6.25
September	756	48	6.34
October	920	168	10.65
November	1214	406	3.34
December	720	62	11.61
	Total = 5677	Appt 3m +7d = 924	Percentage appts 3m +7d = 10.19

Table 2: Appointments After Telehealth (Performance Measures Appointment Schedule Three Months and Seven Days from the last telehealth appointment, April through December 2019.)

As seen in Table 1, a total of 2756 visits were scheduled between January 1 and March 30, 2019, of which only 134 (4.86%) of the visits met the criteria of a routine medication management visit within three months and 7 days of the last visit. In comparison, after the implementation of telehealth, a total of 5,677 visits (Table 2) were scheduled between March and December 2019, of which 924 (10.19%) of the visits met the criteria of a routine medication management visit. Appointments reflected that more patients were able to obtain an appointment within the three month and seven-day window from their last telehealth appointment and the organization’s outpatient efficiency report demonstrated an increased percentage of appointments meeting this standard.



Comparison Appointments Three Months Before and Nine Months After Implementing APRN Telehealth Visit

After	164 (17.08)	796 (82.92)	960
Before	134 (4.86)	2622 (95.14)	2756
Total	298	3418	3716

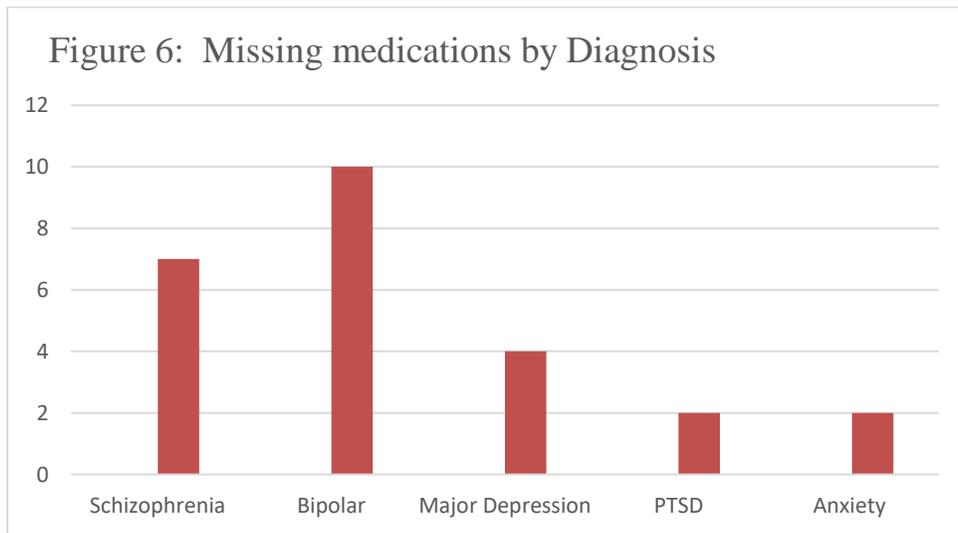
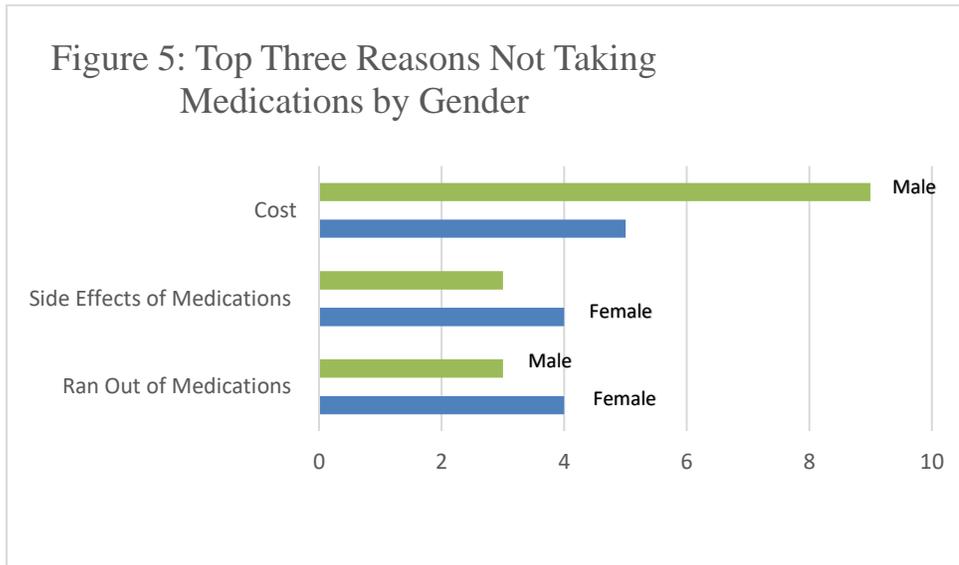
Table 3: Three months before and after implementation of Telehealth APRN visit (3 month and 7 days after last appointment)

Comparing the three months before to the three months immediately after implementing the telehealth APRN consultation using Chi-square, with a $p < 0.001$ yielded a highly significant change in access to the providers from 4.68% to 17.08% (Table 3). Patients were scheduled through a centralized access center that influenced the appointment scheduling once the Telehealth APRN was brought on board to the NE Florida specialty mental health facility . Objective 1 was met with an increase of 12.4% in obtaining appointments, thus access improved with the implementation of telehealth.

Objective 2: Medication Adherence

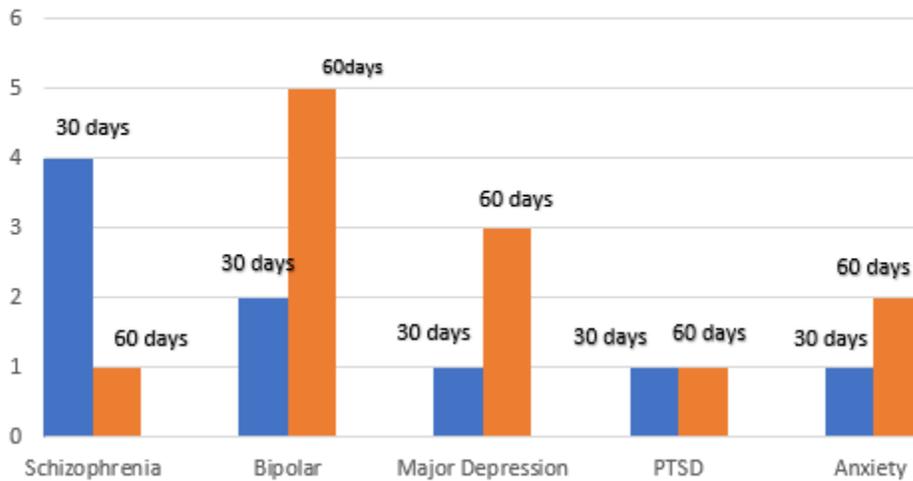
Objective 2 focused on the achievement of medication adherence, as evidenced by picking up prescribed medications 30 and 60 days after the initial Telehealth appointment. The medication survey provided insight into common reasons why patients miss or do not take their prescribed medications. The top three responses to the lack of medication compliance included: cost of the medications, side effects of the medications, and ran out of medication (Figure 5). According to the responses, men were more likely to miss or skip medications. Patients over 50

compared to patients less than 50 were more likely to miss/skip medications. The diagnosis with the most skipped/missed medications were those diagnosed with bipolar compared to other diagnoses (Figure 6).



Medication refills at day 30 and day 60 were tracked for each participant in the project. PL followed all medication refills that were secured from the pharmacy on-site and retail pharmacies. The participants had no mail-in arrangements for medications. Medication refills were tracked by diagnosis (Figure 7).

Figure 7: Medication Pick up 30 and 60 days from Telehealth appointment

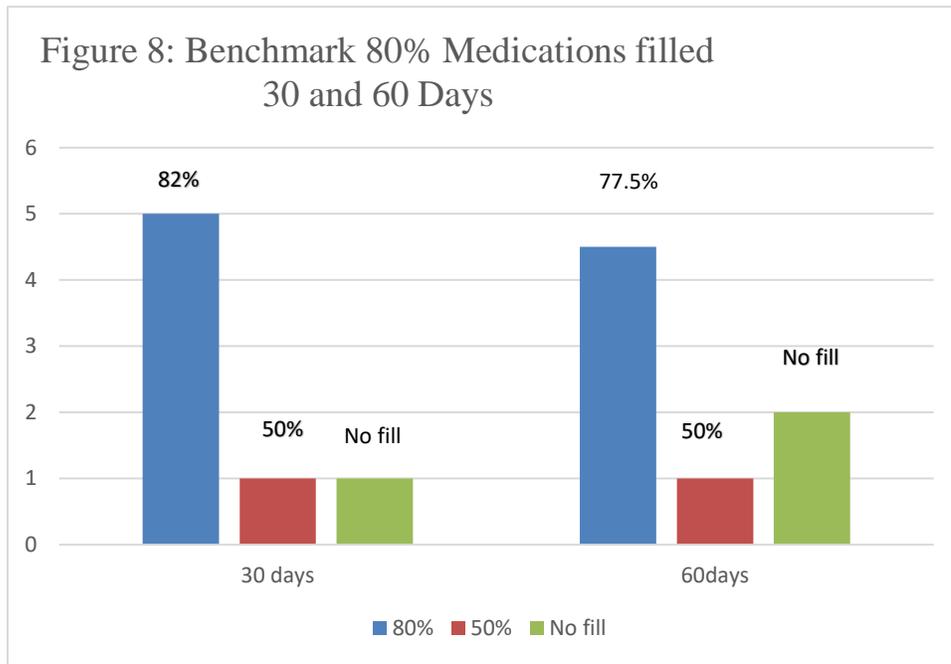


Standards for medication refills are being looked at by major organizations. The National Committee for Quality Assurance (NCQA) provides health plans with a report card to include commercial plans, Medicare, Medicare and plans in the health exchange. These plans are reimbursed based on their accreditation standard scores with Healthcare Effectiveness Data Information Set (HEDIS), and Consumer Assessment for Healthcare Provider and Systems (CAHPS). The goal of NCQA is to evaluate quality, patient satisfaction and continued efforts to improve the delivery of healthcare (National Committee for Quality Assurance, 2019). The HEDIS measurement for healthcare plans in 2020 focuses on the assessment of adults from aged 19 to 64 years of age who have schizophrenia or schizoaffective disorder and medication

adherence for at least 80% of their treatment period. To meet this measurement the patient must have at least two antipsychotic medications filled during the measurement period of 12 consecutive months (National Institute for Clinical Excellence and the National Collaborating Centre for Mental Health, 2014).

A benchmark of 80% of medications filled for two consecutive months measured at day 30 and day 60 after the telehealth appointment was set prior to the start of the project. Eighty-two percent of medications were filled by 30 days and 77.5% were filled by 60 days by patients without dual diagnoses. The patients (7) with dual diagnoses filled their medications at a lower rate, 66.2% at 30 days and 33% by 60 days (Figure 8).

The overall adherence for participants without a dual diagnosis with picking up medications 30 days and 60 days after the initial telehealth consultation met the benchmark of 80% at 30 days and was slightly below the benchmark (77.5%) at 60 days. Patients who reported missed medications the most were diagnosed with schizophrenia/bipolar in comparison to other diagnoses. Patients with dual diagnoses, a mental illness and substance abuse disorder, had an overall higher incidence of missed medications.



Objective 2 was partially met by overall adherence of 82% of medication refills at day 30 meeting the 80% benchmark. Medication refills at day 60 falling slightly below the benchmark at 77.5% indicating room for improvement. Dual diagnosis participants failed to meet the 80% benchmark at both 30 and 60 days.

Objective 3: Follow-up Appointments

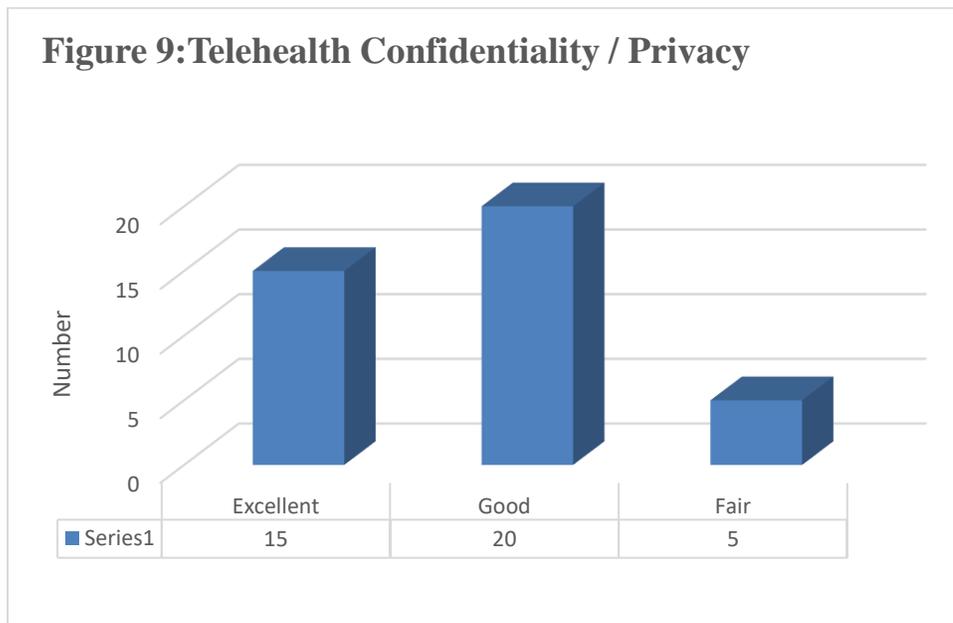
Objective 3 focused on participants’ keeping follow-up appointments within three months of the initial telehealth appointment. The participants who were given follow-up appointments within 90 days all kept their appointments. Seventy-three percent of the patients in the project were unable to schedule appointments with the standard of three months represented which indicates that there continues to be room for improvement in access.

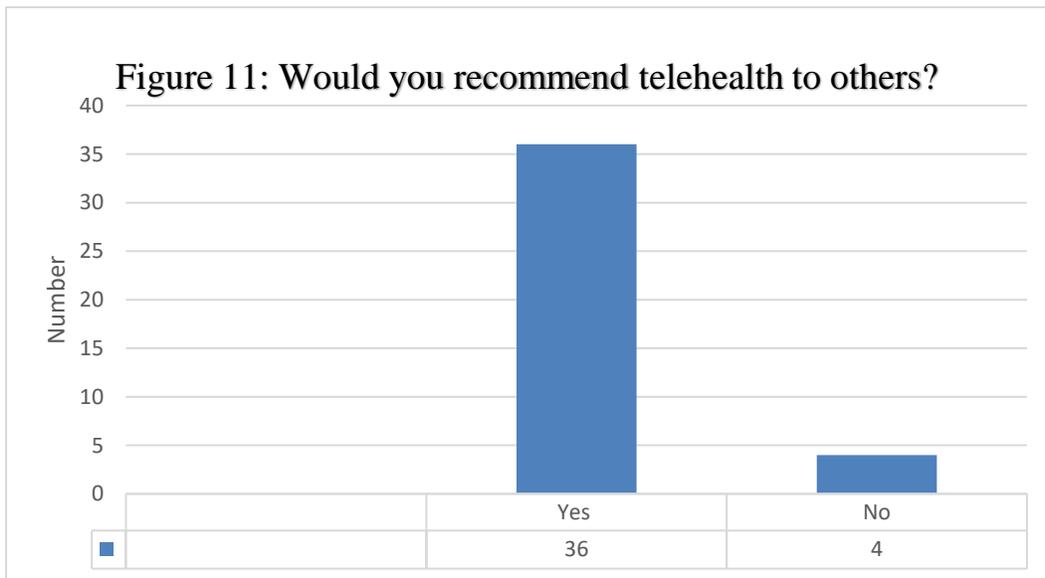
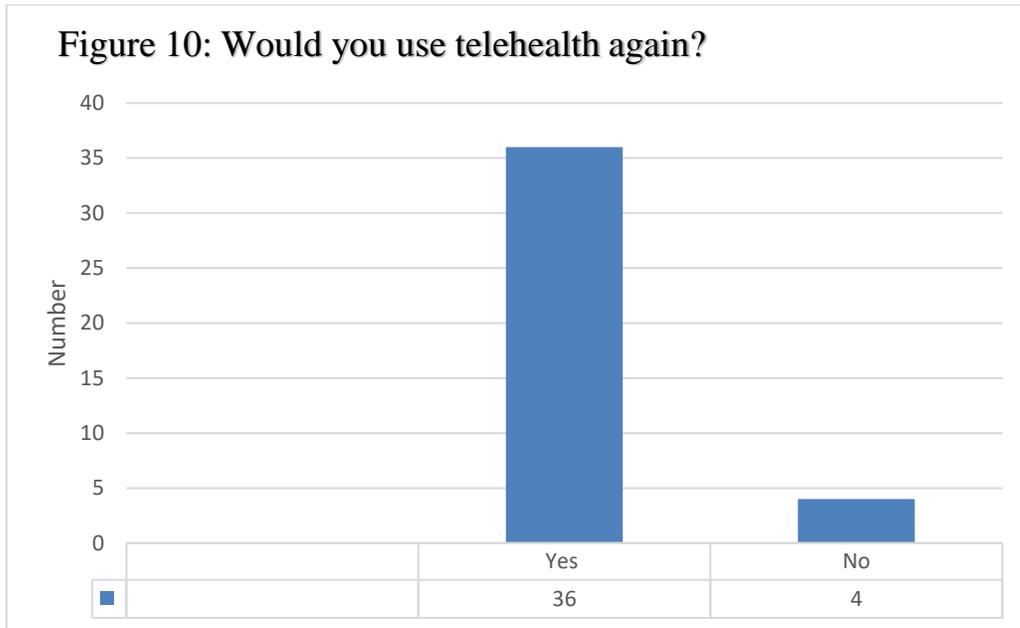
Objective 3 was not met due to the limited number of available telehealth appointments making it difficult to conclude the compliance rate with appointments. Additional data with

improved appointment availability would have been helpful and most likely improved the outcome.

Objective 4: Satisfaction with Telehealth

Objective 4 focused on the response to the telehealth venue, as demonstrated by responses to the patient satisfaction survey. Patients completed a patient satisfaction survey immediately following their telehealth consultation. The survey was divided into two sections. The first section was to gain feedback on the comfort of the setting and the comfort level while engaging with an APRN through technology. Overall, voice quality, visual quality, personal comfort ranked 89.7% satisfaction. There was no differentiation in age group in response to setting and comfort of telehealth. Confidentiality and privacy ranked 87.5% between excellent and good (Figure 9). The majority of patients felt that they received the medications needed as well as adequate instructions on follow-up appointments.





The second section of the satisfaction survey focused on the participants interested in continuing appointments with telehealth and recommending this venue to others. Eighty-seven percent (n = 36) of the responses to the patient satisfaction survey indicated that they would use

telehealth again and that they would also recommend this venue to others. Overall the response to the venue was extremely positive. Objective 4 demonstrated that the majority of patients were satisfied with the telehealth experience and were interested in continuing with the APRN through telehealth.

Conclusions

This project aimed to provide a NE Florida specialty mental health facility with insight into their initiative in the utilization of an alternative venue to provide mental health care outside of their traditional face-to-face consultation. The purpose of this project was to determine if a telehealth intervention for patients 18 years of age and older who were diagnosed with schizophrenia, bipolar, major depression, post-traumatic stress disorder, anxiety, or substance abuse in a NE Florida specialty mental health treatment facility improved access to providers supporting medication adherence. A secondary purpose was to determine patient satisfaction with the use of telehealth.

Objective 1 regarding improved access to care with telehealth was met, as well as objective 4 which demonstrated overall satisfaction with and continued willingness to use telehealth. Objective 2 related to medication refills and was only partially met. The 80% benchmark was exceeded at the 30 day medication refill, but was slightly under at 60 days for participants who did not meet the criteria for dual diagnosis. Participants with dual diagnoses had a lower overall medication adherence. Objective 3 which was not met was striving for compliance with scheduled appointments. Patients with scheduled follow-up appointments within 90 days indicated complete compliance. A limited number of available appointments and limited number of appointment options that patients were offered likely influenced the outcome.

Appointment availability appears to be one of the main issues. This measure is inconclusive and further data would be helpful.

The measurements collected during this project reflected that the use of telehealth provided improved access to the APRNs with the same level of care as compared to face-to-face consultations. Participant response showed overall satisfaction and willingness to continue to use telehealth as an alternative venue. Expansion and utilization of this venue is a viable option in the facility's rural locations improving shrinking provider resources while attempting to meet the needs of mental health and dual diagnosis patients. Upon reporting the results of this project to the stakeholders at this NE Florida mental health facility, the decision was made to expand telehealth services to another rural location within this organization.

The overall premise of the relationship-based care model, the framework used for this project, was to have a continuous relationship over time to achieve positive outcomes (Koloroutis, 2014). The seven core concepts were addressed. A therapeutic relationship with the APRN through telehealth was shown as the majority of the patients were satisfied with and willing to continue to use this venue. Leadership had a shared vision to meet the needs of the patients and team efforts supported patients to obtain other needed individual services like therapy. The APRN was able to show caring to the individual patients while being in the moment with them as noted in the surveys showing overall satisfaction. Resources through the use of telehealth were maximized to meet the patients' needs. And finally, quality outcomes were achieved as the provider and person being treated in a caring environment attempted to reach mutual goals. Care was provided through this alternative venue allowing for improved access and support of medication management for the mentally ill in rural areas.

Limitations/Strengths of this Project and Future Projects

The limitations of this project included the small sample size and limited subjective feedback from patients which might have contributed to understanding more of the challenges and the potentials for future use. There was a place for participants to write in comments on the satisfaction survey, but none chose to do so. Some of the patients had not experienced a telehealth visit in the past and indicated that their unfamiliarity with this venue influenced their lack of feedback. Limited availability of telehealth appointments negatively impacted scheduling. Strengths included the opportunity to examine the use of a new venue to provide improved access to healthcare to a much needed population in a rural health area. Overall the results demonstrated patient satisfaction with this new telehealth venue and a willingness to continue to use it.

Future projects might include comparing the differences between the two systems of care by diagnostic groups; individual preferences by age, race, and diagnosis; and case-mix adjustments for mental health patients and those with a dual diagnosis (mental health and substance abuse disorder), including specific issues that influence lower compliance with medication refills in dual diagnosis patients. It would be important to also look at the availability of scheduling, possibly making more convenient appointments available for follow-ups. Monitoring the reasons for “no shows” to appointments may help in appointment management as well. Tracking continued use of the telehealth venue compared to the number of patients who return for a face-to-face consultation would provide insight into long term use of telehealth and decisions related to increasing APRN telehealth providers at this NE Florida specialty mental health facility.

References

- Bergamo, C., Juarez-Colunga, E. & Capp, R. (2016). Association of mental health disorders and Medicaid with ED admissions for ambulatory care sensitive conditions. *American Journal of Emergency Medicine*, 34, 820–824.
<https://doi.org/10.1016/j.ajem.2016.01.023>
- Braun, B., (n.d.). Barriers to mental health access for rural residents.
Rural Maryland Council on the MD Task Force on Mental Health Services Access
<https://sph.umd.edu/sites/default/files/files/MentalHealthTaskForceBrief.pdf>
- Chapman, S. A., Phoenix, B. J., Hahn, T. E., & Strod, D. C. (2018). Utilization and the economic contribution of psychiatric mental health nurse practitioners in public behavioral services (2018). *American Journal of Preventive Medicine*, 54(6), S243–249.
<https://doi.org/10.1016/j.amepre.2018.01.045>
- Chari, K. A., Simon, A. E., & Defrances, C. J. (2016). *National Health Statistics Reports, Number 96, July 2016*. Retrieved from <https://www.cdc.gov/nchs/data/nhsr/njsr096.pdf>
- Centers for Disease Control and Prevention. National Center for Health Statistics (2017). Retrieved from <https://www.cdc.gov/nchs/fastats/mental-health.htm>
- Cummings, J. R., Allen, L., Clennon, J. J., Ji., X., & Druss, B. G. (2017). Geographic access to specialty mental healthcare across high- and low-income US communities. *JAMA Psychiatry*, 74(5), 476–484. <https://doi.org/10.1001/jampscyhiatry.2017.0303>
- Dadi, E., & Florida Policy Institute (2016). *The rate of incarcerations in Florida*. Retrieved from <https://www.fpi.institute/the-rate-of-incarceration-in-florida/>
- Davies, A.R. & Ware, J.E. (1991). GHAA's consumer satisfaction and user's manual (2nd ed.), Washington DC, Group Health Association of America, Inc. as cited in Roland, B.M.

- (2001). Telepsychiatry in the heartland: If we build it, will they come. *Community Mental Health Journal*, 37(5), 449-459.
- Deslich, S. A., Thistlethwaite, T., & Coustasse, A. (2013). Tele-psychiatry in correctional facilities: Using technology to improve access and decrease costs of mental health care in underserved populations. *The Permanente Journal*, 17(3), 80–86.
<https://doi.org/10/7812/tpp/12-123>
- Farabee, D., Calhoun, S., & Veliz, R. (2016). An experimental comparison of tele-psychiatry and conventional psychiatry for parolees. *Psychiatric Services*, 67(5), 562–565.
- Fortney, J. C., Pyne, J. M., Edlund, M. J., Williams, D. K., Robinson, D. E., Mittal, D., & Henderson, K. L. (2007). A randomized trial of telemedicine-based collaborative care for depression. *Journal of General Internal Medicine*, 22(8), 1086–1093.
<https://doi.org/10.1007/s11606-007-0201-9>
- Fuller-Torrey, E., Zdanowicz, M., Kennard, A., Lamb, R., Eslinger, & Doris, F. (2014). *The treatment of persons with mental illness in prisons and jails: A state survey*. *Treatment Advocacy Center* (pp. 1-111). Retrieved from
<http://.treatmentadvocacycenter.org/storage/documents/treatment-behind-bars/treatment-behind-bars.pdf>.
- Garcia, S., Martinez-Cengotitabengoa, M., Lopez-Zurbano, S., Zorrilla, I., Lopez, P., & Gonzalez-Pinto, A. (2016). Adherence to antipsychotic medications in bipolar and schizophrenic patients: A systematic review. *Journal of Clinical Psychopharmacology*,
<https://doi.org/10.1097/JCP.0000000000000523>

- Grelwe, M. (2018). *Just the facts: 30 telehealth statistics for doctors to know*. Ortholive.
Retrieved from <https://ortholive.com/just-the-facts-30-telehealth-statistics-for-doctors-to-know>
- Hilty, D. M., Ferrer, D. C., Parish, M. B., Callahan, E. J., & Yellowlees, P. M. (2013). The effectiveness of telemental health: A 2013 review. *Telemedicine and e-Health*, 44–454.
<https://doi.org/10/1089/tmj.2013.0075>
- Hilty, D., Green, J., Hilty S., Nasatir-Hilty, S. E., Johnston, B., & Bourgeois, J. A. (2015). Mental healthcare in rural and underserved primary care settings: Benefits of tele mental health, integrated care, stepped care and interdisciplinary team models. *Journal of Nursing & Care*, 4, 237. <https://doi.10.4172/2167-1168-1000237>
- Iafolla, T. (2015). *36 Telemedicine statistics you need to know*. Online: *eVisit*.
<https://blog.evisit.com/36-telemedicine-statistics-know>
- Kasckow, J., Felmet, K., Appelt, C., Thompson, R., Rotondi, A., & Haas, G. (2014). Telepsychiatry in the assessment and treatment of schizophrenia. *Clinical Schizophrenia & Related Psychoses*, 8(1), 21–27A. doi: 10.337/CSRP.KAFE.21513
- Kilbourne, A. M., Beck, K., Spaeth-Rublee, B., Ramanuj, P., O'Brien, R. W. & Pincus, H. (2018). Measuring and improving the quality of mental healthcare: A global perspective. *World Psychiatry*, 17(1), 30–38. <https://doi.org/10.1002/wps.20482>
- Knaak, S., Mantler, E., & Szeto, A. (2017, March 1). Mental illness-related stigma in healthcare: Barriers to access and care and evidence-based solutions. *Healthcare Management Forum*. <https://doi.org/10.1177/084070416679413>
- Knickman, J., Krishnan, K., Pincus, H., Blanco, C., Blazer, D., Coye, M., & Vitiello, B. (2016) *Improving access to effective care for people who have mental health and substance use*

- disorders: A vital direction for health and healthcare*. NAM Perspectives. Discussion Paper, National Academy of Medicine, Washington, DC.
<https://doi.org/10.31478/201609>
- Lauckner, C., & Whitten, P. (2016, April 1). The state and sustainability of telepsychiatry programs. *Journal of Behavioral Health Services and Research*,
<https://doi.org/10/1007/s11414-015-9461-z>
- Levin, A. (2017, April 14). Reports details a national shortage of psychiatrists and possible solutions. *Psychiatric News*. <https://doi.org/10.1176/appi.pn2017.4b24>
- Levine, D. (2018, May 25). What's the answer to the shortage of mental healthcare providers? *US News*. <https://health.usnews.com/health-care/patient-advice/2018-05-25>
- Mallow, J. A., Petite, T., Narsavage, G., Barnes, E., Theeke, E., Mallow, B. & Theeke, L.A. (2016). The use of video conferencing for a person with chronic conditions: A systematic review. *E-Health Telecommunications Systems and Networks*, 5, 36–56.
<https://doi.org/10.4236/etn.2016.52005>
- Mental Health America (MHA). (2018). *Mentl Health by the Numbers*. Retrieved from <https://www.nami.org/Learn-More/Mental-Health-By-the-Numbers>
- Narashimhan, M., Druss, B. G., Hockenberry J. M., Royer, J., Weiss, P. Glick, G., & Magil, J. (2015). Impact of a telepsychiatry program at emergency departments statewide on the quality, utilization, and costs of mental health services. *Psychiatry Service*, 66(11), 1167–72. doi:10.1176/appi.ps201400122
- National Committee for Quality Assurance (NCQA). (2019). HEDIS Measures and Technical Resources. Retrieved from <https://www.ncqa.org/hedis/measures/>, 2019.

National Collaborating Centre for Mental health. (2014). *Psychosis and schizophrenia in adults: The NICE Guideline on Treatment and Management*. .

National Clinical Guideline Number 178: 301-379. Retrieved from

<https://www.nice.org.uk/guidance/cg178/evidence/full-guideline-pdf-490503565>

NIMH. (n.d.). *Transforming the understanding and treatment of mental illness*.

<https://www.nimh.nih.gov/health/statistics/mental-illness.shtml>

Novick, D., Montgomery, W., Treuer, T., Aguado, J., Kraemer, S., & Haro, J. M. (2015).

Relationship of insight with medication adherence and the impact on outcomes in patients with schizophrenia and bipolar disorder: Results for a 1-year European outpatient observational study. *BMC Psychiatry*, *15*, 189. <https://doi.org/10.1186/s12888-015-05600-4>

O'Reilly, R., Bishop, J., Maddox, K., Hutchinson, L. Fisman, M., & Takhar, J. (2007). Is telepsychiatry equivalent to face-to-face psychiatry? Results from a randomized controlled equivalence trial. *Psychiatric Services*, *58*(6), 836–843. doi:10.1176/ps.2007.58.6.836

Patel, P., & Deshpande, V. (2017). Application of a plan-do-check-act cycle for quality and productivity improvement—A review. *Research Gate*,

https://researchgate.net/publication/318743952_Application_Of_Plan-Do-Check-Act_Cycle_For_Quality_And_Productivity_Improvement-A-Review

Rabinowitz, T., & Hilty, D. (2016). Tele-psychiatry for vulnerable and underserved populations.

Psychiatric Times, *33*(5), 1–5. <https://psychiatrictimes.com/telepsychiatry-vulnerable-and-underserved-populations>

- Richardson, L., Frueh, C., Grubaugh, A., Egede, L., & Elhai, J. (2009). Current directions in videoconferencing tele-mental health research. *Clinical Psychology, 16*(3), 323–338. doi:10.1111/j.1468-2850.2009.01170x
- Rohland, B. M., Saleh, S. S., Rohrer, J. E., & Romitti, P. A. (2000). Acceptability of telepsychiatry to a rural population. *Psychiatric Services (Washington, D.C.), 51*(5), 672–4. <https://doi.org/10.1176/appi.ps.51.5.672>
- Rohland, B. (2001). Telepsychiatry in the heartland: If we build it will they come? *Community Mental Health Journal, 37*(5), 449-459.
- Saeed, S. A., & Pastis, I. (2018). Using Telehealth to Enhance Access to Evidence-Based Care. *Psychiatric Times, 35*(6), 9–22. Retrieved from <https://www.psychiatrictimes.com/article/using-telehealth-enhance-access-evidence-based-care/page/0/5>
- Semahegn, A., Torpey, K., Manu, A., Assefa, N., Tesfaye, G., & Ankomah, A. (2018). Psychotropic medication non-adherence and associated factors among adult patients with major psychiatric disorders: A protocol for a systematic review. *Systematic Reviews, 7*(1). <https://doi.org/10.1186/s13643-018-0676-y>
- Shore, J. (2015). The evolution and history of telepsychiatry and its impact on psychiatric care: Current implications for psychiatrists and psychiatric organizations. *International Review of Psychiatry, 27*(6), 469–475. <https://doi.org/10.3109/09540261.2015.1072086>
- Warshaw, R. (2017, October). Health disparities affect millions in rural US communities. *Association of American Medical Colleges (AAMC) News*. Retrieved from <https://www.aamc.org/news-insights/health-disparities-affect-millions-rural-us-communities>.

- Wei, G. (2017). *Three policy considerations for mental health in rural areas*. Retrieved from *Public Policy Initiative. Penn Wharton, University of Pennsylvania* at <https://publicpolicy.wharton.upenn.edu/live/news/1805-three-policy-considerations-for-mental-health-in>.
- Weiner, S. (2018, February). Addressing the escalating psychiatrist shortage. *Association of American Medical Colleges (AAMC) News*. <https://www.aamc.org/news-insights/addressing-escalating-psychiatrist-shortage>
- Wilson, W., Bangs, A., & Hatting, T. (2011). The future of rural behavioral health background. *National Rural Health Association Policy Brief, 6*, 1–12. Retrieved from https://www.ruralhealthweb.org/NRHA/media/Emerge_NRHA/Advocacy/Policy documents/The-Future-of-Rural-Behavioral-Health_Feb-2015.pdf
- Yellowlees, P., Richard Chan, S., & Burke Parish, M. (2015, November 2). The hybrid doctor-patient relationship in the age of technology-telepsychiatry consultations and the use of virtual space. *International Review of Psychiatry*, <https://doi.org/10.3109/09540261.2015.1082987>
- Zheng, W., Nickasch, M., Lander, L., Wen, S., Xiao, M., Marshalek, P., & Sullivan, C. (2017). Treatment outcome comparison between tele-psychiatry and face-to-face buprenorphine medication-assisted treatment (MAT) for opioid use disorder: A 2-year retrospective data analysis HHS Public Access. *Journal Addiction Medicine, 11*(2), 138–144. <https://doi.org/10.1097/ADM.0000000000000287>

Appendix A: IRB Approval



Office of Research
& Sponsored Programs
JACKSONVILLE UNIVERSITY

Institutional Review Board
JU FWA #00020200

September 26, 2019

MEMORANDUM OF APPROVAL

TO: [REDACTED] Investigator
 CC: [REDACTED] Principal Investigator
 FROM: [REDACTED] Research Compliance Coordinator, Office of Research and
 Sponsored Programs (ORSP)
 RE: IRB Decision: *The Use of Telehealth to Increase Mental Health Services Access and Promote Medication Adherence in Rural Locations*, JU IRB # 2019-050.

The Jacksonville Institutional Review Board (JU IRB) reviewed the above-referenced project and determined, after an Expedited Review-Category-7, that your study met the approval criteria outlined in the code of federal regulations (45 CFR 46.111).

If you submitted a proposed consent and or any recruitment materials (e.g., email scripts, flyers) with your application, the approved stamped documents are attached to this approval notice. Only the stamped version of these documents may be used in recruiting subjects.

If the project is not completed by September 26, 2020 you will be required to submit a Continuing Review Report to the IRB. As a courtesy, a renewal notice will be sent to you before the expiration date; however, it is your responsibility as the Principal Investigator to submit a timely request for a renewal.

Please be advised that any change in the protocol for this study must be reviewed and approved by the IRB before the implementation of the proposed change. A Revision/Amendment Form is required for consideration of any change. Federal Regulations require that the Principal Investigator promptly report, in writing, any unanticipated problems or adverse events involving risks to research subjects or others. If you have questions, please contact the Office of Research and Sponsored Programs at juirb@ju.edu or (904) 256-7151.

Appendix B: Informed Consent to Participate



Office of Research
& Sponsored Programs
JACKSONVILLE UNIVERSITY

INSTITUTIONAL REVIEW BOARD (IRB):

**INFORMED
ADULT CONSENT**



Research Summary

Title of the Research: The Use of Telehealth to increase mental health services access and promote medication adherence in rural locations

RESEARCH INVESTIGATORS:

[Redacted] APRN, PMHNP-BC—Principal Investigator (PI) [Redacted]
Jacksonville University, 2800 University Blvd N., Jacksonville, FL 32211

Faculty Advisor:

[Redacted] Faculty Advisor [Redacted]
Jacksonville University, 2800 University Blvd N., Jacksonville, FL 32211

We are asking you to be in a research study. In order to take part, you must be 18 years or older. You must have a mental health (e.g. schizophrenia, bipolar, major depression, post-trauma stress disorder, anxiety and/or substance abuse) diagnosis. You must have had at least one visit with an Advanced Practice Registered Nurse (APRN) face-to-face prior to this meeting. You will not be eligible if you are pregnant. You will not be eligible if you have been incarcerated within the past 90 days or admitted involuntarily within the past 30 days. Taking part in this research project is voluntary.

The purpose of this study is to decide if a telehealth (on-line communication) intervention at your mental health treatment facility improves access to providers and support you in obtaining and taking your medications. The secondary purpose is to determine patient satisfaction with telehealth.

If you agree to take part in this study: you will be asked to participate in a telehealth appointment at the clinic. This session will be your medication management appointment with an Advanced Practice Registered Nurse (APRN). Before your appointment you will be asked to fill out a survey about your medication habits. After your telehealth appointment with the APRN, you will be asked to fill out another survey about your experience and your likes and dislikes about telehealth. Each survey will take approximately 5-10 minutes to fill out. Over the following 12-14 weeks following your telehealth appointment the principal investigator (PI) will collect information from your medical record and pharmacy records. This information will be used to provide a summary on medication refills and timeliness of follow-up appointments. Other identifiable private information collected will include your race, age, gender, culture, diagnosis, and county where you live. You will be assigned a study number and all personal information will be protected. This information will not

be included in any of the written material that will be prepared to show the findings of this study. Your data will be protected and not linked to any other date at the clinic. At no time will participation in this study change your access to services or benefits. Telehealth sessions will be conducted in the same format as a face-to-face appointment with an APRN. We expect the total time (including the surveys and your telehealth appointment with the APRN) to be between 45 to 60 minutes.

There are some risks you might experience from being in this study. These are difficulty communicating with the provider, difficulty understanding the provider, internet delays and loss of internet connection. Possible fragmented health care has also been reported with the use of telehealth. We do not expect any of these things happening in our clinic because we are aware of these possible issues. If there are problems, the PI is available on site and will be contacted immediately.

All data is password protected using protected servers, codes, or de-identified information. Any paper forms (e.g. informed consent and surveys) will be locked in a lockable drawer in the PI's office until the study is finished.

You may benefit from being in this study because you may be able to receive increased access to APRNs for healthcare and medication management. By taking part in this study, you will be providing valuable information about using telehealth to deliver care in the mental health. Others might benefit as this data is presented to other providers in the facility to allow for increased use of telehealth throughout the organization.

If you decide to take part in this study, it should be because you really want to volunteer. You will not lose any services, benefits, or rights you would normally have if you choose not to volunteer. If you are a patient, nothing about your medical status will change no matter what you decide.

If you are interested in learning more about the study, please continue to read below. If you are not interested stop here.

Thank You.



Office of Research & Sponsored Programs
JACKSONVILLE UNIVERSITY

INSTITUTIONAL REVIEW BOARD (IRB):

INFORMED ADULT CONSENT



PARTICIPANT'S NAME (Print): _____

TITLE OF THE RESEARCH STUDY: The Use of Telehealth to increase mental health services access and promote medication adherence in rural locations

RESEARCH INVESTIGATORS:

Principal Investigator:
[Redacted], APRN, PMHNP-BC–Principal Investigator (PI) [Redacted]
Jacksonville University, 2800 University Blvd N., Jacksonville, FL 32211

Faculty Advisor:
[Redacted] PhD–Faculty Advisor [Redacted]
Jacksonville University, 2800 University Blvd N., Jacksonville, FL 32211

INVESTIGATOR'S STATEMENT:

We are asking you to be in a research study. The purpose of this consent letter is to give you the information you will need to help you decide whether to be in the study or not. Please read this form carefully. You may ask questions about why we are doing this study and how it may or may not help. When we have answered all your questions, you can decide if you want to be in the study or not. This process is called "informed consent." We will give you a copy of this form for your records.

THE PURPOSE OF THE STUDY: The purpose of this study is to decide if a telehealth intervention for mental health patients 18 years of age and older will improve access to providers and support you in obtaining and taking your medications. Mental health diagnoses include: schizophrenia, bipolar, major depression, post-traumatic stress disorder, anxiety, or substance abuse. A secondary purpose is to find out your satisfaction with telehealth.

PROCEDURES: You will be asked to participate in a telehealth appointment at the clinic. This session will be your medication management appointment with an Advanced Practice Registered Nurse (APRN). Before your appointment you will be asked to fill out a survey about your medication habits. After your telehealth experience with the APRN, you will be asked to fill out another survey about your experience and your likes or dislikes about telehealth. Over the next 12-14 weeks following your appointment the principal investigator (PI) will collect information from the medical record and pharmacy records. This information will provide a summary on medication refills and timeliness of follow-up appointments. Other identifiable private information collected will include your race, age, gender, culture, diagnosis, and country where you live. You will be assigned a study number and all personal information will be protected. This information will not



Office of Research
& Sponsored Programs
JACKSONVILLE UNIVERSITY

INSTITUTIONAL REVIEW BOARD (IRB):

INFORMED ADULT CONSENT

ALTERNATIVE TO BE IN THE STUDY: The alternative to not take part in this study is not to participate. If you choose not to participate, you will continue to receive routine standard care.

CONFIDENTIALITY: Records or data obtained as a result of your participation in this study may be inspected by the persons conducting this study and/or The Jacksonville University's Institutional Review Board, provided that such inspectors are legally obligated to protect any identifiable information from public disclosure, except where disclosure is otherwise required by law or a court of competent jurisdiction. These records will be kept private in so far as permitted by law. Also, other Jacksonville University officials have the legal right to review research records, and they will protect the secrecy (confidentiality) of these records as much as the law allows. Otherwise, your research records will not be released without your permission unless required by law or a court order. However, if we learn that you intend to harm yourself or others, we must report that to the authorities.

We plan to publish the results of this study. To protect your privacy, We will not include any information that may identify you. To protect your privacy we plan to protect your identity from our research records by only using study numbers. Your name and any information that can directly identify you will be stored separately from the data collected as part of the research

Confidentiality will be practice to the highest standard. All paper, such as consent forms will be stored in a locked file cabinet which can only be accessed by the primary investigator. All medical record information such as age, gender, ethnicity is password protected.

We will keep your research data to use for future research or other purposes. Your name and other information that can directly identify you will be deleted from the research data collected as part of the project after all your information has been obtained. The data will be reported as aggregated statistics and finding will be summarized.

To conduct this research, the PI would need access to your medical record, prescription refills, and appointment schedules. This information will be de-identified once collected and will not be included in your medical record. All paper data (informed consents & surveys) will be locked in the principle investigator's locked drawer in a locked office, accessible only by the PI. All other data is stored on One Drive through Jacksonville University. All medical record numbers will be de-identified once the data is secured. All sites are password protected.

CONFLICT OF INTEREST: In general, presenting research results helps a scientist's career. The researchers may benefit if the results of this study are presented at scientific meetings or published in scientific journals. The PI receives no financial benefits from this study.

RIGHT TO PARTICIPATE OR WITHDRAW: You are free to stop taking part in this research study at any time without penalty and without losing any benefits to which you are entitled. You will be

provided, as applicable, with any significant new findings developed during this study that may relate or influence your willingness to continue participation.

If you decide to stop taking part in this research study for any reason, you should contact [redacted]. If you choose to tell the researchers why you are leaving the study, your reasons may be kept as part of the study record. If you decide to withdraw from the study, it may be impossible to exclude the data that has already been collected. In addition, researchers may retain and use data collected prior to your withdrawal, including Protected Personally Identifiable Information (PPII), if the uses are consistent with the study purpose and procedures as described in the IRB application and consent documents. If you have any questions regarding your rights as a research participant, you may call the JU Office of Research & Sponsored Programs at [redacted] or the faculty [redacted].

You may be withdrawn from the study without your consent for the following reasons: If you relocate and no longer need services, you change your insurance and can no longer see an APRN at this site, you become hospitalized, pregnant, admitted to the crisis center or become incarcerated, your participation may be terminated by the investigator without regard to the signed consent.

CONSENT TO PARTICIPATE: You have been informed about this study's purpose, procedures, possible benefits, and risks; and the alternatives to being in the study. You have been given the opportunity to ask questions before you sign, and you have been told that you can ask other questions at any time. I understand that my consent does not take away any legal rights. I further understand that nothing in this consent form is intended to replace any applicable Federal, state, or local laws

By signing this form, you voluntarily agree to take part in this study. You are not waiving any of your legal rights. You will receive a copy of this form.

I give permission to the researchers to use my medical records as described in this consent form.

Participant's Name Printed Participant's Signature Date

Person Obtaining Consent and Authorization:

Name Printed Signature Date

Appendix C: Recruitment Announcement

JU Office of Research &
Sponsored Programs

IRB Approval #: 2019-050

Recruitment Announcement

The Use of Telehealth to Increase Mental Health Services Access and Promote Medication Adherence

A quality improvement project is being held at this site to evaluate a telehealth intervention for patients 18 years of age and older who are diagnosed with schizophrenia, bipolar, major depression, anxiety, post-traumatic stress disorder, and/or substance abuse to determine if this will improve access to providers and medication adherence.

If you agree to participate, you will be asked to participate in a telehealth session during your regular medication management appointment and complete a 5-10 minute survey. Benefits may include increased access to APRNs for healthcare and medication management, and a better understanding of how telehealth can be used to deliver care in the mental health field.

*This project is being conducted by XXXXXXXX from the
Keigwin School of Nursing with Jacksonville University.*

If you have questions, please XXXXXXXX

Appendix D: Medication Survey

Medication Survey

Thank you for participating in this survey. If you answer “yes” to Part A, you have completed the survey. If you answer “no”, please complete the remainder of the questions.

Permission to use and adapt the survey was obtained from [redacted] University of Wisconsin, School of Medicine and Public Health.

PART A:

Over the past 7 days, I have taken all of my mental health meds: ___ yes ___no

If you answered no, please complete the remaining questions:

	None of the time	Little of the time	Some of the time	Most of the time	Every time
I missed my medicine					
I skipped my medicine					
I did not take a dose					

PART B:

I missed my medicine because:

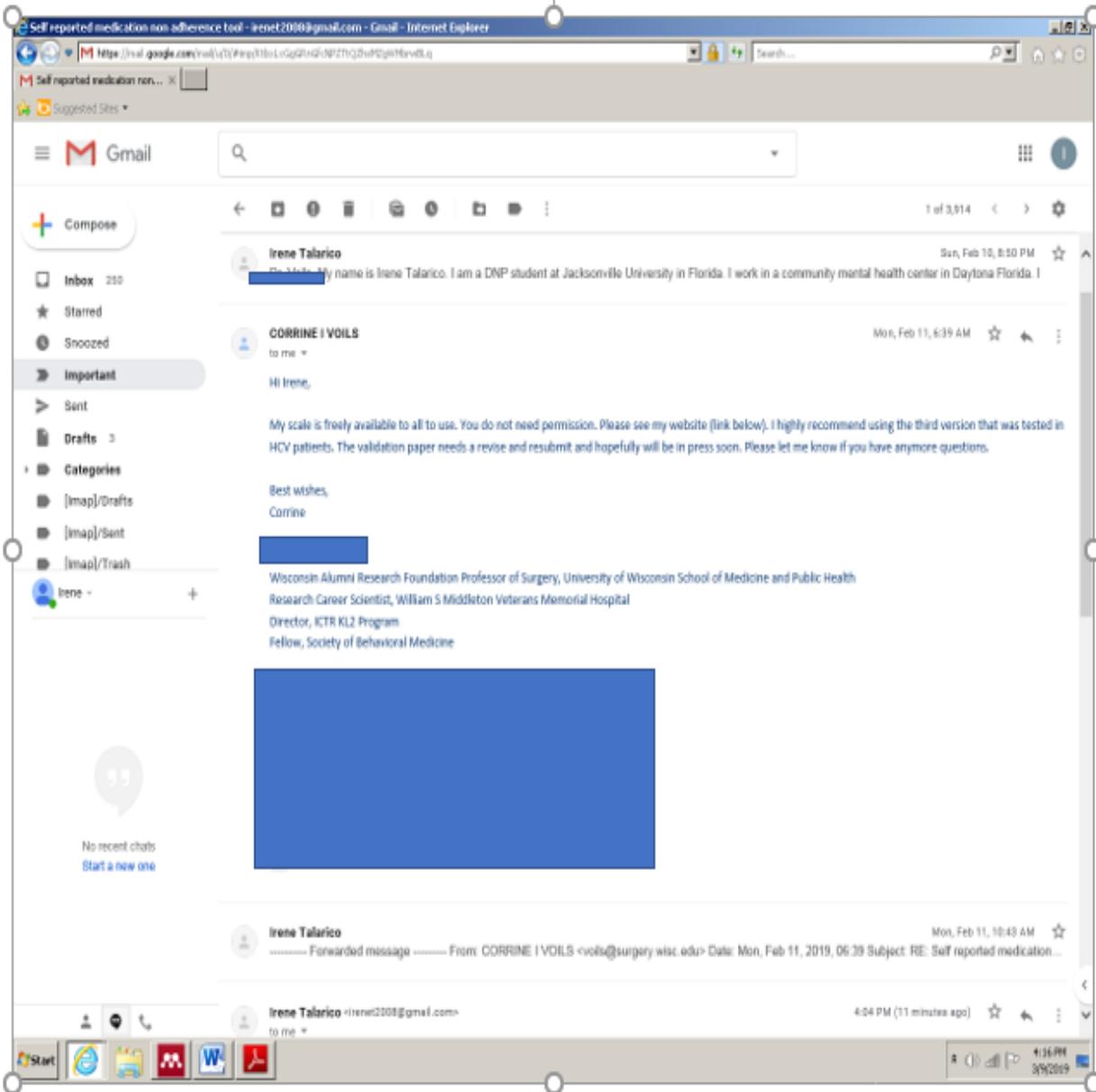
	Never	Rarely	Some of the time	Often	Always
Out of medicine					
Out of my routine					
I forgot					
Meds cause side effects					
Food requirements					
Did not have meds with me					
Cost of medications					
Medications not working					
Others see me take meds					
Meds affect my sex life					
Too late to take dose					
I was asleep					
No one to help me					
My family could not help					
Other meds I take					
Ran out of medications					
Interact with other meds					
Feeling sick					
Other (please explain below)					

Reason for not taking medications. Please explain: _____

Study Number _____ **Date:** _____

Telehealth, please check: _____ **First visit** _____ **Second visit**

Appendix E: Permission to use self-reported medication survey



Appendix F: Telehealth Patient Satisfaction Survey

	Poor	Fair	Good	Excellent
Voice quality				
Visual quality				
Personal comfort				
Length time with your appointment				
Explanation before Telehealth				
Respect for your privacy				
Provider understood your needs				
			Yes	No
Received the medications that you needed?				
Received instructions on how to take your medications?				
Received instructions on follow up appointment?				
Would you use Telehealth again?				
Would you recommend Telehealth to others?				

If you answered “no” to using Telehealth again or recommending it to others, please explain.

Age: ____

Gender: ____ Male ____ Female

County of Residence: ____ Volusia ____ Flagler

Completed Assessment: ____ Alone ____ With Assistance

Study Number _____ Date _____

Survey was developed by Principal Investigator and validated by an expert panel of clinicians.

Appendix H: Expert Validation from APRN

Expert Panel Validation Rubric for the
 ***** Adapted Instrument
Telehealth Pt Satisfactor

Criteria	Operational Definitions	Score				Question meeting (List number) ; be r Please comm suggestion recommen
		1=Not Acceptable (major modifications needed)	2=Below Expectations (some modifications needed)	3=Meets Expectations (no modifications needed but could be improved with minor changes)	4=Exceeds Expectations (no modifications needed)	
Clarity	<ul style="list-style-type: none"> The questions are direct and specific. Only one question is asked at a time. The participants can understand what is being asked. There are no <i>double-barreled</i> questions (two questions in one). 				✓	
Wordiness	<ul style="list-style-type: none"> Questions are concise. There are no unnecessary words 				✓	
Negative Wording	<ul style="list-style-type: none"> Questions are asked using the affirmative (e.g. Instead of asking, "Which methods are not used?", the researcher asks, "Which methods <i>are</i> used?") 				✓	
Overlapping Responses	<ul style="list-style-type: none"> No response covers more than one choice. All possibilities are considered. There are no ambiguous questions. 				✓	
Balance	<ul style="list-style-type: none"> The questions are unbiased and do not lead the participants to a response. The questions are asked using a neutral tone. 				✓	
Use of Jargon	<ul style="list-style-type: none"> The terms used are understandable by the target population. There are no clichés or hyperbole in the wording of the questions. 				✓	
Appropriateness of Responses	<ul style="list-style-type: none"> The choices listed allow participants to respond appropriately. 				✓	

Listed	<ul style="list-style-type: none"> The responses apply to all situations or offer a way for those to respond with unique situations. 				✓	
Use of Technical Language	<ul style="list-style-type: none"> The use of technical language is minimal and appropriate. All acronyms are defined. 				✓	
Application to Praxis	<ul style="list-style-type: none"> The questions asked relate to the daily practices or expertise of the potential participants. 				✓	
Measure of Construct: Perception of Pregnancy	<ul style="list-style-type: none"> The survey adequately measures this construct "xxxxxxxxxx" 				✓	

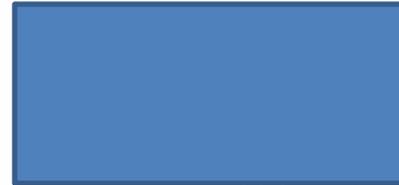


Appendix I: Expert Validation from Psychiatrist

Expert Panel Validation Rubric for the
***** Adapted Instrument

Criteria	Operational Definitions	Score				Questions Not meeting stand (List question number) and to be revised. Please use 1 comments as suggestions and recommend revision
		1=Not Acceptable (major modifications needed)	2=Below Expectations (some modifications needed)	3=Meets Expectations (no modifications needed but could be improved with minor changes)	4=Exceeds Expectations (no modifications needed)	
		1	2	3	4	
Clarity	<ul style="list-style-type: none"> The questions are direct and specific. Only one question is asked at a time. The participants can understand what is being asked. There are no <i>double-barreled</i> questions (two questions in one). 				✓	
Wordiness	<ul style="list-style-type: none"> Questions are concise. There are no unnecessary words. 				✓	
Negative Wording	<ul style="list-style-type: none"> Questions are asked using the affirmative (e.g., Instead of asking, "Which methods are not used?", the researcher asks, "Which methods are used?") 				✓	
Overlapping Responses	<ul style="list-style-type: none"> No response covers more than one choice. All possibilities are considered. There are no ambiguous questions. 				✓	
Balance	<ul style="list-style-type: none"> The questions are unbiased and do not lead the participants to a response. The questions are asked using a neutral tone. 				✓	
Use of Jargon	<ul style="list-style-type: none"> The terms used are understandable by the target population. There are no clichés or hyperbole in the wording of the questions. 				✓	
Appropriateness of Responses	<ul style="list-style-type: none"> The choices listed allow participants to respond appropriately. 				✓	

Listed	<ul style="list-style-type: none"> The responses apply to all situations or offer a way for those to respond with unique situations. 				✓	
Use of Technical Language	<ul style="list-style-type: none"> The use of technical language is minimal and appropriate. All acronyms are defined. 				✓	
Application to Praxis	<ul style="list-style-type: none"> The questions asked relate to the daily practices or expertise of the potential participants. 				✓	
Measure of Construct: Perception of Pregnancy	<ul style="list-style-type: none"> The survey adequately measures this construct "xxxxxxxxxx" 				✓	



Appendix J: Mentor Agreement



Research Mentor Agreement

Study Title: The Use of Tele-psychiatry to Increase Mental Health Services Access and Promote Medication Adherence in Rural Locations.

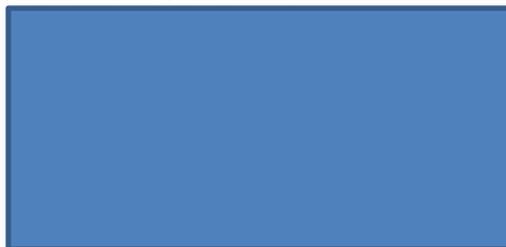
As mentor, I understand that I am considered the responsible party for the legal and ethical performance of the project, helping to ensure that all research procedures comply with Federal, State and University policies pertaining to the protection of human subjects. I certify that the student investigator of the submitted protocol is knowledgeable about the regulations and policies governing research with human subjects and has sufficient training and experience to conduct the study in accordance with the approved protocol.

In addition, I agree to:

- meet with the student investigator on a regular basis to monitor the study progress;
- be available, personally, to supervise the student investigator in solving problems should they arise during the course of the study;
- assure that the student investigator will promptly report significant or untoward adverse effects according to applicable policies;
- review all submissions for completeness, accuracy, and quality assurance;
- be available to the IRB should questions or issues develop;
- arrange for an alternate faculty mentor to assume responsibility during periods of absence (e.g. sabbatical leave or vacation), and advise the IRB by letter of such arrangements; and
- serve as the principal investigator of the study.

Irene Talarico

Printed Name of Student



4/18/19

Date