EVALUATING EMERGENCY ROOM UTILIZATION OF MOBILE MENTAL HEALTH PATIENTS: A CORRELATIONAL RETROSPECTIVE ANALYSIS

by
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DNP Project Approval Form

This is to certify that Alyssa Weissinger
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successfully defended their DNP research project entitled:

Evaluating Emergency Room Utilization of Mobile Mental Health Patients: A Correlational Retrospective Analysis

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Abstract

Project Question: Patients who have barriers to attending traditional mental health clinics are at risk for psychiatric decompensation, which can lead to inappropriate utilization of emergency departments (ED’s).

Objective: To determine if psychiatric patients have a significant reduction in ED visits after admission to the Mobile Mental Health Clinic (MMHC).

Background: Current literature indicates that mobile health clinics have the potential to significantly reduce avoidable ED visits by providing easily accessible care.

Theoretical Framework: Pender’s Health Promotion Model guided the project design and the interpretation of project results and outcomes.

Methods: This Doctor of Nursing Practice (DNP) project replicated a previous retrospective chart review pilot study conducted with 43 MMHC patients. Health records from 265 MMHC patients were retrospectively reviewed to determine the number of ED visits eight months prior and eight months following admission to the MMHC. Descriptive statistics were used to analyze demographic data. Paired t-tests were used to determine differences in ED visits both pre and post admission to the MMHC.

Results: Findings demonstrated that patients admitted to the MMHC had a significant reduction ($p < .05$) in ED utilization. There was also a decrease in mean ED visits in patients who received combined treatment, which included medication management and counseling.

Conclusion: Use of the MMHC is effective for reducing psychiatric patient ED overutilization, reducing Medicaid costs, and preventing patient destabilization.

Keywords: mental health mobile clinics, ED visits, Medicaid spending, psychiatric home visits
Nearly one in five U.S. adults lives with a mental illness (44.7 million in 2016) (National Alliance on Mental Illness [NAMI], 2018). The median reduction in life expectancy among those with mental illness is 10.1 years, while eight million people die each year due to mental illness (National Institute of Mental Health [NIMH], 2015). Many individuals suffering from psychiatric disorders have barriers that prevent them from seeking treatment at traditional outpatient mental health settings (Hill et al., 2014). These barriers include psychiatric symptoms, physical medical issues, and financial obstacles (Burns, 2018).

Poor relations with mental health providers due to trust issues and limited insight into their mental illness are additional barriers to seeking psychiatric care (Dixon, Holoshitz, & Nossel, 2016). Medical problems such as obesity, autoimmune diagnoses, difficulties with ambulation, and recovery from surgery place the patient at risk for psychiatric decompensation leading to over-utilization of ED’s (BestSelf Behavioral Health, n.d).

**Purpose of Study**

The primary objective of this study was to compare the number of ED visits before and after becoming a patient in the MMHC. The study then compared the number of ED visits to different treatment types. Patients in the MMHC received combined treatment (medication management and counseling), counseling only or medication management only. A previous capstone project showed promise in the MMHC’s ability to reduce ED visits for this at-risk population, in addition to decreasing overall Medicaid spending costs (Burns, 2018). However, the MMHC was in its infancy, and a limited sample size was unable to produce statistically significant results. Due to its rapid progress and expanding admission rates, the MMHC offered a premier opportunity to further examine its ability to reduce ED admissions and reduce Medicaid costs.
Background of Study

Mobile health clinics are a successful and cost-effective model of healthcare delivery that fulfill the needs of underserved and vulnerable populations nation-wide (Hill et al., 2014). By driving directly to the steps of target clients, mobile clinics have been shown to engage trust, overcome barriers to treatment, and reduce healthcare costs compared to traditional clinical settings (Hill et al., 214). However, limited data exists on mobile health clinics for patients with mental illness. The Department of Health and Human Services (DHHS) reports only six percent of mobile health clinics provided mental health services in 2013.

In May of 2017, a non-profit mental health organization in Western New York implemented the MMHC. The MMHC admits patients who are unable to attend traditional outpatient mental health clinics due to psychiatric, medical, and financial barriers. This is a non-traditional clinic providing psychiatric services to patients directly in their home, with the goal of achieving and maintaining psychiatric stability (Burns, 2018).

Significance/Gap in Practice and Needs Assessment

The burden of mental illness and substance use disorders (SUD) surpasses the capacity of healthcare systems, creating a gap in treatment (Fils-Aime et al., 2018). According to the New York State Department of Health [NYSDOH] (2013), there are 71,080 potentially preventable visits to the ED each year. Medicaid recipients in the United States accounted for 38.3% of ED visits in 2013 (Weiss, Barrett, Heslin, & Stocks, 2016). The DHHS and Center for Medicaid and Medicare Services are targeting Medicaid “super-users” of ED's with the goal of improving care and decreasing costs (Burns, 2018; DHHS, 2013).

Many high-cost “super-users” of ED’s for psychiatric symptoms are not receiving coordinated, preventive care due to medical, behavioral, and financial obstacles (NYSDOH,
New York State is implementing the Medicaid Redesign Team, also known as the Delivery System Reform Incentive Payment (DSRIP) (NYSDOH, 2017). The goal of DSRIP is to reduce hospital use by 25% over five years with developments on system transformation, population health, and improved clinical outcomes (Burns, 2018; NYSDOH, 2017).

For patients seeking mental health services, nonattendance rates are reported to be as high as 60% in outpatient psychiatric clinics (Long, Sakauye, Chisty, & Upton, 2016). The MMHC was the first mobile mental health clinic in Western New York with the resources to provide both medication management and counseling directly in the patient’s home (Burns, 2018). The organization’s Behavioral Health Intensive Services management team is receptive to further analysis on the clinic’s productivity.

**Review of the Literature**

There are an estimated 1,500 mobile clinics receiving five million visits nation-wide per year (Hill, Powers, Jain, Bennet, Vavasis, & Oriol, 2014). To date, an estimated 36% of these clinics are registered on Mobile Health Map’s publicly available online database (Yu, Hill, Ricks, Bennet, & Oriol 2017). Mobile Health Map encourages mobile clinics to anonymously provide aggregated demographic information about the populations they assist and the services they deliver (Yu et al., 2017).

Hill and colleagues (2014) and Yu, Hill, Ricks, Bennet, & Oriol (2017) each performed observational data syntheses and chart reviews via the Mobile Health Map regarding prevention, disease management, and cost-reduction for vulnerable populations. Hill and colleagues’ (2014) analysis was based on data from the Mobile Health Map project as of March, 2013. At that time, a total of 644 clinics were registered. The number of mobile clinics providing data and the type of data were provided as follows; 528 on service type, 282 on average number of visitors, 65 on
visitor insurance status, 69 on patient gender, 38 on patient race, 72 on Hispanic status, 69 on patient age, and 104 on rural/urban status (Hill et al., 2014). The data were obtained from the Mobile Health Map were supplemented by a comprehensive systematic review.

Through qualitative research, the authors concluded that mobile clinics overcome barrier challenges by creating trusting relationships between healthcare providers and patients. The combination of professional and personal treatise promotes trust and engagement (Hill et al, 2014). The primary source of healthcare-related savings was a reduction in avoidable ED visits. The authors aggregated data from ten mobile clinics and determined an estimated cost savings of $6.8 million from avoidable ED visits over a one-year period (Hill et al., 2014). Improved symptom management and increased use of preventative service also contributed to these savings (Hill et al., 2014). Yu and colleagues (2017) determined that in the financial years (FY) of 2010 and FY 2014, more than 40% of ED visits were either non-emergency or could have been managed in primary care. In FY 2010, the over 1.1 million avoidable ED visits that year accumulated a cost of over $558 million (Yu et al., 2017).

Hill et al. discovered that a major challenge for mobile clinics was return to investors (2014). Healthcare delivery reform that is focused on population health management has the potential to assist mobile clinics in securing stable funding initiatives (Hill et al., 2014). There was evidence that mobile clinics’ ability to generate cost savings led to substantial return on investments (Hill et al., 2014). The development of contracts that link hospital compensation to mobile clinic performance can boost the financial paradigm for further investments in mobile clinics throughout the country (Hill et al., 2014). A major limitation of mobile clinics included logistical issues. The authors found that 33% of mobile health clinics reported staffing
difficulties, including problems with recruitment and retention of cultural competent clinicians (Yu et al., 2017).

Two retrospective correlational studies evaluated the positive effects of mobile health clinics that provided mental health services (Fils-Amis et al., 2015; Peritogiannis et al., 2010). The objectives were to describe the approach to mental healthcare delivery in rural and underserved areas via a mobile mental health clinic and analyze its outcomes over the first two years of implementation (Fils-Amis et al. (2015); Peritogiannis et al., 2010).

Fils-Amis and colleagues (2015) performed a retrospective chart review of 318 patients assessed and treated during the first two years of the mobile mental health clinic’s implementation. The authors supplemented the review with a quality improvement questionnaire, illustrated case reports, and a qualitative interview with the mobile clinic’s lead community health clinician (Fils-Amis et al., 2015). Peritogiannis and colleagues (2010) performed a quantitative study using interviews two years’ post-implementation of the Mobile Mental Health Unit (MMHU). Out of 143 individuals with a mental health diagnosis, 46 had mental health services provided directly in their home while others received care at traditional outpatient centers (Peritogiannis et al., 2010).

The most common psychiatric disorders among patients who utilized the mobile clinic were depression, bipolar disorder, and neurological conditions (Fils-Amis, 2015). Retention rates varied by diagnosis, with the highest follow-up rates seen among patients with bipolar disorder (75%). Independent t-tests revealed there was not a significant difference in depression symptoms severity between patients with and without documented follow-up visits ($t = -0.13; df = 103; p$ value = 0.9) (Fils-Amis et al., 2015). However, among those with at least two documented scores (pre-and-post admission to the mobile clinic) on the Depression Screening
Inventory (ZLDSI) ($N = 22$), a nine-point decrease in mean change in score was noted ($SD: 8.5; p < .001$) (Fils-Amis et al., 2010).

Peritogiannis et al. (2010) determined the most frequent diagnoses were schizophrenia and other schizophrenia-like psychoses (23.8%), depression (21.7%), personality disorder (12.6%), bipolar disorder (12.6%), anxiety disorders (6.3%), and delirium (4.9%). Thirty-two percent of patients were followed-up directly at their homes (Peritogiannis et al., 2010). During the two-year period, the number of hospitalizations was reduced by 30.4% among patients who utilized the MMHU in comparison to two years before implementation of the MMHU (Peritogiannis et al., 2010). “The potential for home assessments contributed greatly to approaching the patients, and the number of hospitalizations and the frequency of the relapses were reduced remarkably over the two-year period” (Peritogiannis et al., 2010, p. 427).

Mobile health clinics provide high quality, cost-effective care that can be delivered to patients in underserved areas (Aung, Hill, Bennett, Song, & Oriol, 2015). Although further investigation needs to be pursued to determine the full impact of mobile health clinics, they have the potential to transform the way healthcare is delivered to more vulnerable patient populations (Aung et al., 2015). ED’s are often the primary source of readily available care for those who face barriers to traditional primary care services. Mobile health clinics have the potential to significantly reduce avoidable ED visits by providing tailored and easily-accessible care costs lower than ED visits (Yu et al., 2017).

**Conceptual Framework**

Pender’s Health Promotion Model complements other models of health promotion, and is meant to help individuals achieve the highest level of health possible (Peteprin, 2016). It defines health as, “a positive dynamic state rather than simply the absence of disease” (Peteprin, 2016,
This middle-range theory serves as a framework for examining direct and indirect effects on the probability of engaging in health-promoting behaviors (Peteprin, 2016). The theory of health promotion recognizes that complete absence from disease in impracticable. The ultimate goal is to attain and sustain health-promoting behaviors in order to achieve a state of wellness, personal fulfillment, and productive living (Peteprin, 2016).

Patients who are admitted to the MMHC are vastly underserved and have psychiatric, social, and economical barriers that prevent them from seeking traditional, outpatient mental health treatment (Burns, 2018). They are a unique and often vulnerable population that would benefit from being viewed through a dynamic framework such as the Health Promotion Model. Many psychiatric disorders are chronic and life-long. The current model of psychiatry does not deem a patient to be “cured” from schizophrenia or opioid use disorder. Rather, these patients maintain stability and remission from their disorder through medication maintenance and/or tailored psychotherapy and functional assistance (housing, finances, etc.).

The model focuses on three areas; individual characteristics and experiences, behavior-specific cognitions and affect, and behavioral outcomes (Pender, 1996). The core areas of Pender’s Revised Health Promotion Model guided the study by considering the patient’s individual symptoms, diagnoses, and barriers to mental health care that tailors to their unique needs (Pender, 1996). Individual characteristics and experiences include prior related behaviors and personal factors. Previous maladaptive behaviors include poor nutrition, substance use, and non-compliance with medical treatments. A patient’s inherited and acquired characteristics influence beliefs, affect, and representation of health-promoting behavior (Peteprin, 2016). Personal factors include socioeconomic status, sociocultural norms, and neurobiological
influences (Pender, 1996). Many utilizers of the MMHC are refugees whose treatment plans require cultural sensitivity and consideration.

Individual characteristics continue to influence behavior-specific cognitions and affect (Pender, 1996). For MMHC patients, prior related health behaviors influence perceived self-efficacy, perceived barriers to action, and activity related affect (Pender, 1996). Many MMHC patients have affect and mood-related disorders that alter their perception and cognition, thereby affecting their abilities to self-advocate and care for themselves. Perceived barriers to positive outcomes are anticipated; including low self-esteem and self-worth, history of trauma, and lack of adequate support systems. Personal factors are interwoven with the patient’s interpersonal influences and situational influences (Pender, 1996). The patient’s peers, family network, social circle, financial situation and housing have weight on health behaviors. The MMHC includes case management and social work professionals to address these issues.

The interrelationship between individual characteristics and behavior-specific cognitions and affect influence behavior outcomes (Pender, 1996). Families, peers, and healthcare providers are vital sources of interpersonal influence that can affect the patient’s commitment to and engagement in health-promoting behavior (Peteprin, 2016). Situational influences in the external environment can benefit or hinder participation in health-promoting behaviors (Peteprin, 2016). Pender’s revised theory supports the notion that the greater the commitments to a specific plan of action, the more likely health-promoting behaviors are maintained over time (Pender, 1996).

Ultimately, individuals can modify cognitions, affect, and the interpersonal and physical environment to adopt healthy behaviors. The MMHC recognizes individual barriers to treatment and provides the resources to assist patients through the process of mental health stability and maintenance.
Methodology

Study Design

This correlational retrospective design utilized patients’ health records from Anasazi and HEALTHeLINK™. Anasazi is the MMHC’s electronic health record (EHR) in which patient’s demographic statistics, MMHC admission dates, case status, diagnosis, and treatment type were obtained. Patient barriers to outpatient treatment were identified in assessment and progress notes within Anasazi. The relationship between treatment type and the number of ED visits was examined. HEALTHeLINK™ is an electronic platform that securely exchanges patient information between healthcare providers (HEALTHeLINK™, n.d.). For every open case, HEALTHeLINK™ was used to extract the number of ED visits eight months prior to admission to the MMHC and eight months after.

Setting

The MMHC is based out of an urban, non-profit, outpatient psychiatric clinic in Erie County. The clinic includes one board-certified psychiatric mental health nurse practitioner (PMHNP), two registered nurses, and five counselors/clinical social workers. The clinic is supervised by the Program Director. The organization’s Board of Intensive Care Services oversees the MMHC’s functions and productivity. Both medication management and counseling services are provided directly in the patient’s home.

Patients admitted to the MMHC have defined barriers that prevent them from receiving traditional, outpatient services. These are individuals who either initially warrant mobile mental health services due to defined barriers, or have experienced unsuccessful outcomes from traditional, outpatient clinics. Patients are referred to the MMHC after discharge from inpatient settings if warranted, or recommended by providers from outside agencies when traditional care
has been unsuccessful. Patients must be seen at least once every three months, but are typically seen earlier due to acuity. When necessary, patients are linked with additional community services such as case management or transferred to a traditional clinic when appropriate. There are no requirements regarding the number of inpatient hospitalizations a patient previously experienced to qualify for admission to the MMHC.

**Sample**

Convenience sampling was used to select patients admitted to the MMHC between May 1st of 2017 and June 30th of 2018, yielding a sample of 265 patients ($N = 265$). A printed roster displayed all patients selected during this time. This time frame provided a sufficient number of patients while ensuring possibility for follow-up. All patients within this interval were selected to maximize statistical power and confirm the sample is representative of the population.

Inclusion criteria requires MMHC patients who are 18 years of age or older, possess at least one DSM-V psychiatric diagnosis, and users of Medicaid insurance. The study excluded patients less than age 18 at the time of admission and those who were admitted “pro bono” (Burns, 2018).

In order to maintain the study’s validity, only open cases were considered when comparing ED visits pre and post-admission to the MMHC and differences in treatment groups, generating a subset of 84 patients ($n = 84$). Open cases were patients who remained active in the MMHC and regularly received its services, while closed cases included patients who were discharged.

**Ethical and Human Subject Considerations**

Consent for this study was obtained through the IRB at the University at Buffalo on December 14th, 2018. Chart reviews were performed via a password-secure, designated computer unit. Permission for the project was granted from the organization’s Risk Management
Committee on January 16th, 2019. Patient EHR’s were accessed through a secure password and username obtained by the organization’s Information Technology department with permission granted by completion of a twelve-hour general orientation for student interns. The DNP Project Investigator de-identified data by assigning a unique numeric code for each patient.

**Data Collection**

Patients’ demographic and descriptive data, admission dates, primary diagnosis, treatment type, and case status, were obtained through Anasazi. For every open case only, HEALTHeLINK™ was used to extract the number of ED visits a patient experienced before and after admission to the MMHC. ED utilization was examined eight months before and after admission to the MMHC for each case. Due to the different admission dates, each eight-month period was based on the patient’s MMHC admission date. The PI de-identified data by assigning a unique numeric code for each patient. All patient demographic data and descriptive variables were assigned a numeric code. Data were coded and stored in Microsoft Excel Version 16.18 (2016) for MacOS.

**Statistical Analysis**

Microsoft Excel Version 16.18 (2016) for MacOS and SPSS Version 22.0 were used for data collection, storage, and analysis. Data cleaning was performed before all analyses to be sure variables were as expected. This included checking for duplicates, formatting, and that values were within range. Descriptive statistics including frequencies and measures of central tendencies were performed for the whole sample ($N = 265$). Demographic variables included the patient’s age, gender, race, housing location, and employment. Other descriptive variables included the patient’s date of admission to the clinic, diagnosis, presence of an SUD, barriers to attending a traditional clinic, case status, and treatment type.
Two outlier data entries were then excluded from the subset in order to achieve a more accurate representation of the sample. Two patients had an exceedingly large number of ED admissions both pre-and post admission to the MMHC that significantly deviated from the norm. This situation generated a new subset of 82 patients. Of these 82 patients, descriptive frequencies of the subset of open cases \((n = 82)\) were utilized and split by treatment condition to compare means between ED visits and treatment type. A paired t-test \((p < .05)\) was used to determine if there is a statistically significant reduction in ED visits after admission to the MMHC.

**Results**

The study’s primary objective was to compare ED visits before and after admission to the MMHC. ED utilization was evaluated for open cases only, yielding a sample of 82 patients \((n = 82)\). ED visits were extracted from HEALTHeLINK™ eight months before admission to the MMHC and eight months after. Demographic variables were examined in order to obtain a descriptive representation of the full sample.

**Demographic Variables**

Of the full sample \((N = 265)\), the mean age of all patients who were admitted to the MMHC was 49 (range of 20-88 years). A total of 160 females (60.4%) were referred to the clinic and 105 (39.6%) were men. There were no documented accounts of transgender or unspecified. Caucasians made up the largest racial group (55.2%) followed by African Americans (33.0%). Both Asian Americans and Arabic descent accounted for 1.9%. The majority of patients (60.4%) of patients lived in the City of Buffalo while the remainder of the sample lived outside city limits. Only 1.9% of the sample was employed. Demographic frequencies are displayed in Table 1.
For the subset of open cases \((n = 82)\), the mean age was 52 (range of 26-73) and females accounted for 69.5% of the sample. Caucasians made up 68.3% of the subset, followed by African Americans at 23.2% and those listed as Other (2.4%). The majority of patients lived within the City of Buffalo (58.5%). Only 4.9% of patients were employed.

**Descriptive Variables**

**DSM-V Diagnosis and Substance Use.**

Major depressive disorder (MDD) and schizophrenia accounted for over half of the total sample. The most recurrent mental health diagnosis was MDD (29%) followed by schizophrenia (28.6%). There were 33 patients (12.6%) who had a documented diagnosis of a mood disorder, such as bipolar disorder. Anxiety and trauma-related disorders accounted for 13% and 10% of the sample, respectively. A total of 17 patients had a diagnosis of schizoaffective disorder (6.5%). Descriptive frequencies are displayed in Table 2.

Of the subset of open cases, schizophrenia made up the majority of cases (25.9%) followed by MDD (24.7%). Patients who had a documented trauma-use disorder or anxiety disorder accounted for 28.3% of the sample, and 9.9% had documentation of schizoaffective disorder. SUD’s accounted for 33.8% of the full sample, and 25.9% of the subset of open cases.

**Barriers to Traditional Clinics.**

The largest barrier preventing patients from attending traditional outpatient clinics was the type of psychiatric diagnosis. Over half of the patients (56%) from both the full sample and subset of open cases had psychiatric symptoms that presented difficulties in attending outpatient
mental health treatment. Challenges related to a patient’s psychiatric diagnosis included agoraphobia or social anxiety, grossly disorganized behavior, non-compliance, and poor insight.

Medical issues were the next most reported barrier, with 27.7% of patients having difficulty attending outpatient clinics due to autoimmune disorders, malignancy, surgical procedures, or obesity. Financial barriers included transportation issues and difficulty obtaining social services; 15.2% of patients reported having a financial barrier to traditional treatment within the total sample, while 11% of patients within the subset reported financial hardships.

**Treatment Types.**

Descriptive frequencies were used to compare treatment types and ED utilization. The three treatment types were combined treatment (counseling and medication management), counseling only, and medication management only. The majority of patients received both counseling and medication management through the MMHC (70.2%). A total of 13 patients received counseling only and 12 patients received medication management only.

Differences in mean ED utilization among patients in various treatment groups are described in Table 3. Within the combined treatment group, patients experienced an average of 1.09 ED visits after admission to the MMHC, compared to 1.67 visits prior to admission to the clinic. Of patients who received counseling only, the mean number of ED visits increased from 1.67 pre-admission to the MMHC to 1.83 after admission. For patients who received medication management only, the mean ED utilization remained the same ($M = 1.60$).

[Insert Table 3 about here]

**Emergency Department Utilization**

A paired t-test ($p < .05$) was performed to determine if there was a statistically significant reduction in ED visits after admission to the MMHC. There was a significant decrease in the
number of ED visits before admission to the clinic ($M = 1.66$, $SD = 2.42$) and after admission to the MMHC ($M = 1.26$, $SD = 2.151$) conditions; $t(79) = 2.158$, $p = .034$. Descriptive frequencies revealed over half of patients (55%) experienced zero ED visits after admission to the clinic. These results suggest that the MMHC really does have an effect on ED utilization. Specifically, these results suggest that patients who were admitted to the MMHC had a significant reduction in ED visits. ED visits for the two groups are displayed in Table 4.

[Insert Table 4 about here]

**Discussion**

The findings suggest that the MMHC’s ability to provide care directly to the patients in their homes might have influenced the reduction in ED utilization. The low number of open cases (31.7%) compared to closed cases could be contributed to the MMHC’s early stages of development. It is important to note that the two outliers excluded from the study were originally in the organization’s Assertive Community Treatment (ACT) program. The ACT program was designed to accommodate especially acute patients who experienced at least two psychiatric hospitalizations within two years (BestSelf Behavioral Health, 2019). This could have accounted for the markedly higher number of ED visits for these two patients compared to other patients in the sample.

Major depressive disorder and schizophrenia were the most documented DSM-V diagnoses within the sample, suggesting that the MMHC could be a viable option for patients with severe and persistent psychiatric illness. It might be beneficial to consider further outreach strategies and recruitment criteria to target this subgroup. In addition, only 1.9% of the total sample were employed, which could be further examined regarding barriers to accessing outpatient mental health treatment.
Of the three treatment groups, patients who received both medication management and counseling had a reduction in mean ED utilization after admission to the clinic. This finding further supports the positive outcomes of integrating medication and psychotherapy (Cutler, 2014, p.578). Patients in the counseling only group experienced a minor increase in mean ED utilization. This suggests that monotherapy with psychotherapy is perhaps less valuable to patients in the MMHC than combined treatment. No differences were observed in mean ED utilization between patients who received medication management only. Compared to the pilot study, these results are of interest since the original study did not observe significant differences in ED visits between treatment groups. This could be due to the limited sample size of the pilot study potentially increasing the margin of error.

In both the full sample \((N = 256)\) and the subset of open cases \((n = 82)\), over half of the patients displayed psychiatric barriers as challenges to attending traditional outpatient clinics. Careful identification and understanding of these challenges should be considered when initial referrals to the MMHC are being performed. Medical barriers accounted for almost one third of patients in the MMHC for both samples. This further emphasizes the clinic’s capacity to advocate for and treat patients who require psychiatric services in their homes due to physical illness. The limited number of patients with documented accounts of financial barriers could be due to the fact that all patients admitted to the clinic were recipients of Medicaid and other federally-assisted services.

**Strengths and Limitations**

The results of this study show promise in the MMHC’s ability to significantly reduce ED utilization among patients with barriers to attending traditional outpatient treatment. The MMHC has the potential to decrease overall Medicaid spending costs while achieving and
maintaining psychiatric stability for this vulnerable population. The study’s feasibility and reliability is supported by the original pilot study. Its design is easily replicable and information is readily available through fundamental orientation and protocol.

Limitations include the writer’s inability to control for documented data. With the study being a retrospective chart review, the PI did not have control over information that was documented in the patient’s EHR’s. The design posed difficulties in operationalizing variables such as barriers to treatment. Missing values were accounted for in the analysis and only valid percentages were considered.

It is important to note that providers were not alerted for ED visits through HEALTHeLINK™ until 2018. Therefore, missing ED visit data could be missing prior to initiation of that system. Some patients did not consent to allow public access of their medical records through HEALTHeLINK™, which contributed to the missing data entries. Furthermore, the ability for follow-up was limited due to time constraints of the academic (DNP) program.

Future Implications and Recommendations

The MMHC is a promising initiative towards removing barriers to mental health treatment and decreasing Medicaid spending. The goal of DSRIP is to reduce hospital use by 25% over five years with developments on system transformation, population health, and improved clinical outcomes (Burns, 2018; NYSDOH, 2017). With its significant impact on ED overutilization, the MMHC is a reputable example of these developments, and serves as a pioneer for innovative and accessible psychiatric care. The significant findings of this study can enhance the clinic’s productivity and prospective funding. A presentation will be delivered to the organization’s Management Team and administrative board at a date to be announced. The presentation will provide the results of the study and address additional opportunities for
program enhancement.

The study provides further implications regarding social determinants of health and their impact on patient outcomes. Upholding the Doctor of Nursing Practice (DNP) Essentials, II, III and V through VII (American Association of Colleges of Nursing [AACN], 2006); the Advance Practice Nurse can assume leadership and policy roles in mobile mental health clinics to improve chronic psychiatric disease management and assist in decreasing ED utilization.

The MMHC continues to develop and its admission rates are expanding rapidly. It might be constructive to perform a survival analysis to evaluate the expected duration of time until the next ED visit occurs. One could hypothesize that the expected duration of time increases after admission to the MMHC compared to pre-admission. Furthermore, closer analysis of criteria for admission to the MMHC could be performed in order to measure the clinic’s productivity and quality enhancement.

Conclusion

The MMHC is an effective initiative to reduce ED overutilization and Medicaid costs. Psychiatric care provided directly to patients in their homes can promote health maintenance and prevent destabilization. Findings demonstrated that patients admitted to the MMHC had a significant reduction ($p < .05$) in ED utilization. There was also a decrease in mean ED visits in patients who received combined treatment, which included medication management and counseling. With its significant impact on targeting ED overutilization, the MMHC serves as a pioneer for innovative and accessible psychiatric care.
References


BestSelf Behavioral Health Inc. (n.d.). Proposal for startup funds for off-site clinic.


Table 1

*Demographic Frequencies of Full Sample (N = 265)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Category</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>105 (39.6%)</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>160 (60.4%)</td>
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<tr>
<td>Race</td>
<td>African American</td>
<td>86 (33%)</td>
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<tr>
<td></td>
<td>Asian American</td>
<td>5 (1.9%)</td>
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<tr>
<td></td>
<td>Caucasian</td>
<td>144 (55.2%)</td>
</tr>
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<td></td>
<td>Latinx</td>
<td>1 (0.4%)</td>
</tr>
<tr>
<td></td>
<td>Arabic</td>
<td>5 (1.9%)</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>20 (7.7%)</td>
</tr>
<tr>
<td>Location</td>
<td>City</td>
<td>160 (60.4%)</td>
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<td>105 (39.6%)</td>
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<tr>
<td>Employment</td>
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<td>5 (1.9%)</td>
</tr>
<tr>
<td></td>
<td>Unemployed</td>
<td>257 (98.1%)</td>
</tr>
</tbody>
</table>
Table 2

*Descriptive Frequencies of Full Sample (N = 256)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Category</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagnosis</td>
<td>MDD</td>
<td>76 (29%)</td>
</tr>
<tr>
<td></td>
<td>Mood Disorder</td>
<td>33 (12.6%)</td>
</tr>
<tr>
<td></td>
<td>Schizophrenia</td>
<td>75 (28.6%)</td>
</tr>
<tr>
<td></td>
<td>Schizoaffective</td>
<td>17 (6.5%)</td>
</tr>
<tr>
<td></td>
<td>PTSD</td>
<td>27 (10.3%)</td>
</tr>
<tr>
<td></td>
<td>Anxiety</td>
<td>34 (13%)</td>
</tr>
<tr>
<td>SUD</td>
<td>Yes</td>
<td>89 (33.8%)</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>174 (66.2%)</td>
</tr>
<tr>
<td>Barriers</td>
<td>Psychiatric</td>
<td>150 (56.8%)</td>
</tr>
<tr>
<td></td>
<td>Medical</td>
<td>73 (27.7%)</td>
</tr>
<tr>
<td></td>
<td>Financial</td>
<td>40 (15.2%)</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>1 (0.4%)</td>
</tr>
<tr>
<td>Treatment Type</td>
<td>Combined</td>
<td>59 (70.2%)</td>
</tr>
<tr>
<td></td>
<td>Counseling Only</td>
<td>13 (15.5%)</td>
</tr>
<tr>
<td></td>
<td>Medication Management Only</td>
<td>12 (14.3%)</td>
</tr>
</tbody>
</table>
Table 3

*Descriptive Frequencies of Treatment Groups and ED Visits*

<table>
<thead>
<tr>
<th>Treatment Type</th>
<th>Pre-admission Mean ((M))</th>
<th>Post-admission Mean ((M))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combined Treatment</td>
<td>1.67</td>
<td>1.09</td>
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<tr>
<td>Counseling Only</td>
<td>1.67</td>
<td>1.83</td>
</tr>
<tr>
<td>Medication Only</td>
<td>1.60</td>
<td>1.60</td>
</tr>
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</table>
Table 4

*Results of Paired t-test for ED Visits Pre and Post-admission to the MMHC*

<table>
<thead>
<tr>
<th>Pre-admission</th>
<th>Post-admission</th>
<th>95% CI</th>
<th>r</th>
<th>t</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>n</td>
<td></td>
</tr>
<tr>
<td>1.66</td>
<td>2.42</td>
<td>1.26</td>
<td>2.15</td>
<td>80</td>
<td>[.031,.769]</td>
</tr>
</tbody>
</table>

*Note. CI = confidence interval  
*p < .05*
Appendix A

UB IRB Approval
December 14, 2018  Dear Alyssa Weissinger: On 12/12/2018, the IRB reviewed the following submission:

<table>
<thead>
<tr>
<th>Type of Review:</th>
<th>Initial Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title of Study:</td>
<td>Evaluating Emergency Room Utilization of Mobile Mental Health Patients: A Correlational Retrospective Analysis</td>
</tr>
<tr>
<td>Investigator:</td>
<td>Alyssa Weissinger</td>
</tr>
<tr>
<td>IRB ID:</td>
<td>STUDY00003038</td>
</tr>
<tr>
<td>Funding:</td>
<td>None</td>
</tr>
<tr>
<td>Grant ID:</td>
<td>None</td>
</tr>
<tr>
<td>IND, IDE, or HDE:</td>
<td>None</td>
</tr>
<tr>
<td>Documents Reviewed:</td>
<td>• Data Collection &amp; Coding Sheet, Category: Other; • Alyssa Weissinger, Category: IRB Protocol; • HRP-612 HIPAA Waiver, Category: Other;</td>
</tr>
<tr>
<td>Personnel Changes:</td>
<td></td>
</tr>
</tbody>
</table>

The IRB approved the study from 12/12/2018 to 12/11/2019 inclusive.
Appendix B

IRB Waiver of the Authorization for Use of Individually Identifiable Health Information
Appendix B

UNIVERSITY AT BUFFALO
HUMAN RESEARCH PROTECTIONS PROGRAM

Request for Waiver of the Authorization for Use of Individually Identifiable Health Information

Investigator: Alyssa Weissinger

Project Title: Evaluating Emergency Room Utilization of Mobile Mental Health Patients: A Correlational Retrospective Analysis

1. Describe the specific types of Individually Identifiable health information (e.g., name, address, elements of medical record, entire medical record) to be used in this study and where this information will be accessed or obtained: The patient’s name and date of birth are originally located on the patient’s roster but will be deleted once the patient’s age is calculated. The patient’s age, gender, race, date of admission, pre-mobile mental health clinic admission ER visits, post-mobile mental health clinic admission ER visits will be used in this study. This information will be accessed through the following EHR’s: Anasazi, PSYCKES, and HEALTHeLINK. Closed-cases/drop-out rates, employment status, and housing situation information will be obtained from Anasazi.

2. Explain why this research project cannot be carried out without use of individually identifiable health information (why is using de-identified data not practicable?). As this study is a chart/records review, accessing individually identifiable health information is necessary in order to obtain the objectives of the study. The goal of this study is to evaluate the number of ER visits a patient experienced prior to and after admission to the Mobile Mental Health Clinic. Patient individual identifiable health information will be used to identify patient variables and sociodemographic variables to identify relationships between variables and number of ER visits.

3. Explain why obtaining a signed authorization from the research subjects is not practicable. It would be impractical to attempt to contact all of the persons to whom the records pertain because of the number of records to be viewed and the fact that contact information may not be sufficient to do so.

4. Describe the protections that will be put in place to protect the privacy of individually identifiable health information to be used in this study. What steps will be taken to help prevent accidental use or disclosure outside the scope of this project. This includes information maintained or communicated in electronic, written and oral form. Patient rosters will be kept in a secure file and stored in a locked drawer at the MMHC base; a secured room with separate cubicles. Name and date of birth form roster will be deleted once age is calculated for purposes of data collection. Data collection, storage, and analysis will be performed on a designated laptop provided by BestSelf with a secure username and password granted by the IT department. The laptop will be kept securely in the clinic and locked when afterhours. Patient identifiers will be identified via a unique numeric code for confidentiality. Name and date of birth form roster will be deleted once age is calculated for purposes of data collection. Investigator’s notes regarding the data will be transcribed onto a secure Word document on the same device where data is stored. No transport of data will be necessary. The information will be collected in the same location that it is stored.

5. Describe your plan to assure that the individually identifiable health information will not be re-used or disclosed for other purposes. Only the DNP Investigator will have primary access to the data through a personal username/password secure access. The protected health information will not be reused or disclosed to any other person or entity, except as required by law, or for authorized oversight of the research study (BestSelf Behavioral Health).

6. Describe your plan to destroy the personal identifiers at the earliest opportunity or your justification for the need to retain personal identifiers. The patient’s name will immediately be deleted from the patient roster. Once the patient’s age has been calculated, the patient’s date of birth will be deleted. All other personal identifiers will be given a unique numeric code and stored in Microsoft Excel. The coding sheet will be located in the same Excel file. Excel and SPSS documents will only be accessible by P.I. through username and password-secure access. Once the results are generated, the Excel and SPSS documents will be deleted entirely.

Principal Investigator: I attest that the use or disclosure of individually identifiable health information will involve no more than a minimal risk to the privacy of the research subjects involved in this study and that the information will not be reused or disclosed to third parties unless required by law for authorized oversight of the research study.

The IRBNet Package containing this document must be signed in IRBNet

Signature Requirement: Principal Investigator
Background: Mobile Health Clinics

- Mobile health clinics fulfill the needs of underserved and vulnerable populations nationwide (Hill et al., 2014).
- Enhance trust, overcome barriers to treatment, and reduce healthcare costs compared to traditional clinical settings (Hill et al., 2014).
- Limited data on mobile mental health clinics.

Background: The Mobile Mental Health Clinic (MMHC)

- Implemented May 2017.
- Non-profit mental health organization in Western New York.
- Admits patients who are unable to attend traditional outpatient mental health clinics.
- A non-traditional clinic providing psychiatric services to patients directly in their home.

Background: Barriers to Outpatient Treatment

- Psychiatric disorders and barriers to traditional, outpatient mental health settings:
  - Psychiatric
  - Medical
  - Financial
- Risk for psychiatric decompensation leads to inappropriate utilization of emergency departments (EDs) (Hill, Powers, Jain, Bennett, Vavasis, & Oko 2014).
Significance: Emergency Department Utilization

- Gap in treatment mental illness and substance use disorders (SUD) surpass the capacity of healthcare systems (Fils-Aime et al., 2018).
- There are 71,880 potentially preventable visits to the ED each year (New York State Department of Health [NYSDOH], 2013).
- Medicaid recipients in the United States accounted for 38.3% of ED visits in 2013 (Weiss, Barrett, Heslin, & Stocks, 2016).
- ED’s are often the primary source of care (NYSDOH, 2013).

Purpose of Study

- The primary objective of this study was to compare the number of ED visits before and after becoming a patient in the MMHC.
- To compare the number of ED visits for patients with different treatment types.
- Replication of pilot study.

Theoretical Framework

Pender’s Health Promotion Model

- Framework for examining direct and indirect effects on the probability of engaging in health-promoting behaviors (Peterson, 2016).
- Designed to help individuals achieve the highest level of health possible (Peterson, 2016).
- Defines health as “a positive dynamic state rather than simply the absence of disease” (Peterson, 2016, p. 1).
- Many psychiatric disorders are chronic and life-long.
- Patients maintain stability and remission from their symptoms.
- Ultimate goal to attain and sustain health-promoting behaviors.
Methodology: Design
- A correlational, retrospective design and chart review
- Utilized patients' health records from Anasazi and HEALTHelix™
- Patient barriers to outpatient treatment were identified
- For every open case, ED visits were extracted eight months prior to admission to the MMHC and eight months after.
- Compared the number of ED visits for patients with different treatment types

Methodology: Setting
- An urban, non-profit, outpatient psychiatric clinic in Erie County
- Oversight:
  - One Board-certified psychiatric health nurse practitioner
  - Two registered nurses
  - Five certified clinical social workers
  - VP of Intensive Behavioral Health Services and Program Director
- Both medication management and counseling services are provided directly in the patients' homes
- Defined barriers to accessing traditional outpatient services

Methodology: Sample
- Convenience sampling: patients admitted to the MMHC between May 14th of 2017 and June 30th of 2018
- Full sample of 216 patients (N = 216)
- Inclusion criteria:
  - 18 years of age or older
  - At least one DSM-V psychiatric diagnosis
  - Medicaid insurance recipients
- Exclusion criteria:
  - Patients admitted 'pro bono'
  - Only open cases were considered when comparing ED visits and differences in treatment groups, generating a subset of 84 patients (n = 84)

Ethical Considerations and Protection of Human Rights
- Consent was obtained through the International Review Board (IRB) at the University of Buffalo on December 14th, 2018.
- Permission granted from the Organization's Risk Management Committee on January 19th, 2019
- Chart reviews performed via password-secure designated computer unit
- De-identification of data
Methodology: Data Collection

- Patients’ demographic and descriptive data, admission dates, primary diagnosis, treatment type, and case status, were obtained through Anasazi.
- For every open case only, HEALTHLINK™ was used to extract the number of ED visits a patient experienced before and after admission to the MMHC.
- ED utilization was examined eight months before and after admission to the MMHC for each case.
- Due to the different admission dates, each eight-month period was based on the patient’s MMHC admission date.

Methodology: Statistical Analysis

- Descriptive statistics including frequencies and measures of central tendencies were performed for the full sample (N=265).
  - Demographic variables: patient’s age, gender, race, housing location, and employment
  - Descriptive variables: patient’s date of admission to the clinic, diagnosis, presence of an SUD, barriers to attending a traditional clinic, case status, and treatment type

Results: Demographic Variables

Of the full sample (N=265), mean age was 49 (range of 20-88 years).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Category</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>105 (39.6%)</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>160 (60.4%)</td>
</tr>
<tr>
<td>Race</td>
<td>African American</td>
<td>86 (33%)</td>
</tr>
<tr>
<td></td>
<td>Asian American</td>
<td>5 (1.9%)</td>
</tr>
<tr>
<td></td>
<td>Caucasian</td>
<td>144 (55.2%)</td>
</tr>
<tr>
<td></td>
<td>Latínx</td>
<td>1 (0.4%)</td>
</tr>
<tr>
<td></td>
<td>Arabic</td>
<td>5 (1.9%)</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>20 (7.7%)</td>
</tr>
<tr>
<td>Location</td>
<td>City</td>
<td>160 (60.4%)</td>
</tr>
<tr>
<td></td>
<td>Outer Limits</td>
<td>105 (39.6%)</td>
</tr>
<tr>
<td>Employment</td>
<td>Employed</td>
<td>5 (1.9%)</td>
</tr>
<tr>
<td></td>
<td>Unemployed</td>
<td>257 (98.1%)</td>
</tr>
</tbody>
</table>

Other variables include:
- Gender: Male = 105 (39.6%), Female = 160 (60.4%)
- Race: African American = 86 (33%), Asian American = 5 (1.9%), Caucasian = 144 (55.2%), Latínx = 1 (0.4%), Arabic = 5 (1.9%), Other = 20 (7.7%)
- Location: City = 160 (60.4%), Outer Limits = 105 (39.6%)
- Employment: Employed = 5 (1.9%), Unemployed = 257 (98.1%)

A paired t-test (p < 0.05) determined significant group differences (pre-admission to the MMHC compared to post-admission to the MMHC)
Results: Demographic Variables

- Of the subset (n = 82), mean age was 52 (range of 27-73 years).
- Females made up the majority (69.5%), 25 (30.5%) males.
- Caucasian (68.3%) followed by African Americans (23.2%).
- Majority of patients (58.5%) of patients lived in the City of Buffalo.
- Only 4.9% of the sample were employed.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Category</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>25 (30.5%)</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>57 (69.5%)</td>
</tr>
<tr>
<td>Race</td>
<td>African American</td>
<td>19 (23.2%)</td>
</tr>
<tr>
<td></td>
<td>Asian American</td>
<td>4 (4.9%)</td>
</tr>
<tr>
<td></td>
<td>Caucasian</td>
<td>56 (68.3%)</td>
</tr>
<tr>
<td></td>
<td>Latinx</td>
<td>0 (0%)</td>
</tr>
<tr>
<td></td>
<td>Arabic</td>
<td>1 (1.9%)</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>2 (2.4%)</td>
</tr>
<tr>
<td>Location</td>
<td>City</td>
<td>48 (58.5%)</td>
</tr>
<tr>
<td></td>
<td>Outside</td>
<td>82 (41.5%)</td>
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<tr>
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<td>Employed</td>
<td>4 (4.9%)</td>
</tr>
<tr>
<td></td>
<td>Unemployed</td>
<td>78 (95.1%)</td>
</tr>
</tbody>
</table>

Descriptive Variables: DSM-V Diagnoses & Substance Use Disorders

- Major depressive disorder (MDD) and schizophrenia most prevalent.
- 33 patients (40.2%) with documented mood disorder.
- Anxiety and trauma-related disorders accounted for 6% and 5% of the sample, respectively.
- A total of 17 patients have a diagnosis of a substance use disorder (65%).
- A total of 33.8% of the full sample.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Category</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagnosis</td>
<td>MDD</td>
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</tr>
<tr>
<td></td>
<td>Mood Disorder</td>
<td>9 (11.1%)</td>
</tr>
<tr>
<td></td>
<td>Schizophrenia</td>
<td>21 (25.9%)</td>
</tr>
<tr>
<td></td>
<td>Schizophrenia</td>
<td>26 (31.7%)</td>
</tr>
<tr>
<td></td>
<td>PTSD</td>
<td>13 (16%)</td>
</tr>
<tr>
<td></td>
<td>Anxiety</td>
<td>10 (12.3%)</td>
</tr>
<tr>
<td>Substance Use</td>
<td>Yes</td>
<td>21 (25.9%)</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>60 (74.1%)</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Variable</th>
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<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment Type</td>
<td>Combined</td>
<td>58 (70.7%)</td>
</tr>
<tr>
<td></td>
<td>Counseling Only</td>
<td>13 (16%)</td>
</tr>
<tr>
<td></td>
<td>Medication Management Only</td>
<td>11 (13.4%)</td>
</tr>
</tbody>
</table>

Descriptive Variables: Barriers to Traditional Clinics

- Over half of the patients (56.8%) reported psychiatric barriers.
- Medical issues accounted for 27.7% of the sample.
- 15.2% of patients reported financial barriers.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Category</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disorder</td>
<td>MDD</td>
<td>20 (24.7%)</td>
</tr>
<tr>
<td></td>
<td>Mood Disorder</td>
<td>9 (11.1%)</td>
</tr>
<tr>
<td></td>
<td>Schizophrenia</td>
<td>21 (25.9%)</td>
</tr>
<tr>
<td></td>
<td>Schizophrenia</td>
<td>26 (31.7%)</td>
</tr>
<tr>
<td></td>
<td>PTSD</td>
<td>13 (16%)</td>
</tr>
<tr>
<td></td>
<td>Anxiety</td>
<td>10 (12.3%)</td>
</tr>
<tr>
<td>Substance Use</td>
<td>Yes</td>
<td>21 (25.9%)</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>60 (74.1%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variable</th>
<th>Category</th>
<th>Frequency</th>
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<tr>
<td>Treatment Type</td>
<td>Combined</td>
<td>58 (70.7%)</td>
</tr>
<tr>
<td></td>
<td>Counseling Only</td>
<td>13 (16%)</td>
</tr>
<tr>
<td></td>
<td>Medication Management Only</td>
<td>11 (13.4%)</td>
</tr>
</tbody>
</table>
Results: Emergency Department Utilization

- Paired t-test (p < .05)
- There was a significant decrease in the number of ED visits
  - Before admission (M = 1.66, SD = 2.42)
  - After admission (M = 1.26, SD = 2.15)
- Conditions: t(79) = 2.158, p = .034
- Over half of patients (55%) experienced zero ED visits after admission to the clinic

Results of Paired t-test for ED Visits Pre and Post-admission to the MMHC

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Pre-admission Mean</th>
<th>Post-admission Mean</th>
<th>t</th>
<th>df</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED Visits</td>
<td>1.66</td>
<td>1.09</td>
<td>2.158</td>
<td>79</td>
<td>.034</td>
</tr>
</tbody>
</table>

Note. CI = confidence interval *p < .05

Discussion

- Major depressive disorder and schizophrenia consider further outreach to patients
- Only 1.9% of the total sample were employed further examining as a barrier to treatment
- Combining treatment and significant reduction in mean ED visits after admission to the clinic
- The original study did not observe significant differences in ED visits between treatment groups
Discussion

- Over half of the patients displayed psychiatric barriers as challenges to attending traditional outpatient clinics.
- Medical barriers accounted for almost one third of patients in the MMHC trial samples.
- Limited number of patients with documented accounts of financial barriers.

Strengths and Limitations

**Strengths**

- Produce statistically significant findings
- Potential to decrease overall Medicaid spending costs
- Achieve and maintaining psychiatric stability
- Feasibility and reliability is supported by the original pilot study.
- Easily replicable and information is readily available

**Limitations**

- Unable to control for previously documented data
- Difficulty operationalizing variables, such as barriers to treatment
- Missing data was accounted for in the analyses with percentages used
- Limited follow-up due to time constraints

Implications for Future Practice

**Strengths and Limitations**

- Strongly upheld the Doctor of Nursing Practice (DNP) Essential I: American Association of Colleges of Nursing (AACN), 2008
  - Organizational and Systems leadership for Quality Improvement and Systems Thinking
  - Clinical prevention
  - Health promotion
  - Eliminating health disparities

- Study replication
- Survival analysis
- Careful analysis of admission criteria

**Implications for Future Practice**

- Removes barriers to mental health treatment and services
- Medicaid spending (DSRIP)
- Provides further implications regarding social determinants of health and their impact on patient outcomes.
- Serves as a pioneer for innovative and accessible psychiatric care.
MOBILE MENTAL HEALTH CLINIC

Conclusion

- MMHC significantly reduced ED-alls
- Significant decrease in ED visits with combined treatment
- MMHC effectively treats targeted ED overutilization and Medic aid costs.
- Promote health maintenance and prevent destabilization.
- The APRN can assume leadership and policy role.

Project Deliverables

- Results and findings to be presented at the organization
- Address additional opportunities for program enhancement
- Profitability, future funding, and replication of study
- Contribution to scholarly journals

References


References


References

