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Evaluating Behavioral Health Homes to Decrease Emergency Department Use

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
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Walden University
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Abstract

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MS, University of Tennessee, 2012

BS, University of Tennessee, 2009

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

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Abstract

The Affordable Care Act of 2010 proposed a new integrated care model for individuals with chronic mental illness and multiple medical comorbidities by using Behavioral Health Homes (BHH). The purpose of this doctoral project was to evaluate the effectiveness of the BHH in reducing emergency department (ED) use in the community mental health outpatient setting. Guided by the American Association for Critical Care Nurses synergy model for patient care a cross-sectional, post-test only with comparison group quasi-experimental research design was used. A de-identified data set of 68 patient records in the BHH group and 73 patient records in non-BHH as a control group were analyzed using logistic regression. The analysis revealed that participants in the BHH were statistically less likely to visit the ED. Sensitivity was 16.2%, specificity was 95.2%, positive predictive value was 54.5%, and negative predictive value was 76.2%. The Homer-Lemeshow and omnibus test of model coefficients showed the model was a good fit (p=.726, p=.007). Participants in BHH were .225 less likely to visit the ED. For every year of reduction in age, the odds of visiting the ED increased by a factor of 1.0. Females had a 1.8 higher odds of visiting the ED than males. This study provides evidence for the effectiveness of the BHH in reducing visits to the ED. Standard measures to track ED use in BHH are essential to understanding reasons for ED use and reducing nonurgent use. The BHH has the potential to transform health care delivery toward an all-inclusive model of care. Providers can utilize the findings of this project to promote social change by targeting patients with serious mental illness and reducing health disparities by emphasizing preventive care and eliminating barriers to care.

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Dedication

First and foremost, I want to give glory to God to be at this level in my profession. The endeavors of this doctoral project are dedicated to my husband, Dustin, for supporting my goals and dreams. To my daughter, Roslyn, to be an example that with hard work, anything in life is possible. And last, but certainly not least, to my father and mother, Richard and Jane Noe, whom instilled the courage and perseverance in me to overcome any obstacle.

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Section 1: Overview of the Evidence-Based Project

Introduction

The National Alliance of Mental Health (2015) estimated that nearly 43.8 million adults in the United States suffer from mental illness and 10 million adults suffer with serious mental illness. The problem is compounded by the fact that people suffering from mental illness often have multiple comorbid medical conditions. Barriers to proper treatment include stigma, lack of access to primary care providers and services, lack of health insurance, inadequate transportation, and lack of detection of illness in the primary care setting (Jones, Lebrun-Harris, Sripipatana, & Mgo-Metzger, 2014). As a result of these barriers, patients may use ED services for visits that could have taken place in the primary care setting. The Centers for Disease Control (2015) asserted that 86% of all health care expenditure in 2010 was attributed to patients with one or more chronic medical conditions. This meant that frequent use of the ED was resulting in sky-rocketing medical expenditures while patients received inappropriate care.

Disadvantaged groups include minorities and those from lower socioeconomic brackets, who often suffer the most. The disparities in health care were addressed by the passage of the Affordable Care Act (ACA) of 2010. This legislation was viewed as an optimal solution to health care disparities that had the potential to contribute to positive social change. The ACA was designed to address these disparities through expanded resources and services for this often overlooked segment of the population. A new model of health care was proposed to address behavioral and medical needs through the introduction of Patient-Centered Medical Homes, Behavioral Health Homes (BHH), and

Accountable Care Organizations (Bao, Casalino, & Pincus, 2013). This doctoral project evaluated the effectiveness of BHH in regards to reducing ED visits in the community mental health setting.

Problem Statement

The local nursing practice problem was the overuse of ED visits in the community mental health outpatient setting. The cost of health care has become a major issue in the United States, that has been the impetus of much needed health care reform. The average cost for an ED visit is $580 more than the cost of a visit to a primary care provider (PCP); inappropriate use of the ED thus results in the waste of $38 billion annually (National Quality Forum, 2015). The overuse of ED visits stems from multiple factors, including lack of health care access, inappropriate referrals, multiple services available in the ED setting, and lack of coordination of care among health care entities (Pukurdpol, Wiler, Hsia, & Ginde, 2014). BHH provide adequate access to health care, preventive services, and social support in the outpatient setting. This means that the issue of overuse of the ED can be eliminated.

The practice setting for this doctoral project is located in east Tennessee. According to the 2013 Tennessee Hospital Discharge Data set, there were a total of 3,483,718 ED visits, with an increased probability of nonurgent use by consumers of public health insurance (Tennessee Department of Health, 2013). Data from the Tennessee Department of Mental Health and Substance Abuse Services (2016) indicate that, there are 224,000 persons in the state who suffer from serious mental illness. The correlation between ED use and this 4.6% segment of the population in Tennessee can no longer be ignored.

A possible solution to this issue is the integration of health care that may improve communication and access to health care services. An example of this is the concept identified as BHH, which involves a health care team inclusive of social services, mental health, and primary care that provide a support system to patients, who meet specific criteria for acceptance into this integrated health care model.

This doctoral project, which evaluated BHH for decreased ED use in a community mental health setting, is significant to the field of nursing practice and provides evidence that BHH reduced ED visit use while improving patient care. The BHH reduced health disparities and eliminated obstacles to health care for disadvantaged groups (Healthy People, 2016). Currently, 20 states have enacted Health Homes. Research has yielded mixed results as to benefits and claims related to BHH. Further research is needed to provide adequate data to indicate that this health care model justifies its claims.

Purpose

The purpose of this project was to evaluate BHH in terms of reduced ED use in a community mental health setting. The practice-focused question identified a gap in nursing practice: “Has the BHH model resulted in reduced ED visits in the community mental health setting?” The answer to this question stemmed from the etiology of ED use. Why do patients tend to frequent the ED, instead of using primary care? Research showed that factors related to ED visits stemmed from use of public insurance, perception of use of ED, lack of access to primary care providers, and convenience (Brim, 2008). The implementation of BHH accommodated this underserved population and filled a void in the current health care system. The motive for this new health care model was to avoid use of the ED, when a primary care visit would be sufficient.

Pioneer states, such as Illinois, Missouri, and Colorado have enacted similar components of the BHH with much success. For patients with Medicaid assistance, locating proper mental health and medical services was daunting (Martin, et al., 2007). This population suffered from many barriers, which included economic, environmental, and logistic factors that impacted health care access. The BHH offered a channel of support for these issues. Given the newness of this model, however, further research is needed to evaluate the system and its claims.

Many studies have supported and projected claims that integrated health care reduces ED visits (Capp et al., 2015; Glover, Purim-Shem-Tov, Johnson, & Shah, 2015; Viron, Zioto, Schweitzer, & Levine, 2014). Most research studies on this topic have shown a decrease in ED use but have been conducted on integrated health care models in the primary care setting (David, Gunnarsson, Saynisch, Chawla, & Nigam, 2015; Pines, Keyes, Hasselt, & McCall, 2015). The gap in nursing practice, which related to a reduction in ED visit use within the behavioral health model, was the focus of this doctoral project.

Nature of the Doctoral Project

The sources of evidence and data needed to address the practice-focused question included demographics, health insurance type, ED visit used, and mental health visit used. These data were gathered from participants within the BHH program as well as from participants who were not in the BHH program, with the latter serving as a control group for comparison. The evidence needed to complete this doctoral project was drawn from a de-identified data set prepared by the information technology (IT) department from the electronic health records (EMR) of patients at the adult center clinic. These data were analyzed to determine whether BHH did indeed show a link to decreased ED visit use within the past 6 months.

The tool used to organize the data collected from the Centricity EMR was the IBM SPSS Statistics Version 21 analysis software package. A cross-sectional posttest only comparison group quasi-experimental research design was used. Binary logistic regression was employed to analyze the data. Data were analyzed and evaluated to determine whether statistically significant differences existed between BHH and non-BHH participants in regard to ED use. The independent variables were also analyzed and compared to ED use.

The doctoral project's specific purpose was to evaluate BHH for reduced ED use in a community mental health setting, I examined data to determine whether they supported or discredited the objective goals set forth by the ACA policy designed to reduce ED visit use through this new health care model. From a broader perspective, I sought to determine whether BHH reduced cost, improved coordination of care, enhanced population health, and equalized health care access.

Significance

The stakeholders involved with this project were the staff of the Helen Ross McNabb Center (HRMC), including psychiatrists, nurse practitioners, registered nurses, social workers, and medical providers, as well as patients with a mental health diagnosis and comorbid conditions. The problem of ED overuse has been addressed by mental health, medical, and social service providers, who work collaboratively and coordinate services that emphasize care in the outpatient setting (Margolis, Pollard, & Niemiec, 2013). Patients with a mental health diagnosis and comorbid conditions have been impacted by efforts to approach health care from a different perspective, engage in informed decision making, improve health outcomes, and improve the health status of future generations through the elimination of health disparities (Cisacco & Twemlow, 2014).

This doctoral project contributes to nursing practice by providing evidence-based research addressing the significance of the implementation of a BHH in regard to decreased ED use. The ACA set forth three separate models of integrating care: the Patient Centered Medical Home (PCMH), the Health Home, and the Accountable Care Organization (ACO); Bao et al., 2013). Each model was slightly different, but all were developed in an attempt to address the needs of patients with behavioral health issues.

Most research studies that have been conducted in this area have focused on the PCMH model. For example, studies have shown that integrated care models significantly reduced ED visits (Fandre, McKenna, Beauvis, Kim, & Mangelsdorff, 2014; Pines, et al., 2015), improved immunization use (Pati, Ladowski, Wong, Huang, & Yang, 2015), significantly improved mental health symptoms (Sklar, Aarons, O'Connell, Davidson, & Groessl, 2015), reduced the cost of care (van Hassselt, McCall, Keyes, Wensky, & Smith, 2015), and improved access to primary care providers and patient satisfaction (Epperly, 2011). Therefore, this project focused specifically on BHH and contributes to nursing practice by providing a sturdy foundation for future research.

This doctoral project is transferable to any behavioral or primary care outpatient setting due to its nature of integrating primary and mental health care services. The most attractive aspect of the integrated care model is the availability of multiple options to coordinate care. The Substance Abuse and Mental Services Health Administration (SAMSHA, 2012) described three models: the in-house model, co-located partnership model, and the facilitated referral model. Within integrated care, the emphasis is not necessarily on providing all services within one organization, but ensuring that services are coordinated and available (CMS, 2016). The appropriate model for a given context depends on the factors of funding, organization size, population, community services available, and staffing (SAMSHA, 2012).

The current healthcare delivery model is inadequate to meet the needs of culturally diverse people with chronic mental illness, comorbid conditions, and lower socioeconomic status. Increases in ED visits are caused by a system defect rather than individual flaws. The National Quality Forum (2015) contended that nearly 67 million ED visits are preventable. The legislation within the ACA was an attempt to create positive social change in the delivery of care and practice. It placed more emphasis on prevention and created greater access to primary care and mental health services.

Concomitantly, ED visits were reduced.

With the expansion of Medicaid to 26 million people by 2024 (Adepoju, Preston, & Gonzales, 2015), a social change in practice is promising to address inconsistencies in care for this population. However, some researchers have associated expansion of public insurance with increased ED usage (Taubman, Allen, Wright, Baicker, & Finkelstein, 2014) leading to the need for other interventions and new policy development. The ACA received approval and commendation from the public, yet some were pessimistic as to its delivery. Adepoju, Preston, and Gonzalez (2015) continued to find disparities in care related to access, preventive services, and cultural awareness. This doctoral project provides more research for policy development to address these discrepancies in care.

Summary

The ACA of 2010 has provided three exemplary models that have improved quality of care for a sector of mental health that has been fundamentally underserved. The macro-system issue of ED overuse, misuse, and frequent use has constituted a pervasive crisis, with multiple variables contributing to this predicament. The micro-system issues of lack of primary care access, transportation, insurance, availability, coordination of care, and decision-making capacity have been contributors as well. This project specifically gauged BHH that provided assistance to its frequent users.

Patients with mental health and comorbid medical diagnoses have been victims of the current health care structure. This evaluation of a BHH in a community mental health setting in relation to decreased ED use provides further research to evaluate the effectiveness of BHH as a solution to problems of cost, quality of care, and access.

Section 1 has clearly delineated the background, problem, purpose, nature, and implications for social change, of this doctoral study. In Section 2, I elaborate further as to the project's theoretical underpinnings, relevance to nursing practice, and local background and context, as well as my role as the doctoral student.

Section 2: Background and Context

Introduction

The practice problem for this project was the overuse of the ED by chronically ill patients. The practice-focused question was the following: ‘Has the use of a BHH model reduced ED visits in the community mental health setting?’ The purpose of this project was to evaluate a BHH in terms of reduced ED use in a community mental health setting. The literature review that was conducted showed that most research studies in this area focused on ED use in the PCMH. Multiple factors that lead to ED use in this particular population are lack of access, lack of transportation, Medicaid insurance, and lack of availability of primary care. The research strongly supported the understanding that the most frequent users of the ED were patients insured by Medicaid (Brim, 2008).

The literature review was conducted to find research evidence dedicated specifically to ED use and patients in BHH, characteristics of ED visits, and the association between Medicaid insurance and ED visit use. Multiple electronic databases were examined, including CINAHL, Academic Search Complete, Ovid, PubMed, Psych INFO, ProQuest, Thoreau, Science Direct, and Cochrane. The Walden University Library was accessed with the Boolean search terms *Medicaid Health Homes*, *emergency department*, *Medicaid*, *integrated health care*, *Behavioral Health Homes*, *nonurgent emergency room use*, and *emergency room*. The next section provides an overview of the conceptual model that informed the doctoral project, the project's relevance to nursing practice, the local background and context, and my role as the DNP student.Concepts, Models, and Theories

The American Association for Critical Care Nurses (AACN) synergy model for patient care was selected as a conceptual model and theory to guide the doctoral project (AACN, 2016). This middle-range nursing theory was developed in the 1990s to incorporate two main domains of nurse competencies and patient characteristics, which consequently produced outcomes for the patient, system, and nurse. Within the model, patient characteristics include resiliency, vulnerability, stability, complexity, resource availability, participation in care, participation in decision making, and predictability. Nurse competencies consist of clinical judgement, clinical inquiry, facilitation of learning, collaboration, system thinking, advocacy and moral agency, caring practices, and response to diversity (AACN, 2016). The synergy model indicates that when these two levels are properly aligned, maximum results can be achieved.

The synergy model and the BHH are guided by a holistic perspective on patient care. Participants in BHH who suffer from mental illness and comorbid medical conditions are a unique subset of the population who have fallen through the cracks of the current healthcare model. Their unique patient characteristics include low economic status, cultural diversity, lack of access to reliable transportation, lack of decision-making capacity, and complex medical and psychiatric diagnoses (Cisacco & Twemlow, 2014). BHH providers are privy to these special needs and provide systemic support, patient education, respect for diversity, and all-inclusive care.

Augmented patient outcomes of BHH include improved physical and mental health, a different perspective on preventive care, increased quality of life, and increased patient satisfaction with health care (Cypress, 2013). Nurse outcomes in regard to BHH are improved coordination of care, fewer complications in relation to patients' health status, and achievement of treatment goals (AACN, 2016). The combination of these elements leads to greater system outcomes of lowered medical costs and increased resource utilization through decreased ED visitation, decreased use of specialized services, and increased exploitation of primary care services.

The following section clarifies terms used in the doctoral project that have multiple meanings:

Emergency department (ED): In its conception, the ED provides care for patients presenting to the emergency room for treatment related to trauma, injury, or symptoms that require imminent care (Centers for Medicare and Medicaid Services, 2016). These elements fall within the realm of the ED and justify its use.

ED frequent use: Defined as greater than two visits per year (Kumar & Klein, 2012). Frequent ED users represent a small proportion of the population, but comprise a significant percentage of ED use and cost (LaCalle & Rabin, 2010). This creates an even greater impetus to target this population and eliminate disparities in care.

ED overuse: Defined as repeated, nonurgent visitation to the emergency room, when outpatient visits to either primary care or a mental health office would be more reasonable (Durand et al., 2011).

Health care access: Defined as possessing a convenient point of entry for health care services (Healthy People 2020, 2016). Rosenburg (2009) estimated that the majority of people with a mental health diagnosis perish prematurely from underlying comorbid medical conditions. Lack of access to primary care is a huge barrier to quality care, which often results in an unnecessary ED visit or even worse. This barrier stems from lack of transportation, lack of financial stability, lack of an appropriate decision-making process, and lack of availability (Brim, 2008). The aim of this project was to remove this hurdle to providing appropriate care in the appropriate setting.

Relevance to Nursing Practice

A broader problem correlated to ED use is the issue of overuse. Nonurgent use of the ED leads to increased medical expenditure and poor management of care. Durand et al. (2011) conducted a systematic review of 39 articles via Pubmed and research from the National Library of Medicine related to nonurgent use of the ED from 1980-2008. The researchers found difficulty in clearly classifying nonurgent ED visits due to lack of a clear definition (Durand et al., 2011). The literature did not specify whether visits were truly emergent, so the authors stated that further studies were needed to clarify nonurgent ED use. The study classified only 20% of visits as meeting valid ED criteria for admittance (Durand et al., 2011). The findings only complicated the issue further due to lack of evidence to provide a solid solution to this issue.

Brim (2008) attributed nonurgent ED use to two major factors: the use of public insurance, such as Medicare and Medicaid, or being uninsured. Brim analyzed 49,725 ED visits in 2005 in Washington State using a quantitative cross-sectional descriptive design. The convenience sample comprised adults, who sought care from the ED between normal primary care business hours. Brim defined nonurgent ED use as indicated by stable vital signs and the provision of basic care by ED providers. The majority of the sample was insured by Medicare and Medicaid, and 31% were uninsured. Surprisingly, 38% listed the ED as their primary source of care (Brim, 2008). These findings support the evidence that public insurance leads to ED overuse.

Lack of access to psychiatric services and treatment also contribute to ED overuse. This paper focuses on lack of primary care services, but lack of mental health services is also relevant to ED visits. Jones et al. (2014) analyzed five community health centers using a cross-sectional research design, which employed the Health Center Patient Survey (2009), and identified contributing factors for lack of mental health services for patients. Of the 4,562 patients interviewed from a national sample, 40% were uninsured and 40% used public insurance. The study showed that lack of access to treatment was greater in patients with chronic mental illness in the southern portion of the

United States (Jones et al., 2014). This emphasized the need for a support system and stronger continuity of care for this particular population.

Another emerging theme in this doctoral project is the association between public insurance and nonurgent ED use. Pukurdpol et al. (2014) conducted a retrospective analysis on a national sample of 241,167 ED visits that evaluated insurance type and primary care treatable visits from 1997 to 2009 from the National Hospital Ambulatory Medical Care Surveys (NHAMCS). Again, primary care treatable visits were classified according to hours of availability. Purkdurpol et al. found that the majority of ED visits were by users of public insurance and members of the uninsured population. The number of ED visits doubled across the time period for users of Medicaid (Purkdurpol et al., 2014). Capp et al. (2013) conducted a cross-sectional analysis of a national sample of 32,737 adults using the National Health Interview Survey (2011), which focused specifically on insurance type and reason for ED use. The study supported the findings that users of Medicare and Medicaid used the ED due to lack of access and perception of need for an ED visit (Capp et al., 2013). This supported the evidence that patients with Medicaid insurance were frequent ED users and in most need of a new health care model.

Capp et al. (2015) scrutinized ED visitation further in the Medicaid population, using a descriptive research design to analyze 21,800 ED visits in 2010 from the NHAMCS. The study found that frequent ED users with Medicaid insurance were primarily young adult females, with visits conducted within primary care hours of business (Capp et al., 2015). Taubman et al. (2014) evaluated the ACA initiative that expanded health care access. The study analyzed ED use in 12 local hospitals by 25,000

Medicaid recipients in Portland, Oregon, from 2008-2009. Users of Medicaid were 40% more likely to frequent the ED for primary care treatable conditions and within primary care hours of operation than nonusers (Capp et al., 2015). These statistics add to evidence for the need for BHH and indicate that other interventions have simply not been solving the problem of ED misuse.

Within current nursing practice, there is a need to decrease ED utilization through the implementation of BHH for improved quality of care for this population. The BHH was an attempt to combine previous interventions for long-term effects on appropriate ED utilization. By combining social services, patient education, and expanded public insurance, the BHH offered a new intervention that addressed a gap in current nursing practice. The BHH was intended to result in improved coordination, access, and quality of care in exchange for reduced cost. This encompassed the vision of the ACA and this doctoral project.

The yield of the literature review conducted to find evidence of the effectiveness of BHH in regard to ED visit use was scant. Glover et al. (2015) analyzed users of the Illinois Medical Home Network (MHN) and frequent ED visitation. The MHN was mental health based, with coordination of care performed by primary care providers, similar to the doctoral project setting. Glover et al. conducted a retrospective analysis of 64,077 ED visits with 4,326 participants in the MHN and 33,016 non-MHN participants as a control group. The study showed that patients in the MHN frequented the ED more often than patients in the non-MHN group due to more acute medical conditions (Glover et al., 2015). This study devalued the aim of BHH to reduce ED visits and inadvertently to decrease cost.

The majority of the review of the literature showed evidence concerning health homes implemented in the primary care setting. Pines et al. (2015) compared PCMH and non-PCMH and analyzed ED use and cost. The study compared Medicare fee-for- service data from 2008-2010 in primary care settings and approved PCMH sites. Research showed less cost and fewer ED visits for the PCMH participants (Pines et al., 2015). A pilot project conducted over 3 years in Colorado in which a PCMH was implemented also found a reduction in ED use and cost (Harbrecht & Latts, 2012). This study was revolutionary because it evaluated PCMH for the longest period to date. However, researchers were skeptical as to total cost savings due to the expenditure for other services that were present in the PCMH (Harbrecht & Latts, 2012).

Fandre et al. (2014) implemented a PCMH in the military health system in Fort Campbell, Kentucky, to monitor ED use among the participants. The study compared 1,127 participants in the PCMH with patients in a typical primary care setting. Researchers found that participants in the PCMH group were 67% less likely to frequent the ED than members of the comparison group (Fandre et al., 2014). Hasselt et al. (2015) conducted a longitudinal, nonexperimental research design that compared payments and ED utilization for 146,410 participants in the PCMH and 446,273 participants in the non-PCMH. Data compared from 2008-2010 showed that payments and ED use declined in the PCMH group (Hasselt et al., 2015).

Research conducted concerning PCMH and ED utilization rate in patients with chronic medical conditions in Pennsylvania found that care was sought most commonly for diabetes mellitus, high blood pressure, cardiovascular disease, congestive heart failure, asthma, and chronic obstructive pulmonary disease (David et al., 2015). Data from 2008-2011 were analyzed from Blue Cross of Pennsylvania using a difference-in-differences research design. Participants in the PCMH with chronic illness had lower ED rates than the non-PCMH group. The researchers attributed this reduction to improved preventative care.

Other strategies have been applied that controlled and reduced ED frequency. State policy sought increased public access to health insurance. Incorporated case management interventions have shown some success, but have failed to meet the needs of the chronically mentally ill and have increased the cost to provide case management services (Kumar & Kleine, 2012). Some states have considered implementing higher copays to reduce ED visitation due to low copays being linked with increased visitation (Miller, 2012). However, due to the ethical dilemma of creating a barrier to imminent care, most have reconsidered (Durand, et al., 2011). Patient education focused on ED usage has also been successful (Michelen, Martinez, Lee, & Wheeler, 2006), but long-term effects have yet to be determined.

This doctoral project offered the opportunity to show the effectiveness of the BHH in the community mental health outpatient setting in reducing ED visit use. A preponderance of evidence in support of the PCMH reducing cost and ED visit use existed; however, evidence for the BHH's effectiveness in reducing ED visits was lacking. The models were similar in vision, but different in construct due to the BHH being located in the mental health realm. Therefore, in this doctoral project, I sought to bridge the gap in practice by evaluating the effectiveness of the BHH in the community mental health outpatient setting.

Local Background and Context

The following section contains the local evidence on the relevance of ED overuse in the state of Tennessee. As of 2015, there were 1,109,791 Medicare enrollees and 1,552,133 Medicaid enrollees in Tennessee (Kaiser Family Foundation, 2015; Medicaid, 2015). The greatest source of expenditure for both groups is inpatient hospitalizations for mental and medical diagnoses (Centers for Medicare and Medicaid Services, 2007). According to the latest report from the Center for Medicare and Medicaid Services (2015), 38% of enrollees had a psychiatric diagnosis, and 44% of participants had three or more chronic medical conditions.

There are over 10 million people enrolled in the Medicare-Medicaid programs across the country. The community health center project setting in Tennessee primarily treats patients, who are insured by Medicare, or Medicaid, or who are uninsured. Pukurdpol, Wiler, Hsia, and Ginde (2014) analyzed ED visit use according to insurance type i.e., Medicare, Medicaid, uninsured, and private providers. The researchers found that patients with primary care treatable visits in the ED setting in the United States were most often users of Medicaid or uninsured patients (Purkurdpol et al., 2015). The measures analyzed to determine ED use in regard to improper setting were time of arrival and diagnoses (Pukurdpol et al., 2014). This trend in ED use is alarming and calls for a pertinent solution.

How was the implementation of BHH proposed to aid with the issue of ED overuse and misuse? The elements of BHH that have been seen as supporting the transformation of health care are coordinated medical and psychiatric services, which use a teamwork approach, that involves social services, medical, and behavioral staff who place emphasis on participants with comorbid conditions, and set goals for attainment, such as reduction of ED use (Kathol, deGruy, & Rollman, 2014). The BHH targeted this population and provided a systematic preventative approach to curtail this issue.

The institutional context relevant to ED use in this doctoral project included demographics, community setting, governance, and mission statement. The population of the area surrounding the doctoral project site consisted of 184,281 people and was 76% White, 17% African American, 4% Hispanic, 1% Asian American, and less than 1% Native American and Pacific Islander, with a median age of 33 (U.S. Census Bureau, 2014). The median household income was $33,000, with 26.4% of the population in poverty (U.S. Census Bureau, 2014). The area surrounding the clinic was classified as urban.

The partnering agency for this project was a not-for-profit community mental health outpatient adult clinic in the East Tennessee region. The clinics served urban and rural areas that consisted of populations with chronic mental health conditions and typically members of state health insurance. Since 1948, the clinic has expanded to ten clinics serving 25 counties in Tennessee. The center is governed by a 26 member Board of Directors that are elected to serve two-three year terms. The mission statement and strategic vision are “Improving the lives of the people we serve; helping children, adults, and families with addiction, mental illness, and social challenges” (HRMC, 2016).

Currently, the project site is a pilot program funded by the HRMC Foundation (HRMC, 2016). The BHH pilot program ended in November 2016. The target population for this doctoral project were adults over the age of 18 that participated in the BHH model. The population met the criteria of a mental health diagnosis and 2 or more chronic physical or mental health conditions or 1 chronic condition and significant risk for developing another (Bao, Casalino, & Pincus, 2012). The model for the BHH is the facilitated referral model compared to in-house model or co-located models (SAMSHA, 2012).

The following section clarified terminology used in this doctoral project and enhanced the understanding of terms:

Behavioral Health Home (BHH): The BHH was developed under the Affordable Care Act, Section 2703 of 2010 and stated BHH provided holistic care for people with Medicaid with chronic comorbid conditions by synchronization of all realms of care (Medicaid, 2016). Qualifications for this program included patients with a mental health diagnosis, two or more chronic mental or medical conditions, or one chronic conditions and risked developing another (Cisacco & Twemlow, 2014).

Chronic conditions: Included asthma, hypertension, obesity, mental health conditions included substance abuse, and diabetes (Medicaid, 2016). According to the Tennessee Department of Health (2011), the leading causes of death in east Tennessee was cancer, heart disease, and chronic lower respiratory disease. The high degree of specificity for eligibility concentrated the energy to this particular population that was underserved and most problematic.

Co-Located Model: The behavioral health organization provided primary care services in the same building and coordinated services (SAMSHA, 2012).

Facilitated Referral Model: This construct of the BHH provided on-site medical care for patients in the BHH. A designated entity, often times a registered nurse, coordinated all services, treatment, and recommended referrals (SAMSHA, 2012). This was the prototype utilized by the doctoral project site in Tennessee.

In-House Model: Integrated health care model, where all services were provided on site, representative of complete service integration (SAMSHA, 2012). Cherokee Health Systems also located in east Tennessee utilized this model of care for its patients.

Patient Centered Medical Home (PCMH): Similar in construct to the BHH, but conducted in the primary care setting to all patient populations with Medicaid or commercial insurance (Bao, Casalino, & Pincus, 2012). The same coordination of services applied.

The current federal involvement with the BHH has its origin from the Affordable Care Act of 2010, which drew attention to the mental health sector and the incongruities in care. The BHH is a prototype for comprehensive health care for patients with comorbid conditions to reduce the use of EDs and specialized services to improved quality of health care treatment and reduced cost over time (Cisacco & Twemlow, 2014). Users of Medicare and Medicaid services were found to frequent the ED due to perceived acuity issues and lack of access (Capp, et al., 2013). The current system of health care is simply not supplying the needs of this specific population.

The current state involvement applicable to the issue of ED overuse in Tennessee and the lack of coordinated care have been addressed as of February 2013 through the Tennessee Healthcare Innovation Initiative (Tennessee.gov, 2016). Tennessee was awarded a $65 million dollar grant from the Centers for Medicare and Medicaid Services and developed PCMH with a coordination of care tool for the ED (Tennessee.gov, 2016). The initiative explicitly called for a reformation of health care, which emphasized prevention, quality, efficiency, and patient satisfaction.

Role of the DNP Student

My personal relationship to the doctoral project was strictly as a researcher. Data was collected and analyzed by means of a de-identified dataset provided by the HRMC IT Department from the electronic medical record (EMR). My role did not involve patient interaction or consultation. As a researcher, I was given a dataset with chart numbers, age, gender, ethnicity, and number of ED and mental health visits in the past six months.

My motivation for this doctoral project stemmed from my role as an employee of the child and youth clinic. I have a primary account of the unique struggles of this particular population . I understood the current system of healthcare is fragmented and fails to meet the needs of this population. Numerous ED visits, lack of follow up care, and lack of coordination of care was extremely evident. The innovation of the BHH in this area was a wonderful opportunity that improved patient care and bridged the gap in nursing practice. The Affordable Care Act of 2010 provided the opportunity and motivation to create social change. The adoption of the BHH from patients and staff was crucial for success. Optimistically, this doctoral project provided evidence for its effectiveness and use.

Potential biases were enthusiasm for project success for the patients, providers and health care system. However given the proposed quantitative research design, the project austerely restricted any bias to data that occurred. Evaluation of the BHH was vital for the future of health care delivery. Honesty and dissemination of evidence was the key to improved patient care.

Summary

The goal of this doctoral project was to evaluate the implementation of the BHH in the community mental health setting in decreased ED use. The majority of studies that incorporated integrated care in the primary care setting revealed decreased ED use (David et al., 2015; Fandre et al., 2014; Harbrecht & Latts, 2012; Hasselt et al., 2015; Pines et al., 2015). However, the BHH implemented in Illinois showed increased ED use and cost (Glover et al., 2015). Studies showed the dynamic of public health insurance synergistically increased ED use (Brim, 2008; Capp et al., 2013; Capp et al., 2015; Pukdurpol et al., 2014). Nonurgent ED use from lack of access to services was also a contributing factor to increased financial cost and ED visits in this population (Brim, 2008; Durand et al., 2011).

The BHH from the guidance of the synergy model sought to optimize patient, system, and nurse outcomes by integrated patient and nurse characteristics (AACN, 2016). Patient characteristics of low economic status, cultural diversity, lack of access to reliable transportation, lack of decision making capacity, and complex medical and psychiatric diagnoses (Cisacco & Twemlow, 2014) was met by provider characteristics of systemic support, patient education, respect for diversity, and holistic care within the BHH setting for reduced cost, decreased ED usage, and increased resource availability.

Section 3 describes the doctoral project in more detail, and delineates the design, methods, population, sampling, data collection methods, and data analysis. The methods of obtained data filled the evidence based gap in practice and provided research as to the effectiveness of BHH in decreased ED visits in the community mental health setting.

Section 3: Collection and Analysis of Evidence

Introduction

The problem addressed by the doctoral project was the overuse of the ED. Unwarranted ED visits result in increased medical costs, lack of preventive services, and poor coordination of care (Pukurdpol et al., 2014). The purpose of this doctoral project was to evaluate the implementation of BHH in the community mental health outpatient setting in regards to decreased ED visits. The criteria for admittance into the BHH include users of Medicaid and, two or more chronic mental or medical conditions, or one chronic condition and risk of developing another (Cisacco & Twemlow, 2014). This project targeted this underserved population most in need of support and services.

Factors that contributed to ED overuse in patients with mental illness and complex medical comorbidities were abundant. This population lacked primary care access, transportation, decision-making capacity, insurance, access, and coordinated care, in addition to using public insurance. The ED was accessed and substituted for primary care services, which led to nonurgent and frequent use of the ED. The following sections describe the project question, sources of evidence, evidence generated, and the data that were analyzed for this doctoral project.

Practice-Focused Question

The local problem in the community mental health outpatient setting was the overuse of the ED. The gap in nursing practice was the lack of research evidence showing the effectiveness of the BHH in the community mental health outpatient setting in reducing ED visits. Most research studies that showed reduced ED visits took place in the primary care setting. Glover et al. (2015) analyzed a BHH in Illinois, finding increased medical cost and ED use. The practice-focused question was the following: “Has the BHH model shown reduced ED visits in the community mental health setting?” To clarify, the purpose of this doctoral project was to evaluate the BHH in the community mental health setting in regards to decreased ED use.

The BHH coordinator and clinic staff documented ED use in the EMR. Five RNs and seven providers provided the information for this project. The project design was a cross-sectional post-test only comparison group quasi-experimental research design. This design was selected because the patients in the BHH and the outpatient clinic were in various stages of treatment and enrollment (Grove, Burns, & Gray, 2013). Data were collected after initiation of the BHH and compared to data for non-BHH participants, who served as a control group. The independent variable was ED utilization within the past 6 months. The dependent variables were participation in the BHH or not, age, gender, ethnicity, insurance type, and number of mental health visits in the past 6 months.

The sample size was determined by power analysis. Power analysis determined the appropriate number of subjects for the doctoral project to avoid a Type II error. Polit (2012) recommended a software package to calculate power analysis, such as SPSS, due to its complexity. Power analysis included effect size, sample size, standard power typically at 90%, and level of significance at .05 (Grove, Burns, & Gray, 2013). The power analysis indicated that at least 90 participants were needed. All participants were adults between the ages of 18 and 65, who were not currently pregnant, were fluent in English, and sought care for a mental disorder at the adult mental health outpatient center.

Enrollment into the BHH required patients to be users of Medicaid, have two or more chronic mental or medical conditions, or have one chronic condition and be at risk for developing another. Non-BHH participants had varied mental health diagnoses, possessed a medical diagnosis, and were insured by Medicaid, SafetyNet, or had no insurance at all.

The sampling method for this doctoral project was convenience sampling. This type of sampling is commonly used in nursing research studies. Unfortunately, this is the weakest form of sampling because it lacks stratification (Burns, Grove, & Gray, 2013). The selection of this method corresponded to the BHH pilot project in the project setting.

Sources of Evidence

To address the practice focused question “Has the BHH model resulted in reduced ED visits in the community mental health setting?,” patient data obtained from the EMR included age, gender, ethnicity, employment status, number of ED visits in the past 6 months, insurance type, and number of mental health visits in the past 6 months. Patient data were obtained from BHH and non-BHH participants. Data were extracted by the IT team from the EMR software Centricity supplied by General Electric and were given to me in the form of a data set with no patient identifiers.

The purpose of this project was to evaluate BHH and decreased ED use in a community mental health setting. BHH were designed to increase coordination of care, increase preventative services, facilitate greater access to primary and mental health care, reduce ED visits, and subsequently lower health care costs (Rosenburg, 2009). Research has shown that persons who have chronic mental illness, and multiple comorbidities, who use public health insurance, and who lack access to primary and mental health providers contribute to ED overuse (Bao, Casalino, & Pincus, 2013; Capp et al., 2015). Data were collected and analyzed over a 2 week period. Data collected from BHH and non-BHH participants provided necessary information as to the effectiveness of BHH in reducing ED use. The evidence was analyzed to determine whether, the BHH reduced ED use over the past 6 months in comparison to the control group.

Archival and Operational Data

The doctoral project involved the analysis of HRMC data that had been routinely collected in the organizational context. The data included age, ethnicity, gender, insurance type, and number of ED and mental health visits in the past 6 months. The data were provided by 12 medically trained personnel, who included five RNs and seven mental health providers at the HRMC adult clinic. The individuals who contributed evidence to address the practice-focused question were participants in the BHH and participants who received usual care at the community mental health outpatient center. The participants were selected primarily due to their inclusion in the BHH and evaluated ED use. The non-BHH participants were randomly chosen with the inclusion criteria of ED use documentation in the EMR. Because the documentation was implemented primarily for the doctoral project and continued for organizational use, not all HRMC patients have this evidence documented. The participants with ED record data were selected for inclusion.

This data supplied answers as to the effectiveness of the BHH in addressing the problem of ED overuse for patients in the mental health outpatient setting. The data were originally collected by means of progress notes, which delineated ED visitation from patient history, during routine mental health visits. ED use was recorded by means of a check box that designated ED visitation since the last follow-up. An open text box documented the details of ED visits from staff.

Permission was sought from the HRMC IRB and Walden IRB. The Walden IRB approval number was 09-23-16-0573316. A letter of cooperation and data use agreement was in place for the dataset to be released to me from HRMC. To collect the evidence, I was provided a de-identified dataset from IT staff, which was reviewed and analyzed. The project did not involve the utilization of tools or instruments.

Data were reviewed, organized, and analyzed from the project setting by means of a laptop computer with dual-login password protection that was secured behind two locked doors at HRMC. The computer screen was not left unattended and was covered with a darkened protective film. Patients were identified by age only, without any patient identifiers. Data remained confidential throughout the process. This evaluation project did not interfere with treatment and posed minimal risk of harm to staff and participants. Staff and participants did not receive any amenities for participating in this study. The de-identified data set will be stored on a U drive for the minimum requirement of 5 years, after which the data will be destroyed.

Analysis and Synthesis

Data were recorded, tracked, organized, and analyzed with the SPSS Version 21 software package. Outliers were defined as data outside the normal range of the majority collected (Polit, 2010). Outliers were assessed, and data entry was double checked for accuracy. Missing information was managed by evaluating the extent of the missing information, which then determined the approach. Polit (2010) described 20 strategies for handling missing information, the most common of which are deletion and imputation. Imputation created bias and skewed data, so the approach that controlled for missing data was deletion.

The independent and dependent data were coded as age (actual age), gender (0 = male, 1 = female), race (African American: 0 = No, 1 = Yes; White, Caucasian: 0 = No, 1= Yes; American Indian: 0 = No, 1 =Yes), number of ED visits in the past 6 months (0 = none, 1 = one or more visits), public insurance (0 = No, 1 = Yes), no insurance (0 = No, 1 = Yes), number of mental health visits in the past 6 months (0 = none, 1 = one or more), and Health Home status (0 = No, 1 = Yes). Tables 1 and 2 provide a visual representation of the variables.

The method for data analysis was binary logistic regression. Logistic regression involves observing multiple independent variables and a dependent variable to find similarities and/or differences (Polit, 2010). The null hypothesis was that participation in the BHH had no relation to ED use. Each independent variable was compared to the dependent variable for significance. Significance was determined by a p value < .05. The Hosmer-Lemeshow chi square goodness-of-fit and omnibus test of model coefficients were applied to test the reliability of the model. Polit (2010) defined the Hosmer-Lemeshow test and omnibus test of model coefficients, which compared the projected model to a flawless model and determined an appropriate fit. Significance for these tests used a p value < .001.

Summary

This doctoral project was conducted using a cross-sectional posttest only comparison group quasi-experimental research design. Approval was sought from the HRMC and Walden IRB committees. Upon approval, data from BHH participants and non-BHH participants were provided by means of a de-identified data set selected through convenience sampling from the Centricity EMR. Exclusion criteria consisted of lack of documentation of ED use. Information remained confidential and adhered to Health Insurance Portability and Accountability Act (HIPAA) guidelines. Patients were identified by age, and information was used only for this doctoral project.

Data were organized with SPSS Version 21. Binary logistic regression was applied to establish the frequency and percentage of demographic data, number of ED visits, and number of mental health visits from BHH and non-BHH patients. Data were analyzed to observe, whether there was a statistically significant difference between the two groups. The model was tested for reliability with the Homer-Lemeshow chi square test of goodness of fit and omnibus test of model coefficients. The findings provided the necessary data to evaluate the effectiveness of the BHH in reduced ED use in the community mental health outpatient setting.

Section 4: Findings and Recommendations

Introduction

The local problem, which served as the focus of this doctoral project, was the overuse of the ED in the community mental health outpatient setting. The gap in nursing practice was the lack of evidence to show the effectiveness of the BHH in the community mental health outpatient setting in reducing ED visits. Most research studies that have shown reduced ED visits have been conducted in the primary care setting. The practice-focused question was the following: “Has the BHH model shown reduced ED visits in the community mental health setting?” To clarify, the purpose of this doctoral project was to evaluate the BHH in the community mental health setting in regard to decreased ED use.

Data gathered for this project included age, ethnicity, gender, insurance type, and number of ED and mental health visits in the past 6 months. The individuals who contributed evidence that addressed the practice-focused question were participants in the BHH and participants who received usual care at the community mental health outpatient center. After approval from the Walden and HRMC IRBs, the evidence was obtained by means of a de-identified data set provided by the IT department. A cross-sectional posttest only comparison group quasi-experimental research design was used for the project. Binary logistic regression was applied to discover the relationship of demographic data, participation in the BHH, and number of mental health visits in regard to ED visit utilization. Data were analyzed to observe, whether there was a statistically significant difference between the two groups. The model was tested for statistical significance.

Findings and Implications

The findings that resulted from the analysis and synthesis of the evidence that was collected showed 141 total participants in the research project, which was within the range of the power analysis to sustain 90% statistical power. The model explained 21% of the variance in ED visits (Nagelkerke R^2) and correctly classified 74.5% of cases. Sensitivity was 16.2%, specificity was 95.2%, positive predictive value was 54.4%, and negative predictive value was 76.2%. The majority of the population was White/Caucasian and used public health insurance. Visual representations of the independent and dependent variables are displayed as Tables 1 and 2.

The Homer-Lemeshow test showed that the model was not a poor fit to predict categorical outcomes at 73%. The omnibus test of model coefficients was statistically significant ($p = 0.007$). The percentage accuracy in classification predicted that 74.5% of participants were not visiting the ED. The study revealed that BHH status added significantly to the model. The study calculated that participants in the BHH were statistically .225 less likely to visit the ED. For every year of reduction in age, the odds of visiting the ED increased by a factor of 1.0. Females had 1.8 higher odds of visiting the ED than males.

Unanticipated limitations included the inability of the projected 150 participants in the BHH pilot project to be analyzed due to the total participants at the end of the pilot averaging 109, with limited ED data available from June to November 2016. This limitation did not alter the power analysis; more participants simply would have provided more data for determining the relationship of the BHH to ED visit use. Initially, the omnibus test of model coefficients was not statistically significant. The logistic regression was reanalyzed by deleting the outlying case, and significance was proven.

The implications that resulted from the BHH reducing ED visit use in patients with chronic comorbid medical and mental health conditions in terms of the individual are increased quality of care, improved access to preventive services, and enhanced quality of life. Patients with persistent serious mental illness live an average of 25 years less than the general population (Colton & Mandershied, 2006). These findings could help lower and perhaps equalize this statistic for all individuals by placing more emphasis on prevention and providing adequate care in the outpatient setting. The implications in terms of communities include maximizing all available resources in close proximity, increased coordination of care among these entities, and improved population health, which would enable a healthier workforce (Epperly, 2011).

The implications of these findings in terms of institutions include changing the popular payment structure of fee-for-service rates and transitioning to the bundled payment system of integrating medical and mental health expenditure to decrease health care costs. In transitioning to a person-centered model of care, Community Care of North Carolina estimated $400 million in savings in 1 year, and the Genesee Health Plan's Healthworks observed a 50% reduction in ER visits (Wood, 2012). The implications of these findings in terms of systems include total restructuring of health care delivery from the current fragmented scheme to an integrated model of care, as proposed by the ACA of 2010, for true population health care management.

Potential implications for positive social change involve the fact that the BHH specifically targets patients with serious mental illness to provider greater access and more options in preventive care for treatable conditions to eliminate health disparities and improve overall health for this disadvantaged population. The majority of patients with chronic mental disorders perish from cardiovascular disease (Viron, Zioto, Schweitzer, & Levine, 2014). The finding that the BHH is linked to reduced ED visits translates to a reinvention of mental health care delivery to equalize the incongruency in care for this population. The reduction of ED use for patients in the BHH demonstrated that previous barriers to adequate health care are being broken with holistic, individualized care. The enactment of the integrated health model has moved to a person-centered approach, ensuring that persons with comorbid mental and medical conditions receive the appropriate care in the appropriate setting and equalizing health care for all participants in the system (Robert Graham Center, 2007).

Recommendations

One recommended solution that would address the gap-in-practice concerning the lack of evidence as to the effect of BHH in reducing ED use in the community mental health outpatient setting is to set standards to record the clinical outcomes of ED use within this specific setting. Although reduction in ED use is an added benefit of the construct of the BHH, this is not a requirement for organizations to track ED visits. However, for enduring and successful integrated health homes, specific goals, outcomes, and measures are important (Kathol, deGruy, & Rollman, 2014). Goals and quality measures vary within each state and among integrated health systems. Missouri, New

York, Ohio, Oregon, and Rhode Island are a few states that track ED use (SAMSHA, 2012).

The National Committee for Quality Assurance (NCQA) has set forth coordination-of-care standards for PCMH in regards to the ED (NCQA, 2011). These standards are displayed in their entirety under Appendix A. The standards require direct coordination of care between the individual and the ED, ability to obtain discharge summaries, fluidity of patient information between organizations, follow-up after discharge, and details of care (NCQA, 2011). Adherence to the standards would allow the BHH to be aware of ED use, chief complaint, diagnoses, and summaries to determine strategies to curtail ED use in the future. These standards are typically recorded, tracked, and evaluated every 12 months (SAMSHA, 2012).

Strengths and Limitations of the Project

The strengths of this project included providing more research data as to the extent of ED use in the community mental health outpatient setting, along with statistical data indicating the reduction of ED visits. This study defined the common characteristics of frequent ED users as follows: users of public insurance, White/Caucasian, and female gender, which aligned significantly with previous research (Capp et al., 2015; Pukurdpol et al., 2014). Health care is at a pivotal point in redesigning the construct to better meet the needs of disadvantaged populations and the population in general. The need for research and data is urgent to structure and remodel the system accordingly.

Limitations of this doctoral project included the inability of a pretest/posttest design to evaluate ED use in participants in the BHH. Such a design would provide a more uniform sample to accurately review the reduction, increase, or stagnation of ED use over time. Patient recall in ED use documentation could have been inaccurate or omitted. The EMR was designed to record ED use at each patient visit within the past 3 months. Patients could simply have forgotten or inaccurately portrayed ED visits. Other limitations include lack of mental health and medical diagnoses within the independent variables for analysis, and lack of etiology for ED visits. The sample population was fairly homogenous, including 85 Caucasian participants, 35 African American participants, and one American Indian participant. Although these data were representative of the clinic and surrounding counties, they were not necessarily representative of the population.

Recommendations for future projects addressing similar topics and using similar methods include the evaluation of children and adolescents as a sample population. As this population is unique and has specific needs and characteristics, evaluation of the BHH to reduce ED use would be valuable. Another recommendation is to provide a more diverse population for evaluation to allow generalization. Finally, the inclusion of mental health and medical diagnoses for comparison would be beneficial for future research projects.

Table 1

Dependent Variable

Classification table[a,b]

	Observed		Predicted		
			EDvisit		Percentage correct
			None	1 or more	
Step 0	EDvisit	None	104	0	100.0
		1 or more	37	0	.0
	Overall percentage				73.8

[a]Constant is included in the model. [b]The cut value is .500.

Table 2

Independent Variables

Categorical variables codings

		Frequency	Parameter coding	
			(1)	(2)
Race	African American	39	1.000	.000
	White, Caucasian	101	.000	1.000
	American Indian or Alaska Native	1	.000	.000
HHstatus	No	68	1.000	
	Yes	73	.000	
Insurance	Public insurance	127	1.000	
	None or grant	14	.000	
Gender	Male	65	1.000	
	Female	76	.000	

Section 5: Dissemination Plan

The plan to disseminate this work to the community mental health outpatient setting experiencing the issue of increased ED visits from consumers is to present the findings of this doctoral project via a scheduled meeting to inform stakeholders that the initiation of the BHH pilot project at HRMC was shown to be beneficial in reducing ED use. Another possibility for dissemination would be a summary of the study on the Centranet site—which is the internal website for all staff members of HRMC, not simply frontline staff—to review the study in relation to the future direction of health care. This has been a productive venue for the diffusion of other research projects in the present and past at this site.

Based on the nature of the doctoral project and the aim of promoting the integrated care model, the audience that would be most appropriate for dissemination of this project is mental health and primary care providers. As these providers are significant contributors on the collaborative team, offering them knowledge of this project would demonstrate the advantages of BHH to garner support and development. This would be best accomplished by disseminating the research in peer-reviewed nursing journals. The noteworthy *Journal of the American Psychiatric Nurses Association* would be an ideal platform to distribute the findings of this doctoral project, which aligns with its mission of improving mental health for communities and promoting the development of mental health care policy. The *Journal for Nurse Practitioners* published by the American Association of Nurse Practitioners offers another setting to reach the primary care arena, as each publication reaches 90,000 readers in print and online.

Analysis of Self

This project experience has enhanced my role as a practitioner, as it has afforded me the opportunity to view health care from a population versus an individual perspective. This role change has encouraged a wider lens and scope for encouraging and influencing change, and thereby becoming an active change agent for population health. This doctoral project has emphasized the pivotal role of BHH in improving quality of life and care for patients who have access (Epperly, 2011). My personal and professional development as a leader has been maximized in the planning, development, implementation, and evaluation of this doctoral project.

In applying Lewin's change theory, I have improved my ability to guide improvements in practice and outcomes in care (Lewin, 1935). The BHH, a completely new framework, departs from the traditional fragmented care model by favoring an all-encompassing holistic approach. Facilitators and barriers were assessed along with outcomes in this evidence-based change. Collaboration and communication are essential for implementing and sustaining change to improve population health. Prevention is emphasized in the BHH, and education of staff and participants is indispensable. My skills in educating others have become more fluid. Basic knowledge is often neglected for translation in the practice setting. Therapeutic communication derived from Peplau is a dynamic, empowering approach to sustain relationships with patients and professionals to facilitate optimal care and patient outcomes (Martin & Chanda, 2016).

Fulfilling the role of project manager has enhanced my ability to respond to organizational and system issues in health care by allowing me to function as a transformational leader. Basic elements of transformational leadership include charisma, individualizing needs, being a positive influence, and demonstration of critical thinking skills to motivate staff members (Curtis & O'Connell, 2011). I feel confident in assuming a leadership role in the development of health care policy. My confidence has also increased that I can be an effective leader who establishes interprofessional teams, which is a basic tenet of the BHH. Using transformational leadership and Kotter's contemporary change theory, I developed skills to assess culture and expect obstacles in the change process. I now view change and obstacles in terms of team-building activities and opportunities for improvement and growth. Prior to this project, the area of leadership in policy seemed unfathomable due to lack of knowledge of process and mechanics. At this point, I see stepping into a role to communicate with stakeholders and to be a change agent for health care policy as a duty rather than a task.

My proficiency as a project manager has improved through the use of the RE-AIMS framework in the practicum environment to create and sustain change at the organizational and policy level, specifically in evaluating the BHH pilot project. My ability to use information systems and technology to implement quality improvement initiatives has improved with knowledge from the IT staff of ohms created to track data within software. The BHH has set these measures to show improvement in quality of care for reimbursement.

In my role as a scholar, I have honed my ability to design, influence, and implement health care policies and future research projects that frame health care financing, practice regulations, access, safety, quality, and efficacy through the experience of evaluating the BHH in regards to ED use. I have witnessed the guidelines for implementation of the BHH as far as coordination of care with memorandum of understanding agreements, enactment of individualized treatment plans, and the bundle payment structure.

My ability to critically analyze health policy proposals, health policies, and related issues from the perspective of consumers, nursing and health professionals, and other stakeholders in policy and public forums has improved through the use of Kingdon's multiple systems framework. Kingdon's framework requires the elements of policy, politics, and problem stream to converge into a policy window for adoption (Blackman, 2005). This EBP project occurred at an opportune time following the policy window of the passage of the ACA. The doctoral project has allowed engagement in the culture at the community mental health outpatient clinic, and self-reflection on the duties and responsibilities of a doctorally prepared nurse.

Challenges I met upon completion of this project included assuring an adequate number of participants to maintain statistical power for the sample size. IT was able to secure at least 90 participants in regard to documentation in the EMR. A larger participant pool was expected but was not attainable due to lack of ED data and the time frame from June to November 2016. Assuring that the ED data were accurately recorded and available was an initial hindrance to obtaining data. IT was unaware that this documentation was also available for participants not in the BHH. With assurance from my mentor and myself, it was possible to obtain the data set. This could have been detrimental to the project, if no data existed for review. Another challenge would have been conducting the power analysis and interpreting the statistical findings. As a neophyte in statistics and research, I found the aid of Walden statisticians and Laerd Statistics to be invaluable for project completion.

Insights that I gained on the scholarly journey included the importance of collaboration and relying upon expertise from all disciplines. This project would not have been possible without documentation from the providers and knowledge of IT to capture data and track patient demographics, mental health visits, and ED use. Perseverance, problem solving, and critical thinking skills formed the capstone of this doctoral project. Positivity and support from my mentor and chair were pivotal for project completion.

Summary

The goal of this doctoral project was to evaluate the effectiveness of the BHH in reducing ED visit use in the community mental health outpatient setting. The findings showed that participants in the BHH were statistically less likely to visit the ED. The study provided more research evidence as to the usefulness of the BHH in coordinating care, increasing quality of care, and reducing medical expenditure. This project was essential to evaluating the goals set forth by the ACA to bridge the gap in care for underserved and disadvantaged populations. Dissemination of evidence-based practice to mental health providers and the health care community is essential to improve population health. The importance of uniformly tracking ED use cannot be overlooked; it is necessary to understand its etiology and curtail nonurgent use of the ED. This project may serve as a platform for promoting positive social change and balancing the incongruent state of health care and its delivery. The conclusions of this project emphasize the need for future replication and research to further develop this integrated health care model in the community mental health setting.

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Appendix: NCQA Care Coordination Process Measures

Coordinate with facilities and care transitions

Practice systematically demonstrates:

Process to identify patients with hospital admissions or ED visits.

Process to share clinical information hospital/ED.

Process to obtain patient discharge summaries.

Process to contact patients for follow-up care after discharge.

Process to exchange patient information with hospital.

It collaborates with patient to develop written care plan for transitions from pediatric to adult care.

Electronic exchange of key clinical information with facilities.

Provides electronic summary of care for more than 50% of transitions of care.