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Effect of Supportive Versus Assertive Case Management on Inpatient Psychiatric Hospitalization for Patients With Schizophrenic Diagnoses

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Abstract

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Hospitalization for Patients With Schizophrenic Diagnoses

by

Quentin Brown

MA, University of Phoenix, 2004

BS, Brigham Young University, 2000

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Schizophrenia has been a public mental health barometer for many decades, and health professionals and government agencies continue to look for treatment options that produce the best outcomes. The purpose of this study was to determine the effectiveness of assertive community treatment (ACT) and supportive case management (SCM) outpatient treatment interventions as an alternative to inpatient psychiatric hospital care. Social cognitive learning theory and choice theory provided the framework for the study. Archival data from inpatient psychiatric hospitalizations for 153 adult men and women with a primary diagnosis of schizophrenia who received ACT or SCM services were analyzed using regression analysis and a correlation. Predictor variables were gender, age cohort, and treatment model, and criterion variables were the number and duration of inpatient psychiatric hospitalizations for patients with schizophrenic diagnoses. Results showed some correlation between the number of admissions and length of stay for both ACT and SCM interventions. The first admission accounted for the longest length of stay, with a significant decline by the second admission, indicating that many participants received the appropriate and necessary treatment to address any changes or increase in symptoms during the first admission. Findings demonstrated the value of outpatient treatment interventions such as ACT and SCM for men and women in reducing the number and length of inpatient psychiatric hospitalizations. This translates into cost reductions for federal and state mental health care spending.

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Chapter 1: Introduction to the Study

Schizophrenia, defined as a serious mental illness (SMI), has been a barometer of mental health care policy for decades. Schizophrenia remains a major health problem throughout the world (Lehman & Steinwachs, 2003). The National Institute of Mental Health (NIMH, 2017) reported that the prevalence of schizophrenia in the U.S. adult population is just over 1% and that of this population, 60% use some form of health care. When other services, including health care, are factored in, this percentage jumps to almost 65% (NIMH, 2017).

The NIMH (2017) classified schizophrenia as an SMI that affects most aspects of individuals' lives, including their perceptions of reality. The NIMH also reported that many of the symptoms are debilitating and create barriers to living in the outpatient community setting. According to the NIMH, symptoms do not manifest until the age of 16 years and can continue until the age of 30 years, with some symptoms manifesting in adolescents under the age of 16 years. Symptoms fall into three categories: positive, negative, and cognitive. Positive symptoms include hallucinations, delusions, and thought and movement disorders. Negative symptoms include flat affect, reduced feelings of pleasure, difficulty beginning and sustaining activities, and reduced speaking ability. Cognitive impairments include poor executive functioning in understanding information and using it to make decisions, difficulty focusing or paying attention, and problems with working memory and using information that was just learned (NIMH, 2017).

Challenges to providing treatment have included ascertaining the risk factors for the development of schizophrenia because it often has been linked to genetics (NIMH,

2017). However, scientists have found that environmental factors such as exposure to viral infections, malnutrition prior to birth, difficulties during delivery, and additional psychosocial determinants of health also can contribute to the development of schizophrenia (NIMH, 2017). Delivering treatment to patients with diagnoses of schizophrenia has been challenging because of the myriad of factors, aside from genetics, that individuals can be exposed to.

There has been a significant shift in the delivery of care for patients with diagnoses of schizophrenia, along with the philosophies of how and where this care should be delivered (Anthony, 2000). Phillips (1953) focused on the delivery of care in state hospital settings because this was where most patients were receiving care. Abrams, Taylor, and Gaztanaga (1974) found that disagreements in diagnoses occurred as patients began to be moved out of state hospitals. Ciompi (1980) noted that by the end of the 1970s, many of these patients were still living in inpatient hospital settings or with family members. Sheitman and Lieberman (1998), as well as Mortensen et al. (1999), looked at the risk factors for schizophrenia to better ascertain how to assess and provide adequate treatment in a timely manner in the outpatient setting. The shift to community mental health and service delivery in the outpatient setting necessitated interventions that allowed patients to receive appropriate care at appropriate times outside of the inpatient hospital setting (Franczak & Dye, 2016).

Background of the Study

Case management was introduced, according to Inadomi et al. (2005), as an option to address the needs of patients with schizophrenic diagnoses in the outpatient

setting with a focus on individualized care. According to Roick et al. (2004), several different community intervention options were presented by mental health professionals. The most commonly implemented options were assertive community treatment (ACT) and supportive case management (SCM; Saz-Parkinson et al., 2011). The ACT and SCM models were designed to help patients with schizophrenic diagnoses be successful in their respective communities while impacting the frequency and duration of inpatient psychiatric hospital stays (Burra, Hwang, Rourke, & Stergiopoulos, 2012).

Assertive Community Treatment

ACT was developed in Wisconsin to bridge the gap between patients with mental illnesses needing inpatient psychiatric hospitalizations or living, instead, in the community setting (Scott & Dixon, 1995). The ACT model was created as the result of the Community Mental Health Act of 1963 to address the need, especially among patients with schizophrenic diagnoses, for intensive support and follow-up services in the community setting. One of the significant provisions of the Community Mental Health Act was to prevent and deter patients with schizophrenic diagnoses from becoming inpatients of local psychiatric hospitals (Scott & Dixon, 1995). The ACT model was designed to provide teams of mental health professionals who would work collaboratively and use a combination of frequent face-to-face contacts in the community, including frequent home visits to the patients (Scott & Dixon, 1995).

Specific ACT housing (i.e., large, single-dwelling family homes) can be accessed, and patients can live with other patients with mental illnesses if they are having difficulty living in the community setting (Scott & Dixon, 1995). In all living arrangements, ACT

team members can provide care, including visits from psychiatrists or psychiatric nurse practitioners (PNPs) for medications and nursing assessments (Sytema, Burgess, & Tansella, 2002). The ACT level of case management stipulates a minimum of weekly contact with the patients from at least one member of the mental health team (O'Connell & Stein, 2011). More frequent contact can be initiated as needed, especially in cases in which the patients might be at risk of harming themselves or others and be on the verge of necessitating inpatient psychiatric hospitalization for symptom management. In addition, patients who are receiving ACT services can receive assistance with psychotropic medications in the community, including getting their injections from registered nurses (RNs) at their places of residence, getting help picking up medications from local pharmacies, and taking medications as prescribed based on observations made by members of the mental health team (O'Connell & Stein, 2011).

Supportive Case Management

SCM also was designed to support patients with schizophrenic diagnoses in the outpatient community setting, albeit with significant differences from the ACT model (Littrell, 1995). SCM services were designed for patients with schizophrenic diagnoses who had demonstrated an ability to live in the community without the need for frequent assistance from mental health professionals (Littrell, 1995). Those with schizophrenic diagnoses receiving SCM have home visits from mental health professionals less often than ACT individuals. Most have monthly contact with mental health professionals, but as symptoms and needs dictate, this face-to-face contact might happen only every 3 months (Littrell, 1995).

These patients are expected to come into outpatient mental health clinics to meet with psychiatrists or PNPs on a quarterly basis or sooner, depending on need and associated symptoms (Littrell, 1995). Typically, psychiatrists and PNPs are not visiting patients in any locations other than outpatient clinics. Medications often are taken independently, that is, without the supervision of mental health staff. Injectable medications are provided as needed to assist with medication compliance and to reduce the need for certain oral medications (Littrell, 1995). The exception is that mental health staff working in the residential treatment setting can provide assistance with prescribed medication monitoring and the skills of independent living that also might include personal hygiene and grooming. This type of assistance is delivered by residential treatment staff rather than the SCM team (Roick et al., 2004).

Stein and Test (1980) have been credited with the development and implementation of the original ACT model and the multidisciplinary approach to provide outpatient mental health services. Mueser and Jeste (2011) stated that although the ACT model has been modified over the decades, some common elements of this outpatient mental health model remain. One such element is the multidisciplinary team, comprising psychiatrists and nurses as core members for psychotropic medication management as well as case managers who can assist with housing, employment resources, and daily living activities. In addition, many ACT teams now use the services of other mental health professionals, such as psychologists and therapists, to assist with substance abuse treatment and other psychotherapy needs (Mueser & Jeste, 2011). Peer supports, or recovery specialists, have more recently been added to the team structure and include

patients with SMI diagnoses receiving mental health services who have been successful in managing their symptoms and have been determined by their doctors to be in recovery (Solomon, 2004).

ACT and SCM have been researched and implemented at various intervals for more than 40 years as possible options to assist patients living with schizophrenic diagnoses in their respective communities (Littrell, 1995). Additional research on these different levels of case management, along with psychotropic medications, has provided guidance to mental health professionals delivering services (Roick et al., 2004). Most research on the ACT and SCM models has focused on the most significant concern for patients with schizophrenic diagnoses, namely, the higher use of inpatient psychiatric hospitals at significantly higher rates than patients with other mental health diagnoses (Burra et al., 2012). More details about ACT and SCM are presented in Chapter 2.

Problem Statement

For years, there has been significant concern that patients with schizophrenic diagnoses are being admitted to and then discharged from inpatient psychiatric hospitals at higher and more frequent rates than patients with other mental health diagnoses (Mas-Expósito, Amador-Campos, Gómez-Benito, & Lalucat-Jo, 2013). McQuade and Gromova (2015) assessed the effectiveness of outpatient mental health teams in reducing the number of inpatient psychiatric hospitalizations for patients with schizophrenic diagnoses. McQuade and Gromova found that patients who were actively engaged with outpatient mental health teams had a significant reduction (62%) in repetitive inpatient

psychiatric hospitalizations, but the researchers did not delineate whether the patients were receiving outpatient services from an ACT or an SCM approach.

A similar study was conducted by Mas-Expósito, Amador-Campos, Gómez-Benito, Mauri-Mas, and Lalucat-Jo in 2015. Results showed that outpatient mental health teams were not as effective in helping to reduce the recidivism rates of inpatient psychiatric hospital stays. However, Mas-Expósito et al. did note that they did not have enough time (i.e., 1 year) to evaluate the effectiveness of outpatient mental health teams appropriately.

Baumel et al. (2016) paired a health technology program with ACT and SCM outpatient teams for patients with schizophrenic diagnoses. Their study commenced with inpatient psychiatric hospitalizations and continued postdischarge. Baumel et al. found that the vast majority (96%) of the participants in the study reported favorable results of the health technology program when it was paired with ACT and SCM teams. However, there has been a mixed body of research on gender (defined as female and male) differences relevant to patients who have been given schizophrenic diagnoses in terms of the frequency and duration of their inpatient psychiatric hospitalizations (Chi et al., 2016; Nawka et al., 2013). For example, Chi et al. (2016) and Nawka et al. (2013) noted that men tend to go inpatient more frequently and for longer durations than women, who tend to go inpatient because of feelings of isolation and loneliness.

Angermeyer, Kühn, and Goldstein (1990) found in their survey of the literature that women with schizophrenic diagnoses tended to have a more favorable course of treatment than men, specifically in the duration of inpatient psychiatric hospitalizations,

and did better in community settings following their first hospitalization. However, Angermeyer et al. did not find a significant difference in the number of hospitalizations of men and women, even though prior research had indicated that there were differences in this area, with women having fewer inpatient admissions. Häfner (2003) asserted that one of the significant differences between men and women who have been diagnosed with schizophrenia can be accounted for in the poorer social course of schizophrenia in men, who often are diagnosed earlier in life and subsequently spend more time living with schizophrenia. Häfner noted that although some differences in premenopausal women and postmenopausal women had been noted, the lack of knowledge of brain development continues to account for challenges in making definitive conclusions about gender differences in schizophrenia diagnoses.

Aleman, Kahn, and Selten (2003), in their search of prior studies on the epidemiology of gender differences in schizophrenia, found that there were no noted differences between men and women. Aleman et al. concluded that men tended to suffer more frequently than women as early as 16 years of age up to 40 years of age. Aleman et al. identified some of the challenges regarding men being more frequently diagnosed with schizophrenia as (a) a criterion bias in terms of applying the diagnostic criteria for schizophrenia in the *Diagnostic and Statistical Manual* of the American Psychiatric Association (*DSM-IV*, 4th ed., rev.; APA, 2000) and the *International Classification of Diseases and Related Health Problems* (World Health Organization, 2004); (b) age bias because women in older age cohorts are at higher risk of developing schizophrenia; and (c) hospital bias resulting from the more violent and aggressive behaviors of men on first

admission. Aleman et al. stated that there were prominent challenges in identifying any differences between men and women when selection bias was controlled with tight meta-analysis standards.

The research on gender has produced mixed results, with men typically being diagnosed at younger ages (i.e., should be less than 40 years); however, after the age of 40 years, the prevalence of diagnoses of schizophrenia tends to be higher for women (Aleman et al., 2003). Significant variations in symptom presentation, with men typically displaying more violence and aggression and women displaying more depression and mania symptoms, have been identified (Häfner, 2003). These mixed results have presented challenges because of the variations in age of initial diagnosis and symptomology, along with treatment modalities (Aleman et al., 2003).

The current study was conducted to determine the effectiveness of the outpatient interventions ACT and SCM for men and women in specific age ranges to better tailor service delivery to their needs. ACT and SCM interventions can be more efficacious when men and women in specific age ranges are identified as being the most at risk and in need of additional support. There also has been a disparity in terms of age when men and women are diagnosed with the same type of schizophrenia, which has presented challenges in terms of assessing the effectiveness of outpatient treatment modalities for women under the age of 40 and their use of psychiatric hospitals (Häfner, 2003).

There has been a gap in the literature regarding the assessment of the effectiveness of ACT and SCM in reducing the number of inpatient psychiatric hospitalizations. Research on gender and age also has indicated mixed results on whether

ACT and SCM have been effective interventions for men and women and during what age ranges. Although there has been abundant research over the last 3 decades on the effectiveness of ACT teams in reducing the number of inpatient psychiatric hospitalizations, as initiated by the deinstitutionalization movement in the 1970s, there have been no clear comparisons of ACT and SCM when SCM delivery has been consistent across a behavioral health catchment area. Given the well-articulated expense of ACT service delivery noted in the literature, there was a need to determine if a less expensive alternative to SCM could be as effective for men and women, and during what age ranges.

Purpose of the Study

The purpose of the study was to determine the effectiveness of ACT and SCM outpatient treatment interventions as an alternative to inpatient psychiatric hospital care. Gender, defined as men and women, also was examined to identify any differences in the ACT and SCM interventions on inpatient psychiatric hospital admissions and durations of stay.

Nature of the Study

In this quantitative study, I employed regression analysis to determine whether demographic characteristics and treatment modalities impacted the outcomes of patients with a diagnosis of schizophrenia. The predictors were gender, operationally defined as biologically male and female; age cohort; and treatment modality, either ACT or SCM. The criterion values were total number and length of stays at inpatient psychiatric hospitals for patients diagnosed with schizophrenia and receiving outpatient services.

Archival data collected from 2011 to 2014 for 154 adult men and women with a diagnosis of schizophrenia who were receiving either ACT or SCM behavioral health services in a large metropolitan area in the United States served as the data set for this study. The archival data set demographics were used to establish recorded gender and age cohort, and the hospitalization entries were used to establish the number and duration of each inpatient care period. Multiple regression analysis was performed to determine if the demographic characteristics and/or treatment modality of either ACT or SCM predicted the number of inpatient care periods and the duration of that care.

Research Questions and Hypotheses

The study was guided by three research questions (RQs) and their associated hypotheses:

RQ1: Do gender; age cohort; and/or treatment modality, either ACT or SCM, predict the number of inpatient admissions over a 3-year period for schizophrenic patients originally placed in an outpatient status?

H_{01}: Gender; age cohort; and/or treatment modality, either ACT or SCM, do not predict the number of inpatient admissions over a 3-year period for schizophrenic patients originally placed in an outpatient status.

H_{a1}: Gender; age cohort; and/or treatment modality, either ACT or SCM, predict the number of inpatient admissions over a 3-year period for schizophrenic patients originally placed in an outpatient status.

RQ2: Do gender; age cohort; and/or treatment modality, either ACT or SCM, predict length of stay in days in an inpatient facility over a 3-year period for schizophrenic patients originally placed in an outpatient status?

H_{02}: Gender; age cohort; and/or treatment modality, either ACT or SCM, do not predict length of stay in days in an inpatient facility over a 3-year period for schizophrenic patients originally placed in an outpatient status.

H_{a1}: Gender; age cohort; and/or treatment modality, either ACT or SCM, predict length of stay in days in an inpatient facility over a 3-year period for schizophrenic patients originally placed in an outpatient status.

RQ3: Is there a correlation between number of inpatient admissions and length of stay in days for schizophrenic patients originally placed in an outpatient status over a 3-year period?

H_{03}: There is not a correlation between number of inpatient admissions and length of stay in days for schizophrenic patients originally placed in an outpatient status over a 3-year period.

H_{a3}: There is a correlation between number of inpatient admissions and length of stay in days for schizophrenic patients originally placed in an outpatient status over a 3-year period.

Theoretical Framework

There has been a gap in the research regarding whether the same treatment modality with similar diagnoses and time receiving outpatient mental health interventions plays a significant role in which gender and age cohort respond more favorably to

treatment. This gap can be explained by Bandura's social cognitive learning theory (SCT; Bandura & Walters, 1963) and Glasser's (1998) choice theory (CT) as men and women look to their respective genders for cues in ways to behave, including when they are in crisis or are receiving any type of treatment.

According to SCT (Bandura & Walters, 1963) and CT (Glasser, 1998), patients learn and make decisions by watching others in their environment work through a variety of different tasks. Typically, most of the learning that takes place involves watching a variety of patients work their way through everyday tasks (e.g., maintaining personal hygiene and living space, paying bills, and purchasing food) to support themselves and sustain life (Malone, 2002). SCT and CT explain that patients are best able to manage themselves when they are living in environments in which they can learn from others and feel that they have choices in how to live their lives (Malone, 2002). Based on SCT and CT, the needs of patients with schizophrenic diagnoses often are been better met when they can live and learn from other patients who do not have the same diagnoses or any other mental health diagnoses (Malone, 2002). The move to community housing and treatment has enabled many patients with schizophrenic diagnoses to explore more independent living options and have more choices in where and how they receive mental health treatment (Malone, 2002).

Definitions of Terms

The following terms were defined for use in this study:

Age cohorts: 25 to 34 years of age, 35 to 44 years of age, 45 to 54 years of age, 55 to 64 years of age, and 65 years of age and older (Nawka et al., 2013).

Assertive community treatment (ACT): An intensive outpatient treatment option used to help patients with schizophrenic diagnoses better manage their symptoms and behaviors with the assistance of frequent contact (i.e., weekly) with mental health professionals (Scott & Dixon, 1995).

Duration of inpatient admission: Calculated from the date of admission based on signed acceptance from an inpatient prescriber through the date of discharge, when an inpatient prescriber signs discharge documentation (Capdevielle, Boulenger, Villebrun, & Ritchie, 2009).

Gender: Women and men (the only two gender options in the study) were defined by their enrollment in a Medicare or a Medicaid health insurance plan (Nawka et al., 2013).

Inpatient admissions: Calculated once per 24-hour clock intervals, even if the patients are admitted to the same or different inpatient hospitals in a 24-hour period. The first admission in a 24-hour clock interval is the only one counted (Capdevielle et al., 2009).

Inpatient psychiatric hospitals: Facilities that offer inpatient mental health treatment on a 24/7 basis, with frequent and ongoing contact (i.e., hourly) with the patients by one or more mental health professionals (Capdevielle et al., 2009).

Supportive case management (SCM): A less intensive outpatient treatment option used to assist with symptom management through periodic contact (i.e., monthly) with mental health professionals (Bergen, Hunt, Armitage, & Bashir, 1998).

Assumptions

One assumption was that patients with schizophrenic diagnoses reported their symptoms accurately to members of their respective mental health teams, including inpatient psychiatric hospital staff. Another assumption was that the patients participated in treatment and took their psychiatric medications as prescribed. The final assumption was that the patients participated in treatment on an ongoing basis to measure treatment protocols and outcomes accurately.

Scope and Delimitations

The data in this study were relevant to patients with schizophrenic diagnoses from a large metropolitan area in the United States. The sample comprised data from men and women of different races, nationalities, and sexual orientations. This study focused on adult (i.e., male and female patients ages 18 years and older) with schizophrenic diagnoses who were receiving outpatient mental health treatment funded by state and federal health care dollars. Data for patients with schizophrenic diagnoses whose care was funded by private insurance or self-pay were excluded from this study. The archival data were for patients who had received a schizophrenic diagnosis, had experienced inpatient psychiatric hospital stays, and had received outpatient mental health services from ACT or SCM mental health teams.

Limitations

The study was limited to archival data relevant to adults with schizophrenic diagnoses. It did not include data on children because adults, unlike children, are legally able in most cases to make their own treatment decisions (Horan, Subotnik, Snyder, &

Nuechterlein, 2006). In addition, this study comprised only data from patients who were receiving mental health services at the time of data collection for a schizophrenic diagnosis with funding from a state and/or a federal government source.

Patients with schizophrenic diagnoses who are covered under private insurance and/or who self-pay do not receive case management services; however, they are able to solicit other types of assistance or pay for additional help on their own. Private insurance companies are aware of their operating costs, including those related to inpatient psychiatric hospitalizations, and as appropriate, they can make referrals to state and nationally funded mental health care services and programs (Someya, Suzuki, Sham, & Tang, 2004). The study did not include patients with comorbidity. They were screened out upon admission through the use of urine drug screening (UDS), even though some substances, such as synthetic drug combinations (e.g., spices and bath salts), cannot be detected by UDS.

Significance of the Study

ACT and SCM were designed as outpatient treatment interventions whose primary purpose was to impact the frequency and duration of inpatient psychiatric hospitalizations for patients with a wide range of diagnoses. Schizophrenic diagnoses have been the focus of ACT and SCM interventions (Littrell, 1995). Inpatient psychiatric hospitalizations have been identified as one of the most common barriers for patients being able to live appropriately in their respective communities (Haynes et al., 2012). Local, state, and national leaders are always looking for ways to improve the effectiveness of mental health services in their respective communities (Haynes et al.,

2012).

This study was conducted to assess the effectiveness of ACT and SCM as outpatient interventions to reduce the frequency and duration of inpatient psychiatric hospitalization for patients with schizophrenic diagnoses and to identify ways in which mental health services could be delivered more effectively. There have been mixed results in terms of male versus female gender when considering the frequency and duration of inpatient psychiatric hospitalizations for patients with schizophrenic diagnoses (Chi et al., 2016; Nawka et al., 2013). The gender and age differences in patients receiving ACT or SCM as outpatient treatment interventions were further evaluated to determine the effectiveness of the interventions.

ACT and SCM often are delivered through national and local health care plans such as Medicaid and Medicare because of the limited incomes of patients with schizophrenic diagnoses receiving mental health care. Despite the efforts to best use national and state health care plans, a gap remained in the research in terms of the effectiveness of ACT and SCM outpatient interventions, particularly in reducing the frequency and duration of inpatient psychiatric hospitalizations for patients with schizophrenic diagnoses. Using archival data from a large metropolitan area in the United States on the frequency and duration of inpatient psychiatric hospital stays made it possible to evaluate the data and generate statistical findings.

The focus of the study was to use archival data to evaluate the ability of male and female patients to function appropriately in their respective communities rather than require inpatient psychiatric hospitalization (see Mattila et al., 2015). The data set did not

include patients who had cognitive impairments and were receiving services through state developmentally disabled departments, or patients who had comorbid issues identified through UDS for most major substances (e.g., cocaine, crack, methamphetamines, heroin, marijuana, including prescribed pain medications and benzodiazepines) with the exclusion of synthetic medications (e.g., spices and bath salts). I drew the data from a large metropolitan area of patients who had been receiving ACT or SCM services for a minimum of 3 years.

I designed this study to address the gap in the literature regarding the use of ACT and SCM outpatient interventions and their ability to reduce the need to use inpatient psychiatric hospitals. I also examined what, if any, role gender and age played in the outcomes achieved. The positive social change implications of this research involved comparing and evaluating these two approaches of ACT and SCM, along with gender and age cohort, to determine whether one was more effective than the other in reducing the number and duration of inpatient psychiatric hospitalizations.

Summary and Transition

Patients with schizophrenic diagnoses have experienced significant changes in the types of mental health treatment they have received. These changes have included a variety of options: being inpatient in state mental health hospitals, being inpatient in psychiatric hospitals, living in residential treatment centers, and residing independently in their respective communities. Several changes in the delivery of outpatient mental health services in the past 3 decades have resulted in the creation of ACT and SCM mental health teams to provide additional support to patients with schizophrenia and to save

federal and state health care resources while giving men and women in all age ranges with schizophrenic diagnoses the ability to live more independent lives in their respective communities.

Chapter 2 presents a review of literature regarding the ways in which the treatment of patients with schizophrenic diagnoses has evolved from inpatient psychiatric hospitalizations to more outpatient treatment options. Early treatment options that had many patients living in modified hospital settings is discussed. Deinstitutionalization and more community living options also are presented in terms of helping people to receive support through outpatient mental health services. Social supports in the community and case management services are covered because they have been identified as important aspects of outpatient mental health services. The chapter concludes with a discussion of ways to reduce mental health care costs, especially those associated with inpatient psychiatric hospitalizations, and a statistical analysis of ACT and SCM case management teams as outpatient interventions.

In Chapter 3, I describe the methodology to address the three RQs. I also explain the rationale for using a quantitative method and an archival data set to compare data statistically using multiple regression analysis to determine the possibility of a relationship between number of admissions and length of stays for women and men in various age cohorts receiving outpatient mental health services from either an ACT or an SCM team. Specifically, I analyzed the number and duration of inpatient psychiatric hospitalizations. The study design required the use of archival data for ACT and SCM outpatient treatment interventions for gender (i.e., male vs. female) and age cohort. The

chapter also includes explanations of the archival data and procedures, details about the ethical considerations and measures, and an analysis of the data.

Chapter 4 covers the statistical methods that I used to analyze the archival data. The three independent variables (IVs) of gender, age cohort, and ACT or SCM were analyzed using two multiple regression models to determine if they had any impact on number or length of inpatient psychiatric hospitalizations. I analyzed gender in terms of the breakdown of men and women in ACT and SCM outpatient modalities, along with age cohorts, to determine any trends or patterns. I also reviewed the number and duration of each inpatient psychiatric hospital stay for both ACT and SCM to determine if there were any correlations between the two outpatient treatment modalities. Chapter 5 presents the results of the study and directions for future research.

Chapter 2: Literature Review

Literature Search Strategy

I used the following search engines and websites to obtain my data: ProQuest, Google Scholar, American Psychological Association, NIMH, PsycINFO, PsycBOOKS, and PsycARTICLES. The search terms were *schizophrenia as a diagnosis*; *treatment history*; *medicinal therapies*; *counseling approaches*; and *current treatment approaches, including peer and community integration*. I also searched for *ACT* and *SCM*, combined with s*chizophrenia*, along with *inpatient psychiatric hospitalizations*. Most sources were peer-reviewed articles and books, but I expanded my search to include all research published on the treatment of schizophrenia up to the current date for revised approaches.

What Is Schizophrenia?

In much of the research literature, the symptoms of schizophrenia have been placed into two categories: positive and negative symptoms. Fenton and McGlashan (1991) described positive symptoms as delusions, racing thoughts, and audio and visual hallucinations and negative symptoms as apathy, lack of emotion, and poor or nonexistent social functioning.

Focusing on early detection and diagnosis has been a priority of researchers in the 21st century, according to Lieberman (2006), who identified four specific clinical stages: premorbid, prodromal, deterioration, and chronic/residua. Lieberman explained that most schizophrenia follows a fairly consistent and natural history and that if patients can receive treatment at their first episode, the prognosis for remission and recovery is more favorable, whereas recurrent, untreated episodes that are the result of insufficient

treatment or nonadherence to treatment often lead to neurologic deterioration. Patients with significant cognitive deficits and scores below 70 on standard IQ assessments, and those who had been identified as mentally disabled, were not included in the current study. These patients receive all medical and behavioral health services through state developmentally disabled departments, which coordinate their case management services.

In the early years of diagnosing and treating schizophrenia, Fenton and McGlashan (1991) concluded that patients who experienced mainly negative symptoms struggled with premorbid functioning, which often meant only partial to no remissions during the first several years after diagnosis and led to almost permanent disability. In contrast, Fenton and McGlashan found that patients who had more positive symptoms were more likely to be hospitalized and experience more positive outcomes in terms of response to antipsychotic medications and psychological treatments. Patients who reported a significant number of negative symptoms early in the course of any treatment were likely to experience long-term challenges to function in independent community settings (Fenton & McGlashan, 1991).

Sheitman and Lieberman (1998) found evidence from retrospective and prospective studies that a longer duration of untreated psychosis in the early stages of schizophrenia led to a longer duration of remission associated with multiple readmissions to inpatient psychiatric hospital settings. They also concluded that early treatment interventions, including antipsychotic medications and community treatments, led to quicker recovery times and less need for high levels of acute care. Earlier detection of psychosis, accompanied with antipsychotic medications and community treatments,

enabled some patients to avoid the need for inpatient hospitalizations (Sheitman & Lieberman, 1998).

Mortensen et al. (1999) found that a family history of schizophrenia was the strongest risk factor for the development of symptomology. Mortensen et al. correlated their findings with prior twin and adoption studies suggesting a genetic transmission of familial aggregation of the symptoms of schizophrenia. The risk factors were found to increase when more than one genetically related family member had developed symptoms or had received a diagnosis of schizophrenia. Mortensen et al. also asserted that significant correlations of the development of the symptoms of schizophrenia were more prevalent in males, even though the risk factors appeared to be similar for both genders. Environmental factors, such as being born and raised in a single-mother household (with an unknown father) and living in an urban area also were shown by Mortensen et al. to be correlated with an increased prevalence of symptoms. The risk factors of living in urban areas often were associated with disease exposure during pregnancy and the early childhood years.

Lehman, Kreyenbuhl, et al. (2004) outlined several recommendations in the treatment process for patients who had been diagnosed with schizophrenia, including the need for medical (i.e., diagnoses, medications, surgeries, lab tests, and pregnancy for women) and mental health histories (i.e., diagnoses, medications, psychological treatments) to be combined when prescribers and clinicians met with individuals. Depending on the presentation of symptoms and the individuals' ability to provide historical information accurately, Lehman, Kreyenbuhl, et al. recommended enlisting the

help of family members and any other patients who had significant knowledge.

Collaboration and the collection of thorough background information are important,

according to Lehman, Kreyenbuhl, et al., and symptoms that might indicate suicidality or

aggression and violence must be assessed on a regular basis. The researchers highlighted

the need to have this knowledge in terms of providing treatment to meet individuals'

needs and determine where additional support might be needed, including family

members and significant others who also might require support and resources.

History of Treatment

Early research by Phillips (1953) in state hospitals indicated that patients with

schizophrenia fell into two types: improving and not likely to show much improvement.

Phillips contended that patients who did not have the potential to improve had few or no

precipitating factors or could not adjust to unfortunate events such as broken love affairs.

Furthermore, maturity, a strong work history, and social and sexual adequacy appeared to

be the factors associated with the strongest potential for improvement (Phillips, 1953).

Phillips did not consider biological factors to be reliable predictors of the onset of the

illness, noting instead that time factors such as acuteness of onset and duration of

psychotic episodes were more predictive leads. Phillips concluded that several factors,

including the level of social maturity prior to symptom onset and the rate that patients

deviated from a sense of their realistic selves, determined the outcomes of schizophrenic

episodes.

A significant amount of the early research collected on patients with

schizophrenic diagnoses was done in state mental hospitals, which is where most patients

resided during the 1950 and 1960s (McKeever, May, & Tuma, 1965). Many mental health professionals believed that because patients with schizophrenia were not able to manage their positive, negative, and cognitive symptoms appropriately and could not live among other members of the community, they were safer in the hospital setting (McKeever et al., 1965). Mental health professionals were concerned about allowing patients to live outside of the psychiatric hospital setting because of extended hospital stays and the inability to ascertain community living abilities.

Abrams et al. (1974) studied patients in the acute inpatient setting and found that many patients who had been diagnosed with schizophrenia should have been diagnosed with mania, instead. Abrams et al. found that many of the patients suffered from affective illnesses and did not meet the stringent criteria for a diagnosis of schizophrenia, including a combination of positive, negative, and cognitive symptoms. The patients who had been diagnosed correctly with schizophrenia often were resistant to many treatment interventions that were not well managed with antipsychotic medications (Abrams et al., 1974). Later research in the 1970s in European countries, according to Ciompi (1980), indicated that most patients with schizophrenia were living in the inpatient hospital setting or with family members and that only 6% to 8% were living independently or in a community setting.

Treatment Challenges

Two challenges in the treatment of schizophrenia have been early detection and the acceptability of treatment before an official diagnosis is established. Riecher-Rossler et al. (2006) suggested that an ethical concern has ensued and that treatment has been

offered either too early or too late, justifying the need to identify patients at the beginning of the disease process. Untreated symptoms can have significant consequences, including difficulty treating symptoms with antipsychotic medications, psychotherapies, and case management services, all of which can lead to long inpatient psychiatric hospital stays (Riecher-Rossler et al., 2006). One of the other challenges to providing treatment for schizophrenia has been the need to have a better understanding of cognitive impairments, treatments that address functional impairments, and improved access to scientifically based treatments (Lehman, Lieberman, et al., 2004).

A more recent challenge has been the recovery movement for the treatment of schizophrenia and efforts to integrate several psychotherapeutic approaches, including interpersonal attachment, personal narrative, and metacognitive processes (Hamm, Hasson-Ohayon, Kukla, & Lysaker, 2013). In each of these approaches, several talk therapies had been used that did not work for all patients and might have reached only a small percentage because of the severity or intensity of their schizophrenic symptoms. Consideration should be given to combining these approaches in an effort to emphasize individual strengths and abilities while removing barriers to living in an independent community setting.

Medication

Typical psychotropic medications made available in the late 1950s and early 1960s provided some promising reductions in symptoms, but concerns arose about side effects and long-term stability regarding the use of psychotropic medications (McKeever et al., 1965). A typical psychotropic medication with extended release dosing options

became available in the late 1960s and early 1970s, and patients with schizophrenic diagnoses began to respond more favorably, manifesting fewer side effects and longer periods of stability (Advokat, Hill, & Comaty, 2008). Acosta, Hernández, Pereira, Herrera, and Rodríguez (2012) found that medication adherence was about 50% for patients with diagnoses of schizophrenia; however, the definition of adherence has varied in the literature. Identifying nonadherence risk factors is necessary to develop appropriate intervention strategies. Several outpatient treatment modalities have been developed, but methodological and evaluation methods have made it difficult to address their effectiveness and the changes needed in daily clinical practice (Acosta et al., 2012).

Roberts and Velligan (2011) found similar challenges in their research, with nonadherence to medication by patients with diagnoses by schizophrenia also being about 50%. This low percentage made it difficult to assess the outpatient treatment interventions. Fatma, Baati, Omri, Sallemi, and Masmoudi (2016) found that nonadherence to prescribed medications by patients with diagnoses of schizophrenia was 57%, with most participants reporting the rationale for nonadherence being the side effects of the medications. Participants reported that dysfunctional sexual side effects, poor insight, and perceptions of discrimination were the primary reasons for not taking medications as prescribed (Fatma et al., 2016). Many participants in the study also reported that they did not feel that they had SMI and did not see the need for treatment, including medications (Fatma et al., 2016).

Medication adherence has been a significant challenge, despite the introduction of newer injectable medications that deliver the dosages over longer periods of time (i.e., 2

4 weeks; Fatma et al., 2016). Although these medication options have been found to be effective, the challenge often has been related to consistency, meaning that patients do not present for appointments as scheduled in the outpatient setting (Fatma et al., 2016). As a result, the medication cannot reach its full effect, and dosages might have to be lowered if the patients have not been consistent in adherence over 2 to 3 months. This nonadherence presents significant challenges trying to address symptoms and side effects that can lead to the need for inpatient psychiatric care (Fatma et al., 2016).

Antipsychotic medications. Antipsychotic medications often have been the first line of treatment for patients with schizophrenia who have not only the most negative symptoms but also secondary symptoms (Carpenter, Heinrichs, & Alphs, 1985). The challenge has been the treatment of deficit symptoms such as delusions, which cannot be addressed through medication (Carpenter et al., 1985). Meltzer (1998) noted that treatment-resistant schizophrenia has had a wide variety of interpretations because patients who have been diagnosed with schizophrenia, along with the family members, friends, and mental health professionals involved in care, will define schizophrenia differently. The traditional or common definition refers to patients who have not responded well to two adequate trials of classical neuroleptic medications and continue to manifest persistent positive and negative symptoms that affect their ability to work and function in society (Meltzer, 1998). This definition represents about 30% of individuals; the remaining 70% often are responsive to neuroleptic medications and benefit from receiving assistance from mental health professionals so that they can function in social and work roles (Meltzer, 1998).

According to Meltzer (1998), another concern with both the 30% of treatment-resistant patients and the 70% who respond favorably to treatment is the suicide rate, which is about 11%, indicating that neuroleptic medications have not lowered this percentage. Patients who are treatment resistant often do not benefit from benzodiazepines, antidepressants, anticonvulsants, and lithium carbonate. Clozapine has been shown to be effective in treating these patients and reducing not only their positive and negative symptoms but also their need for inpatient psychiatric hospitalizations (Meltzer, 1998). However, the need for additional support from mental health professionals continues, even when the patients are responsive to Clozapine (Meltzer, 1998). Although Clozapine has been found effective for many participants with schizophrenic diagnoses, other psychotropic medications have been found equally effective, including injectable forms of Risperdal (Meltzer, 1998).

Antipsychotic medications and specialty care. Antipsychotic medications have been the initial treatment for the management of schizophrenic symptoms and come in pill, liquid, and injectable options (Advokat et al., 2008). Psychotherapies are sometimes added after the appropriate antipsychotic medications have been found effective in managing the symptoms (Advokat et al., 2008). Psychotherapies also have been proven to help patients to manage the symptoms and remain out of the inpatient hospital setting (Advokat et al., 2008).

Coordinated specialty care can be added to antipsychotic medications and psychotherapies to provide adjunct assistance in helping patients to live in a variety of community and vocational settings (NIMH, 2017). The NIMH's (2017) Recovery After

Initial Schizophrenic Episode project collaborates with specialty care providers such as those in case management to help patients lead meaningful and productive lives while avoiding long-term disability. Specialty care has been used to help meet the needs of patients when antipsychotic medications have been unable to address the wide array of symptoms so that patients can live in the community setting.

Second-generation medications. As newer psychotropic medications have become available and have been approved, it has been difficult to ascertain their effect and impact. In 1992, an effort to improve patient outcomes with financial assistance from the NIMH, which established the Schizophrenia Patient Outcomes Research Team (PORT) to offer recommendations for treatment based on current and ongoing research (as cited in NIMH, 2017). Lehman and Steinwachs (1998) conducted an exhaustive review of treatment research and found that less than 50% of participants followed recommendations regarding psychosocial treatment. Lehman and Steinwachs also found a slightly higher percentage of treatment adherence regarding psychotropic medications. Researchers often have struggled to translate their study results into effective treatment interventions for many individuals. Lehman and Steinwachs, through PORT research, found that many patients with diagnoses of schizophrenia did not receive an appropriately comprehensive package of effective psychosocial treatments that included case management. Follow-up research since the original PORT study have illustrated that significant advances in second-generation antipsychotic medications; case management, especially ACT and SCM; and skills/vocational training have provided marked benefits to individuals (Lehman & Steinwachs, 1998).

Cognitive Ability

One of the ongoing challenges is access to case management services that directly address the ability of individuals to function while focusing on recovery principles based upon scientifically based treatments (Lehman, Lieberman, et al., 2004). Patients need to receive care that matches their cognitive abilities, which often account for the majority of the disability associated with schizophrenia (Lehman, Lieberman, et al., 2004). The cognitive threshold of the patients whose archival data were used in the study was an IQ score of 70 or higher; however, not all patients had received complete psychological testing, as per the archival data source. There was a slight chance that some patients might have had IQ scores around 70 (Lehman, Lieberman, et al., 2004).

Schizophrenia and Substance Abuse

The comorbidity of schizophrenia and substance abuse has been a challenge in providing treatment because questions have arisen about the effect of the abuse, depending on the type and amount of use, on cognitive functioning (Mueser, Bellack, & Blanchard, 1992). The challenges in treating comorbidity have been reviewed in the literature in regard to the effect of the interaction of substances and antipsychotic medications (Mueser et al., 1992). Psychological interventions also have met significant challenges in terms of patients who have been unable to participate in treatment activities because of their ongoing substance abuse (Mueser et al., 1992).

<center>**Controversy Regarding Treatment**</center>

Another controversy relevant to conducting field research has been related to early detection and treatment (Drake & Sederer, 1986). Preliminary randomized,

controlled studies have shown some decrease in untreated psychosis thanks to antipsychotic medications and psychotherapy (Drake & Sederer, 1986). However, psychotherapy alone has not shown significant decreases, and Verdoux and Cougnard (2003) pointed out that those early interventions programs still have many unanswered questions.

Drake and Sederer (1986) commented that patients with chronic schizophrenia can be considered highly vulnerable and that more intensive therapeutic treatments, whether individual, group, or family, can produce adverse effects because they are too intrusive. Most patients need additional support, education, and time to process a diagnosis of SMI in order to produce lifelong changes, but there has been a wealth of psychiatric myths versus current knowledge to implement long-term therapeutic changes that are more in line with recovery principles (Drake & Sederer, 1986). Although group, individual, and family therapy sessions have proven effective for many patients, these therapies often have to be continued for a significant period to provide relevant knowledge.

Bellack and Mueser (1993) asserted that although there has been progress in psychosocial treatments for patients with schizophrenia over the prior decade, social skills training, ways to teach patients how to manage cognitive deficits, and family intervention programs have shown mixed results. The chronic nature of schizophrenia requires long-term psychosocial interventions that include the individuals, family members, and friends, and build upon recovery principles and the appropriate interventions and treatment modalities (Bellack & Mueser, 1993). The recovery

principles that Bellack and Mueser discussed in the recovery approach must emphasize individuals' strengths while including support from family members, friends, and other peers with mental health issues where possible. This strength-based approach focuses on what the patients can accomplish versus the deficits, which can often seem insurmountable. This approach also enables the patients to use current abilities and talents to see progress in their own recovery (Bellack & Mueser, 1993).

Velligan et al. (2009) remarked that one of the challenges facing patients diagnosed with schizophrenia and SMI is their need for antipsychotic medications and medication adherence. The problem with most reporting methods is that they are either physician reports or self-reports that do not provide accurate assessments of medication effectiveness. More objective measures, such as pill counts, pharmacy records, or injectable medications, are needed (Velligan et al., 2009). Velligan et al. indicated that only 51% to 70% of the participants in their study were taking their prescribed medications. Poor insight and lack of awareness of SMI, coupled with actual side effects or the fear of side effects, often are the most common reasons for medication nonadherence. Medication that is not effective in addressing the pervasive symptoms, or once some relief of persistent symptoms is experienced, are frequent reasons that a consistent regimen of medications and treatment cannot be delivered (Velligan et al., 2009). Ineffective medications also present challenges in diagnosing and providing ongoing treatment because some of the symptoms will manifest as bipolar disorder (Velligan et al., 2009).

Some efforts have been made to develop and prescribe injectable medications to patients with schizophrenic diagnoses to assist with the challenges of medication adherence; however, side effects such as weight gain, headaches, dizziness, drowsiness, tremors, uncontrolled muscle movements, and depression might result in some patients who miss their scheduled dosages (Velligan et al., 2009). Challenges arise when there is not a consistent regimen of psychotropic medication and neither symptoms nor the associated side effects can be managed adequately (Velligan et al., 2009). This poor management could lead to the need for higher levels of care, such as the inpatient hospital setting, to manage and regulate the medication regimen appropriately (Velligan et al., 2009).

Government Mandates

Local and national legislative initiatives in the United States and many other countries have recommended and mandated changes to move patients with schizophrenic diagnoses from state psychiatric hospital settings into community living environments (Grinshpoon, Abramowitz, Lerner, & Zilber, 2007). This change meant that new living environments and mental health services needed to be provided in the community (Primavera et al., 2012). Government mandates in the late 1970s and early 1980s at the federal level in the United States, along with similar mandates in other countries, required each state, province, or geographic area to reduce the number of patients with schizophrenic diagnoses who were inpatients of state mental health hospitals (Grinshpoon et al., 2007). These mandates significantly reduced the number of inpatient hospital beds at state mental health hospitals to the level where only patients who were deemed a

danger to society were even considered; in some cases, even these patients were being considered for discharge (Eaton et al., 1992).

Transition Out of Deinstitutionalization

Bassuk and Gerson (1978) reviewed some of the early literature on community health centers as an option to help patients to transition out of acute psychiatric hospital settings and improve their overall mental health. The challenge was that because community health and psychiatric hospitals did not coordinate discharges and follow-up care, patients often were moved into nonpsychiatric facilities, whose staff were not trained or prepared to offer the necessary mental health services (Bassuk & Gerson, 1978). Adequate financial, political, administrative, and mental health professionals were not available to provide the necessary support as deinstitutionalization was implemented (Bassuk & Gerson, 1978).

Early community mental health centers were developed during World War II, according to Goldman and Morrissey (1985). These centers were designed to provide opportunities for consultation and education for mental health professionals, but they did not provide any behavioral health care services for patients with SMI (Goldman & Morrissey, 1985). Beginning in the 1950s, state mental health hospitals began to establish agreements with other hospitals and community mental health centers (Goldman & Morrissey, 1985). Typically, the foci of these centers were ambulatory services and aftercare for crisis interventions. The U.S. federal model that emerged in the 1960s was a combination of local and community psychiatric hospitals and ones sponsored by state mental health hospitals (Goldman & Morrissey, 1985).

Shadish, Lurigio, and Lewis (1989) contended that even though deinstitutionalization has dominated mental health policy for the past 30 years, it has primarily been aimed at addressing short-term care needs, not many of the long-term needs of patients with SMI. Shadish et al. stated that the deinstitutionalization movement required a shift in vision toward one that was more in line with recovery and included attitudes, values, feeling, goals, and skills, all of which, according to Anthony (1993), can help patients to lead satisfying lives in the community setting and reduce the need for professional interventions.

Deinstitutionalization and Community Living

Local and national mandates, along with the financial costs associated with maintaining patients in state mental health hospitals, necessitated consideration of other options to treat patients with schizophrenic diagnoses (Goldman & Morrissey, 1985). Goldman and Morrissey (1985) noted that public mental health policy has been characterized by a cyclical pattern of institutional reform, meaning that public support for environments that provide care seems to ebb and flow. For example, a pattern in favor of giving patients more freedom in how and when care is provided might decrease if the patients are having difficulty in the community setting and require more inpatient psychiatric care. According to Goldman and Morrissey, the first cycle of reform in the early 19th century was the asylum, with the second cycle being the state mental health hospital setting in the early 20th century.

Into the middle of the 20th century, community mental health movements were underway that would treat acute cases of SMI (Goldman & Morrissey, 1985). Each of

these reforms was somewhat successful, according to Goldman and Morrissey (1985), in addressing acute and milder mental illnesses, but the numbers of patients who were chronically or seriously mental ill were expanding and often were neglected. This neglect often manifested in such social problems as dependency, criminal behaviors, racism, and poverty, all of which were classified as mental health issues. Community mental health often did not include enough community support for the SMI population, as manifested in the criminal justice system and human rights violations.

Goldman and Morrissey (1985) specifically highlighted the fourth cycle as being a specific response to community mental health and deinstitutionalization. This cycle addressed the need for a network of mental health and social services to address the needs of the chronically or seriously mentally ill population in community living settings (Goldman & Morrissey, 1985). This fourth cycle often was characterized within the civil libertarian reform, where social issues such as poverty, racism, criminal activity, and violence were correlated with mental health issues (Goldman & Morrissey, 1985).

Eaton et al. (1992) found that most patients with schizophrenic diagnoses had to have a period of around 2 years of effective symptom management in the community to avoid future inpatient psychiatric hospitalizations. The inability to manage symptoms in the community effectively became a concern at a time when the number of beds in state mental health hospitals was either being reduced or eliminated (Eaton et al., 1992). Public health officials began reviewing options regarding the community living setting for patients with schizophrenic diagnoses to have them in close proximity to inpatient psychiatric hospitals (Eaton et al., 1992).

According to Goldberg (1991), the expense of having patients with schizophrenic diagnoses treated in the outpatient rather than the inpatient setting was found to be cost effective for many individuals, with the exception of patients who were considered chronic. Patients defined as chronic were best treated in inpatient psychiatric hospital settings because the cost of recidivism was higher for multiple trips than for one single inpatient stay (Goldberg, 1991). Compounding this issue, as mentioned by Haas and Sweeney (1992), was that families often were reluctant and cautious about having their loved ones diagnosed with any type or form of schizophrenia because such a diagnosis might have limited their options to live in the community setting with appropriate outpatient treatment. As a result, many patients were not being diagnosed at the early onset of symptoms because some of the concerns expressed by family members and friends were that the patients would be institutionalized in state psychiatric hospitals (Haas & Sweeney, 1992).

Littrell (1995) discussed the slow and changing process of treatment options for patients with schizophrenic diagnoses moving into the 1970s, 1980s, and early 1990s. Many state and local governments were challenged to devise viable options to help patients to integrate back into their respective communities and live independently (Littrell, 1995). Bell and Lysaker (1995) explored the option of paid work activities to help patients with schizophrenic diagnoses to not only return to their respective communities but also become contributing members who were earning a living. The paid and volunteer work programs that Bell and Lysaker discussed had some limitations in regard to mentoring and ongoing support, which limited most of the programs'

effectiveness in significant cost savings over inpatient psychiatric hospitalizations. Bergen et al. (1998) found that community mental health centers often were unable to help patients who had been diagnosed with schizophrenia simply because the patients had a multitude of needs.

Deinstitutionalization and the financial pressures of having numerous patients diagnosed with some type or form of schizophrenia in inpatient hospital settings caused national and state shifts in providing mental health services (Bassuk & Gerson, 1978). The shift to outpatient mental health services in the 1970s through the 1990s went through several cycles, all of which were mentioned earlier, in an attempt to find the appropriate amount of care and support in these new settings in the community (Goldman & Morrissey, 1985). Community mental health centers often became the choice related to cost and service effectiveness in providing outpatient mental health needs, with the exception of patients deemed chronic and in need of higher levels of care (Goldberg, 1991). Living with family members and engaging in paid vocational activities also became a reality for some patients whose symptoms were managed by medications (Bell & Lysaker, 1995).

Community Mental Health Treatment

Angermeyer et al. (1990) found that men had poorer treatment outcomes than women, as demonstrated by the frequency and duration of hospitalizations. Women also tended to have better results with community integration, but these factors were not well explained when more women were diagnosed at pre- and postmenopausal ages (Angermeyer et al., 1990). Abel, Drake, and Goldstein (2010) found in their research on

gender differences that men tended to be diagnosed at younger ages than women by a ratio of 4:1; however, this ratio changed with age (> 40 years), and women tended to predominate by a similar ratio. Abel et al. reported that depressive symptoms were more common in women and negative symptoms were more prevalent in men.

Falkenburg and Tracy (2014) stated that although women appeared to have a peak in the number of diagnoses for schizophrenia during menopause, the numbers still remained higher for men. Biopsychosocial factors appear to be some of the more significant issues and treatment modalities that researchers have not explored in depth (Falkenburg & Tracy, 2014). For example, women often are the victims of sexual assault, experience socioeconomic disparities, and are the main caretakers of dependents, whereas men often are disengaged from familial relationships and live in more hostile environments (Falkenburg & Tracy, 2014).

Results of the international research by Ochoa, Usall, Cobo, Labad, and Kulkarni (2012) indicated that gender differences in investigations with patients diagnosed with schizophrenia produced mixed results, with women's social functioning, along with remission rates, being better. Women often experienced lower relapse rates; however, outpatient treatment interventions were not conclusive in terms of which ones were more effective in helping with recovery efforts (Ochoa et al., 2012). Ochoa et al. did not indicate whether one intervention or the other produced more positive outcomes.

The inconclusive research on gender gave me the opportunity to study which treatment intervention (i.e., ACT or SCM) has been more effective for each gender and age cohort. I wanted to ascertain if the same treatment modality with similar diagnoses,

age ranges, and time receiving outpatient mental health interventions played a significant role in which gender responded more favorably to treatment (Ochoa et al., 2012).

Regarding age, there has been significant variation in terms of when each gender is diagnosed (Ochoa et al., 2012). Women, for example, are diagnosed with schizophrenia later in their adult years (i.e., after the age of 40 years), whereas men often are diagnosed early in their adult years (typically 18-26 years of age; Ochoa et al., 2012). This research on age has resulted in the need to (a) determine when outpatient interventions such as ACT and SCM are needed for what age ranges and for each gender, and (b) determine if outpatient interventions such as ACT and SCM are disproportionately affecting certain age cohorts and genders (Aleman et al., 2003).

Peer and Community Support

There has been latitude to move between the different care levels based upon individual needs and no limit on the number of times that patients can move between ACT and SCM, as long as the need has been indicated clinically (i.e., psychiatrist or PNP; Kurtz, Rose, & Wexler, 2011). In most cases, patients receiving mental health services have to agree with the outpatient team's decision to be placed with either an ACT or an SCM team (Kurtz et al., 2011). The only exception to patients having to consent to placement with an ACT or an SCM is court-ordered treatment, which happens when judges dictate their preferences for the patients (Kurtz et al., 2011). These judicial decisions can be based on recommendations and records of the individuals' prior and current mental health treatments (Kurtz et al., 2011).

Franczak and Dye (2016) discussed the importance of peer support in inpatient and outpatient behavioral health settings to facilitate decreases in the frequency and duration of psychiatric hospital admissions. Specifically, Franczak and Dye identified 12 characteristics of effective peer support programs: volunteer basis, provide hope, open minded, empathic, demonstrate respect, facilitate change, honest and forthright, mutual respect, shared power, strengths based, transparency at all times, and individualized. These relationships that peers establish with patients have been shown to be significant in providing a different outlook in the current recovery model that is being used to train peer mentors (Franczak & Dye, 2016). Solomon (2004) highlighted the specific social benefits of peer mentor programs for patients who often feel isolated in their communities and struggle to relate to other people. Peer mentors have been integral in helping patients to integrate into their communities by connecting them with other patients struggling with SMI.

Chinman et al. (2014) discussed implementing peer support services and the Clubhouse model to assist patients with SMI diagnoses. The researchers found that having peer support specialists facilitating and running the Clubhouse model provided employment opportunities for the peers while serving as mentors. Chinman et al. cautiously noted that much of this research has been preliminary and that significant variations in the implementation and service delivery of the Clubhouse model exist; however, training is being standardized to help to maintain the consistency of service delivery. Many patients have reported high satisfaction rates with many Clubhouse settings and have indicated that having a large peer mentor presence has helped to reduce

the stigma associated with living in the community while dealing with SMI diagnoses (Chinman et al., 2014).

Mitchell and Trickett (1980) discussed the need to examine social supports in the community for patients with SMI diagnoses. In particular, they mentioned the importance of social networks to help to improve overall well-being, including mediating some of the effects of stress. Mitchell and Trickett identified social supports as a specific focus area as deinstitutionalization efforts were being widely implemented and many patients with SMI diagnoses found themselves in community settings in which they had scarcely or never lived and were experiencing feelings of isolation.

Mitchell and Trickett (1980) found that the community environment presented the opportunity to provide social supports to assist with psychological adaptation and serve as the basis for preventive interventions. In later research, Trickett (1996) discussed the ongoing struggle of incorporating issues of context and culture while formulating questions in terms of designing and implementing interventions. Trickett highlighted the challenges of trying to understand the cultural context in which patients with SMI diagnoses live in order to provide appropriate intervention strategies, including inpatient psychiatric hospitalization.

Trickett et al. (2011) argued that psychotherapies and socialization opportunities can serve as a broad base of interventions that can help patients to feel that they are part of the community. These community interventions need to be collaborative in nature, with all health care professionals coming together to provide an integrative approach (Trickett et al., 2011). For example, outpatient mental health providers can collaborate

with physical health providers and community partners that offer social and housing resources to provide wraparound supports to meet multitude needs (Trickett et al., 2011). These community efforts also can help patients to integrate more fully into the community and provide more than basic mental health services to support patients more holistically by addressing their multiple needs together (Trickett et al., 2011). An additional and important component, according to Trimble, Trickett, Fisher, and Goodyear (2012), is the incorporation of multiculturalism and ethics into these community efforts to provide integrated care. Trimble et al. contended that giving consideration to individuals' cultural backgrounds as an integral component ensures that their backgrounds not only are acknowledged but also are respected by community partners as they collaborate to address needs and prevent undue consequences.

Whitehorn, Richard, and Kopala (2004) discussed the importance of community mental health treatment and found that patients in the community who had been assessed and given a schizophrenic diagnosis were more likely than those diagnosed while inpatient at psychiatric hospitals to remain out of inpatient psychiatric hospitals. Roick et al. (2004) and Someya et al. (2004) noted in their respective studies that although many patients went inpatient to psychiatric hospital settings for many reasons, the most significant reason was related to their lack of socialization skills. Horan et al. (2006) concluded that social connections were significant for patients with schizophrenic diagnoses and that supportive family relationships often were the determining factor in their being able to remain outside the psychiatric hospital environment. According to Pitschel-Walz, Leucht, Bäuml, Kissling, and Engel (2001), family members who

participated in outpatient mental health treatment played a significant role in reducing the need for inpatient psychiatric hospitalizations. Patients with schizophrenic diagnoses relied upon the support of family members to help them to navigate the treatment process and access the services that would best meet their needs (Pitschel-Walz et al., 2001).

Kreyenbuhl, Nossel, and Dixon (2009) conducted community health research and reported that about one third of the patients with schizophrenia tended to disengage from care, with younger males from ethnic minority groups having the highest rates of disengagement. Of concern were patients who had an early onset of psychosis because traditionally, they have been higher users of inpatient psychiatric hospital and emergency departments, thus suggesting the need for outpatient treatment interventions such as ACT and SCM (Kreyenbuhl et al., 2009). Emerging in the literature was the focus on patient- or client-centered care, that is, meeting the individuals' needs and giving them a voice in treatment decisions, thus improving the outcomes of engagement in in treatment (Kreyenbuhl et al., 2009).

Ben-Zeev, Davis, Kaiser, Krzsos, and Drake (2013) found that the evolution of technology, mobile devices in particular, has improved the outpatient mental health services for patients with diagnoses of schizophrenia. The challenge relevant to incorporating mobile technology into outpatient services has been access to mobile devices, which is about 12% lower among this population than among the general population (Ben-Zeev et al., 2013). Mental health professionals have faced challenges connecting with patients through mobile technologies because of the inability of

individual users to access and use the provided resources (i.e., education deficit) properly (Ben-Zeev et al., 2013).

Mestdagh and Hansen (2014) commented that the stigma of a diagnosis of schizophrenia places these patients in vulnerable living environments. ACT and SCM providers need to be cognizant of the stigma that many patients face trying to adjust to living in the community setting (Mestdagh & Hansen, 2014). If this stigma is not managed in the community, many patients will tend to return to inpatient psychiatric settings, where they feel that their needs will be met more efficaciously (Mestdagh & Hansen, 2014).

Mitchell and Trickett (1980) noted that at the time of their research, community mental health centers needed to connect patients to social supports in the community, where many had few, if any, opportunities to interact with patients outside the hospital setting. Kreyenbuhl et al. (2009) argued that even though social supports were necessary, patients with schizophrenic diagnoses also needed more assistance specifically tailored to their individual needs. Trickett et al. (2011) remarked that patients needed assistance integrating into their "new" communities while also addressing the stigma associated with SMI.

Social Support Network in Community

One common theme in the literature was the feeling of loneliness and abandonment experienced by many patients with schizophrenic diagnoses, regardless of age at initial diagnosis (Motlova et al., 2006). Patients transitioning into the community setting from the inpatient psychiatric hospital setting often had additional challenges

dealing with loneliness and abandonment, especially because they had viewed hospital staff as akin to family members who were always available to provide support and guidance (Motlova et al., 2006). Motlova et al. (2006) verified the need for family involvement in treatment to help the patients to live in different community environments without the need for inpatient psychiatric hospitalizations. This research was significant in refining and updating community mental health services to better address needs that were not being met, particularly the role of family members and friends in treatment (Motlova et al., 2006).

The role of family members and other supportive patients in the treatment process is central, but other basic needs also require attention, namely, appropriate housing, adequate food, and clothing (Hattori & Higashi, 2004). Hattori and Higashi (2004) found that these socioeconomic factors were significant in determining whether patients would return to the inpatient psychiatric hospital setting. They asserted that these basic needs had to be addressed in a timely manner because the longer they remained unmet, the more likely it would be that inpatient hospitalizations would occur. Isolation and loneliness have been reported by many patients transitioning into the community setting and needing an established social network of family and friends (Motlova et al., 2006). In addition, adequate housing, food, and clothing were needed by patients who had never lived independently (Hattori & Higashi, 2004).

Case Management Services

Community mental health treatment, accompanied by social supports, has been identified as an important aspect to consider in terms of providing outpatient mental

health services; however, another need has emerged to facilitate bridging the gap between community providers and socialization needs (Stenberg, Jääskeläinen, & Röyks, 1998). This need has been for case management services to be offered by mental health professionals operating in a collaborative team environment and supplemented with other community mental health services (Stenberg et al., 1998).

Case management services began with ACT services: Patients with schizophrenic diagnoses had a team of mental health professionals follow up with them on a regular basis in their current housing environments (Scott & Dixon, 1995). These housing environments often were dormitory styles of residences, where several patients with schizophrenic diagnoses would live together and mental health staff would check on them to ensure sure that they were taking their prescribed medications, addressing their personal hygiene needs, and caring appropriately for their own living environments (Scott & Dixon, 1995). If problems or issues were noted in any of these areas, mental health staff would try to address them before recommending a higher level of care, such as inpatient psychiatric hospitalization (Haas & Sweeney, 1992). Often, mental health professionals would recommend inpatient psychiatric hospitalization on a consistent and regular basis for the same individuals, so questions arose as to why these same people were being admitted to or discharged from inpatient psychiatric hospitals with such great frequency (Haas & Sweeney, 1992).

Kurtz et al. (2011) found that many patients who were going in and out of psychiatric hospitals did not feel much of a connection to the communities in where they were residing and often felt isolated in their housing environments. Changes began to be

implemented to move some patients out of the dormitory style of living environments and into more independent environments, which often meant moving them into their own apartments (Kurtz et al., 2011). Once these patients were no longer living together, social programs had to be developed to address community integration needs and provide meaningful activities (Kurtz et al., 2011). Mental health professionals continued to be involved in coordinating and facilitating outpatient care, but the focus began to shift to independent living and a connection with the community (Kurtz et al., 2011). During this process, another need emerged in case management services (Roick et al., 2004).

Some patients with schizophrenic diagnoses did not need the intensive level of case management stipulated in the ACT model, but they still required some assistance from mental health professionals (Cuyún Carter, Milton, Ascher-Svanum, & Faries, 2011). The SCM model emerged to address this need, with mental health professionals not visiting and following up as frequently with patients (Cuyún Carter et al., 2011). The majority of patients needing SCM were living independently, with a few in dormitory styles of residential settings, but many of them lacked any connection to the community (Motlova et al., 2006). Mental health professionals found that these patients also needed social connections with the community and that many of them felt isolated, even if they had support from family members and friends (Horan et al., 2006). Horan et al. (2006) also noted that patients frequently went to inpatient psychiatric hospitals to address their socialization needs, which included meeting people with similar conditions.

As the result of research to best address mental health needs, two case management models emerged, namely, ACT and SCM (Littrell, 1995). Both models

addressed the needs of patients with schizophrenic diagnoses in terms of symptom

management and the ability to attend to personal hygiene and other necessary tasks of

daily living (Littrell, 1995). The ACT model has typically been used with patients who

have difficulty managing their symptoms and are struggling to manage their personal

hygiene and living environments consistently (Scott & Dixon, 1995). The SCM has been

used with patients who are able to live more independently and can manage their

symptoms and attend to their personal hygiene and daily living needs (Littrell, 1995).

Community mental health centers and social supports were important aspects of

providing outpatient care to patients who had often lived in hospital settings; however,

the need emerged for more individualized care (Stenberg et al., 1998). This

individualization began to take the form of ACT and SCM, models that were determined

based upon individuals' needs and how frequently inpatient hospital services were used

(Roick et al., 2004). Patients with higher acuity in their symptomology, including

inpatient hospitalizations, were placed with ACT teams to provide additional community

support (Littrell, 1995).

Assertive Community Treatment and Supportive Case Management

ACT and SCM services were developed as a way to support patients with

schizophrenic diagnoses in their respective communities by providing the necessary

resources to help them live more independent lives according their individual needs

(Littrell, 1995). The ACT and SCM models provide patients with the necessary support

and associated services in the community to manage their mental health symptoms

without the need for inpatient psychiatric hospitalizations (Littrell, 1995). The literature

has included discussions of the need to provide outpatient mental health services, be they the ACT or the SCM model, to patients with schizophrenic diagnoses in their respective communities to help them to manage their symptoms (Littrell, 1995). The importance of these case management services has been manifested in reductions in the number and duration of inpatient psychiatric hospital stays (Littrell, 1995). However, the literature has been scant in explaining why men and women go inpatient to psychiatric hospitals (Chi et al., 2016). Research on age cohorts has identified significant differences in the times when men and women receive a diagnosis of schizophrenia because of maturity and stage of life (Aleman et al., 2003). Research also has provided examples of improvements in the quality of life for patients with schizophrenic diagnoses, making it possible for them to live in more independent settings among their peers rather than in state or local inpatient psychiatric hospitals (Roick et al., 2004).

Focus of ACT and SCM Models

The NIMH (2017) identified through the Recovery After Initial Schizophrenic Episode project that one focus is the provision of assistance to patients diagnosed with schizophrenia so that they can live independently in their respective communities. The focus of ACT and SCM is to support men and women so that they can live in the least restrictive environment (Dilbaz, 2015), traditionally defined as living arrangements that allow patients to manage personal space while adequately addressing physical and behavioral health needs without assistance from mental health staff (NIMH, 2017). ACT was created as an intensive outpatient intervention for men and women, followed years

later by SCM as another option to support patients diagnosed with schizophrenia to live

independently in their respective communities (Dadich, Fisher, & Muir, 2013).

There has been broad research on ACT and a significant amount on SCM on

generally reducing the number of patients with diagnoses of schizophrenia remaining in

the psychiatric hospital setting (Chen et al., 2014; Chi et al., 2016). However, the results

of current research on the outpatient interventions of ACT and SCM targeted at reducing

the number of inpatient psychiatric hospitalizations has been mixed when gender and age

have been included (Chi et al., 2016; Nawka et al., 2013). There have been no conclusive

research results that have examined ACT and SCM for gender and age cohort to

determine their effectiveness in addressing and specifically reducing the number of

inpatient psychiatric hospitalizations (Chi et al., 2016).

Assertive community treatment. The ACT team model uses an integrative

approach, meaning that all of the team members meet frequently (usually on a daily

basis) to discuss the contributions of each member to the delivery of treatment. Meeting

regularly ensures the consistent delivery of services. In addition, when crises happen, any

member of the ACT team is able to respond appropriately at any time of the day or night

(Mueser & Jeste, 2011). ACT teams adhere to the philosophy that all members of the

team collaborate on a regular basis and offer services that include psychotropic

medications and psychotherapy for behavioral health issues, collaboration with medical

professionals for physical health needs, and ways to address daily living needs that do not

require long-term ACT services (Mueser & Jeste, 2011). Hayes (2005) reiterated that

ACT services are intended for a small percentage of the population who frequently have

some type of schizophrenia diagnosis and require intensive interventions to remain in the community setting through a collaborative team approach.

Marshall and Lockwood (1998) stated that the ACT model was developed in the early 1970s in response to the closure of state psychiatric hospitals. The aim of ACT was to provide more intensive outpatient mental health services by having frequent contact with individuals. Marshall and Lockwood found that patients receiving ACT services were less likely than patients not receiving case management services to be admitted to psychiatric hospitals. In addition, patients under the care of ACT teams were more likely to have shorter inpatient psychiatric hospital stays if and when they needed this higher level of care (Marshall & Lockwood, 1998).

Bond et al. (2001) noted that ACT teams were effective in reducing inpatient psychiatric hospitalizations, including the number of admissions and their duration. Bond et al. pointed out that frequent face-to-face contacts and the multidisciplinary approach of ACT teams often resulted in reducing the number of inpatient psychiatric hospitalizations. This approach also ensured that all team members were communicating and coordinating their efforts to ensure that crises (e.g. increase or change in symptom presentation) were addressed appropriately. Dixon, Adams, and Lucksted (2000) indicated that that for 25 years, researchers have found significant reductions in the number of inpatient psychiatric hospitalizations for patients receiving ACT services. According to Dixon et al., these reductions often have been the result of the collaborative and multidisciplinary approach of ACT teams.

Supportive case management. Unlike ACT, SCM has been more difficult to define. Holloway (1991) stated that there has been wide variation in the definition of SCM. Traditionally, SCM has been defined in broad terms, such as the provision of mental health care for patients in the community setting (Holloway, 1991). According to Holloway, SCM emerged from the deinstitutionalization movement in the 1980s and case management models that were set up with generalized principles, such as assisting members with mental health symptoms and residence in the community setting.

Holloway (1991) asserted that it was difficult to ascertain if SCM was effective at reducing the number of inpatient psychiatric hospitalizations because service delivery expectations were too broad and vague. Moxley (1989) discussed similar challenges with SCM, noting the large variation in service delivery and implementation across SCM teams because of particular mental health agencies' interpretations of service delivery. SCM effectiveness has been difficult to assess in terms of reducing inpatient hospitalizations because mental health teams have significant latitude in how they implement service delivery.

Anthony (2000), who reviewed the recovery-oriented service delivery system for patients diagnosed with SMI and receiving SCM services, found that with this new direction, individuals' mental health could improve. This new philosophical approach resulted in initiatives and standards meant to provide a more consistent delivery of SCM services; however, doubts remained about the effectiveness of SCM in reducing the number of inpatient psychiatric hospitalizations (Anthony, 2000). Rothman and Wagner (2003) found similar challenges with the SCM model because of wide variations in

service delivery to determine their ability to reduce in inpatient psychiatric hospitalizations effectively.

The ACT and SCM models were developed to address the needs of patients with schizophrenic diagnoses living in the community setting to help them to acclimate to the new living environment while remaining out of inpatient psychiatric hospitals (Primavera et al., 2012). In the last decade, financial pressures have caused local and state governments to review their resources associated with delivering mental health services under Medicaid and Medicare (Grinshpoon et al., 2007).

Reduction in Mental Health Care Costs

ACT and SCM services have been implemented in many areas of the United States and in other countries to help patients with schizophrenic diagnoses to navigate their respective communities and access the necessary resources, including socialization needs (Grinshpoon et al., 2007). Even with ACT and SCM in place, patients with schizophrenic diagnoses continue to use inpatient psychiatric hospitals, with some patients going inpatient multiple times and for extended periods (Grinshpoon et al., 2007). There also have been some differences in gender noted in the research, with men going inpatient more frequently than women because of challenges managing their symptoms (Chi et al., 2016). This increase in the number of men going inpatient to psychiatric hospitals more frequently than women has been noted the most often in situations where the courts were directly involved in treatment decisions (Nawka et al., 2013).

Hill (2015) reported mixed results regarding women and men who were going in and out of inpatient psychiatric hospitals, with men going inpatient for longer periods than women because they did not seek mental health services at the onset of symptoms. Hill found that women went inpatient more frequently because they were experiencing feelings of isolation and loneliness. Where some differences have been noted in terms of gender and the reasons for their going inpatient to psychiatric hospitals, there has been another concern about the ways to address each gender's mental health needs (Hill, 2015). There has been little research to date on whether ACT teams or SCM teams actually reduce the number and/or duration of inpatient psychiatric hospitalizations for patients with schizophrenic diagnoses (Hill, 2015).

Statistical Analysis of ACT and SCM Services

Patients with schizophrenic diagnoses historically received mental health services in state mental health hospitals until typical and later atypical psychotropic medications were developed to better manage positive and negative symptoms (Advokat et al., 2008). Community mental health options began to be implemented, with treatment being provided in close proximity to inpatient psychiatric hospitals often because of unknown responses to the new living environments (Advokat et al., 2008). Many of these treatment options were expensive and not in line with recovery principles stipulating that patients with schizophrenia receive care in the least restrictive environment (Advokat et al., 2008). To meet these needs while still providing assistance in the community, ACT and SCM services were implemented to provide community mental health services that were in line with the recovery philosophy (Zhu et al., 2008).

Summary and Transition

The literature has spanned the treatment provided to patients with schizophrenic diagnoses that began primarily in state mental health hospitals and progressed to typical psychotropic medication options (McKeever et al., 1965). These medications saw some improvement in positive and negative symptoms, so mental health professionals began to consider living arrangements for patients outside of state mental health hospitals (Thompson, Belcher, DeForge, Myers, & Henderson, 1995). Atypical psychotropic medications provided additional assistance in the positive and negative symptoms, so discussions began taking place in terms of alternative living arrangements for patients with schizophrenic diagnoses (Bola, Kao, & Soydan, 2012). Federal and state funding, along with mandates, continued to strongly encourage states to look at other ways to provide mental health services to patients with schizophrenic diagnoses (Bola et al., 2012).

In Chapter 3, the methodology to address the RQs is presented, and the rationale for using a quantitative method and use of an archival data set for statistical analysis using multiple regression analysis is explained. This analysis was used to determine the relationship between number of admissions and length of stay in days for women and men in various age cohorts receiving outpatient mental health services from either an ACT or an SCM team. The study design required the use of archival data for ACT and SCM outpatient treatment interventions for women and men, along with age cohorts. The chapter also includes a description of the procedures, ethical considerations, measures, and analysis of the data.

Chapter 4 covers the statistical methods used to analyze the archival data. The three IVs of gender, age cohort, and ACT or SCM were analyzed using two multiple regression models to determine if they had any impact on number or length of inpatient psychiatric hospitalizations. Gender was analyzed in terms of the breakdown of men and women in ACT and SCM outpatient modalities, along with age cohort, to determine any trends or patterns. The number and duration of each inpatient psychiatric hospital stay also were reviewed for ACT and SCM to determine if there were any correlations between the two outpatient treatment modalities. Chapter 5 presents the results of the study and directions for future research.

Chapter 3: Research Method

Most case management services in the United States and in other countries have been patterned after the ACT and SCM models identified earlier in the study (Bergen et al., 1998; Haynes et al., 2012; Kurtz et al., 2011; Mattila et al., 2015; Nawka et al., 2013; Scott & Dixon, 1995). However, some modifications can be made to either model for both men and women, depending on state and national funding levels, and as deemed appropriate for those patients whom the models serve in their respective communities. Modifications and changes to the basic structure of either case management model are comparable to the level at which mental health services are delivered (Sytema et al., 2002). The archival data in the current study were obtained from contracted psychiatric facilities that provided services within a regional behavioral health authority (RBHA) and mirrored data collected by any mental health system delivering case management services to men and women with schizophrenic diagnoses.

Before receiving the archival data, I sought and obtained approval from Walden University's Institutional Review Board to conduct this study (IRB approval #10-29-18-0191969). I evaluated the archival data for male and female patients with schizophrenia identified with SMI who were treated with either ACT or SCM outpatient mental health approaches over 3 years to identify their impact on the number and length of inpatient admissions. ACT and SCM were designed to help patients with schizophrenic diagnoses to live independently in their respective communities without the need to use inpatient psychiatric hospitals. Multiple regression analysis was used to analyze the data set. Two demographic characteristics were predictors, including gender (operationally defined as

biologically male and female) and age cohort. The third predictor was treatment modality, that is, ACT or SCM. The criterion values were the number of inpatient stays and the length of each stay.

Research Questions and Hypotheses

The study was guided by three RQs and their associated hypotheses:

RQ1: Do gender; age cohort; and/or treatment modality, either ACT or SCM, predict the number of inpatient admissions over a 3-year period for schizophrenic patients originally placed in an outpatient status?

H_{01}: Gender; age cohort; and/or treatment modality, either ACT or SCM, do not predict the number of inpatient admissions over a 3-year period for schizophrenic patients originally placed in an outpatient status.

H_{a1}: Gender; age cohort; and/or treatment modality, either ACT or SCM, predict the number of inpatient admissions over a 3-year period for schizophrenic patients originally placed in an outpatient status.

RQ2: Do gender; age cohort; and/or treatment modality, either ACT or SCM, predict length of stay in days in an inpatient facility over a 3-year period for schizophrenic patients originally placed in an outpatient status?

H_{02}: Gender; age cohort; and/or treatment modality, either ACT or SCM, do not predict length of stay in days in an inpatient facility over a 3-year period for schizophrenic patients originally placed in an outpatient status.

H_{a2}: Gender; age cohort; and/or treatment modality, either ACT or SCM, predict length of stay in days in an inpatient facility over a 3-year period for schizophrenic patients originally placed in an outpatient status.

RQ3: Is there a correlation between number of inpatient admissions and length of stay in days for schizophrenic patients originally placed in an outpatient status over a 3-year period?

H_{03}: There is not a correlation between number of inpatient admissions and length of stay in days for schizophrenic patients originally placed in an outpatient status over a 3-year period.

H_{a3}: There is a correlation between number of inpatient admissions and length of stay in days for schizophrenic patients originally placed in an outpatient status over a 3-year period.

Research Design

This quantitative study included two regression analyses and a correlation. The three IVs were gender, age cohort, and treatment model, and the DVs were the number and duration of inpatient psychiatric hospitalizations for patients with schizophrenic diagnoses. Archival RBHA inpatient psychiatric hospitalizations for 154 adult men and women with a primary diagnosis of schizophrenia that received ACT or SCM services were deidentified for subsequent analysis. A power analysis was conducted to determine the minimum required sample size. The data were then systematically analyzed to address the three RQs and associated hypotheses.

Population and Sample

An RBHA continuously collects data on hospital admissions for all of the local hospitals with whom they contract for mental health services. The RBHA data set used in this study was collected for a large metropolitan area over calendar years 2011 to 2014 for patients with schizophrenic diagnoses who received ACT or SCM and had been admitted to inpatient psychiatric hospitals. This 3-year period was chosen because the RBHA switched ownership to a new contractual provider who changed the recording procedure for inpatient hospital stays. The compiled data included the recorded gender, age cohort, treatment modality (ACT or SCM), and the number and duration of inpatient psychiatric hospitalizations.

The archival data were compiled by multiple RBHA clerks who were responsible for collecting inpatient hospital admission and discharge data on each business day. The data were from inpatient psychiatric hospitals for patients receiving ACT or SCM services. The data were sorted to encompass only patients with prior schizophrenic diagnoses or who received their diagnoses on initial inpatient psychiatric hospitalization, including those who received mental health services at state mental health hospitals. The diagnostic data were based on *DSM IV-TR* (APA, 2000) criteria because the *DSM V* was not available when the data were collected.

A power analysis was conducted to determine how many data points would be needed from the archival data set of inpatient psychiatric hospitalizations from the selected RBHA (see Cohen, Cohen, West, & Aiken, 2003). The power analysis was run with a level of significance of .05, a desired statistical power level of .80, and an

anticipated effect size (f^2) of .15. Twenty-six participants were used for each of the three predictors, resulting in a total of 78 participants.

A stratified random sample of 34 men and women receiving ACT case management services and 120 receiving SCM services was compiled for subsequent analysis. A stratified random sample helped to ensure that the data set was broken down into smaller groups based on the shared attributes and characteristics, including gender, age cohort, and treatment model (ACT or SCM).

Instrumentation

Inpatient psychiatric hospitalization data are collected by mental health clerks at the RBHA every 24 hours who are responsible for recording each inpatient psychiatric hospitalization admission and discharge on an Excel spreadsheet. RBHA clerks are provided with admission and discharge data from each inpatient psychiatric hospital within a network of contracted providers termed direct care clinics (DCCs), and data are recorded only through established reporting protocols. The DCCs are responsible for identifying whether patients are on ACT or SCM teams and communicating this information to the RBHA upon patients' initial assignments at the DCCs or whenever changes are made to their treatment protocols. The types of information collected are fairly comprehensive and include personally identifiable information. RBHA clerks keep these data in double password-protected files to ensure their confidentiality.

Data Collection

To maintain patient confidentiality, the RBHA clerks removed any specific identifying information from the data set. The deidentified data set provided only patient

gender, age, ACT or SCM outpatient team assignment, and number as well as length of stay for each recorded inpatient psychiatric hospitalization. Even though inpatient psychiatric hospitals without RBHA contracts can admit patients who receive services from other RBHA-contracted providers, they are not recorded and consequently not included in the derived data set. These admissions are normally handled as single-case agreements and are not reported in the same manner as in RBHA-contracted inpatient psychiatric hospitals. Any duplicate or inaccurate data due to some patients being discharged and readmitted within a 24-hour period to the same or different inpatient psychiatric hospitals were eliminated.

Data Analysis

The archival data were of adult men and women who had been given a primary diagnosis of schizophrenia, had received ACT or SCM services, and had been admitted to inpatient psychiatric hospitals during the stated 3-year time period. I provided an initial demographic by gender and age cohort of patients receiving ACT or SCM services, along with their total number of admissions and average lengths of stay. I then compared the frequency and duration of inpatient psychiatric hospitalizations for patients receiving ACT or SCM services to identify any differences in the two outpatient case management interventions. Next, I ran a series of correlations to explore the general relationship among the three predictors of gender, age cohort, and treatment modality with the two criterion values of number of admissions and average length of stay. I then tested for the assumptions for running a regression analysis. Finally, two separate regression analyses were conducted to determine if gender, age cohort, and treatment modality predicted the

number of admissions and/or average length of each stay. Outliers were removed from the data set, and a square root transformation was performed on the number of admissions and a log 10 transformation for the length of stay data, respectively, to adjust for outliers that could have skewed the data set.

Threats to Validity

Even under optimal conditions, there were limitations to the archival data. The data had been precollected, so there was the possibility of error in terms of reporting by inpatient psychiatric hospitals and RBHA mental health clerks. The duplication of data was another threat to validity because several mental health clerks were responsible for recording the data, with each one assigned to a specific group of inpatient psychiatric hospitals. In addition, some newer and less frequently used psychiatric hospitals might not have had their data included because they were not contracted RBHA providers.

Comorbidity issues are screened through UDS upon admission and reported to an ACT or SCM team (if an individual is enrolled for services); otherwise, they are part of an admission record. If an individual is enrolled for services with an ACT or SCM and a UDS is returned as positive, the admission is reported in a different category and often is transferred to a different setting outside of the traditional inpatient psychiatric hospital.

Campbell and Stanley (1963) referenced a threat to internal validity in any experimental design as the experimental treatment that does or does not make a difference, depending on the data to support the claim. In Campbell and Stanley's study, history was a factor and a threat to internal validity because the data had been collected over 1 year, which meant that the participants' symptoms might have changed over time

as the result of the maturation process. In the current study, testing and instrumentation were additional threats to internal validity because inpatient psychiatric hospitals had some variations in the treatment modalities that they used with patients who had similar diagnoses (e.g., UDS, admission criteria, and prior stays).

Statistical regression was another threat to internal validity based on the possibility that participants might have been more responsive to inpatient hospital staff or outpatient treatment interventions. The selection of participants was an additional threat to internal validity because patients were randomly assigned to available inpatient psychiatric hospitals, despite having received prior treatment at other facilities that were more familiar with the participants and their respective care needs. Experimental mortality was another factor that might have taken place because some of the participants might have passed away, moved to another area of the state or out of the state, or chosen to discontinue mental health services. Selection maturation interaction might have been a rare possibility because participants might have moved from ACT to SCM outpatient treatment interventions during the study period.

Although there were several possible threats to internal validity because of variances in the operating procedures of inpatient psychiatric hospitals and the delivery of services by outpatient treatment providers, consistent standards that all must adhere to have been published. The patients' data in the study also posed a possible threat to internal validity because they had the freedom to choose their living environments and to what degree they would engage in treatment services, both inpatient and outpatient options.

Campbell and Stanley (1963) stated that threats to external validity often are generalized to treatment outcomes. In terms of reactive or interaction effect of testing and when participants are admitted to inpatient psychiatric settings, screening takes place, and patients have learned over time what they need to say to gain admittance to psychiatric hospitals. This knowledge leads to interaction effects of selection biases and the experimental variable as far as which inpatient psychiatric hospital admits which patients. Patients' data might have included multiple treatments at a variety of inpatient psychiatric hospitals and might have been a final threat to external validity, given the challenge of controlling the effects of prior inpatient or outpatient treatments.

Threats to external validity existed because the patients' data allowed significant latitude regarding where they would receive inpatient and outpatient services, even if they were currently inpatient and had selected outpatient providers. The participants could check out of inpatient settings against medical advice, move to other inpatient settings, and transfer outpatient providers whenever they so chose.

There was the potential for researcher bias due to the data being archival, raising the possibility of errors by the mental health clerks who were responsible for collecting and compiling the data. In addition, the veracity of the data was dependent on inpatient psychiatric hospitals reporting admissions and discharges accurately. The current mental health care environment needs to provide services in effective and efficient ways that can best meet the needs of patients with schizophrenic diagnoses. Given the limited number of available state and federal resources, ways in which ACT and SCM services can be improved and modified to reduce the number and length of inpatient psychiatric

hospitalizations were observed. Such a reduction could mean that national and state mental health care plans might be able to allocate services for other identified needs, including residential treatment housing and associated move-in expenses (e.g., application fees, deposits, and background checks), food, clothing, and employment resources (Chi et al., 2016).

Ethical Procedures

I received the archival data from RBHA mental health staff at the beginning of the dissertation process in a secure, password-protected e-mail account, along with a letter of permission. I did not share the raw data with any patients and have kept all data in an electronic, password-protected storage account. Individual anonymity was ensured because all identifying information was redacted by the RBHA staff, leaving only information relevant to the number and duration of inpatient hospitalizations, along with gender and age cohort. The data will be maintained for 7 years in a secure location before I delete and destroy them.

I have a history of working in community mental health, and I am familiar with ACT and SCM services because of the various positions that I have been asked to fulfill. However, I was not directly or indirectly responsible for any of the treatment decisions made for the patients included in the archival data, and I did not have any professional or personal relationships with any of the inpatient psychiatric hospital providers.

Summary and Transition

ACT and SCM are two outpatient mental health interventions used to reduce the number and duration of inpatient psychiatric hospitalizations for patients diagnosed with

schizophrenia. Using archival data from an RBHA to review the frequency and duration of inpatient psychiatric hospitalizations for a minimum of 34 adult men and women receiving ACT and 120 receiving SCM services facilitated their analysis to determine whether one, both, or neither intervention was effective in reducing the number and duration of inpatient psychiatric hospitalizations. In combination with this analysis, gender and age cohort were evaluated to determine if they contributed to any significant differences in the effectiveness of the treatment services.

Chapter 4 presents the data analysis and results of the three IVs of gender, age cohort, and ACT or SCM treatment intervention. Gender and age cohorts were assessed with ACT and SCM to determine if there were any correlations between gender and age cohorts and the number or length of inpatient psychiatric hospitalizations. ACT and SCM were analyzed to determine their effect on the number and lengths of inpatient psychiatric hospitalizations to determine trends and patterns. Chapter 5 presents the interpretation of the findings of the study and possible directions for future research.

Chapter 4: Results

In Chapter 4, I present the results of this quantitative study indicating whether the ACT or the SCM outpatient intervention influenced the total number and duration of inpatient psychiatric hospitalizations. In addition, I examine the impact of patient gender and age cohort on the number and duration of inpatient psychiatric hospitalizations. Deidentified archival data collected between 2011 and 2014 were analyzed using a multiple regression analysis to address the RQs and corresponding hypotheses.

Sample Demographics

The archival data set contained 154 patient records that were complete and included ACT or SCM designation, gender, age, number of inpatient hospitalizations, and duration of each inpatient psychiatric hospitalization if applicable. Incomplete data sets were removed from the analysis if any of the information was missing to ensure a more complete and accurate analysis.

Table 1 presents a demographic breakout of the archival data for the male and female patients diagnosed with schizophrenia who were receiving ACT or SCM treatment. Of the total sample of 154 patients, 34 (22.1%) received ACT outpatient treatment, and 120 (77.9%) received SCM. Patients who received ACT ($n = 34$) were 64.7% male ($n = 22$) and 35.3% female ($n = 12$); patients who received SCM ($n = 120$) were 55.8% male ($n = 67$) and 44.2% female ($n = 53$). ACT patient ages ranged from 18 to 70 years, with an overall average of 41.7 years; SCM patient ages ranged from 18 to 69 years, with an overall average of 40.5 years.

Table 1

Breakout of Sample Demographics by Treatment Modality

	Treatment modality			
	ACT (*n* = 34)		SCM (*n* = 120)	
Gender	*n*	*%*	*n*	*%*
Male	22	64.7	67	55.8
Female	12	35.3	53	44.2
Age cohort	*n*	*%*	*n*	*%*
< 20	1	2.9	1	0.8
20-29	5	14.7	22	18.3
30-39	12	35.3	38	31.7
40-49	6	17.7	27	22.5
50-59	7	20.6	25	20.8
60-69	2	5.9	7	5.8
> 69	1	2.9	0	0

Descriptive Statistics

Table 2 shows the breakdown of the average number of admissions and average number of stays for ACT and SCM patients. The average number of admissions for male and female ACT patients was 2.1 and 1.9, respectively, with the average length of stay of 13.2 days for male patients and 26.2 days for female patients. The ACT patient age cohort breakout for average number of admissions ranged from 1.0 for under 20 years of age to 4 for age 70 years and over, and the overall average was 2.3 admissions. The average stay for ACT patients ranged from 7.0 days for under 20 years of age to 169.0 for age 70 years and over, and the overall average was 37.0 days. The age 70 years represented just one ACT patient who was considered an outlier for the analysis. The average number of admissions for male and female SCM patients was 1.8 and 2.5, respectively, with the average stay of 19.1 days for male patients and 14.7 days for female patients. The SCM patient age cohort breakout for average number of admissions ranged from 1.0 for under 20 years of age to 2.2 for ages 60 to 69 years, and the overall

average was 1.9 admissions. The average stay for SCM patients ranged from 12.0 days for under 20 years of age to 63.4 days for ages 50 to 59 years, and the overall average was 34.9 days.

Table 2

Breakout of Average No. of Admissions and Average Stay in Days

Gender	ACT (*n* = 34)		SCM (*n* = 120)	
	Average # admissions	Average stay in days	Average # admissions	Average stay in days
Male	2.1	13.2	1.8	19.1
Female	1.9	26.2	2.5	14.7
Age cohort	Average # admissions	Average stay in days	Average # admissions	Average stay in days
< 20	1.0	7.0	1.0	12.0
20-29	2.6	21.8	2.05	31.3
30-39	1.8	27.4	1.7	28.5
40-49	2.2	17.3	2.1	28.6
50-59	2.0	64.9	1.8	63.4
60-69	1.5	20.0	2.2	15.2
> 69	4.0	169.0	-	-
Overall	2.03	37.0	1.9	34.9

Table 3 presents a breakout of the frequency of ACT and SCM Admissions. ACT patients had a 50.0% first admission rate, which dropped to 23.5% by the second and 11.8% by the third admission. The drop from the first to the third admission indicated that they received care on the first admission, with follow-up ACT outpatient services accounting for the 38.2% decrease by the third admission.

Similarly, SCM patients had a 52.5% first admission rate, which dropped to 23.3% by the second and 10% by the third admission. The drop from first to third admission indicated that they received care on the first admission, with follow-up SCM outpatient services accounting for the 42.5% decrease by the third admission. Admissions

for ACT patients for the fourth through sixth admissions ranged from 5.9% to 2.9% and

from 10.8% to .8% for SCM patients.

Table 3

No. of ACT and SCM Patient Admissions

No. of admissions	ACT ($n = 34$)		SCM ($n = 120$)	
	Frequency	%	Frequency	%
1	17	50.0	63	52.5
2	8	23.5	28	23.3
3	4	11.8	12	10.0
4	2	5.9	13	10.8
5	2	5.9	3	2.5
6	1	2.9	1	0.8

Table 4 presents the average in-patient stays for successive ACT and SCM patient

admissions. Average mean numbers of ACT inpatient days were 23.2 ($SD = 48.3$) for the

first admission, 11.9 ($SD = 13.4$) for the second, 12.4 ($SD = 15.0$) for the third, and 17.0

($SD = 25.3$) for the fourth admission. Average mean numbers of SCM inpatient days

were 21.6 ($SD = 45.9$) for the first admission, 17 ($SD = 23.3$) for the second, 12.2

($SD = 17.0$) for the third, and 13.8 ($SD = 11.7$) for the fourth admission. For their fifth

and sixth admissions, ACT patients had mean numbers of inpatient days of 8.3 ($SD = 1.5$)

and 6.51 ($SD = 2.1$), respectively; SCM patients had mean inpatient days of 13.5

($SD = 17.5$) and 6.5 ($SD = 9.2$), respectively. Both ACT and SCM patients had lower

numbers of inpatient days after the first admission, with treatment and follow-up care

postdischarge.

Table 4

Average No. of Inpatient Stays for Successive Admissions

	ACT			SCM		
# IP days per stay	*n*	*M*	*SD*	*n*	*M*	*SD*
1	789	23.2	48.3	2,574	21.6	45.9
2	191	11.9	13.4	952	17.0	23.3
3	112	12.4	15.0	354	12.2	17.0
4	85	17.0	25.3	234	13.8	11.7
5	25	8.3	6.5	54	13.5	17.5
6	3	1.5	2.1	13	6.5	9.2
7th stay	0	-	-	5	2.5	3.5

Note. The seventh stay was an additional calculation that was run to determine outliers that skewed the data. Because it did skew the data, it was removed.

Correlational Analysis

Correlations were run between the three predictors of treatment type, gender, and age cohort and the two criterion values of total admissions and average duration of stay (see Table 5). Treatment was dummy coded as ACT = 1 and SCM = 0 and gender as Male = 1 and Female = 0. Age cohort was coded as < 20 = 1, 20-29 = 2, 30-39 = 3, 40-49 = 4, 50-59 = 5, 60-69 = 6, and > 69 = 7. Total admissions referred to the total number of recorded admissions per patient in the sample, and average stay referred to the total number of days in inpatient care per patient divided by the total number of admissions. There was no relationship between treatment modality and number of inpatient admissions ($r = .03$, $p < .68$) as well as for average inpatient stay ($r = -.02$, $p < .80$). Similarly, there was no relationship between patient gender and number of inpatient admissions ($r = -.11$, $p < .19$) as well as average inpatient stay ($r = -.06$, $p < .45$). Age cohort had no relationship to inpatient admissions ($r = .02$, $p < .85$), but it did have a relationship to average inpatient stay ($r = .16$, $p < .05$).

Table 5

Correlations Between Predictor and Criterion Values

	Admissions		Average stay	
	r	*p* <	*r*	*p* <
Treatment modality	.03	.68	-.02	.80
Gender	-.11	.19	-.06	.45
Age cohort	.02	.85	.16	.05

Test of the Assumptions

The data set was tested to determine whether it could be analyzed using linear regression, which was used to test the hypotheses. Cohen et al. (2003) identified several assumptions that must be met in linear regression: linearity, multicollinearity, independence of errors, normality of errors, and homoscedasticity. Following are the results of the assumption tests for each RQ.

RQ1 Assumption Testing

RQ1: Do gender; age cohort; and/or treatment modality, either ACT or SCM, predict the number of inpatient admissions over a 3-year period for schizophrenic patients originally placed in an outpatient status? The predictors were gender, age cohort, and/or treatment modality, and the criterion was number of admissions. To determine if the assumption of linearity was met, scatterplots of the predictors versus criterion values were inspected visually. Linearity is present in Figures 1, 2, and 3, as shown in normal P-Plots, with a straight line for gender, age cohort, and treatment modality indicating that the assumption was met. As for the assumption of multicollinearity, it did not apply to a simple regression model.
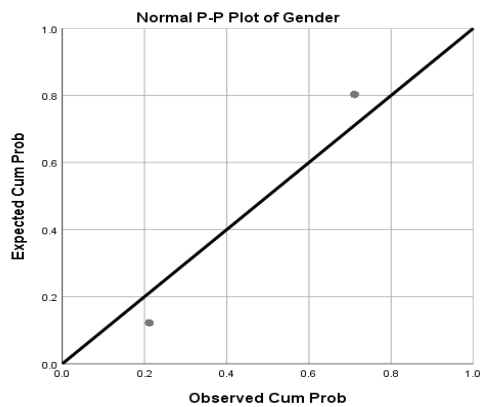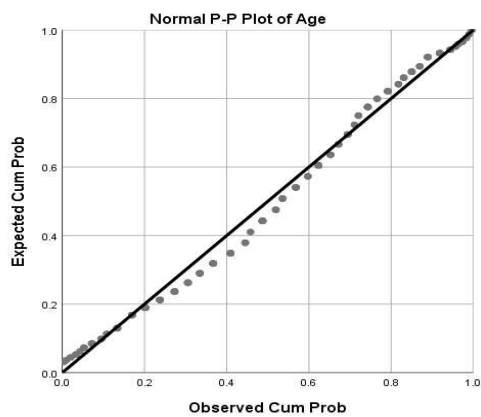
Figure 1. P-Plot for gender.

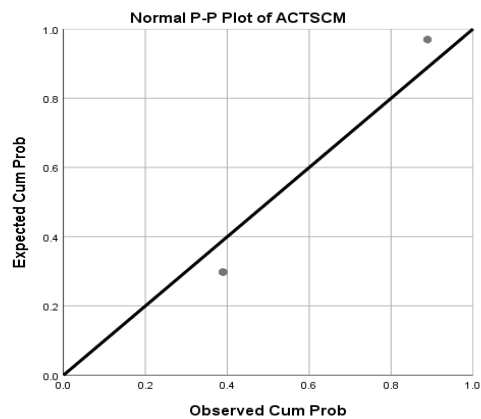*Figure 2*. P-Plot for age cohort.

Figure 3. P-Plot for treatment.

The assumption of multicollinearity was completed by inspecting the correlations among the three predictors and checking the variance of inflation factors (VIF) statistic. As a general rule, multicollinearity is present when the correlation between or among the IVs is at least .08 or more (Cohen et al., 2003). As shown in Table 6, there was a correlation of more than .08 and a correlation among the IVs of age cohort, gender, and treatment modality. To pass the assumption of multicollinearity, the values of VIF need to be lower than 5; as demonstrated, they were between 1.02 and 1.00, meaning that this assumption was met. Inspecting both the correlations of the IVs and the DV did not indicate that multicollinearity was present among the IVs.

Table 6

Correlations Between Predictor Values for VIF

			Collinearity statistics	
Model	Predictors	DV	Tolerance	VIF
1	Treatment & gender	Age cohort	.990	1.010
2	Gender & age cohort	Treatment	.976	1.024
3	Age cohort & treatment	Gender	1.00	1.000

The assumption of independence of errors was tested using the Durbin-Watson statistic (see Table 7). Garson (2014) wrote that the values of the Durbin- Watson statistic should lie in the interval between 1.5 and 2.5 for the data to meet the assumption of the independence of errors. The sample data met this assumption for each of the three simple linear regression models.

Table 7

Durbin-Watson Statistic for Simple Regression

Predictor	Durbin-Watson statistic
Gender	1.88
Age cohort	1.91
Treatment	1.92

The assumption for normality of errors was assessed by visually inspecting the P-plots in Figures 1, 2, and 3. The visual inspection indicated that normality was met. To assess the assumption of homoscedasticity, graphs plotting standardized predicted values against standardized were evaluated and inspected (see Figures 4, 5, and 6). The plots did not show any signs of funneling, so the assumption of homoscedasticity was met.
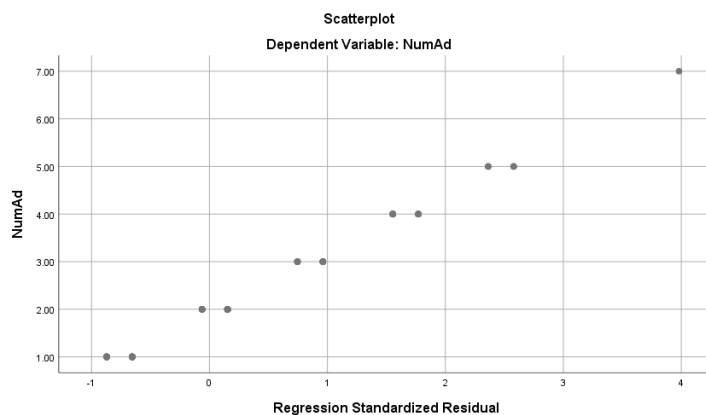

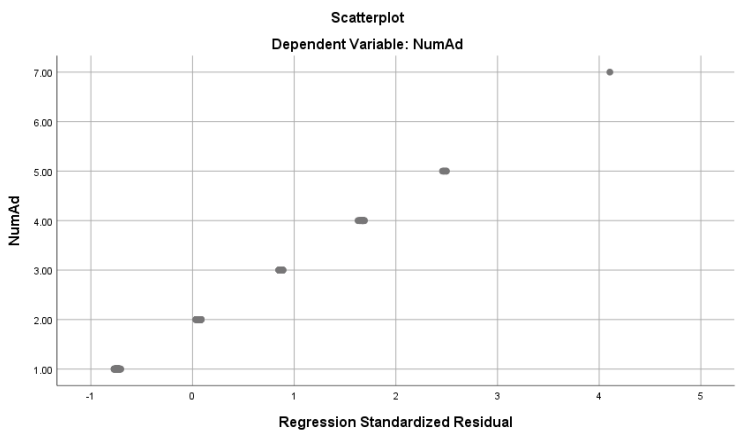*Figure 4.* Residuals – Predicted values plot for gender.

Figure 5. Residuals – Predicted values plot for age cohort.

Figure 6. Residuals – Predicted values plot for treatment.

RQ2 Assumption Testing

RQ2: Do gender; age cohort; and/or treatment modality, either ACT or SCM,

predict length of stay in days in an inpatient facility over a 3-year period for

schizophrenic patients originally placed in an outpatient status? The predictors were

gender, age cohort, and/or treatment modality, and the criterion value was length of stay.

To determine if the assumption of linearity was met, scatterplots of the predictors versus

criterion values were visually inspected. Based on the same scatterplots used for RQ1, it was possible to conclude that the assumption of linearity was met.

Assessing for multicollinearity was completed by inspecting the correlations among the IVs and checking the VIF statistic (see Tables 7-9). In general, multicollinearity is present when the correlation between or among the IVs is .8 or stronger, which was the case with all of the IVs in the current study. To pass the assumption of multicollinearity, the values of VIF need to be lower than 5, and from a review of Tables 7 to 9, the values were between 1.02 and 1.00. The inspection of both correlations of the IVs with the DV and VIF values indicated that there was a multicollinearity relationship among the IVs. To assess the assumption of homoscedasticity, a graph plotting standardized predicted values against standardized residuals was completed and reviewed (see Figures 7-9). The plot did not show any signs of funneling for any of the IVs, so the assumption of homoscedasticity was met.
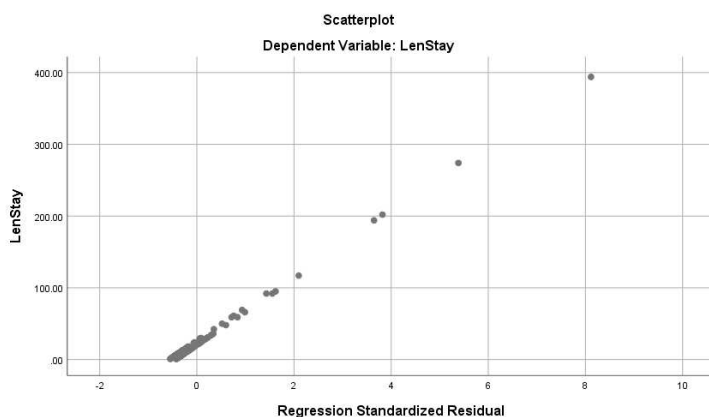
Figure 7. Residuals – Predicted values plot for gender.
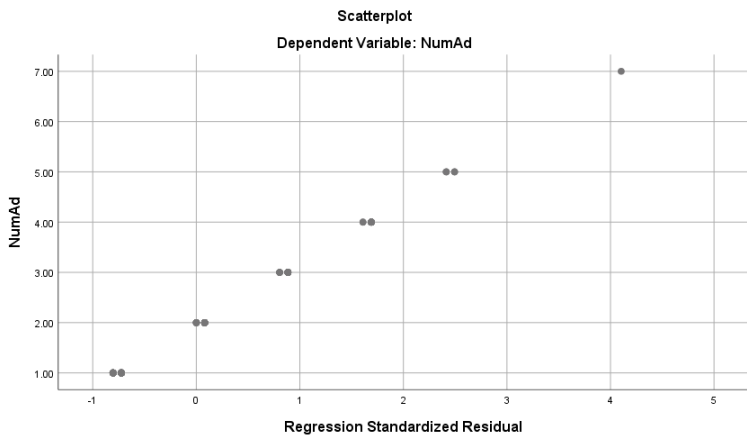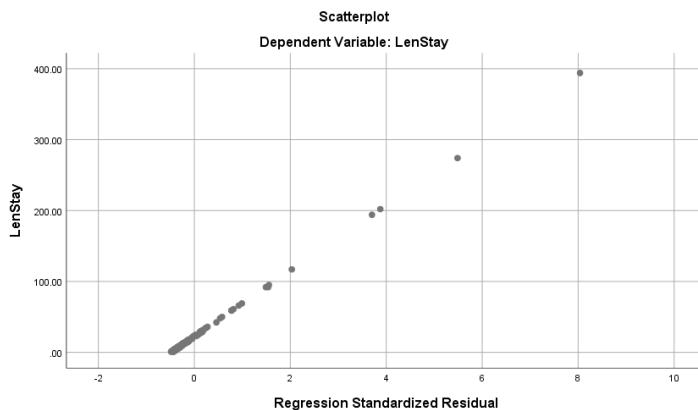
Figure 8. Residuals – Predicted values plot for ACT/SCM.
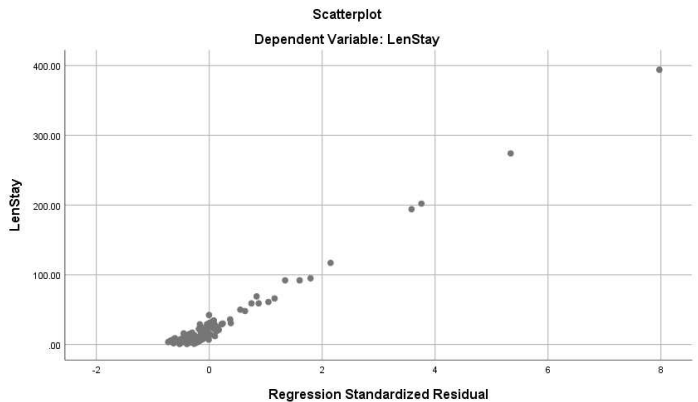
Figure 9. Residuals – Predicted values for age cohort.

The assumption of independence of errors was tested using the Durbin-Watson statistic (see Tables 7-9). The obtained value of the Durbin-Watson statistic was almost identical for all three IVs being close to 2, which indicated that the assumption of homoscedasticity was met. The assumption of normality of errors was tested by visual inspection of the P-P plot for this model and indicated that the normality of errors also had been met.

Table 8

Durbin-Watson Statistic for Simple Regression

Predictor	Durbin-Watson statistic
Gender	2.15
Age cohort	2.18
Treatment	2.15

RQ3 Assumption Testing

RQ3: Is there a correlation between number of inpatient admissions and length of stay in days for schizophrenic patients originally placed in an outpatient status over a 3-year period? To run the Pearson correlations, the assumptions had to be met for normality, homoscedascity, linearity, continuous variables, paired observations, with no outliers.

Normality means that the data sets to be correlated should approximate the normal distribution. In such normally distributed data, most data points tend to hover close to the mean. The mean number of admissions per patient was 1.92 ($SD = 1.24$), with a range of one to six admission and a skew of 1.38 (see Figure 10). Consequently, the seventh admission was considered an outlier and was removed from the study. The remaining data approximated a poisson distribution, so it was determined that they should be transformed using square root transformation procedures to conform to a normal distribution prior to running the subsequent planned analyses.

Figure 10. Histogram for no. of admissions.

The mean length of inpatient stay was 22.82 days ($SD = 45.97$), with a range of 1 to 394 days and a skew of 5.42 (see Figure 11). Consequently, four stay lengths were considered outliers and were removed from the study. The remaining data approximated a poisson distribution, so I determined that they should be transformed using square root transformation procedures to conform to a normal distribution prior to running the subsequent planned analyses.
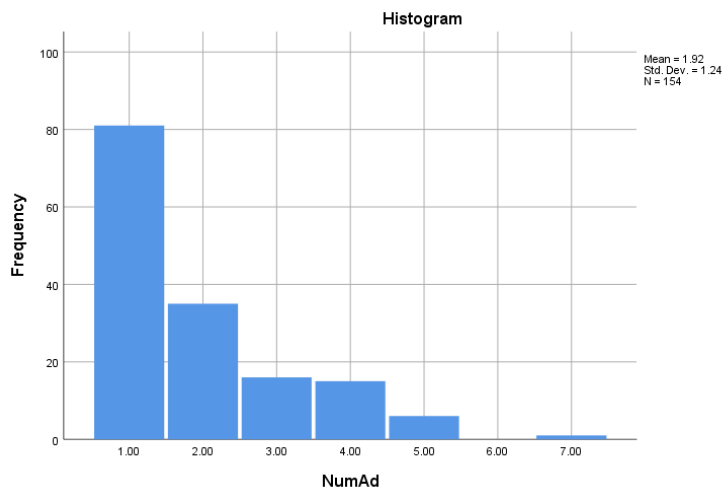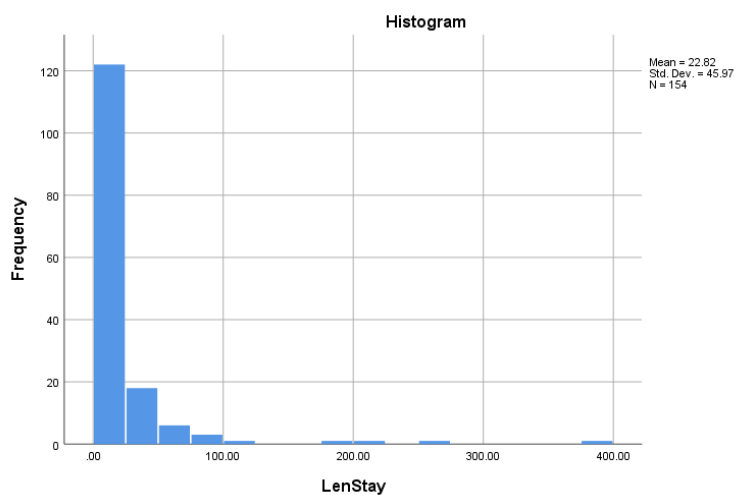

Figure 11. Histogram for length of stay.

Homoscedascity means equal variances and that the size of the error term is the same for all values of the IVs. If the error term is smaller for set values of IVs and larger for others, there is a violation of homoscedascity, which can be checked by looking at a scatterplot. If the points lie equally on both sides of the line of best fit, then the data are homoscedastic. The scatterplots of the number of inpatient admissions and length of stay are presented in Figures 12 and 13. Based on the scatterplots, the test for homoscedascity indicated that for the number of admissions, the test was met, with an equal number lying equally on both side of line of best fit. In contrast, the length of stay did not meet the test of homoscedascity because there were significant more scores below the line of best fit than above it. Removing the outliers and transforming the data using a square root procedure addressed this issue.
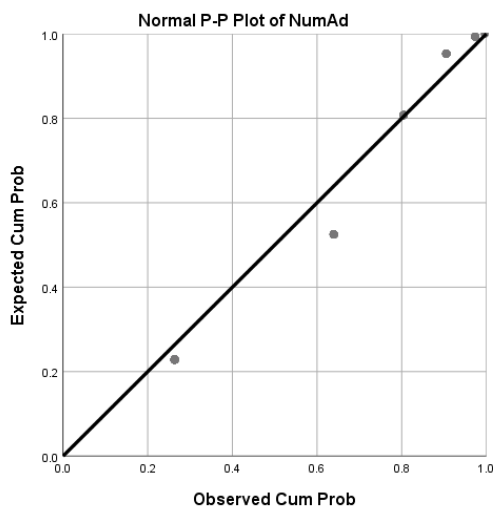
Figure 12. Normal P-Plot for no. of admissions.
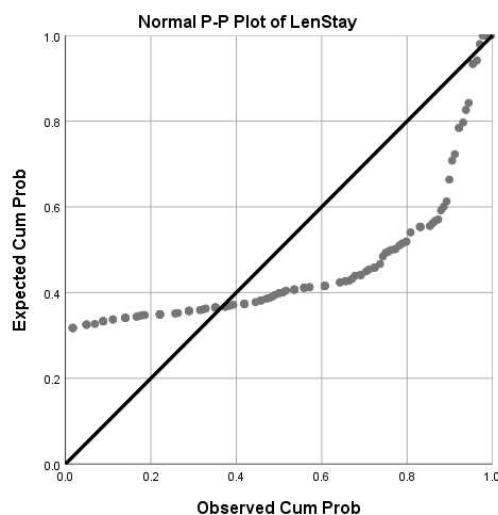
Figure 13. Normal P-Plot for length of stay.

Linearity means that the data follow a linear relationship and can be tested by examining a scatterplot. If the data points have a straight-line relationship, the data satisfy the linearity assumption. Based on the scatterplots, the test for the assumption for linearity was met because the data points generally followed a straight line above or below the line of best fit.

Continuous variables can take any value within an interval and absolute zero. The number of inpatient admissions and duration of inpatient stays were continuous variables with an absolute zero. Paired observations meant that every data point must be in paired with another data point. For every observation of the IV there had to be a corresponding observation of the DV. Five outliers were removed from the data set prior to data transformation. This left 149 paired observations in calculating the Pearson correlations.

Hypothesis Testing

Bivariate and multiple regression analyses were conducted using the final transformed data set ($N = 149$) to examine the predictability of the number and length of inpatient psychiatric hospital stays using age cohort, gender, and/or treatment. The data for the male and female participants, all of whom ranged in age from 18 to 82 years and received either the ACT or the SCM outpatient treatment intervention, were analyzed according to the number and length of inpatient psychiatric hospital stays reported by the RBHA for 2011 to 2014.

Research Question 1

RQ1: Do gender; age cohort; and/or treatment modality, either ACT or SCM, predict the number of inpatient admissions over a 3-year period for schizophrenic patients originally placed in an outpatient status?

H_{01}: Gender; age cohort; and/or treatment modality, either ACT or SCM, do not predict the number of inpatient admissions over a 3-year period for schizophrenic patients originally placed in an outpatient status.

H_{a1}: Gender; age cohort; and/or treatment modality, either ACT or SCM, predict the number of inpatient admissions over a 3-year period for schizophrenic patients originally placed in an outpatient status.

To answer RQ1 and test the hypotheses, three bivariate regression analyses and one multiple regression analysis were run on the transformed data. Table 9 presents the results for gender, age cohort, and/or treatment modality as predictors of the number of

inpatient admissions. The bivariate regression analyses indicated that gender, age cohort, and treatment modality did not predict the number of inpatient admissions.

Table 9

Bivariate Regression for Gender, Age Cohort, and Treatment Modality With No. of Inpatient Admissions

	Model	Unstandardized coefficients		Standardized coefficients	*t*	*p* value
		B	*SE*	B		
1	(Constant)	1.366	.051		26.921	.000
	Gender	-.067	.066	-.084	-1.017	.311
2	(Constant)	1.229	.101		12.161	.000
	Age cohort	.027	.027	.083	1.011	.314
3	(Constant)	1.316	.037		35.976	.000
	Treatment	.046	.078	.049	.591	.555

A stepwise multiple regression was run with gender, age cohort, and treatment modality to determine which predictors, if any, had a strong correlation with the number of inpatient admissions (see Table 10). Results indicated that gender, age cohort, and treatment modality did not predict the number inpatient admissions.

Table 10

Stepwise Multiple Regression Results for Gender, Age Cohort, and Treatment Modality With Inpatient Admissions

Model	Unstandardized coefficients		Standardized coefficients	*t*	Sig.
	B	*SE*	B		
(Constant)	1.270	.115		10.996	.000
Gender	-.063	.067	-.079	-.943	.347
Age cohort	.023	.027	.071	.846	.399
Treatment	.053	.078	.056	.681	.497

Research Question 2

RQ2: Do gender; age cohort; and/or treatment modality, either ACT or SCM,
predict length of stay in days in an inpatient facility over a 3-year period for
schizophrenic patients originally placed in an outpatient status?

H_{02}: Gender; age cohort; and/or treatment modality, either ACT or SCM, do not
predict length of stay in days in an inpatient facility over a 3-year period for
schizophrenic patients originally placed in an outpatient status.

H_{a2}: Gender; age cohort; and/or treatment modality, either ACT or SCM, predict
length of stay in days in an inpatient facility over a 3-year period for schizophrenic
patients originally placed in an outpatient status.

To answer RQ2 and test the hypotheses, three bivariate regression analyses and
one multiple regression analysis were run on the transformed data. Table 11 presents the
results for gender, age cohort, and/or treatment modality as predictors of the length of
inpatient stay. The bivariate regression analyses indicated that gender, age cohort, and/or
treatment modality did not predict the length of inpatient stay.

Table 11

*Bivariate Regression Results for Gender, Age Cohort, and Treatment Modality With
Length of Inpatient Stay*

Model		Unstandardized coefficients		Standardized coefficients	t	p value
		B	SE	B		
1	(Constant)	2.367	.127		18.602	.000
	Gender	-.083	.165	-.042	-.504	.615
2	(Constant)	2.251	.254		8.874	.000
	Age cohort	.019	.067	.023	.278	.781
3	(Constant)	2.392	.091		26.376	.000
	Treatment	-.334	.193	-.142	-1.736	.085

A stepwise multiple regression was run with gender, age cohort, and/or treatment modality to determine which predictors, if any, had a strong correlation with the length of inpatient stay (see Table 12). Results indicated that gender, age cohort, and treatment modality did not predict the length of inpatient stay.

Table 12

Stepwise Multiple Regression Results for Gender, Age Cohort, and Treatment Modality With Length of Inpatient Stay

Model	Unstandardized coefficients		Standardized coefficients	t	Sig.
	B	*SE*	B		
(Constant)	2.357	.288		8.185	.000
Gender	-.046	.167	-.023	-.278	.781
Age cohort	.017	.067	.021	.253	.801
Treatment	-.329	.195	-.139	-1.686	.094

Research Question 3

RQ3: Is there a correlation between number of inpatient admissions and length of stay in days for schizophrenic patients originally placed in an outpatient status over a 3-year period?

H_{03}: There is not a correlation between number of inpatient admissions and length of stay in days for schizophrenic patients originally placed in an outpatient status over a 3-year period.

H_{a3}: There is a correlation between number of inpatient admissions and length of stay in days for schizophrenic patients originally placed in an outpatient status over a 3-year period.

To answer RQ3 and test the hypotheses, a Pearson correlation was run between transformed data for the number of inpatient admissions and length of inpatient stay.

Table 13 presents the overall correlation results by gender and treatment modality. A correlation was not run for each age cohort because of the small quantity of data for them. Results indicated a direct relationship between the number of inpatient admissions and length of inpatient stay, that is, length of inpatient stay increased with each subsequent inpatient admission.

Table 13

Pearson Correlations Between No. of Inpatient Admissions and Length of Inpatient Stays

Overall (n = 149)		Gender				Treatment			
		Male (n = 88)		Female (n = 61)		ACT (n = 33)		SCM (n = 116)	
r	*p* <	*r*	*p* <	*r*	*p* <	*r*	p <	*r*	*p* <
.65	.04	.45	.00	.44	.00	.51	.00	.44	.00

Summary and Transition

The data set comprised 149 patient records from ACT and SCM treatment modalities, with ACT having a significantly higher number of male patients (64.7%) than female patients (35.3%). The number of male and female patients were more evenly balanced in SCM, at 55.8% and 44.2%, respectively. Age ranges of 18 to 70 years for ACT and 18 to 69 years for SCM were similar, with the average ages being 41.7 and 40.5 years, respectively. The average mean numbers of admissions for ACT was 2.1 days for male patients and 1.9 for female patients, with SCM at 1.8 days for male patients and 2.5 days for female patients. The number of admissions was the largest for patients in the age cohort of 30 to 39 years, with 12 for ACT and 38 for SCM. This number declined significantly by the sixth admission to two for ACT and seven for SCM. Average mean length of stay was the highest for patients in the age cohort of 50 to 59 years, with 64.9 days for ACT and 63.4 days for SCM.

Test of assumptions revealed a normal p-plot for gender, age cohort, and treatment modality and met the assumption of the independence of errors for three simple linear regressions models. The assumption of homoscedasticity was met for gender, age cohort, and treatment modality, along with the normality of errors because the data points were close together in a normal distribution. In order for a normal distribution to be analyzed, one of the admissions had to be removed, along with four lengths of stay, so the remaining data were transformed using a square root transformation. Once the outliers were removed, the remaining data approximated a poisson distribution.

RQ1 asked if the predictor values of gender, age cohort, and treatment modality were able to predict the number of inpatient psychiatric admissions. Data analyses indicated that none of the predictor values was able to predict the number of inpatient psychiatric admissions. RQ2 asked about the same predictor values being able to predict the length of inpatient psychiatric hospital stays. Once again, the three predictor values did not predict the length of stays. RQ3 asked if there was a correlation between the number of admissions and length of stay. It was determined that there was a correlation between the number of admissions and length of stay. In addition, when gender and treatment modality were analyzed, a correlation was found for both male and female patients, along with ACT and SCM, for the number of admissions and length of stay.

Presented in Chapter 5 is a discussion of future research. Based upon the results, it would appear that a larger data set and a longer analysis period might provide different findings. It also might be of significance to examine some of the inpatient psychiatric hospitals specifically to determine if there were noted trends in terms of admissions and

length of stay that might better explain the results. Additional SMI diagnoses might be

useful as comparisons for inpatient psychiatric hospital admissions and lengths.

Chapter 5: Discussion, Conclusions, and Recommendations

The intent of this study was to better understand whether ACT or SCM as an outpatient treatment intervention had an impact on reducing the number and length of stays for male and female adults in all age ranges who had been diagnosed with schizophrenia. ACT and SCM were designed as outpatient treatment models to help individuals diagnosed with schizophrenia to receive mental health services without the need to be inpatients in the psychiatric hospital setting. ACT and SCM as individual models have been researched independently in terms of their effect on reducing the number and duration of inpatient psychiatric hospital admissions, but there has not been a significant amount of research on both of them together. Chen et al. (2014) suggested that there was a need to review outpatient treatment models to identify the most effective ones and provide individuals diagnosed with schizophrenia with the support that they need to live outside of the psychiatric hospital setting.

I designed this study to determine whether ACT or SCM was more effective in reducing the number and duration of inpatient psychiatric hospital stays for male and female adults broken down by age cohort. To do so, I analyzed archival data from a large metropolitan RBHA quantitatively. A discussion of the results is provided in this chapter, followed by an interpretation of the findings of each RQ, including the implications of those findings on theoretical, methodological, and practical bases. Limitations of this study, along with recommendations and social change impact, also are discussed.

Interpretation of the Findings

Three RQs were formulated to determine the influence that ACT and SCM outpatient treatment teams had on the number and length of inpatient psychiatric hospital stays for male and female adults ranging in age from 18 to 82 years.

Research Question 1

RQ1: Do gender; age cohort; and/or treatment modality, either ACT or SCM, predict the number of inpatient admissions over a 3-year period for schizophrenic patients originally placed in an outpatient status? Analysis of the data showed that gender and age cohort, along with ACT or SCM, did not predict the number of inpatient admissions because both outpatient interventions appeared to have similar effectiveness with no significant findings. Prior research indicated that ACT, being a more intensive outpatient intervention, has resulted in reducing the number of inpatient admissions because ACT mental health teams are aware of and can intercede more quickly when symptoms change and/or increase (Mas-Expósito et al., 2013). My results did not show this to be true; however, it is possible that ACT patients could have had more admissions if they had not been on ACT teams.

Research Question 2

RQ2: Do gender; age cohort; and/or treatment modality, either ACT or SCM, predict length of stay in days in an inpatient facility over a 3-year period for schizophrenic patients originally placed in an outpatient status? Analysis of the data showed that gender and age cohort, along with ACT or SCM, did not predict the length of inpatient stays because both outpatient interventions appeared to have similar

effectiveness with no significant findings. Prior research has indicated that once patients become inpatients, there often are minimal differences because the treatment modalities are standardized, regardless of the patients being on ACT or SCM teams. The significant differences in ACT and SCM often are seen when patients are discharged from the inpatient psychiatric hospital setting. There were no significant differences in length of stays for participants in their second admissions. Burra et al. (2012) found that ACT length of stay by the second admission were significantly shorter than SCM because of the more intensive outpatient services. This result was shown somewhat in the data for both ACT and SCM.

Research Question 3

RQ3: Is there a correlation between number of inpatient admissions and length of stay in days for schizophrenic patients originally placed in an outpatient status over a 3-year period? Analysis of the data showed some correlation between the number of admissions and length of stay for both ACT and SCM interventions. The first admission accounted for the longest length of stay, with a significant decline by the second admission, indicating that many participants received the appropriate and necessary treatment to address any changes or increase in symptoms during the first admission. Gender and treatment modality predicted a significant correlation in the number of admissions and length of stays. ACT and SCM were designed to reduce the number of admissions and length of inpatient psychiatric stays, and this reduction appeared to be accurate by the second admission. Bond et al. (2001) asserted that ACT should have a

significant influence on future admissions and length of stays, an outcome that did not appear true in this study because each intervention yielded similar results.

Implications

The implications of this study are of theoretical and practical importance. There has been copious theoretical research conducted surrounding Bandura's SCT (Bandura & Walters, 1963) and Glasser's (1998) CT. This study contributed to both theoretical constructs. In addition, practical implications are significant in that both ACT and SCM treatment teams can receive training that will have a positive impact on reducing the number and duration of inpatient psychiatric hospitalizations for male and female patients of all age groups.

Theoretical Implications

Social Cognitive Theory

Individuals with schizophrenic diagnoses often look to others for cues in how they are supposed to act and behave, and these observations translate into a cognitive exercise as they interpret the social cues received (Bandura & Walters, 1963). I focused on the social cues that the participants received and the cognitive processes that they undertook to seek inpatient psychiatric hospital care, as well as how long it took for patients to connect with mental health care professionals to receive the help that they needed. Some participants in the study might not have been able to adequately or appropriately interpret the social or cognitive cues about when and what type of care they needed because of the severity of symptoms associated with their mental illness and diagnoses of schizophrenia.

This lack of assessment of social and cognitive cues might have taken place postadmission to an inpatient psychiatric hospital, including the day of discharge.

Choice Theory

As part of the cognitive exercise, individuals must make choices or decisions about social cues to derive meaning from the information received (Glasser, 1998). The archival data used in my study indicated that patients were offered the choice to decide about the type(s) of care that they needed and what the best setting with outpatient options would be offered first. Choice was an important treatment element in helping the participants to feel empowered to make their own decisions and be able to follow through. The severity of symptoms associated with the mental illness and diagnosis of schizophrenia might have required mental health professionals to make decisions for some participants that included inpatient psychiatric hospitalization in the interest of ensuring the well-being of the participants and other members of the community (e.g., court-ordered evaluations for treatment). Even at the end of this process, choice was again offered to the participants to help them to feel empowered to seek treatment options that met their ongoing needs, with encouragement to seek these options in the outpatient setting. Analysis of the archival data in my study indicated that even though many participants did not seek inpatient psychiatric hospital care as their first choice or only option, this option might have been appropriate upon first admission, which often was the longest admission for both male and female patients and for certain age cohorts to ensure that needs were being met and effective discharge planning was being conducted for outpatient care.

Practical Implications

This study has practical implications on the number and duration of inpatient psychiatric hospitalizations for male and female adults across age cohorts, given its specific focus on ACT and SCM treatment interventions. Other health care industries might find value in the implications of this study for all individuals with SMI and those with general mental health diagnoses. ACT and SCM treatment teams have a positive impact on reducing the number and duration of inpatient psychiatric hospital stays (Chen et al., 2014) for male and female adults of various age cohorts. Results from the current study indicated minimal differences in the number and length of inpatient psychiatric hospital stays for male and female participants receiving ACT or SCM outpatient services. However, significance was noted in terms of gender, along with ACT and SCM, in terms of the number of admissions and length of stays when both variables were combined.

There is a significant financial difference in the cost of operating ACT and SCM outpatient teams. ACT teams are significantly more expensive to operate because they have fewer participants and have more mental health staff to assist each patient. In addition, the cost of psychiatrists or PNPs as well as psychiatric registered nurses is higher because all of these health care professionals are required to travel outside the clinic and work outside a traditional Monday-to-Friday work schedule. ACT teams operate at a daily cost of $240 per participant, with a maximum number of 100 and staff available 24/7 to assist individuals in the community (Haynes et al., 2012). In contrast, SCM teams operate at a daily cost of $16 per participant with no specific maximum

number (typically 250-300 participants). SCM team members are usually only available during the traditional Monday-to-Friday work schedule and regular business hours of 7 a.m. to 6 p.m. (Haynes et al., 2012).

Another practical implication is that crisis intervention services can be offered in the community setting at a cost of $1 to $3 per participant for any individuals on SCM teams; however, this cost is not offered to participants on ACT teams because it is part of a group of inclusive services (Cuyún Carter et al., 2011). Having the option of crisis intervention services on an as-needed basis might be less expensive than having this role as a specific position of outpatient ACT teams. Crisis intervention specialists are available after regular business hours and on every holiday when the outpatient clinic is closed.

Limitations of the Study

One of the primary limitations of the study was the use of archival data. Although I collected the archival data during a specific time frame to ensure that the data reporting methods would be the same, it is possible some of the data were not recorded accurately or completely because several staff members were assigned to collect and record the data. Participants also had the option of seeking inpatient psychiatric hospital services from providers who were not contracted with the RBHA, depending on geographic location at the time of need and the availability of the contracted providers. In addition, participants could have been discharged from one inpatient psychiatric provider and admitted to another inpatient psychiatric provider within a 24-hour time frame, and this admission

might not have been included or not accurately included in the total number of inpatient days.

I focused only on male and female adults with schizophrenic diagnoses who were receiving mental health services through state and federally funded programs (i.e., Medicare and Medicaid). Individuals with schizophrenic diagnoses who had private insurance or who self-paid were not included and might have shown different rates of admission and length of stay because of insurance benefits or other financial limitations. Individuals who receive mental health services through federal and state-funded programs often are not subject to any insurance benefit limits and can seek care when and as often as needed.

Participants in the study were able to switch between ACT and SCM treatment teams depending on need as well as treatment team recommendations that might not have been recorded adequately. Typically, participants did not switch between ACT and SCM treatment teams often because of their presenting mental health needs; however, a significant change in symptoms and presentation, along with numerous and lengthy inpatient psychiatric hospital stays, would have prompted a change to ACT.

Participants in this study often entered into the RBHA when they were older than 18 years of age because this system was continually being evaluated and expanded to meet a wider range of needs and participants. Some of the participants might have been eligible at 18 years of age, but they did not enter the RHBA because of the availability of services at time of diagnosis.

Another limitation of this study was that the data were collected during a recessionary period in the economy of the United States, a situation that might have had an influence on patients seeking Medicaid or Medicare benefits. An economic downturn in a country can cause more patients to seek mental health services through government-funded sources because of their limited incomes and inability to secure insurance benefits from other sources (i.e. employment).

Recommendations

Replicating this study with the addition of other serious mental health diagnoses other than schizophrenia is recommended to determine if there are differences based on diagnoses for ACT and SCM. Individuals diagnosed with other SMIs might manifest different responses regarding being on an ACT or SCM team because of the nature of symptom presentation and response to treatment interventions. In addition, some participants with diagnoses of schizophrenia have had experiences in state mental hospitals because of their involvement with law enforcement or the criminal justice system. This time in state mental hospitals also might have been true if the individuals were older and had been receiving mental health services for most of their lives. I did not consider any mental health services prior to age 18 years, and this limitation might have played a role in how often and long the participants had been accessing inpatient psychiatric services.

Another recommendation is to assess adults with schizophrenic diagnoses who have private insurance or self-pay to determine if there is a difference in how they seek inpatient psychiatric hospital services and, if so, the length of stay. Most private

insurance plans often have benefit maximums, and self-pay individuals also will reach a certain threshold when they will neither pay for additional services nor seek state or federally funded insurance benefits. Either one of these scenarios might have an impact on whether inpatient psychiatric services are sought and how long individuals realistically feel that they can remain inpatient, opting to discharge earlier and seek less expensive outpatient services.

Implications for Social Change

One of the primary issues discussed in Chapter 1 was the large number of individuals with diagnoses of schizophrenia who were going to inpatient psychiatric hospitals as a primary source of mental health treatment (Mas-Expósito et al., 2013). Cuyún Carter et al. (2011) highlighted the copious federal and state dollars being spent on one of most expensive treatment modalities at nearly $1,100 a day per individual. To reduce the number and duration of inpatient psychiatric hospitalizations, outpatient mental health teams can reduce repetitive inpatient psychiatric hospitalizations by as much as 62% (McQuade & Gromova, 2015). Local and national governments are often looking for ways to reduce expenses and maximize the dollars spent on health care, thereby necessitating studies like the current one to determine where changes and adjustments can be made.

Future researchers could target men and women over the age of 40 years because of their extended length of stay in psychiatric hospitals. Participants over 50 years of age, regardless of the outpatient intervention of ACT or SCM, often had lengthy stays upon first admission, indicating a need to target education and interventions to an age group

that has been overlooked. Older individuals might be reluctant to identify mental health needs and seek help, especially if they have lived with the symptoms for most of their lives. There might be a tendency for older individuals to minimize their symptoms and not feel the need for treatment. This is especially true for women, who often are diagnosed later in life (Abel et al., 2010).

Gender was almost equivalent for SCM and heavier on the male side for ACT. In addition, there was a spread in the age ranges, with older age cohorts having longer inpatient stays with few exceptions. ACT and SCM tended to provide some outpatient benefits to supports patients in the community, but the difference was minimal. Future studies with larger samples longer durations might note differences between genders, between age cohorts, or with ACT and SCM support. Making comparisons with other SMI diagnoses might be another area of possible research.

Conclusion

Significant findings were noted in terms of initial inpatient hospitalizations being of longer duration for both ACT and SCM. In addition, certain age groups tended to have longer inpatient hospitalizations overall, with some age groups having larger numbers of inpatient psychiatric hospitalizations. Overall, ACT and SCM offered as outpatient treatment options tended to provide support for patients with diagnoses of schizophrenia living in the community; however, it was difficult to ascertain the effectiveness of one modality over the other. Guidelines for future research include using additional patient data and a longer time to review inpatient psychiatric hospital patterns. In addition, comparing other patients with SMI diagnoses might provide more data in determining if

one SMI diagnosis or another results in the use of more inpatient psychiatric hospital services.

ACT and SCM are outpatient interventions that can reduce the number and length of inpatient psychiatric stays, especially if the patients are engaged in treatment postdischarge. Although inpatient psychiatric hospital teams work to meet the needs of all individuals, regardless of outpatient intervention, ongoing treatment postdischarge is essential to reducing subsequent admissions and lengths of stay. ACT and SCM teams are an important part of treatment, and they need to be involved with patients on the day of discharge to provide continuity of care. Patients need to be assessed continually and have a voice in their care to ensure that the appropriate and necessary outpatient intervention, be it ACT or SCM, is being provided based upon individual choice.

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Appendix: Data Authorization

October 9, 2018

To: Quentin Brown

Re: Permission to Use Data from [Name redacted]

Dear Quentin:
We are more than happy to work with you to provide relevant data sets that would help you in your research and educational endeavors. We do not have an IRB process at our organization and data has been provided void of an identifying information to ensure confidentiality and secured in double password protected files.

Sincerely,

Name Redacted