Abstract

THE EFFECTS OF RECREATIONAL THERAPY ON THE PSYCHOSOCIAL FUNCTIONING OF AN INPATIENT BEHAVIORAL HEALTH POPULATION

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The original purpose of this study was to examine the association of recreational therapy services with changes in psychosocial functioning (as measured by the Global Assessment of Functioning) of people with serious mental illness (SMI). Due to a series of events, the study was re-scaled to a descriptive study of recreational therapy (RT) treatment based on diagnoses, type of intervention used, age at admission, and length of stay. The sample included 2,051 adult participants with SMI who received treatment in an inpatient behavioral health center in the southeastern United States between 2007 and 2010. Descriptive statistics, frequencies, and Analysis of Variance (ANOVA) were used to identify RT treatment patterns among individuals diagnosed with depression, bipolar disorder, a mental disorder, episodic mood disorder, and bipolar I disorder. A cross tabulation was used to determine which diagnoses received RT individual assessment. Correlations were used to determine the relationship between age at admission, length of stay, and the units of total RT received. Results indicated different diagnoses received varied units of RT based on length of stay and age at admission; however, any significance found between mean RT units received and diagnoses groups was explained through length of stay at the facility and number of daily RT units received. Different RT interventions were also explored by diagnoses, but data was insufficient to answer research

questions. Though limitations for this study were extensive, results provide appropriate implications for practitioners and recommendations for future researchers.

THE EFFECTS OF RECREATIONAL THERAPY ON THE PSYCHOSOCIAL FUNCTIONING OF AN INPATIENT BEHAVIORAL HEALTH POPULATION

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CHAPTER I: INTRODUCTION

Serious mental illnesses (SMI) are among the most prevalent and costly disorders confronting the United States' health care system. In fact, SMI are the leading cause of disability in the United States for ages 15-44 (National Institute of Mental Health, 2009). On average, one in 17 individuals (6%) in the United States is diagnosed with a SMI (NIMH, 2009). Those diagnosed with SMI develop considerable disorders of thought, mood, perception, orientation and memory that impair judgment, capacity to recognize reality, and the ability to meet the ordinary demands of life (Wang, Demler, & Kessler, 2002). Impaired functioning in work, school, independent living, and interpersonal relationships (Mueser & McGurk, 2004), decreased social functioning, decreased community functioning, and increased likelihood of poor family relationships are also experienced (Swann, 2006). SMI has been linked to a substantial loss of quality of life and increased mortality rates (Cuijpers, Van Straten, Smit, Mihalopoulos, & Beekman, 2008). Most individuals diagnosed with an SMI have difficulties for the duration of their lives (Wang et al., 2002).

People with SMI often receive treatment at inpatient behavioral health facilities where a team of medical practitioners provide 24-hour emergency care and implement treatment plans suitable to an individual's mental illness (NIMH, 2009). With this type of treatment, individuals tend to make considerable gains in psychosocial functioning (NIMH, 2009). Treatment typically includes several coordinated health care disciplines that assist individuals to reduce negative symptoms and to improve both quality of life and community functioning (Holcomb, Parker, Leong, Thiele, & Higdon, 1998). Recreational therapy (RT) is among those disciplines that commonly treat people with SMI in inpatient behavioral health care. There are approximately 12,000 active certified therapeutic recreation specialists (CTRS) in the United States and Canada,

and 36% of these therapists work in a behavioral health setting (National Council for Therapeutic Recreation Certification, 2009).

Recreational therapists address physical, cognitive, social, and emotional functioning of people with disabilities (Carter, 1999). For individuals with SMI, therapists attend to primary psychiatric symptoms, prevention and mental health maintenance, and strengthening of psychosocial supports (American Therapeutic Recreation Association, 2004). Instructions, cues, and prompts embedded within RT interventions trigger stimulus control over an individual's attentiveness and displace inappropriate and antisocial behaviors (Corrigan, Liberman, & Wong, 1993). Interventions including coping skills, stress management, anger management, relaxation therapy, problem solving, communication, self esteem building, and community integration are utilized to promote improved social skills, community skills, and self management skills (North Carolina Recreational Therapy Association, 2008).

Though RT addresses several domains of functioning, in recent years, treatment for individuals with SMI has focused primarily on psychosocial functioning (Perivoliotis, Granholm, & Patterson, 2004), which includes the abilities and skills necessary for successful community functioning (Juckel & Morosini, 2008) as well as individuals' abilities to fulfill their roles in society as a member of a family or profession (Perivoliotis et al., 2004). Improvement in psychosocial functioning is important because it leads to improved work functioning, interpersonal functioning, general health, and overall quality of life (Hirschfeld et al., 2002; Perivoliotis et al., 2004). Also, researchers (e.g. Peer & Spaulding, 2007) suggest behavioral health treatment facilitates higher rates of recovery of psychosocial functioning compared to psychological symptom reduction. Treatment for psychological functioning includes reducing

negative symptoms evident in emotions and cognitions such as hallucinations, delusions, and disorganized speech and behavior (Ross & Mirowsky, 2003). Psychosocial functioning is different in that it is defined as the abilities or skills necessary for successful community functioning (Perivoliotis et al., 2004). Because of such an emphasis on psychosocial functioning by RT providers, it is imperative to collect and analyze efficacy data on these treatments to provide efficient and effective care. Efficacy data related to psychosocial interventions for people with SMI will contribute to evidence-based practice and inform choices of interventions made by practitioners.

Recreational therapy research on psychosocial functioning for individuals with SMI is very limited; however, some researchers have reported positive outcomes. These findings include increased suitable behaviors during leisure activities (Pestle, Card, & Menditto, 1998), improved independent living skills (Corrigan et al., 1993), increased pro-social behaviors (Finell, Card, & Menditto, 1997), improved attentiveness to activities (Pestle et al., 1998), and increased overall functioning (Corrigan et al., 1993). Researchers have also reported outcomes of general recreation and leisure for individuals with SMI. For instance, *psychiatric leisure rehabilitation*, a term used by Rudnick (2005), facilitates normalization and socialization, helps individuals cope with symptoms, reduces the impact of medication side effects, and facilitates cognitive rehabilitation. Recreation activities were reported to have a positive effect on self-esteem and self-efficacy, and a reduction of anxiety and depression in individuals with SMI (Kelsey, Coursey, & Selby, 1997). While these studies support general recreation and leisure as beneficial for individuals with SMI, the effects of RT treatment is not their principal focal point.

Though researchers have reported positive outcomes for individuals with SMI resulting from RT and recreation, there is no evidence to support use of specific interventions for this population. Interventions such as coping skills, stress management, anger management, relaxation therapy, problem solving, communication, self esteem building, and community integration are often used during treatment (ATRA, 2008); however, there is no outcome-based research that differentiates the effect each intervention may have on discrete areas of functioning. If research indicates that certain RT interventions lead to functional change, the profession would be able to offer more effective programs and communicate the benefits of RT treatment to consumers and other health care professions (Stumbo, 2000).

While there is some evidence of the benefits of RT and general recreation and leisure, there remains a gap in research on the effects of RT on individuals with SMI at inpatient facilities. More specifically, few published studies examine the measurable effects of RT on psychosocial functioning of SMI. Additionally, while there appears to be a general understanding that RT and recreation may have benefits for people with SMI, there has been no effort to distinguish the relative effects of specific interventions. Therefore, the purpose of this study was to examine recreational therapy services in relation to their influence on change in psychosocial functioning (as measured by the Global Assessment of Functioning), and compare the influence of different recreational therapy interventions on change in psychosocial functioning (as measured by the Global Assessment of Functioning) of people with SMI.

Research Objectives

The research objectives of this study were:

1) To determine if there is a significant relationship between length of stay (LOS), age at admission, number of Axis I-IV diagnoses, number of treatment units of RT and change in psychosocial functioning (as measured by the Global Assessment of Functioning) of people with SMI receiving inpatient psychiatric treatment.
2) To determine significant influence of the number of units associated with each type of RT interventions on change in psychosocial functioning (as measured by the Global Assessment of Functioning) for people with SMI receiving inpatient psychiatric treatment.

Hypothesis 1

After controlling for admission GAF scores, the length of stay (LOS), age at admission, number of Axis I-IV diagnoses, and number of treatment units of RT will significantly predict discharge GAF scores for people with SMI receiving inpatient psychiatric treatment.

Hypothesis 2

After controlling for admission GAF scores, the number of units associated with each type of RT intervention will significantly predict discharge GAF scores for people with SMI receiving inpatient psychiatric treatment.

Due to a series of events, the purpose of this study was altered from its original purpose. In recent years, the research site of the current study began documenting patient information

electronically, potentially facilitating relatively easy analysis of patient data. Unfortunately, three issues related to availability of data led to the alteration of the purpose of the current study. What follows is an explanation of the original purpose of the study, how it was meant to be conducted, and how the researcher proceeded after it was determined that the original study could not be completed as proposed. The study has thus been re-scaled to a descriptive study of recreational therapy treatment based on diagnoses, type of intervention used, and demographic information including age at admission and length of stay.

Limitations

The limitations of this study included characteristics of the sample and the researchers restricted access to data on outpatient or community treatment. Because the research site is a 52 bed behavioral health unit serving 29 counties in eastern North Carolina, the sample may not be an accurate representation of individuals with a serious mental illness in the United States. Also, the categorization of SMI into three major diagnostic categories (bipolar disorder, schizophrenia/schizoaffective disorder, and depression) limited the sample. Because individuals at this facility received nursing care, psychology, and medication concurrently with RT, other variables likely influenced any change in psychosocial functioning.

Assumptions

In this study, it was assumed that changes in Global Assessment of Functioning (GAF) scores were due to receiving treatment from RT, psychology, nursing, and/or prescribed medications. It is entirely possible that the psychosocial functioning of participants can change over time without intervention.

Delimitations

This study was delimited to individuals over 18 years of age. The individuals in this study were former patients of a behavioral health unit at a hospital in the southeastern United States and were categorized as having one of the following SMI: depression, schizophrenia/schizoaffective disorder, and bipolar disorder. Materials used in the analysis were delimited to information acquired from existing medical records.

Definition of Terms

Bipolar Disorder – A serious mental illness characterized by relapse in mania and depression (Baker, 2001).

Change in GAF scores – The change in a person's GAF scores from admission to discharge.

Depression – The presence of a recurrent depressed mood or loss of interest in daily activities for a minimum period of two weeks (Kessler et al., 2003).

DSM- IV-TR – The Diagnostic and Statistical Manual of Mental Disorders Text Revision. The handbook used by mental health professionals for diagnosing mental illnesses.

Global Assessment of Functioning (GAF) – An assessment tool based on observation of a trained facilitator used to rate psychosocial functioning on a single scale ranging from one to 100, with one being poor functioning and 100 being normal functioning (Burlingame et. al., 2005).

Psychosocial Functioning – The abilities or skills needed to successfully perform community, family, or professional functioning, including concepts such as physical, social, and emotional health (Perivoliotis, Granholm, and Patterson, 2004; Juckel & Morosini, 2008).

Schizoaffective Disorder – A serious mental illness that requires individuals to meet criteria for both schizophrenia and a mood disorder (Kempf, Hussain, & Potash, 2005).

Schizophrenia – A serious mental illness characterized by cognitive impairment, psychosis, and social withdrawal that manifests symptoms such as delusions, hallucinations, and disorganized speech for at least 6 months (Mueser & McGurk, 2004).

Serious Mental Illness – A diagnosis of any DSM-IV mental disorder that substantially interferes with one's life activities and ability to function (Wang et al., 2002).

Treatment unit – One unit equals 15 minutes of treatment; therefore, four units equals one hour of treatment.

CHAPTER II: REVIEW OF LITERATURE

Serious Mental Illness

An individual can be classified as having a serious mental illness (SMI) when he or she has a diagnosis of any DSM-IV mental disorder that significantly interferes with life activities and the ability to function (Wang et al., 2002). Individuals diagnosed with a SMI experience substantial disorder of thought, mood, perception, orientation or memory that impairs judgment, capacity to recognize reality, and the ability to meet the ordinary demands of life (Wang et al., 2002). Serious mental illnesses are among the most prevalent and costly disorders confronting the health care system. In fact, they are the leading cause of disability in the United States for ages 15-44 (NIMH, 2009). On average, one in 17 individuals (6%) in the United States is diagnosed with a SMI (NIMH, 2009). The average cost of health care for each of these individuals is between $12,000 and $18,000 a year (Osby et al., 2008). These costs include illness detections, treatments, prevention, and rehabilitation. Treatment typically consists of a prescribed appropriate medication (antianxiety, antipsychotic, or antidepressant) and frequent therapy sessions with a psychiatrist or another form of a mental health specialist (Wang et al., 2002). Serious mental illness can include but is not limited to the following diagnoses: depression, schizophrenia/schizoaffective disorder, and bipolar disorder.

Depression

A person who suffers from major depressive disorder must have a recurrent depressed mood or a loss of interest in daily activities for a minimum period of two weeks (Kessler et al., 2003). Depression is characterized by the presence of a daily depressed mood indicated by either self report or observations made by others (Hilty, Brady, & Hales, 1999). Symptoms include

significant weight loss or weight gain, decrease or increase in appetite, insomnia or hypersomnia, psychomotor agitation or retardation, fatigue or loss of energy, feelings of worthlessness or excessive inappropriate guilt, diminished ability to think or concentrate, indecisiveness, recurrent thoughts of death, recurrent suicidal ideation without a specific plan, or a suicide attempt with a specific plan for committing suicide (American Psychiatric Association, 2000).

Consequences of major depressive disorder include significant psychosocial dysfunction in work, family, social relationships, and leisure activities (Vittengl, Clark, & Jarrett, 2009). Depression often times co-occurs with substance abuse, leading to greater overall severity and worse health related outcomes (Nunes & Levin, 2004). Depression is also associated with a substantial loss of quality of life for diagnosed individuals and their family, as well as increased mortality rates (Cuijpers et al., 2008).

Schizophrenia/Schizoaffective Disorder

Schizophrenia is a SMI characterized by cognitive impairment, psychosis, and social withdrawal (Mueser & McGurk, 2004). People with schizophrenia often experience impaired functioning in work, school, independent living, and interpersonal relationships. Poor functioning in self-care and vocational roles are experienced as well (Dickenson, Bellack, & Gold, 2006). People with schizophrenia also exhibit social dysfunction which contributes to poor community functioning (Dickenson et al., 2006). The core symptoms of schizophrenia include loosening of associations, flattened affect, loss of goal-oriented behavior, and autism (Mueser & McGurk, 2004).

The most common psychotic symptoms in individuals with schizophrenia involve reality disorientation, delusions, and hallucinations (Mueser & McGurk, 2004). Hallucinations vary between auditory, visual, olfactory, or gustatory with auditory hallucinations being the most common. The presence and severity of these symptoms tend to appear in episodes (Kurtz & Mueser, 2008). Negative symptoms, also known as apathy and social withdrawal, entail blunted affect, lack of pleasure, diminished ability to begin and follow through on plans, and reduced quantity or content of speech (Mueser & McGurk, 2004). Patients with schizophrenia also have problems with attention, concentration, psychomotor speed, learning, memory, and problem solving (Meuser & McGurk, 2004).

Similar to schizophrenia is the SMI schizoaffective disorder. Individuals with schizoaffective disorder meet the criteria for both schizophrenia and a mood disorder (Kempf, Hussain, & Potash, 2005). According to the DSM-IV, a person is classified as having schizoaffective disorder if symptoms meet the following criteria: a) the co-occurrence of a manic, major depressive syndrome and symptoms meeting the criteria for schizophrenia, b) the presence of delusions or hallucinations for a period of two weeks if major mood symptoms are absent, and c) the presence of symptoms meeting criteria for a mood episode for a considerable part of the active and dormant periods of illness (Maj, Pirozzi, Formicola, Bartoli, & Bucci, 2000). The International Statistical Classification of Diseases and Related Problems specifies that people with schizoaffective disorder must meet the criteria for both schizophrenia and a mood disorder within the same episode or at the same time for at least part of an episode (Kempf et al., 2005).

Bipolar Disorder

Bipolar disorder is a lifetime disorder and is characterized by two main types of relapse: mania and depression. Mania can be described as a euphoric state without inhibition, or over active behavior (Baker, 2001). Three or more of the following symptoms must be present for at least one week: inflated self esteem or grandiosity, decreased need for sleep, pressured speech, distractibility, and psychomotor agitation (Hilty et al., 1999). Depression is characterized by an inability to concentrate, insomnia, loss of appetite, feelings of extreme sadness, guilt, helplessness, hopelessness, and thoughts of death (Baker, 2001). Symptoms must be present during the same two week period. Individuals with bipolar disorder can also experience hypomania and mixed symptoms (Hilty et al., 1999). A hypomanic episode is similar to a manic episode, except symptoms must be present for only four days and there is no need for hospitalization. When symptoms for both a major depressive and manic episode occur, it is considered a mixed episode. Typically, this episode lasts a shorter duration of time than other episodes (Hilty et al., 1999).

Consequences of bipolar disorder include decreased social functioning, decreased community functioning, and increased likelihood of poor family relationships (Swann, 2006). Some individuals diagnosed with bipolar disorder have difficulty concentrating and poor memory (Glahn & Velligan, 2007). These symptoms influence social and vocational functioning and can limit social problem solving abilities (Glahn & Velligan, 2007). Functioning is often dependent on the type of bipolar disorder an individual has. There are three subgroups of bipolar disorder: bipolar I, bipolar II, and cyclothymic disorder (Baker, 2001). Bipolar I is characterized by manic episodes and depressive episodes lasting greater than one week. People with bipolar II

experience hypo-manic and depressive episodes, while people with cyclothymic disorder experience multiple hypo-manic and depressive episodes of less severe duration (Baker, 2001).

SMI Impact on Psychosocial Functioning

Though SMI affects psychological functioning, recent treatment focuses on psychosocial functioning. Treatment for psychological functioning includes reducing negative symptoms evident in emotions and cognitions such as hallucinations, delusions, and disorganized speech and behavior (Ross & Mirowsky, 2003). Psychosocial functioning is different in that it is defined as the abilities or skills necessary for successful community functioning (Perivoliotis et al., 2004). This also includes individuals' abilities to fulfill their roles in society as a member of a family or profession (Juckel & Morosini, 2008). Concepts underlying community skills and abilities include physical and social functioning, emotional health, productivity, and intimacy (Perivoliotis et al., 2004). Several studies show psychosocial functioning as a significant determinant of quality of life (Perivoliotis et al., 2004).

Coryell, Scheftner, Keller, Endicott, Maser, and Klerman (1993) examined the scope, severity, and persistence of psychosocial impairment as an effect of bipolar and unipolar affective disorder. Participants (N=388) were matched with corresponding comparison groups where individuals lacked defining syndromes of psychosis. Areas of study included occupation, education, marital status, sexual functioning, and other psychosocial areas (Coryell et al., 1993). Researchers found psychosocial functioning of the depressed individuals to be persistently impaired in comparison with the control group (Coryell et al., 1993).

Patterson et al. (1998) compared individuals with schizophrenia (N=84) and schizoaffective disorder (N=18) with individuals similar in age and education, but having no diagnoses. The Direct Assessment of Functional Status (DAFS) was administered to assess psychosocial functioning. After analyzing the results, researchers found individuals with schizophrenia or schizoaffective disorder were more impaired in total score and subscale scores than those with no diagnosis (Patterson et al., 1998).

Klaplow, Evans, Patterson, Heaton, Koch, and Jeste (1997) studied the functional capacity of psychiatric patients (N=55) compared to individuals without a diagnoses (N=72). Participants were administered the Direct Assessment of Functional Status Scale to asses behavior during simulated daily activities such as communication (Klaplow et al., 1997). Individuals with a psychiatric diagnosis were concluded to have significantly greater disability than the compare group in total score as well as behavior subscales (Klaplow et al., 1997).

Alaja et al. (1999) compared psychosocial functioning of individuals with physical impairments and psychiatric diagnoses. Functioning was assessed by using the Global Assessment of Functioning (GAF). Scores of individuals with physical impairments ranged from 51-60 (moderate symptoms), while scores of individuals with a psychiatric diagnosis ranged from 41-50 (serious symptoms) (Alaja et al., 1999). Researchers concluded a significantly lower rate of psychosocial functioning occurs in individuals with psychiatric diagnoses than those with physical impairments (Alaja et al., 1999).

Perivoliotis et al. (2004) compared psychosocial functioning of outpatients with schizophrenia (N=57) and healthy control patients with no DSM-IV diagnoses of past or current mood, anxiety, or psychotic disorders (N=40). The control group did not significantly differ

from the patient population in terms of age or ethnicity. After administering a self report version of the Independent Living Skills Survey (ILSS) Global Functioning Score, researchers found individuals with schizophrenia scored significantly worse than the control group on eight of the 10 functional areas (Perivoliotis et al. 2004).

Global Assessment of Functioning

A dependable assessment tool must be used to accurately evaluate a person's psychiatric symptoms and psychosocial functioning before and after treatment. The Global Assessment of Functioning (GAF) scale is introduced as Axis V of the *Diagnostic and Statistical Manual, 4th edition revised* (DSM-IV-TR), and offers a brief and concise method of measuring overall patient psychological condition (Mossbarger, 2005). As part of the DSM-IV-TR standard procedure, the GAF is the most widely used measure of psychiatric patient functioning (Burlingame et al., 2005).

The GAF is a rating tool used for assessing psychological, social, and occupational functioning on a scale ranging from one to 100, with one representing lowest possible functioning and 100 representing highest overall functioning (Hall, 1995). The scale is divided in to 10 equal intervals with each 10 point range containing two components, including symptom severity and social functioning (Startup, Jackson, & Bendix, 2002). Ratings fall within a particular interval when either symptom severity or social functioning meets the descriptive criteria within that range. Clinicians determine specific ratings within each interval based on the level of functioning and severity of symptoms. The final GAF rating reflects the lowest score of the two components (Mossbarger, 2005). This assessment is typically administered at patient admission and discharge, with scores tending to be higher upon discharge than at admission to

treatment (Soderber, Tungstrom, & Armelius, 2005). Ratings on the GAF scale should be for the level of functioning at the time of evaluation to reflect an individual's current need for treatment or care (Startup et al., 2002). The GAF does not include impairment of functioning due to physical or environmental limitations (Mossbarger, 2005). Research has reported inter-rater reliability coefficients that range from modest to excellent as well as moderate to high concurrent validity (Burlingame et al., 2005).

Startup et al. (2002) studied the concurrent validity of the GAF using individuals admitted to behavioral health services diagnosed with schizophrenia, schizophreniform, or schizoaffective disorder (N=66). The instrument was reported to have excellent inter-rater reliability for two raters at initial intake of the assessment (ICC=.89), at a six month follow up (ICC=.94), and at a 12 month follow up (ICC=.95). The researchers also discussed the GAF as having an important role in monitoring outcomes of clinical interventions over time (Startup et al., 2002).

Vatnaland, Vatnaland, Friis, and Opjordsmoen (2006) conducted a mini meta-analysis using six studies performed between 1995 and 2003. Researchers tested the reliability of the GAF including patients recruited from out-patient facilities, psychiatric hospitals, and in-patient clinics (N=419). Of the six studies reviewed, all found GAF inter-rater reliability as excellent (ICC>.74) except for two, which used children as part of the sample. The inter-rater reliability for the two exceptions was still reported as good (ICC >.60<.74).

The GAF was found to be a valid measure of global psychopathology by examining clinician and external rater scores using a factor analysis (Hilsenwroth et al., 2000). Factors included compared GAF clinician scores and external rater scores with the Social and

Occupational Functioning Assessment Scale (eigenvalue=3.9) and the Global Assessment of Relational Functioning Scale (eigenvalue=1.3). The two compared factors accounted for 86% of variance between tests, demonstrating similarities between the three scales (Hilsenwroth et al., 2000).

Recreational Therapy and Serious Mental Illness

Individuals with SMI typically seek treatment for symptoms and psychosocial functioning at inpatient behavioral health centers, acute care facilities, and outpatient clinics. Treatment consists of a combination of services including psychology, nursing, and recreational therapy (RT). The primary purpose of RT is to provide activities that treat, minimize, or improve the effects of a condition, illness, or disability (Skalko, 2009). Recreational therapists address psychosocial, attitudinal, and lifestyle domains to enhance independence, health, and quality of life (NCRTA, 2008). Therapists effectively address psychotic symptoms and strengthening of psychosocial supports of people diagnosed with depression, eating disorders, traumatic stress disorders, anxiety disorders, mania, schizophrenia, and several other diagnoses (ATRA, 2008). They use interventions that focus on coping skills, stress management, anger management, relaxation, problem solving, communication, self esteem, community integration, and others.

Though RT research is limited, attempts have been made to provide support for RT as an effective treatment modality for functioning of individuals with SMI. Through the assistance of the United States Department of Education and Temple University's program in therapeutic recreation, a group of over 80 researchers, educators, and practitioners conducted a review of the outcomes of therapeutic recreation (Coyle, Kinney, Riley, & Shank, 1991). Research on the efficacy of therapeutic recreation in mental health settings was included. Developers of this

project provided an introduction of the profession's history in mental health, theoretical perspectives, specific interventions used, a review of the literature to date, and recommendations for future research (Coyle et al., 1991). A summary of the results of reviewed research suggested that therapeutic recreation is successful in causing positive changes in physical, social, cognitive, and emotional states; however, the review emphasized a need for continued research.

Independent studies have also shown support for RT as treatment for SMI. For example, Pestle et al. (1998) compared appropriate behavior scores of people with schizophrenia (N=6) involved in recreational therapy for three months. In the study, the service providers integrated a social-learning program with recreation activities three days a week for 40 minutes to increase appropriate behaviors (Pestle et al., 1998). Individuals were chosen from residents living in a large state mental hospital and their behaviors were recorded using the Time Sample Behavioral Checklist. By engaging in RT, individuals were supported with consistent reinforcement for showing suitable behaviors that occur during leisure activities (Pestle et al., 1998). The authors suggested involvement in RT and the social learning program offered residents natural opportunities to interact appropriately with others, thus increasing appropriate behaviors and independent living skills (Pestle et al., 1998).

Corrigan et al. (1993) reviewed the effects of behavior management and recreation therapy on 10 severely mentally ill patients with psychotic symptoms. Symptoms studied included stereotypic self-talk, visuomotor ruminations, hallucinatory mumbling and laughter, and posturing and grimacing. All symptoms described affect appropriate social behavior and independent functioning. The author of the studies found patients with psychotic behavior who participated in RT decreased the frequency in inappropriate behaviors and increased the

frequency of pro-social behaviors (Corrigan et al., 1993). In this study, behavioral management effects of recreation activities were described as mediated by the following two mechanisms: "a) recreational activities are intrinsically reinforcing and thereby displace bizarre and antisocial behaviors which are incompatible with sustained engagement in the activities, and b) the instructions, cues, and prompts imbedded within recreational activities, especially when provided by a salient therapist, exert stimulus control over patients' attentiveness to the activities" (Corrigan et al., 1993, p. 646).

Finell et al. (1997) compared behavior scores of people with chronic schizophrenia (N=6) who participated in RT services and vocational rehabilitation. There were 25 sessions conducted for each intervention type throughout the study (Finell et al., 1997). Data were collected using the Time Sample Behavioral Checklist, which addressed the following seven categories: location, position, awake-asleep, facial expression, social orientation, concurrent activities, and crazy behavior (Finell et al., 1993). The authors showed that participants involved in RT sessions exhibited higher appropriate behavior scores than those individuals participating in vocational rehabilitation sessions (Finell et al., 1993).

Recreational Therapy Research Objectives

Evidence based research has become highly favored by health care organizations because of its ability to advance quality of services, provide savings for the cost of health care, promote fewer variations in practice, and improve health care outcomes in general (ATRA, 2004). Consumers, accrediting agencies, and health care insurance companies have pressed for increased accountability among health care providers (Stumbo, 2000). Because of this progress, each therapeutic discipline has the responsibility of demonstrating that treatment leads to

functional change through supportive data. Using secondary data collected regularly to monitor client progress is one way to measure treatment effects.

ATRA (2004) expressed the need for RT research aimed at the effectiveness of RT interventions and outcomes of practice to promote efficiency of treatment. A survey was conducted of 35 ATRA members, both educators and practitioners, to identify and prioritize important areas for research to help students, practitioners, and educators. Each member surveyed claimed they were a certified therapeutic recreation specialist (CTRS). Important research areas identified included: a) general intervention area (do interventions improve function), b) dosing area (units of RT needed to cause change), c) timing of interventions, d) co-treatment area (most effective co-treats), e) interactions area, and f) RT preparation area (education and socialization of students) (ATRA, 2004).

Carruthers (1997/98) identified efficacy research as the most crucial component to therapeutic recreation professional growth. She conducted a study to identify the highest priority research topics among practitioners, researchers, and professional associations. Those surveyed included 12 experts in the field of RT and 48 others who had published or were involved in RT professional conferences. The results indicated that the top five ranked priorities were the effect of TR on community integration/reintegration, recidivism, independent functioning, hospital lengths of stay, and the effect of leisure functioning on health (Carruthers, 1997/98).

In correspondence to Carruthers 1997/98 study, Wilhite, Keller, Collins, and Jacobson (2003) performed a study to determine how past RT research priorities compared with current priorities, efficacy research being the main focus. Members of the National Therapeutic Recreation Society (NTRS) (N=131) were surveyed to identify the highest priority research

items. Research findings were generally consistent with previous research. More specifically, top ranked items emphasized RT's impact on client and health care specific outcomes (Wilhite et al., 2003).

Few outcome studies have been conducted by RT professionals. Most research in the field of recreation has been administered by related professionals such as nursing and occupational therapy (Lee & Yang, 2000). Consequently, there remains a need to research RT outcome measures in order to influence current and emerging health care trends and advance the profession (ATRA, 2004). Recreational therapy must supply evidence based research that is RT specific so as to uphold standards with the ever changing environments in health care.

CHAPTER III: METHODOLOGY

Six percent of America's citizens are diagnosed with a serious mental illness (SMI) at some point in their lives (NIMH, 2009). Many of these individuals seek treatment for illness at inpatient behavioral health facilities. Between 2003 and 2005, admissions to these facilities increased 14%, with SMI being the most common reason for hospitalization for adults ages 18 to 44 (NIMH, 2009). During an inpatient stay, individuals receive several services including recreational therapy (RT), psychology, and regular nursing care. The general focus across all disciplines in this setting is to help individuals improve psychological functioning, social functioning, and independent living skills (Holcomb et al., 1998; NIMH, 2009; Wang et al., 2002).

Currently, treatment providers for individuals with SMI tend to pay particular attention to psychosocial outcomes, defined as the abilities and skills necessary for successful community functioning (Juckel & Morosini, 2008) as well as an individual's ability to fulfill his or her role in society as a member of a family or profession (Perivoliotis et al., 2004). According to recent research on SMI, behavioral health treatment facilitates higher rates of recovery of psychosocial functioning compared to psychological symptom reduction (Peer & Spaulding, 2007). Improvement in psychosocial functioning has become an important outcome focus because it leads to improved work functioning, interpersonal functioning, general health, and community functioning (Hirschfeld et al, 2002; Perivoliotis, 2004). Emphasis on psychosocial functioning has started to pressure health care treatment providers to present evidence of improved outcomes in this area. The concern for efficacy of treatment reflects the move to evidence-based practice across health care settings and is a critical factor in the delivery of appropriate and high-quality

treatments. Increasingly, all health care professions are expected to demonstrate valued outcomes to justify their roles in the treatment of people with illnesses and disabilities.

Because of the increasing demands for evidence of functional outcomes of health care services, disciplines that can demonstrate valued outcomes may have a professional advantage in an increasingly competitive and market driven environment (Stumbo, 2000). These demands may be particularly acute for smaller and newer professions such as RT. Therefore, the original purpose of this study was to examine the influence of recreational therapy services on change in psychosocial functioning (as measured by the Global Assessment of Functioning) of people with SMI. The following research questions were to be addressed:

(a) When controlling for admission GAF scores, will length of stay (LOS), age at admission, number of Axis I-IV diagnoses, and number of treatment units of RT significantly predict change in psychosocial functioning for people with SMI receiving inpatient psychiatric treatment?

(b) When controlling for admission GAF scores, will the number of units associated with each type of RT intervention significantly predict change in psychosocial functioning for people with SMI receiving inpatient psychiatric treatment?

However, due to a series of events, the purpose of this study was altered. In recent years, the research site of the current study began documenting patient information electronically, potentially facilitating relatively easy analysis of patient data. Unfortunately, three issues related to availability of data led to the alteration of the purpose of the current study. After lengthy consultation with data management personnel at the study site, it was determined that the original study could not be completed as proposed. The study was thus re-scaled to a descriptive

study of recreational therapy treatment based on diagnoses, type of intervention used, and demographic information, including age at admission and length of stay.

Population and Sample

Originally, the population was to include individuals in the United States who: (a) were diagnosed with a SMI (e.g., depression, schizophrenia/schizoaffective disorder, bipolar disorder), (b) were over 18 years of age, and (c) received RT services as part of treatment. However, criteria for the population were modified. Due to the lack of a diagnostic category labeled as *schizophrenia* in the data received from the research site, the researcher expanded diagnoses to included individuals categorized as having a *mental disorder* or an *episodic mood disorder*. The population was to include individuals with multiple diagnoses and/or co-morbidities, but this information was not available to the researcher. The sample included individuals who received behavioral health inpatient treatment at a hospital in southeastern North Carolina over a three year period (2007-2010). Individuals who were admitted more than once during this time were only reviewed at the first admission.

Research Setting

The research setting is a Joint Commission accredited hospital located in the southeastern United States. The hospital delivers services to 29 counties, is an essential element of a regional health care system, and is a large teaching hospital associated with a regional university's medical school. Services other than behavioral health include a level one trauma center, intensive and intermediate care, pediatrics, obstetrics, surgery, and pain management. Centers of care also include cardiovascular health, diabetes, cancer, women's health, and rehabilitation.

Data Collection

Data were collected using preexisting electronic medical records from the behavioral health unit. The dataset was to include demographic information, the number of RT units provided to each individual, the type of RT intervention(s) used, diagnosis, admission and discharge Global Assessment of Functioning (GAF) scores, and co-morbidities as determined by Axis II-Axis IV of the DSM-IV-TR. Admission and discharge GAF scores were unavailable for analysis. To assure anonymity, identifying information (e.g., names, patient record numbers) was removed from records by a hospital records administrator. Participants were assigned a case number unique to this study, and no other identifying information was included in the data. Data were collected only from the individuals' first admission.

Instrumentation

Demographic data, length of stay, treatment, diagnosis, GAF scores, and co-morbidities (as indicated by DSM-IV Axis I-IV) were to be accessed by reviewing electronic patient medical records. Again, GAF scores and co-morbidities were unobtainable. Demographic data included age and length of stay. Treatment was determined by the total number of RT units an individual received during his or her stay. One unit of treatment was equal to 15 minutes of care. Also, RT treatment was to be categorized into eight intervention focus areas classified by the research site. These focus areas were to include coping skills, stress management, anger management, relaxation, problem solving, communication skills, self-esteem building, and community integration. Despite assurances from research partners at the study site that the aforementioned intervention categories were attainable, RT intervention categories coded into the data set that was received included individual assessment, individual and group community re-entry,

individual and group aquatic therapy, patient care management, and individual and group general RT sessions.

Changes in psychosocial functioning were going to be measured by changes in patient GAF scores from admission to discharge. The GAF is the most widely used measure of psychiatric patient functioning (Burlingame et al., 2005), and researchers have reported appropriate reliability and validity for the instrument. For example, the results of a study testing the GAF's reliability reported reliability in the excellent range for two raters at three different intervals (ICC=.89, ICC=.94, ICC=.95) (Vatnaland et al., 2006). Hillsenwroth et al., (2000) found the GAF to be a valid instrument by using a factor analysis comparing variance of clinician and external rater scores for Axis V variables between the GAF and the Social and Occupational Functioning Assessment Scale (eigenvalue=3.9), and the GAF and the Global Assessment of Relational Functioning Scale (eigenvalue=1.3).

Because the GAF is a psychosocial measure based on functioning and symptoms, there is a natural association between the GAF and axes I, II, III, and IV (Tungstrom, Soderberg, & Armelius, 2005). Studies have indicated that GAF scores can be predictably correlated with other axes, and therefore can account for some change in scores after treatment (Moos, McCoy, & Moos, 2000). The axes are defined as follows: Axis I (psychiatric disorders), Axis II (personality disorders), Axis III (general medical conditions), and Axis IV (psychosocial and environmental problems) (Fortney, Owen, & Clothier, 1999). Studies that have focused on the association between GAF scores and other measurements related to diagnosis or symptoms have shown that about 20% of variance in GAF scores can be explained by differences in diagnoses or symptoms (Tungstrom et al., 2005). Data collected on comborbidities (Axis I-IV) were to be

used to account for severity of illness and GAF score variance. Again, this information was not available because this information was not in the dataset.

Unfortunately, GAF scores and co-morbidities were entered in the electronic database at the research site in a manner that made them inaccessible to the researcher. Scores were entered by physicians in what the research site's technical support staff called *free form text*, meaning GAF scores could not be imported into a spreadsheet. Rather, these scores would have to be pulled individually from each electronic medical record. The study site was unable to provide personnel to review each medical chart, and confidentiality laws prohibited the researcher from accessing medical records directly.

Key Variables

This study was meant to utilize the following hypotheses and variables.

Hypothesis 1: After controlling for admission GAF scores, the length of stay (LOS), age at admission, number of Axis I-IV diagnoses, and number of treatment units of RT will significantly predict discharge GAF scores for people with SMI receiving inpatient psychiatric treatment.

-Independent Variable: admission GAF scores, number of Axis I-IV diagnoses, LOS, number of RT units as measured in 15 minute increments, and age at admission

-Dependent Variable: discharge GAF score

Hypothesis 2: After controlling for admission GAF scores, the number of units associated with each type of RT intervention will significantly predict discharge GAF scores for people with SMI receiving inpatient psychiatric treatment.

-Independent Variable: number of units associated with each type of RT intervention

-Dependent Variable: change in total GAF score from admission to discharge

The admission and discharge GAF scores as well as the number of Axis I-IV diagnoses were not included in the data received. Only the following independent variables remained: LOS, age at admission, number of RT units as measured in 15 minute increments, and number of units associated with each type of RT intervention. No new hypotheses were formed as a result of the nature of the available data.

Analysis

Data were to be entered in to SPSS version 18.0 for analysis. Originally, descriptive statistics were going to be used only to examine demographic data and patient diagnosis. To identify variables that are predictors of psychosocial functioning as measured by the GAF, a hierarchical regression model was to be used to examine research question one. By using this method, variance in the dependent variable could have been explained by one or a set of independent variables, and significance could have been computed for each added variable. For research question one, discharge GAF scores would have been entered as the dependent variable. Admission GAF scores would have been added as step 1, with the remaining independent variables added as followed: step 2) length of stay, step 3) age at admission, step 4) number of Axis I-IV diagnoses, and step 5) number of treatment units of RT. Steps 1-4 would have been

entered first to make sure these variables did not account for the entire association between the number of treatment units of RT and change in psychosocial functioning.

Because ratings of individual's current level of functioning is expected to be valuable in predicting treatment outcomes (Moos, McCoy, & Moos, 2000), entering variables in this order would allow for better control of admission GAF scores and their relation to diagnostic labels, length of stay, and age at admission as well as account for variance explained by differences in diagnoses (Tungstrom et al., 2005). Controlling for these variables would permit the researcher to isolate the ability of RT treatment units to predict change in psychosocial functioning. This would have ensured that these variables received credit for any shared variability they may have had with the predictor in step 5. Any observed association of the number of RT units could then have been said to be independent of the association of the variables that had already been controlled for. A secondary analysis of correlations would have been conducted to examine relationships between independent variables and how these relationships may have impacted the observed limits.

Following this initial analysis, ordinary least squares regression applying the enter method would have been used to examine the units of different RT interventions as predictors of change in psychosocial functioning for research question two. This analysis would have assisted in explaining variance between different RT interventions and test the strength and direction of variable relationships (Mackie, Jessen, Jarvis, 2002). Those variables showing a significant relationship with change in psychosocial functioning would then have been added to the first model for analysis.

However, due to difficulties in obtaining data, the researcher was unable to use this plan for analysis. Alternatively, descriptive statistics and frequencies were used to identify RT

treatment patterns among the selected diagnoses. The sample was described by age at admission, length of stay, total recreational therapy (RT) received, and diagnosis. In addition, descriptive statistics were run for LOS, age at admission, and total RT received for each individual diagnosis. Mean RT treatment units received for each intervention was also calculated. Average units of total RT received daily by each diagnosis were calculated by dividing the total number of RT units received by the mean length of stay. This provided the number of units received daily for each diagnosis. One unit was equal to 15 minutes. Analysis of Variance (ANOVA) followed by Scheffe's post hoc test was used to determine if mean RT units received was significantly different between diagnoses groups. A cross tabulation to determine which diagnoses received select RT interventions was completed. The only intervention reviewed was Individual Assessment. Correlation analysis was conducted to determine significance of personal factors and recreational therapy treatment including age at admission and length of stay.

CHAPTER IV: RESULTS

The original purpose of this study was to examine recreational therapy services in relation to their influence on change in psychosocial functioning (as measured by the Global Assessment of Functioning) and compare the influence of different recreational therapy interventions on change in psychosocial functioning (as measured by the Global Assessment of Functioning) of people with SMI. To examine the research questions, the researcher relied on data collected from existing electronic medical records from an in-patient behavioral health unit of a large regional medical center. Despite a nearly year-long effort to obtain data appropriate to the original research questions, the study site was unable to provide these data. Therefore, the study was re-scaled to a descriptive study of recreational therapy treatment based on diagnoses, type of intervention used, and demographic information including age at admission and length of stay.

Sample Description

The sample included 5,766 adult participants with a serious mental illness (SMI) who received treatment in an inpatient behavioral health unit of a large regional medical center in the southeastern United States between 2007 and 2010. If patients had a diagnosis other than depression, bipolar disorder, bipolar I disorder, mental disorder, or episodic mood disorder, they were removed from the dataset. This resulted in the removal of 675 cases from the original sample. An additional 3,040 cases were removed because they were repeated entries of other cases. Following removal of 3,715 cases, 2,051 participants remained and included the following: (a) diagnosis of depression = 1,230 individuals (b) diagnosis of bipolar disorder = 328 individuals, (c) diagnosis of a mental disorder = 402 individuals, (d) diagnosis of an episodic

mood disorder = 69 individuals, (e) diagnosis of bipolar I disorder = 22 individuals as represented in Table 1.

Table 1

Diagnosis Frequencies of the Study Sample

Diagnosis	Frequency
Depression	1,230
Bipolar Disorder	328
Mental Disorder	402
Episodic Mood Disorder	69
Bipolar I Disorder	22

Characteristics of the Sample

Descriptive statistics and frequencies were conducted to better represent sample characteristics including age at admission, length of stay (LOS), and total recreational therapy units received. Characteristics of the sample include the following: (a) mean age at admission = 40.56 years (SD = 14.70) with an age range of 18-94 years, (b) median age = 40 years, (c) mode age = 20 years (d) mean length of stay (LOS) = 9.07 days (SD = 8.07), (e) median LOS = 7 days, (f) mode LOS = 5 days, (g) mean total recreational therapy (RT) units received = 41.52 units (SD = 42.15), (h) median RT received = 32 units, and (i) mode RT received = 0 units as represented in Table 2 and Table 3.

Table 2

Average Characteristics of the Sample

Characteristics	Sample
Age at admission	40.56 years (SD = 14.70)
Length of stay	9.07 days (SD = 8.07)
Total RT	41.52 units (SD = 42.15)

Note. One RT unit equals 15 minutes of treatment.

Table 3

Other Characteristics of the Sample

Characteristics	Median	Mode
Age at admission	40 years	20 years
Length of stay	7 days	5 days
Total RT	32 units	0 units

Note. One RT unit equals 15 minutes of treatment.

In order to provide a more thorough description of the sample, characteristics were also categorized by ranges. Age at admission was divided by the following: (a) 372 individuals (18 %) between the ages of 18-25 years (b) 459 individuals (22.4%) between the ages of 26-35 years, (c) 466 individuals (22.7%) between the ages of 36-45 years, (d) 569 individuals (27.7%) between the ages of 46-60, and (e) 185 individuals (9 %) over the age of 60 years as shown in Table 4.

Table 4

Sample Age Range

Age at admission	Sample	Percentage
18- 25 years	372	18 %
26-35 years	459	22.4 %
36-45 years	466	22.7 %
46-60 years	569	27.7%
Over 60 years	185	9%

Table 5 represents length of stay divided by the following ranges: (a) 290 individuals (14.1%) stayed 0-3 days, (b) 660 individuals (32.2 %) stayed 4-6 days, (c) 568 individuals (27.7 %) stayed 7-10 days, (d) 294 individuals (14.3 %) stayed 11-15 days, and (e) 239 individuals (11.7%) stayed more than 15 days.

Table 5

Sample LOS Range

Length of stay	Sample	Percentage
0-3 days	290	14.1%
4-6 days	660	32.2 %
7-10 days	568	27.7 %
11-15 days	294	14.3 %
Over 15 days	239	11.7%

Table 6 represents total RT received divided by the following ranges: (a) 840 individuals (41%) received 0-25 units, (b) 637 individuals (31.1%) received 26-50 units, (c) 293 individuals (14.3 %) received 51-75 units, (d) 132 individuals (6.4 %) received 76-99 individuals, and 149 individuals (7.3 %) received 100 or more units.

Table 6

Sample Total RT Range

Total RT	Sample	Percentage
0-25 units	840	41 %
26-50 units	637	31.1%
51-75 units	293	14.3 %
76-99 units	132	6.4 %
Over 99 units	149	7.3 %

Note. One unit equals 15 minutes of treatment.

The majority of the sample was middle aged (46-60 years), stayed for less than a week (4-6 days) and received between 0 and 25 units of RT treatment. The number of RT units received approximates to a maximum of 6.25 hours of treatment during admission, resulting in a minimum of 1.04 hours of RT treatment daily for the greater part of the sample.

Relationship of Diagnosis to Recreational Therapy Treatment

Analysis of Variance (ANOVA) was used to determine if mean RT units received was significantly different between diagnoses groups. A significant difference was found between individuals with depression and individuals with a mental disorder ($p = .007$), and was cause for further investigation between total RT means. The analysis indicated individuals with

depression received a significantly smaller number of units of total RT treatment than individuals diagnosed with a mental disorder.

Review of the mean units of total RT treatment received by each diagnoses category confirmed the following: (a) mean total units of RT for depression = 39.08, (b) mean total units of RT for bipolar disorder = 44.06, (c) mean total units of RT for mental disorder = 48.15, (d) meant total units of RT for episodic mood disorder = 34.38, and (e) mean total units of RT for bipolar I disorder = 40.68. Individuals with depression received less total RT (39.08 units) than those with a mental disorder (48.15 units) as shown in Table 7.

Table 7

Mean Total RT Units by Diagnoses

Diagnosis	Total RT Units
Depression	39.08 (SD = 36.92)*
Bipolar Disorder	44.06 (SD = 42.93)
Mental Disorder	48.15 (SD = 55.74)*
Episodic Mood Disorder	34.38 (SD = 31.17)
Bipolar I Disorder	40.68 (SD = 31.91)

* denotes $p < .05$

Note. Analysis of variance was used to determine if mean number of RT units received by diagnosis were significantly different from one another.

Descriptive statistics on LOS and age at admission for each separate diagnosis were also performed to further explore significant factors. Characteristics included the following:

(a) individuals with depression - LOS = 7.89 days and age at admission = 40. 37 years,

(b) individuals with bipolar disorder - LOS = 9.03 days and age at admission = 39.33 years,

(c) individuals with mental disorder - LOS = 13.01 days and age at admission = 42.47 years,

(d) individuals with episodic mood disorder - LOS = 6.47 and age at admission = 37.35 years, and (e) individuals with bipolar I disorder - LOS = 11.59 days and age at admission = 44.95 as shown in Table 8.

Table 8

Mean Characteristics of Diagnoses

Diagnosis	LOS	Age at Admission
Depression	7.89 days (6.53 SD)	40.37 years (14.71 SD)
Bipolar Disorder	9.03 days (6.54 SD)	39.33 years (13.81 SD)
Mental Disorder	13.01 days (11. 68 SD)	42.47 years (15.23 SD)
Episodic Mood Disorder	6.47 days (5.82 SD)	37.35 years (14.38 SD)
Bipolar I Disorder	11.59 days (18.81 SD)	44.95 years (15.15 SD)

Note. LOS = Length of Stay

The units of total RT received daily by each diagnosis were calculated by dividing the total number of RT units received by the mean length of stay. This provided the number of units received daily for each diagnosis. One unit was equal to 15 minutes. According to these estimations, individuals with episodic mood disorder received the most RT units daily (5.31 units, 1.35 hours), followed by individuals with depression (4.95 units, 1.24 hours), individuals with bipolar disorder (4.88 units, 1.22 hours), individuals with mental disorder (3.73 units, .93 hours), and individuals with bipolar I disorder (3.51 units, .88 hours) respectively (see Table 9).

Table 9

Average Total RT per Day

Diagnosis	Units	Hours
Depression	4.95*	1.24
Bipolar Disorder	4.88*	1.22
Mental Disorder	3.72*	.93
Episodic Mood Disorder	5.31*	1.35
Bipolar I Disorder	3.51	.88

Note. Units per day.
Hours per day.
One unit equals 15 minutes.
* denotes $p < .05$

ANOVA was used to determine if daily RT units received was significantly different between diagnoses groups. The analysis indicated individuals with a mental disorder significantly differed from those that were diagnosed with depression, an episodic mood disorder, and bipolar disorder ($p < .05$).

RT Interventions

During admission, RT treatment was documented into 10 intervention categories. Table 10 represents the mean units of recreational therapy associated with each type of RT intervention received by all individuals. This included: (a) 2.96 units of Individual Assessments ranging from 0 to 11 units, (b) .07 units of Individual Community Re-entry ranging from 0 to 14 units, (c) .04 units of Group Community Re-entry ranging from 0 to 12 units (d) .04 units of Individual Aquatic Therapy ranging from 0 to 12 units, (e) .14 units of Group Aquatic Therapy ranging from 0 to 8 units, (f) .36 units of Individual RT session A ranging from 0 to 29 units, (g) 36.94 units of Group RT session A ranging from 0 to 399 units, (h) .95 units of Patient Care

Management, (i) .01 units of Individual RT session B ranging from 0 to 10 units, (j) .01 units of Group RT session B ranging from 0 to 5 units, and (k) 41.52 units of Total RT ranging from 0 to 429 units. One unit equals 15 minutes of treatment.

Table 10

Mean Number of Treatment Units Provided

Type of Therapy	Number of Units
Individual Assessments	2.96 (SD = 2.10)
Individual Community Re-entry	.07 (SD = .79)
Group Community Re-entry	.04 (SD = .57)
Individual Aquatic Therapy	.04 (SD = .52)
Group Aquatic Therapy	.14 (SD = .91)
Individual RT session A	.36 (SD = 1.66)
Group RT session A	36.94 (SD = 40.11)
Patient Care Management	.95 (SD = 2.19)
Individual RT session B	.01 (SD = .22)
Group RT session B	.01 (SD = .16)

Note. One unit equals 15 minutes of treatment.

A cross-tabulation to determine which diagnoses received select RT interventions was performed (see Table 11). The intervention selected included only Individual Assessment. Individuals who received 0 units of Individual Assessment were as follows: (a) depression = 391 individuals, (b) bipolar disorder = 102 individuals, (c) mental disorder = 133 individuals, (d) episodic mood disorder = 17 individuals and (e) bipolar I disorder = 5 individuals. Individuals who received 1 to 5 units of Individual Assessment were as follows: (a) depression = 800

individuals, (b) bipolar disorder = 218 individuals, (c) mental disorder = 257 individuals, (d) episodic mood disorder = 52 individuals, and (e) bipolar I disorder = 17 individuals. Individuals who received more than 5 units of Individual Assessment were as follows: (a) depression = 39 individuals, (b) bipolar disorder = 8 individuals, and (c) mental disorder = 12 individuals.

Table 11

Cross-tabulations for Individual Assessment

	0 units	1-5 units	Over 5 units
Depression	391	800	39
Bipolar Disorder	102	218	8
Mental Disorder	133	257	12
Episodic Mood Disorder	17	52	0
Bipolar I Disorder	5	17	0

Overall, 648 individuals (31.59%) did not receive any units of individual assessment, and 63% of these individuals did receive RT as treatment. Of the 1,812 individuals who received RT as treatment, 409 (22.47%) did not receive any units of individual assessment.

Relation of Personal Factors to Recreational Therapy Treatment

Correlation analysis was performed to determine significance of personal factors and recreational therapy treatment. Personal factors included age at admission and length of stay. The strongest association existed between total RT and LOS (r = .657). Length of stay was also significantly related to age at admission (r = .260). Total RT and age at admission had a smaller, yet significant correlation with each other (r = .136) as represented in Table 12.

Table 12

Correlations among Personal Factors and Total RT

		Total RT	LOS	Age at Admission
Total RT	r		.657**	.136**
	p		.000	.000
LOS	R			.260**
	p			.000

Note. All *n* values = 2051
LOS = length of stay
** p < .01 (2-tailed).

Though LOS, age at admission, and RT were found to have a significant relationship, the cause of the relationship cannot be determined through this analysis.

CHAPTER V: DISCUSSION

Summary

People with serious mental illness (SMI) receive various inpatient therapeutic services designed to promote functional independence. Individuals tend to make considerable gains in psychological and social functioning when provided with treatment suitable to mental illness (NIMH, 2009). Treatment typically includes several coordinated health care disciplines that assist individuals to reduce negative symptoms and to improve both quality of life and community functioning (Holcomb et al., 1998). Recreational therapy (RT) is among those disciplines that commonly treat people with SMI in inpatient psychiatric care (National Council for Therapeutic Recreation Certification, 2009). Though RT addresses several domains of functioning, in recent years treatment for individuals with SMI has focused primarily on psychosocial functioning (Perivoliotis et al., 2004). The few empirical studies reported in the literature suggest that patients with SMI make significant progress in psychosocial functioning while being treated at inpatient psychiatric facilities (Corrigan et al., 1993, Finell et al., 1997; Pestle et al, 1998).

While still small, a growing body of literature reports generally positive outcomes of recreation therapy for people with SMI, however, the existing research lacks evidence of the effects of specific RT interventions. Considering the increasing demands for evidence of functional outcomes of health care services, all health care professions are expected to demonstrate valued outcomes to justify their roles in the treatment of people with illnesses and disabilities. Both health care administrators and third party payers have begun holding practitioners accountable for cost control and efficiency (Stumbo, 2000). Consumers, accrediting bodies, and insurance providers expect functional outcomes as the cost of providing

necessary health services continues to increase. Thus, a general understanding that RT and recreation may have benefits for people with SMI is insufficient, and there is urgent need to distinguish the relative effects of specific interventions. Without these data, RT professionals lack an understanding of effectiveness and efficiency of their services, and the profession finds itself at a competitive disadvantage in an increasingly aggressive health care environment. Therefore, the original purpose of this study was to examine the influence of recreational therapy services on change in psychosocial functioning (as measured by the Global Assessment of Functioning) of people with SMI.

Due to a series of events, the purpose of this study was altered. Despite initial assurances from collaborators at the study site, the extant data that were obtained were significantly different than expected. Most significantly, the dependent variable for the original study, change in admission and discharge Global Assessment of Functioning (GAF) scores, were unattainable. Other data, once obtained, did not resemble the data that were expected. A significant difficulty in obtaining useable data for the current study was due to differences between the way practitioners chart patient progress and the demands of data used for sophisticated statistical analysis. For instance, while GAF scores were charted in an electronic documentation system, the scores appeared in *free text* fields that were, for all intents and purposes, inaccessible to the researchers. Accessing these data would require hundreds of work hours. Health information privacy laws prohibited the researchers from manually searching patient records for these data, and the study site was unwilling and unable to commit resources to this effort.

It also became necessary to modify the criteria for the population from the proposed study. There were no diagnostic codes for schizophrenia in the data received. So, the researcher expanded diagnoses included in the analysis to individuals categorized as having a mental

disorder or an episodic mood disorder. Finally, due to a baffling array of databases that separately housed data for billing units and specific interventions delivered, the data manager at the study site was unable to provide data that allowed the researcher to determine the units of specific interventions that were delivered to patients. Original intervention categories that were based on information from practitioners on site were to include coping skills, stress management, anger management, relaxation, problem solving, communication skills, self esteem building, and community integration. After weeks of work, the data manager at the study site was able to narrow RT intervention categories only to individual assessment, individual and group community re-entry, individual and group aquatic therapy, patient care management, and individual and group general RT sessions. Based on information that was accessible, the study was re-scaled to a descriptive study of recreational therapy treatment based on diagnoses, type of intervention used, and demographic information including age at admission and length of stay.

Descriptive statistics were used to characterize the sample by age at admission, length of stay, total recreational therapy (RT) received, and diagnosis. Analysis of Variance (ANOVA) followed by a Scheffe's post hoc test was performed to determine if mean RT units received were significantly different between diagnoses groups. To further explore findings from the ANOVA analysis, descriptive statistics were run for length of stay (LOS), age at admission, and total RT received for each individual diagnosis. Mean RT received for each intervention was also calculated. A cross tabulation to determine which diagnoses received select RT interventions was completed. The only intervention reviewed was Individual Assessment due to its size and the understanding that all patients must have an assessment before being treated. ANOVA was again used to determine significant difference between total RT received and number of individual assessment units received. Correlation analysis was conducted to examine

relationships between personal factors (e.g., age at admission, length of stay), and recreational therapy treatment.

Summary of Findings

The sample consisted of 2,051 patients with serious mental illness including diagnoses of: (a) depression (n = 1,230), (b) bipolar disorder (n = 328), (c) mental disorders (n = 402), (d) episodic mood disorders (n = 69), and (e) bipolar I disorder (n = 22). The mean age at admission was 40.56 years (SD = 14.70) with an age range of 18-94 years. The greatest percentage of the sample (27.7 %) was between the ages of 46 and 60. The length of stay varied from zero to 98 days with a mean LOS of 9.07 days (SD = 8.07), which is slightly longer than the national average LOS of seven days (Centers for Disease Control and Prevention, 2008). However, the greatest percentage of the sample (32.2 %) stayed between four and six days.

Individuals received a variety of recreational therapy (RT) intervention units while in treatment including a mean of 2.96 units of Individual Assessment, .07 units of Individual Community Re-entry, .04 units of Group Community Re-entry, .04 units of Individual Aquatic Therapy, .14 units of Group Aquatic Therapy, .36 units of Individual RT session A, 36.94 units of Group RT session A, .95 units of Patient Care Management, .01 units of Individual RT session B, and .01 units of Group RT session B with an average total RT units of 32 units during an individual's stay. The greatest percentage of the sample (41%) received between zero and 25 units of total RT during admission. The number of RT units received approximates to a maximum of 6.25 hours of treatment during admission, resulting in a minimum of 1.04 hours of RT treatment daily for the greater part of the sample.

Participants received the most treatment units of Group RT session A with a mean of 36.94 units. This is probably due to the fact that this intervention category includes coping

skills, stress management, anger management, relaxation, problem solving, communication skills, self esteem building, and social skills. Practitioners at the research site documented treatment units in the category Group RT session A, and then included the type of session in a free text note in the electronic database. Thus, specific type of intervention delivered remained inaccessible to the researcher.

Characteristics by Diagnosis

Characteristics of the sample varied slightly by diagnosis. Individuals with depression had a mean age at admission of 40.37 years and stayed a mean of 7.89 days. Those diagnosed with bipolar disorder had a mean age of 39.33 years and stayed an average of 9.03 days. Individuals diagnosed with a mental disorder had a mean age of 42.47 years and stayed on average 13.01 days. Episodic mood disorder had a mean age of 37.35 years and stayed an average of 6.47 days. Finally, those diagnosed with bipolar I disorder had a mean age of 44.95 years and stayed a mean total of 11.59 days.

The mean total RT received also differed by diagnosis. Individuals diagnosed with depression received a mean of 38.08 units of RT during admission, averaging 4.95 units (1.24 hours) a day. Bipolar disorder received a mean of 44.06 units of RT, and 4.88 units (1.22 hours) daily. Those diagnosed with a mental disorder received a mean of 48.15 units of RT, averaging 3.72 units (.93 hours) a day. Episodic mood disorder received a mean of 34.38 units of RT and 5.31 units (1.35 hours) a day. Individuals with bipolar I disorder received 40.68 units of RT with an average of 3.51 units (.88 hours) a day. Units are equal to 15 minutes.

Individuals diagnosed with episodic mood disorder were the youngest, stayed for the least number of days, and received the least number of total RT units. However, they received the most daily units of RT. Perhaps they received more treatment daily because RT practitioners

had fewer days to work with these individuals. Individuals diagnosed with a mental disorder received the most RT and stayed the longest amount of time. The longer stays provided opportunities for more RT treatment with participants with mental disorders than for other diagnoses. However, bipolar I disorder showed to be the oldest group of individuals, received the second lowest number of total RT units, the lowest number of daily RT units, but stayed only two days less (11.59) than individuals with a mental disorder. Lack of treatment despite long stays for people with bipolar I disorder was likely due to difficulty of finding appropriate medication to stabilize manic/depressive episodes (Goldman, Harrow, & Grossman, 1995).

Relationship of Diagnosis and RT

Significant differences of mean total RT units received was found ($f [4, 2046]$; $p = .002$) when comparing all diagnoses including depression, bipolar disorder, mental disorder, episodic mood disorder, and bipolar I disorder. The mean difference ($r = -9.07$) between depression and mental disorder proved to be significant ($p = .007$). Individuals with depression received a fewer number of total RT units (39.08 units) than individuals with a mental disorder (48.15 units), even though there were 828 more individuals with depression (1,230) than there were with a mental disorder (402). Conversely, individuals with mental disorder received fewer daily units of RT (3.72 units) than individuals with depression (4.95). This seeming contradiction is due to the fact that individuals with a mental disorder had a greater mean LOS (13.01 days) than those individuals with depression (LOS = 7.89 days) and therefore had more time to receive more units of total RT. No significant relationships were found between other diagnoses. Though it appears that individuals with episodic mood disorder received the least amount of treatment and should therefore have a significant relationship with individuals with a mental disorder, the

relatively small sample size of individuals with episodic mood disorder may have affected the analysis.

Significant differences were also found when comparing daily RT units between all diagnoses. The analysis indicated individuals with a mental disorder significantly differed from those that were diagnosed with depression, an episodic mood disorder, and bipolar disorder ($f [4, 2043]$; $p < .05$). Other information was unavailable to determine cause of this significance.

Individuals receiving the intervention category of individual assessment were reviewed by the number of units received by each diagnosis. Individual assessment was the only intervention category reviewed because it is something that all individuals being treated were supposed to receive, and individuals received the most number of units in this category, other than RT group session A. RT group session A was not reviewed due to its large size and the research site's inability to differentiate interventions in this category. Individuals who received 0 units of Individual Assessment were as follows: (a) depression = 391 individuals (19%), (b) bipolar disorder = 102 individuals (5%), (c) mental disorder = 133 individuals (7%), (d) episodic mood disorder = 17 individuals (1%) and (e) bipolar I disorder = 5 individuals (.2%). Individuals who received 1 to 5 units of Individual Assessment were as follows: (a) depression = 800 individuals (39%), (b) bipolar disorder = 218 individuals (11%), (c) mental disorder = 257 individuals (13%), (d) episodic mood disorder = 52 individuals (3%) and (e) bipolar I disorder = 17 individuals (1%). Individuals who received more than 5 units of Individual Assessment were as follows: (a) depression = 39 individuals (2%), (b) bipolar disorder = 8 individuals (.3%) and (c) mental disorder = 12 individuals (1%).

No significant relationship was found between diagnosis and the total number of Individual Assessment units received. However, 31.59% of all diagnoses (648 individuals) did

not receive any RT assessment. The American Therapeutic Recreation Association (ATRA) provides 12 standards of practice for recreational therapists to follow while providing treatment. Standard One of ATRA's standards of practice states that recreational therapists should conduct individualized assessments to assemble efficient, complete and accurate information necessary to determine a course of action and individualized treatment plans (ATRA, 1991). Clearly, in many instances, this standard was not met.

A significant relationship was found when comparing the units of total RT received and the number of Individual Assessment units ($f [5, 2045]$; $p < .001$). As might be expected, individuals who received no units of total RT were significantly less likely ($p<.001$) than individuals who received any number of units of RT ($p < .001$) to have received an individual assessment. Also, the mean difference of the units of assessment received ($r = .122$) proved to be significant with individuals who received between one and 25 total RT units and 26 to 50 total RT units ($p < .001$). This was also true for individuals receiving between 51 and 75 total RT units ($r = .106$, $p = .046$), and individuals who received 76 to 99 total RT units ($r = .156$, $p = .019$). These results suggest that individuals who did not receive any RT units accounted for many people who did not receive any Individual Assessment intervention units. However, any individual who received any type of RT treatment should have first received an assessment as part of ATRA standards for practice. Unfortunately, no other data were available to determine other factors influencing the receipt of individual assessment.

Personal Factors and RT

Both LOS and age at admission were significantly correlated with recreational therapy. The strongest association existed between total RT and LOS ($r = .657$), suggesting that the longer a person stays at a behavioral health facility, the more RT treatment units they receive.

Total RT and age at admission had a smaller, yet significant correlation with each other (r = .136), suggesting the older a person is the more RT they receive.

LOS and age at admission were also significantly related to each other (r = .260). The positive correlation suggests the older a person is, the longer he or she will remain at the facility. In this case, older adults with psychiatric problems take longer to respond to treatment and stabilize behavior (Koenig, George, & Schnieder, 1994).

Conclusions/Implications

Data that were gathered were insufficient to answer the original research questions. Due to an electronic documentation system designed for practitioners rather than researchers, admission and discharge GAF scores, as well as co-morbidities, were inaccessible to the researcher despite early assurances that these data were available. To date, recreational therapists in the behavioral health unit that served as the study site do not assess their clients on changes in functional outcomes and have no way to track progress of these outcomes other than changes in the GAF, which is a score determined by non-RT personnel. However, it does not appear that RT practitioners use the GAF to track patient progress as the score appears only in free text fields that are inaccessible to statistical analysis.

Each therapeutic discipline has the responsibility of demonstrating that treatment leads to functional change through supportive data. Without the use of an outcome measure, RT research aimed at the effectiveness of interventions and outcomes of practice to promote efficiency of treatment cannot be conducted (ATRA, 2004). Recreational therapists have a responsibility to provide a measure for outcomes of RT to enhance professional growth (Carruthers 1997/98) and to assure quality treatment of clients.

Results indicated that a high percentage of individuals (31.59%; 648 individuals) did not receive an RT assessment, regardless of diagnosis. These findings support the need to emphasize ATRA standards of practice in the workplace. In order to facilitate effective patient care, efficient and comprehensive assessments must first be conducted (Malone, Szanto, Corbitt, & Mann, 1995). ATRA provides guidelines for recreational therapists to implement treatment including developing treatment plans, implementing appropriate interventions, evaluating treatment plans, and developing discharge plans (ATRA, 1991). Without conducting assessments, recreational therapists cannot plan efficient and effective treatment (ATRA, 1991).

Recommendations and Limitations

Broad coverage and large case numbers make extant data valuable to researchers, planners, and policy makers (Glover, 2003). Although the use of extant data has its advantages (e.g., sample sizes, availability), it is important to note the limited nature of the data for research. The original purpose of this study required information regarding functional outcomes in psychosocial functioning including admission and discharge GAF scores, as well as co-morbidities based on the DSM IV-TR, axis II-IV diagnoses. Extensive communication with study site practitioners throughout a year of planning led to the formation of the original research questions based on the practitioners' assurances of which data were easily accessible in the electronic medical records. Following the research proposal and IRB approval, it was found that these variables were entered into electronic medical records as free form text. Other data were spread among several disparate databases. Even with the month-long aid of a database manager at the study site, data needed to respond to the original research questions remained inaccessible.

In addition to difficulties obtaining GAF data, the hospital records administrator was unable to provide intervention data corresponding to interventions described in initial research

meetings with recreational therapists at the study site. Intervention categories documented in the electronic database were not as specific as practitioners had indicated. Initial inspection revealed that most of the RT sessions were documented as either individual or group general RT sessions. Despite repeated efforts, the researcher struggled to gain definitions of and distinctions between group A and group B from research site practitioners. Eventually, the hospital records administrator determined that the type of RT intervention was documented as a subcategory in a free text field in a separate database. As with the GAF data, this system of documentation rendered the specific treatment data inaccessible to the researcher. Because intervention data were grouped this way, participants appeared to have received mostly Group RT session A. Realistically, individuals could have been receiving a variety of the original list of interventions, but it is still unclear which interventions individuals received most frequently.

Individual diagnosis was easily attainable through the electronic database; however, not all diagnoses requested were available. Diagnoses of depression, bipolar disorder, and schizophrenia were originally requested. Diagnoses received in the data included 37 different diagnoses (which did not include schizophrenia). These diagnoses were eventually limited to depression, bipolar disorder, episodic mood disorder, mental disorder, and bipolar I disorder because they were the most closely related to the diagnoses originally proposed. Bipolar disorder and bipolar I disorder were not combined in the data set. Not only were the diagnoses received different from what the researcher understood to be available, but hospital personnel were unable to provide clarification of the diagnosis of mental disorder. It was assumed that individuals with a mental disorder had symptoms of a serious mental illness, but a diagnosis had not yet been determined. Therefore, individuals in this sample with the diagnosis of a mental

disorder could also be categorized as having one of the other diagnoses already included, or they could have an unrelated serious mental illness.

Based on these limitations, future researchers may consider working with health facilities to design documentation methods that can serve multiple purposes that include research. Electronic charting in medical facilities holds the promise of vast databases that could be useful to researchers. Yet it appears that the particular electronic charting methods used at the study site's behavioral health unit were organized into a confusing array of databases using various formats, many of which hindered the use of statistical analysis. Specific intervention and clinical administration strategies cannot be tested or implemented until documentation methods improve in medical facilities (Malone et al., 1995). The use of free text fields to house numerical data such as GAF scores renders these electronic databases no more useful to researchers than traditional paper medical charts.

The use of extant data due to its size, availability, and value in gaining an elemental understanding of relationships between treatment and outcomes is important, but this is only possible if the data are accessible in a means conducive to analysis. Free form text documentation is appropriate for describing progress and communicating among practitioners, though charting in this manner makes it difficult to easily evaluate functional outcomes. For the research site of the current study, the database needs to be altered to include simple access to GAF scores or other outcome scores created. If GAF scores remain inaccessible, it would be beneficial for RT practitioners to create or find other measurable rating tools to assess patient progress. Documentation for RT interventions must also be altered to include more specific, easily accessible information regarding the number of units received for each category.

Future researchers may also consider conducting evidence based practice research through methods other than using extant data. Researchers could introduce the use of their own tool and train practitioners to document research data as part of everyday charting. Randomized controlled trials could be administered. Of course, historical limitations on randomized control trials in behavioral health settings would have to be overcome. These include small sample sizes and the ethical dilemma of withholding treatment believed to be effective. Additionally, future researchers may consider applying experimental designs to existing interventions that practitioners are already using as well.

Additionally, it is important for practitioners and researchers to communicate efficiently and effectively, using a common vocabulary, demonstrations, and examples whenever possible to facilitate the research process. Practitioners value researchers and consider practices to be enhanced by research findings; however, the two are in need of a medium of communication that bridges the gap between clinician and scientist (Beutler, Williams, Wakefield, & Entwistle, 1995). Better collaboration between practitioners and researchers should remain a priority in the continued effort to conduct efficacy research reporting the effects of treatment, which is important to the field's development and progress (Carruthers, 1997/98).

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APPENDIX: IRB APPROVAL FORM

University and Medical Center Institutional Review Board
East Carolina University, 600 Moye Boulevard
1L-09 Brody Medical Sciences Bldg. • Greenville, NC 27834
Office **252-744-2914** • Fax **252-744-2284** • **www.ecu.edu/irb**
Chair and Director of Biomedical IRB: L. Wiley Nifong, MD
Chair and Director of Behavioral and Social Science IRB: Susan L. McCammon, PhD

TO: Elizabeth Orr, M.S., Department of Recreational Therapy, ECU, 1403 Carol Belk Building

FROM: UMCIRB

DATE: March 4, 2010

RE: Expedited Category Research Study

TITLE: "Effects of Recreational Therapy Services on the Psychosocial Functioning of an Inpatient Behavioral Health Population"

UMCIRB #10-0107

This research study has undergone review and approval using expedited review on 2/26/10. This research study is eligible for review under an expedited category number 5. The Chairperson (or designee) deemed this **unfunded** study **no more than minimal risk** requiring a continuing review in **12 months**. Changes to this approved research may not be initiated without UMCIRB review except when necessary to eliminate an apparent immediate hazard to the participant. All unanticipated problems involving risks to participants and others must be promptly reported to the UMCIRB. The investigator must submit a continuing review/closure application to the UMCIRB prior to the date of study expiration. The investigator must adhere to all reporting requirements for this study.

The above referenced research study has been given approval for the period of **2/26/10** to **2/25/11**. The approval includes the following items:

- Internal Processing Form (dated 2/18/10, received 2/22/10)
- Conflict of Interest Disclosure Form (dated 2/18/10)

The Chairperson (or designee) does not have a potential for conflict of interest on this study.

The UMCIRB applies 45 CFR 46, Subparts A-D, to all research reviewed by the UMCIRB regardless of the funding source. 21 CFR 50 and 21 CFR 56 are applied to all research studies under the Food and Drug Administration regulation. The UMCIRB follows applicable International Conference on Harmonisation Good Clinical Practice guidelines.

UMCIRB HIPAA Waiver Checklist/Approval Form

UMCIRB #: 10-0107 PI: Elizabeth Orr

Title of study (full or abbreviated): Effects of Recreational Therapy Services On the Psychosocial Functioning of an Inpatient Behavioral Health Population

The following criteria are present in this request for a waiver of HIPAA authorization:

Yes	No	
☒	☐	The use or disclosure of protected health information (PHI) involves no more than minimal risk to the individuals
☒	☐	The alteration or waiver will not adversely affect the privacy rights and the welfare of individuals
☒	☐	The research could not practically be carried out without the alteration or waiver
☒	☐	The research could not practically be conducted without access to and use of the PHI
☒	☐	The privacy risks to individuals whose protected health information is to be used of disclosed are reasonable in relation to the anticipated benefits if any to the individuals, and the importance of the knowledge that may reasonably be expected to result from the research
☒	☐	There is an adequate plan to protect the identifiers from improper use and disclosure
☒	☐	There is an adequate plan to destroy the identifiers at the earliest opportunity consistent with the conduct of the research, unless there is a health or research justification for retaining the identifiers, or such retention is otherwise required by law.
☒	☐	There are adequate written assurances that the protected health information will be not be reused or disclosed to any other person or entity, except as required by law, for authorized oversight of the research project. (45 CFR 164.512)

☒ All the above criteria are present, the **Application for Waiver is granted**

☐ All the above criteria are **NOT** present, **Application for Waiver is NOT granted**

Designated UMCIRB Reviewer — Date: 2/26/2010

Principal Investigator: Present this signed form at the time PHI is requested from custodians of records. Principal investigators must ensure adequate records are maintained of all disclosures of PHI when a UMCIRB Waiver or Authorization has been granted. Refer to ECU HIPAA Privacy Policy http://www.ecu.edu/hiss, Accounting for Disclosures of Protected Health Information, 0011.

By signing this document, I acknowledge and affirm that all enrolled subjects are subject to the conditions as outlined in the approved Waiver of Authorization for this study.

Elizabeth M. Orr — Principal Investigator — Date: 2-29-10

UMCIRB APPROVED
FROM 2-25-10
TO no expiration

Version 04-20-06