2016

Wellness Intervention as a Quality of Life Predictor in Mentally Ill Veterans

Tosha Lashon Ellis
Walden University

Walden University

College of Health Sciences

This is to certify that the doctoral dissertation by

Tosha Ellis

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee
Dr. Susan Nyanzi, Committee Chairperson, Public Health Faculty
Dr. Angela Prehn, Committee Member, Public Health Faculty
Dr. Michael Dunn, University Reviewer, Public Health Faculty

Chief Academic Officer
Eric Riedel, Ph.D.

Walden University
2016

Abstract

Wellness Intervention as a Quality of Life Predictor in Mentally Ill Veterans

by

Tosha L. Ellis

MSW, Clark Atlanta University, 2005

BA, Chapman University, 2001

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

in Public Health

Walden University

October 2016

Abstract

Veterans with serious mental illness (SMI) are at high risk of developing conditions such as insulin resistance, obesity, and smoking, which may lead to chronic medical problems. As a result, the morbidity and mortality of people with SMI are high compared to the general population. It appears that integrated care improves the wellbeing of veterans; however, there is a gap in the literature on wellness-based interventions for veterans with SMI. The purpose of this cross-sectional study was to evaluate the association between a wellness intervention for veterans and their perceived quality of life (QOL). Social cognitive theory was the theoretical lens through which this study was conducted. It was hypothesized that there is an association between veterans' involvement in the wellness component of a program and their perceived QOL. The program is a specialty VA service known as Mental Health Intensive Case Management (MHICM). A total of 112 veterans served by a single MHICM program in the U.S. Southeast completed a validated VA survey that measures health related QOL. A chart audit was conducted to gather information such as years served by the program and type of wellness services received. Regression modeling was used to assess the relationship between a veteran's involvement in the wellness interventions and his or her perceived QOL. The study results showed that the interventions were not significant predictors of veterans QOL. Two covariates, age and gender, were found to be significant predictors, but each accounted for less than 7% of the variance. The study findings show the need for further research to explore the role of wellness interventions in a veteran's recovery. Social change may result from encouraging veterans with SMIs to participate in self-rated QOL measures.

Wellness Intervention as a Quality of Life Predictor in Mentally Ill Veterans

by

Tosha L. Ellis

MSW, Clark Atlanta University, 2005

BA, Chapman University, 2001

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

in Public Health

Walden University

October 2016

Dedication

This study is dedicated to veterans who live with chronic mental illness and also experience medical co morbidities that result in untimely death. Their lifelong journey and health experiences motivated me to study how wellness might improve quality of life.

Acknowledgements

I acknowledge my graduate professors who laid the foundation for me to pursue doctoral studies. I am thankful for my dissertation chair, Dr. Susan Nyanzi and committee member, Dr. Angela Prehn. They were great mentors through their expertise and always challenged me to the next level. Their lessons will endure and follow me as a scholar-practitioner. I also acknowledge my young children, Joshua and Kennedy, who taught me the true meaning of balance during the dissertation journey.

Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction to the Study

In this chapter I introduce the topic and give background on the public health problem of serious mental illness (SMI) in veterans. The problem stems from disproportionate morbidity and mortality in persons with chronic mental illness compared to the general population. I offer an overview of the scholarly literature, and discuss U.S. Department of Veterans Affairs (VA) mental health practices, lifestyle interventions, integrated care, and mental health intensive case management services (MHICM). The scholarly work shows the need for wellness interventions to improve the quality of life (QOL) for veterans with SMI. To address a gap in the literature, I conducted this study to evaluate their QOL. Specifically, I assessed the perceived QOL of veterans with SMI in association with a wellness intervention. In this chapter, I present the research questions and show how they are supported by a social cognitive theoretical framework. I also discuss the quantitative, nonexperimental nature of the study including my use of secondary data, a survey and chart audit. Key terms are explained in the definitions section, and I conclude this chapter by addressing the assumptions, scope and delimitations, and limitations of the study.

National health reports have indicated that mental illness has emerged as a major public health problem. Results from a 2012 national survey found that 43.7 million adults ages 18 and older had a mental illness (Substance Abuse and Mental Health Services Administration [SAMHSA], 2013). It ranks as the leading cause of disability in the United States, and accounts for a large proportion of disease among the population. Special populations such as veterans and older adults are disproportionately affected (SAMHSA, 2012; Kilbourne, Lai, & Bowersox, 2012). The burdens of severe mental

disease manifest in the daily functioning of people with SMI (Healthy People, 2013). SMI results in functional impairment as indicated by limited ability to work and attend to personal care. Care providers recommend preventive strategies to improve the quality of life of individuals with SMI (Cabass, Ezell, & Lewis-Fernandez, 2010).

QOL encompasses one's physical and mental wellbeing. It is a subjective construct that is often self-rated to ascertain an individual's life satisfaction (Prince & Gerber, 2005). QOL for people with SMI is diminished by factors such as medical comorbidity. An estimated 60% of individuals develop physical health problems in addition to their SMI (Gill et al., 2009). They experience risk factors such as weight gain, smoking behaviors, and heart problems which increases their likelihood of developing a chronic condition (Parks et al., 2006). These chronic conditions may be preventable given adequate clinical intervention. Moreover, access to integrated care and/or cross-trained health professionals could impact outcomes in the SMI population (Bowerson, Lai, & Kilbourne, 2012). Integrative care approaches may consist of colocating mental health care providers with a primary care clinic or training psychiatric providers to reinforce physical wellness. The system would thereby support a holistic environment in which overall wellness is addressed.

Best practices and innovative strategies have a significant role in promoting whole health. A variety of mental health practices and tools align with promoting overall health. For example, illness management is a well-known intervention that has evolved into an evidence-based practice (SAMHSA, 2012). Illness management has been adapted by mental health clinics to establish wellness management practices. The evidence shows that wellness can be integrated into mental health programs. Such integration was shown

to be effective in a multidimensional VA mental health clinic group that addressed areas such as stress management, physical activity, and nutrition (Perlman et al., 2010). Similarly, a program in New York State modified illness management to create a wellness self-management curriculum (Salerno et al., 2011).The creators of this program added an individualized workbook and a physical health component. These innovations promote whole health.

The need to achieve widespread wellness services for mentally ill persons has gained attention given the disease burden and implications for QOL. Mental health and physical health are connected (Healthy People, 2013). Although there is considerable literature on wellness and recovery among persons with SMI, much of it lacks focus with regard to interventions that improve QOL. Disorders such as major depression and schizophrenia result in disability, thereby reducing an individual's QOL (Healthy People, 2013). A significant proportion of veterans with SMI receive VA disability compensation and/or specialty mental health services (VBA, 2013; VHA, 2006). These benefits are provided to maximize QOL. The MHICM specialty entails a holistic approach to promote wellness and recovery among SMI veterans. These wellness interventions include activities such as psychoeducation, groups, health promotion, and medication monitoring (VHA, 2016).

In this study, I evaluated the perceptions of veterans with SMI who received wellness interventions from a VA MHICM program. The study was prompted by the need to understand veterans' views of their QOL. Health related QOL impacts overall well-being (Healthy People, 2013), and I determined that veterans' self-rated QOL could assist mental health providers understand their subjective experiences. For example, the

provider may assess the veteran to be capable of participating in social activities; however, he or she may self-rate otherwise. Those administering the wellness program can thus use the veterans' feedback to discern QOL from the individual perspective. This could assist with program development to teach and enhance skills. An individual's ability to maximize functioning in the social, physical, and emotional domains could improve their QOL.

There are social change implications for veterans with SMI who experience optimal QOL. They may become more involved as members of society at the individual and community level. For example, as productive members of their community they might engage in activities such as work and voting. Their participation in these activities would demonstrate self-efficacy. Their ability to engage in meaningful employment could fill a personal void and generate income. At a broader scale, the economy could be strengthened through revenue from a greater workforce. Civic involvement through voting and community group participation could improve the neighborhoods of SMI veterans. In the educational arena, they might serve among advocacy groups in support of mental health coalitions and campaigns.

One such group, the National Alliance on Mental Illness (NAMI) has nearly 1,000 state organizations or affiliates (NAMI, 2014). NAMI partnered with the VA on an initiative for family-to-family education (NAMI, 2014). This initiative helps families of mentally ill veterans connect with one another. NAMI provides opportunities for networking as well as organization on behalf of mental health consumers. The optimal functioning of veterans with SMI could enhance their personal growth, improve their communities, and strengthen society.

Background

Wellness interventions encompass illness management and health promotion activities. The evidence shows that a wellness approach is a practical framework to use in serving people with SMI (Swarbrick, 2006). Wellness programming for mentally ill persons is indicated in clinical practice (Salerno et al., 2011; Klee et al., 2012). This programming is supported on a national level through lead agencies such as SAMHSA (2013). For example, SAMHSA recommended Whole Health Action Management (WHAM) and its implementation in recent years. The WHAM consists of 10 whole health and resiliency factors (SAMHSA, 2013). It teaches self-management of chronic physical and mental health problems. These deliberate steps to incorporate physical health promotion into mental health care could promote recovery. SAMHSA (2012) has regarded wellness as an expansive concept, and has taken a broad approach to serving persons with mental illness. Thus, mental health providers require the autonomy to integrate a wellness approach, and a number of modalities can be used in the clinic setting to deliver wellness services. The evidence shows that mental health practices, lifestyle interventions, and integrated care contribute to whole health (Hutchinson et al., 2006; Cabassa et al., 2010, Kilbourne et al., 2011).

Mental Health Practices

Evidence-based clinical practices such as motivational interviewing and social skills training are employed to serve patients with SMI. Motivational interviewing (MI) is a client-centered approach that directs behavioral change (Miller & Rollnick, 2004). The clinician elicits change talk from the client to resolve his or her ambivalence towards treating the problem (Miller & Rollnick, 2004). MHICM clinicians are trained and use

the technique to guide SMI veterans in recognizing antecedents, the unhealthy behaviors or events that contribute to the clinical problem (Miller et al., 2008). For SMI veterans, an antecedent could be poor adherence to medication or lack of nutritionally balanced meals. Social skills training is provided to SMI veterans to teach interpersonal skills, and persons diagnosed with schizophrenia benefit from the role-playing to target assertiveness, conflict resolution, and other skills (Bellack et al., 2004). A meta-analysis of social skills training showed that the intervention improves psychosocial functioning of persons with schizophrenia (Kurtz & Mueser, 2008). Individuals who receive social skills training demonstrate improved interpersonal relations and abilities to carry out social roles. The evidence shows that when social skills training is combined with cognitive training, functional ability is increased (Galderisi et al., 2009).

Lifestyle Interventions

Although psycho-rehabilitative interventions are essential to the recovery of veterans with SMI, lifestyle interventions are also beneficial. Health education, smoking cessation, nutritionally balanced meals, and physical activity reduce the risk of chronic medical problems in persons with SMI (Cabass, Ezell, & Lewis-Fernandez, 2010). Chronic medical problems can result from metabolic syndrome, and the side effects from psychotropic medications contribute to the syndrome (McEvoy at al., 2005). Lifestyle interventions require emphasis in the clinical care setting when treating veterans with SMI (Fotiades et al., 2001). MHICM clinicians recognize the risk factors and provide interventions such as individualized health promotion. The evidence shows that positive outcomes are attainable when interventions are tailored. For example, veteran participants

in a Managing Obese Veterans Everywhere (MOVE) program received motivational telephone calls and a tailored newsletter in addition to the standard weight management services (Allicock et al., 2010). They reported an increased intake of fruits and vegetables at 1.7 servings daily, in comparison to 1.2 for the control group (Allicock et al., 2010).

Integrated Care

Veterans with SMI have access to an integrated care environment which supports their whole health. This type of environment increases the opportunity for physical and mental health care (Kilbourne et al., 2011). Veterans with schizophrenia, bipolar disorder, and post-traumatic stress disorder are less likely to receive medical care compared to the general veteran population (Cradock-O'Leary et al., 2002). The VA and other systems of care have embraced integrated approaches including collaborative models such as primary care teams specialized in mental health (VHA, 2012). This approach has positive implications for the system, but the inclusion of health promotion during direct mental health care may provide further benefit. In short, the physical wellness of veterans with a SMI can be promoted during mental health visits.

Disciplines such as nursing and social work are appropriate for delivery of wellness services within mental health programs (Roberts, 2009; Bryne et al., 1999). Professionals in these disciplines are concerned with the whole person and may employ a holistic approach (Hare, 2004; Covington, 2003). Psychiatric nurses have a unique role in providing wellness education to consumers; topics can range from coping skills to smoking cessation (Schneider & Cook, 2005). Thus emotional health and disease prevention are addressed within the umbrella of services. Psychiatric nurses not only provide screening and assessment of patients but may also conduct groups. This is

evident in psychoeducational groups which incorporate physical and emotional dimensions of health (Schneider & Cook, 2005). Medication monitoring is another key area with regard to wellness for SMI veterans. Psychiatric nurses are able to reinforce medication adherence during care delivery to veterans.

Clinical social workers who specialize in mental health provide similar services to patients (Roberts, 2009). Clinical social workers are trained in mental health assessment and provide direct interventions including therapy and group education. Social workers serve in multidisciplinary settings and function in an integrated role (Roberts, 2009). They may reinforce the physical health promotion plan or teach skills to improve symptom management. Social workers in MHICM programs have a unique role with regard to medication monitoring. Mental illness management and health promotion are essential components of wellness (Hutchinson et al., 2006). The evidence shows that mental wellness improves the individual's attitude towards illness. Social workers use illness management tools and other to address symptoms and stigma. Scientific inquiry on mental health promotion indicates that social discrimination, social restriction, and social integration improve when training is provided (Tomaras et al., 2011). Similar findings have resulted from studies of mental health education programs. Outcomes such as medication compliance emerge following the intervention (Gerard & Scott, 1990).

Mental Health Intensive Case Management Services

Veterans served by MHICM programs receive services to improve health status, quality of life, and community functioning (VHA, 2016). They are among the special veteran population having SMI. This disability results in restriction or inability to perform in major life domains such as employment or independent living (APA, 2000;

Anthony, 1993). The MIHCM specialty program is comprised of psychiatric professionals from various disciplines. Recovery-oriented care is provided to promote optimal functioning in the veterans it serves. Recovery is a change process whereby a person improves his or her well-being, leads a self-directed life, and aims to achieve his or her full potential (SAMHSA, 2011). MHICM services are holistic and community-based. Veterans are visited in their homes and also attend outpatient visits for psychiatric care, medication monitoring, and groups. An array of wellness activities are incorporated into care delivery. These activities align with the recovery model and innovations recommended by VHA (Goldberg & Resnick, 2010). The multidisciplinary team of MHICM clinicians is the provider for all veterans enrolled in the program. While both social workers and nurses serve as case managers, each discipline brings its expertise to the team. The social worker has a strong orientation to counseling and psychosocial needs, whereas the nurse possesses knowledge on health issues and medications (Hare, 2004; Covington, 2003; Roberts, 2009).

Gaps in the Literature

There is a gap in the literature on wellness-based interventions for SMI veterans and the association of these interventions with veterans' QOL, and the extant wellness-related literature encompasses the general veteran population from a primary care perspective. VA health promotion programs such as MOVE target veterans in the primary care setting (Brooks & Younce, 2006), but veterans with SMI demonstrate limited participation in primary care and specialty visits (Cradock O'Leary, 2002). Therefore other strategies are necessary to engage SMI veterans in whole health care. Innovations such as wellness programming within mental health settings require inquiry.

Scholarly inquiry could inform practice and build the scientific base for wellness interventions in relation to QOL. QOL in veterans with SMI involves their life satisfaction and health (VHA, 2016; Bowersox, Lai, & Kilbourne, 2012). The follow-up data collected on MHICM surveys provide some information on QOL in SMI veterans. Length of time in the program following enrollment is related to their self-reported QOL (Mohamed, Rosenheck, & Cuerdon, 2010). Veterans self-rate higher on QOL when they remain in the MHICM program in comparison to those who leave the program early. Some participate for years, whereas others discharge within a few years of enrolling. The difference in self-ratings may be attributable to programmatic components such as wellness interventions (Mohamed, Rosenheck, & Cuerdon, 2010).

The literature also lacks substantive information on QOL in veterans with SMI. Although specialty VA mental health programs assess QOL in veterans, the evaluations are limited in scope. For example, the follow-up data collected on a MHICM survey consists of only four questions pertaining to QOL (VHA, 2016). In this study, I used a validated survey instrument to evaluate the perceptions of health related QOL of veterans with SMI. Specifically, I sought to ascertain participants' perceptions of QOL in relation to their involvement in the wellness activities. This inquiry was needed to advance the knowledge regarding perceived benefits of wellness-based interventions for this special population. It provided insight on integrating health promotion within mental health care.

Problem Statement

According to the National Psychosis Registry, over 200,000 U.S. veterans are diagnosed with a SMI (Kilbourne et al., 2009). A SMI is characterized as a severe, persistent psychiatric condition, and is typically schizophrenia, a mood disorder, or post-

traumatic stress disorder (APA, 2000; VHA, 2016). The disorder interferes with a person's functioning in one or more life activities such as interpersonal relations or vocation (SAMHSA, 2012). Among veterans served by MHICM programs, most SMIs are psychotic illnesses such as schizophrenia and schizoaffective disorder (Mohamed, Neale, & Rosenheck, 2009; VHA, 2011).

Studies of morbidity and mortality of veterans with SMI have shown that SMI is associated with increased mortality (Cradock-O'Leary et al., 2002). Parks et al. (2006) found that mortality rates for persons with SMI were 4 times that of the general population. Various chronic conditions are attributable to mortality in SMI patients. The 2012 National Survey on Drug Use and Health found that adults ages 18 and older with SMI were affected by hypertension (22%), asthma (19%), diabetes (8%), and heart disease (5%). Higher morbidity and mortality among persons with SMI are associated with preventable medical conditions (Parks et al., 2006). These conditions could be prevented by lifestyle interventions and wellness self-management. The mortality of persons with SMI is underscored by evidence of a reduced life span. They experience death earlier than the general population (White, Gray, & Jones, 2009). Identifying the predictors associated with veterans' perceptions of QOL in relation to wellness interventions will support practice innovations (Goldberg & Resnick, 2010).

Purpose of the Study

The purpose of this non-experimental study was to understand the association between a wellness intervention and QOL in veterans with a SMI. QOL in this study pertains to the veteran's self-rated well-being from a mental and physical health perspective. I operationalized the variable was using the Veterans RAND Health Survey,

VR-12 (Iqbal et al., n.d.). QOL is a subjective concept that is traditionally self-rated. When designing the study, I sought to determine if wellness programming in VA mental health settings should be expanded.

QOL is predicated on mental health functioning and physical well-being, both of which are addressed in the wellness intervention. The VR-12 survey is a standardized instrument with validated physical and mental component scales (Kazis et al., n.d.). The VR-12 was administered to millions of veterans by VA researchers and has two domains, physical health and mental health (Iqbal et al., n.d.). Building on these findings, I designed this study to evaluate the perceived health-related QOL of veterans with SMI who received a wellness intervention. The wellness intervention was a combination of mental illness management and health promotion activities. It was provided within the scope of MHICM services at a VA medical center located in the southeastern United States. I used the veterans' number of years served in the program to define the independent variable, wellness intervention, in this study. These wellness interventions encompassed direct care services such as medication monitoring, wellness planning, and health promotion (Ellis & Samter, 2012). The findings add to the literature that could inform social policy for planning health services for this special veteran population.

Research Questions and Hypotheses

*RQ*1: In male and female veterans with a SMI between ages 30 and 70, what is the association between involvement in MHICM wellness interventions and self-reported QOL?

$H_0$1: There is no association between a SMI veteran's involvement in MHICM wellness interventions and self-reported QOL as measured by years participated and VR-12 survey score.

H_A1: There is an association between a SMI veteran's involvement in MHICM wellness interventions and self-reported QOL as measured by years participated and VR-12 survey score.

$H_0$2: The association between a SMI veteran's involvement in MHICM wellness interventions and self-reported QOL does not vary by age.

H_A2: The association between a SMI veteran's involvement in MHICM wellness interventions and self-reported QOL does vary by age.

$H_0$3 The association between a SMI veteran's involvement in MHICM wellness interventions and self-reported QOL does not vary by mental health diagnosis.

H_A3: The association between a SMI veteran's involvement in MHICM wellness interventions and self-reported QOL does vary by mental health diagnosis.

$H_0$4: The association between a SMI veteran's involvement in MHICM wellness interventions and self-reported QOL does not vary by gender.

H_A4: The association between a SMI veteran's involvement in MHICM wellness interventions and self-reported QOL does vary by gender.

*RQ*2: In male and female veterans with SMI between ages of 30 and 70, what is the association between involvement in the MHICM pyschoeducational group and self-reported of QOL?

H_{01} In male and female veterans' with SMI, between the ages of 30-70 years old there is no association between involvement in the MHICM pyschoeducational

group and self-reported of QOL as measured by number of groups attended and VR-12 survey score.

H_A1 In male and female veterans' with SMI, between the ages of 30-70 years there is an association between involvement in the MHICM pyschoeducational group and self-reported of QOL as measured by number of groups attended and VR-12 survey score.

H_02 The association between a SMI veteran's involvement in the MHICM psychoeducational group and self-reported QOL does not vary by age.

H_A2 The association between a SMI veteran's involvement in the MHICM psychoeducational group and self-reported QOL does vary by age.

H_03 The association between a SMI veteran's involvement in the MHICM psychoeducational group and self-reported QOL does not vary by mental health diagnosis.

H_A3 The association between a SMI veteran's involvement in the MHICM psychoeducational group and self-reported QOL does vary by mental health diagnosis.

H_04 The association between a SMI veteran's involvement in the MHICM psychoeducational group and self-reported QOL does not vary by gender.

H_A4 The association between a SMI veteran's involvement in the MHICM psychoeducational group and self-reported QOL does vary by gender.

Theoretical Framework

Social cognitive theory (SCT) is founded on behavioral principles and is one of the most commonly used frameworks in public health planning (Schneiderman et al.,

2001). It contends that if one has a sense of personal effectiveness, the conditions affecting one's behaviors can be changed. Veterans' behaviors are affected by their social environment, including their peer group and family (VHA, 2011; VHA, 2012). SCT is comprised of six major constructs: (a) reciprocal determinism, (b) behavioral capability, (c) expectations, (d) self-efficacy, (e) observational learning, and (f) reinforcements (National Cancer Institute, 2005). These theoretical constructs are pertinent to evaluating wellness interventions in association with QOL of SMI veterans. Behavioral capability involves the knowledge and skill to perform a given behavior (National Cancer Institute, 2005). Thus, behavioral capability is fostered in veterans by providing them wellness skill-building and psychoeducation (Klee et al., 2013). Reciprocal determinism involves the interaction between veterans and their environments. The influences between the two are noted in SCT. Self-efficacy pertains to veterans' confidence their ability to overcome a behavioral barrier (National Cancer Institute, 2005). The knowledge or ability to perform a behavior such as practicing a coping skill comprises behavioral capability. The expectation is the anticipated outcome from the behavior. A veteran could anticipate improving his or her mental health through the application of coping skills. Observational learning occurs through role-modeling. Modeling is practiced when the clinician conducts role-playing or when a veteran observes the actions of a peer (Bellack et al., 2004; VHA, 2011). This supports the veterans in their recovery and could contribute to perceived QOL. Reinforcements are provided to improve the veteran's likelihood of maintaining the behavior (National Cancer Institute, 2005). I further describe social cognitive constructs in Chapter 2 in connection with the proposed research.

Nature of the Study

This was a quantitative, nonexperimental study. I used archival data collection methods, including secondary survey data and chart audit results. The dependent variable was the perceived QOL for veterans with SMI between the ages of 30 and 70. The independent variables were the wellness intervention and the psychoeducational group within the MHICM program. The covariates consisted of age, gender, and type of SMI diagnosis. I used secondary data on the survey from a program evaluation conducted in October 2012. The Veterans RAND 12 (VR-12) survey measures health related QOL (Kazis et al., n.d.). The survey addresses mental and physical health domains pertaining to wellness. Data was gathered on all 112 participants who completed the survey. The participants were veterans with a SMI served by a single MHICM program. All veterans received services provided through the wellness component; some also participated in the psychoeducational group setting. I reviewed secondary data from a retrospective chart review to ascertain the veterans' length of participation in the program, wellness interventions received, and involvement in the psychoeducational group.

The retrospective chart audit captured data contained in the computerized patient record. The department had the original survey data which contain the names of the veteran participants. I used the names to identify the chart and extract demographic information along with the clinical data. I then assigned a case number to each participant to de-identify him or her. The data was populated into a spreadsheet using the assigned case number. I matched the respective case number to survey data on each participant, and used multiple linear regression and descriptive statistics to analyze the data. I stored the surveys and all hard copy material under lock and key in the department. The

spreadsheet and all other electronic information (i.e., SPSS) are stored on the secure VA server. The VA IRB approved the study in May 2014 and renewed it under continuous review in May 2016. The study met criteria for a waiver of informed consent and HIPAA. I submitted the VA IRB application to the Walden IRB for review, and followed its requirements accordingly.

Definitions

Health Related Quality of life (QOL): The veteran's subjective view of his or her wellbeing defined by physical and emotional health (Bowersox, Lai, & Kilbourne, 2012; Prince & Gerber, 2005).

Length of time (LOT): The veteran's number of years receiving MHICM services. It is based on an enrollment date in to the MHICM program.

Wellness Intervention: A mental illness management or health promotion activity directly provided to a veteran having a SMI (Salerno et al., 2011; Goldberg et al., 2013).

Wellness Group: A psychoeducational and health promotion group aimed at improving a veteran's quality of life and mental health recovery (Perlman et al., 2010).

Serious Mental Illness (SMI): A severe, persistent psychiatric disorder that affects a person's functional status (VHA, 2006; American Psychiatric Association *DSM- V-TR,* 2000).

Wellness Recovery Action Plan: A wellness tool completed by the veteran to outline signs of healthy functioning along with plans for recognizing and responding to emotional stress (Starnino et al., 2010; Fukui et al., 2009).

Psychoeducation: Individual or group education provided to inform individuals about the symptoms of mental illness and how they might impact well-being (Vreeland, 2003).

Health promotion: Individual or group activities aimed at fostering lifestyle changes towards optimal physical health and disease management.

Physical health: A domain of wellness that comprises health status as indicated by physiological indicators and diagnosed conditions (SAMHSA, 2012).

Emotional health: A domain of wellness that comprises mental health status as well as coping abilities and interpersonal functioning (SAMHSA, 2012).

Recovery: A process in which the SMI veteran seeks to achieve optimal functioning with his or her mental illness and lead a self-directed, meaningful life (SAMHSA, 2011).

Social cognitive theory: A theoretical framework that explains the behavior of veterans in the wellness program. It defines a SMI veteran's ability to practice wellness skills thereby achieving behavioral capability and self-efficacy (VHA, 2012; National Cancer Institute, 2005).

Assumptions

I made the following assumptions in this study:

1. All participants comprehended the self-administered Veterans RAND 12-Item (VR-12) survey, and their responses reflected their understanding.
2. Veterans considered their wellness experience in the MHICM program when answering the VR-12 survey.

3. Veterans perceived wellness as their overall health including physical and emotional well-being.

These assumptions were necessary for me to evaluate veterans' perceptions of their QOL in conjunction with the wellness intervention. I chose the convenience sample based on the wellness services unique to the particular site. There are no known VA MHICM programs that offer the same type of wellness services. I also assumed that each participant was attentive to the survey items and understood them. This would support an accurate self-report on QOL. Finally, I assumed that they were able to reflect on their experience in the wellness components of the program when providing responses. This assumption was practical given the recent implementation of various wellness activities (e.g., group meetings and mental wellness planning).

Scope and Delimitations

The study's focus was on MHICM wellness interventions and their association with self-reported QOL in SMI veterans. Although other VA health programs offer wellness services, the ones in this study were tailored to SMI veterans. SMI veterans are a special population that the VA directly engages for participation in general VA surveys to rate service satisfaction and the care environment (VHA, 2016). MHICM programs target this population and provide specialized mental health services. This study included a convenience sample of 112 veterans served by a single MHICM program in the Southeastern United States. I chose this site because of its unique wellness services, a combination of mental and health promotion interventions (Ellis & Samter, 2012). Using data from this single program, I was able to evaluate veterans' perceived QOL in association with the unique wellness intervention.

The results of the study may not be generalizable to the mainstream population of veterans. Veterans who only receive medical services and/or general mental health care do not possess attributes of the special population. Veterans with SMI who are served by MHICM programs meet clinical criteria that qualify them for the specialty service. They also have access to the wellness service. The results also may not be generalizable to veterans served by other VA MHICM programs because of the unique services provided at my study site. The broader implications include possible replication of the wellness programming at other VA MHICM sites. The wellness services could be adapted to meet local needs. For example, some sites could place emphasis on patients who are dually diagnosed with a SMI and a substance use disorder.

Limitations

There were several limitations to this study. First, the design was nonexperimental and I used archival data collection methods. I evaluated self-rated QOL in association with a wellness intervention. Thus, I could not be certain that the responses would be comparable to a baseline measure, and I did not conduct a pre-test. However, this limitation was minimized given the fact that all veterans met criteria for program entry due to functional impairment and need for sustained mental wellness. Second, the dependent variable was the perceived QOL for veterans with SMI between the ages of 30 and 70. These veterans were served by a single MHICM program that had a unique wellness component. Thus, the results cannot be generalized to veterans served in other VA MHICM programs. Third, the VR-12 survey is a valid measure of health related QOL and has been administered to millions of veterans. Its standardization was based on the general veteran population and not specifically those with SMI. However, the survey

was widely distributed and is recommended for various chronic illnesses. Its use is further supported by VA scientists who applied data collected in a general VA study on SMI veterans (Bowersox, Lai, & Kilbourne, 2012). One of the investigators highly recommended the VR-12 for the MHICM program evaluation conducted in October 2012.

Significance

This study is significant inasmuch as it expands the body of knowledge on wellness interventions. Wellness is a key component of public health's mission. The American Public Health Association (APHA, 2013) emphasizes wellness and prevention across the lifespan. The APHA recognizes the broad nature of public health as indicated by the specialized sections it includes within the member organization. Mental health is among the 29 primary sections (APHA, 2013). This study broadens the understanding of wellness in relation to veterans with SMI. They suffer from a severe, persistent mental illness which has implications for recovery. Their recovery is determined by subjective qualities such as self-worth and health (Anthony, 1995).

Understanding factors associated with QOL for SMI veterans is essential to developing programs that foster recovery. Holistic, self-direction, and person-driven recovery principles are connected to wellness (SAMHSA, 2011). Treatment models such as intensive case management and psychosocial rehabilitation are employed with the outcome of improving these veterans' QOL (Goldberg & Resnick, 2010). Wellness interventions offered by the program in this study may be replicated and provided at other VA MHICM sites. Its unique services, such as wellness groups, engage veterans in the recovery process. Findings from the study could inform VA health policy regarding

wellness as a component of recovery for SMI veterans (Goldberg & Resnick, 2010; VHA, 2008). The VA Uniform Mental Health Services handbook (VHA, 2008) defines the continuum of care for veterans, and makes provisions for serving veterans with SMI. Findings from the study could inform best practices for this special veteran population. Positive social change results when SMI veterans are able to maximize their recovery. Consistent with public health's mission, veterans may be able to participate as productive members of their communities. Their productivity has implications for the individual, community, and society.

Summary

In this introductory chapter, I provided an overview of the topic regarding veterans with SMI and the provision of wellness interventions. The aims of the study were to ascertain the veterans' perceptions of the interventions on their QOL. Veterans with SMI suffer from co-occurring medical problems and limited social functioning due to the debilitating nature of the disease. They experience as much as a 25-year reduction in lifespan compared to the general population. The public health problem involves the lack of tailored wellness interventions for veterans with SMI. Interventions to promote physical health could be integrated during mental health service. I believed that wellness services provided by a VA MHICM program were associated with veterans' perceived QOL. If their QOL benefits from the wellness interventions, I believed that their overall recovery would be maximized. This could increase their psychosocial functioning and support their autonomy in the communities in which they live. Society would ultimately benefit. I review the extensive literature involving this special population in the next chapter.

Chapter 2: Literature Review

Introduction

The purpose of this study was to evaluate the perceived QOL of veterans with a SMI who received a wellness intervention. SMI is a severe, persistent psychiatric condition, such as schizophrenia, a mood disorder, or post-traumaticstress disorder (Mohamed, Neale, & Rosenheck, 2009). In this chapter, I summarize the literature involving SMI veterans and the factors that affect their circumstances. Factors such as comorbidity, lifestyle interventions, and quality of life are among the topics researchers have discussed in the literature. According to White, Gray, and Jones (2009), people with SMI die 10-15 years earlier than the general population, and they are disproportionately affected by medical comorbidities. In my literature review, I found a gap which compelled me to evaluate SMI veterans' perceptions of their QOL in connection with a wellness intervention.

The literature on people with SMI spans a spectrum of scholarly inquiry that includes several major constructs. The seminal works generally have been focused on (a) mental health recovery and veterans, (b) VHA MHICM services, (c) medical comorbidity, (d) wellness interventions, and (e) quality of life for the chronically mentally ill. The President's New Freedom Commission (SAMHSA, 2003) produced a major work pertaining to wellness and recovery. In it, the commission identified the vulnerable components of the U.S. mental health system of care. Recovery and an integrated system were among the recommendations (SAMHSA, 2003). Recovery for mentally ill veterans gained attention following the commission's report. The VA's Mental Health Strategic Plan Workgroup identified a continuum of care to support mental

health recovery (Goldberg & Resnick, 2010). Essential components such as MHICM programs and supported employment provide direct services to veterans with SMI. They operate under the recovery model which the VA health system has defined as including self-direction, living a meaningful life, and improving health (SAMHSA, 2011).

The wellness and recovery of veterans with SMI is influenced by medical comorbidity. They have a high prevalence of physical health problems such as diabetes and hypertension (Cradock O'Leary et al., 2002). Those conditions contribute to the morbidity and mortality among veterans with a SMI (Miller, Paschall, & Svendsen, 2006). Wellness interventions are an innovative approach to fostering recovery in mentally ill veterans. Wellness interventions can be provided in various ways such as psychoeducation and physical health reinforcement. Wellness groups provide a format for integrating mental illness management and health promotion (Salerno et al., 2011; Perlman et al., 2010). Evidence-based tools such as illness management and recovery curricula are available for clinician's use (SAMHSA, 2010).

QOL for people with chronic mental illness has received attention over the years (Prince & Gerber, 2005). This attention has led to clinicians' generation of rehabilitative models designed to improve life satisfaction (Boston University Center for Psychiatric Rehabilitation, 2014). Researchers view QOL as a subjective construct, especially when self-rated by the mental health consumer (Prince & Gerber, 2005). Throughout the literature, scholars identified QOL as a noteworthy outcome to evaluate when studying people with SMI because it captures the essence of a person's experience. Their psychosocial well-being appears to be influenced by social functioning, mental ability,

and health status. These factors could inform the development of a wellness framework for persons with SMI (Swarbrick, 2006).

Literature Search Strategy

To identify studies pertinent to my research, I used academic databases, accessed professional journals, and reviewed published works listed in the references of key texts. I initiated the search by first accessing the Thoreau online engine which encompasses multiple databases. I used keywords including *wellness, serious mental illness, veterans, quality of life in the mentally ill, social learning, role modeling, social skills,* and *comorbidity in the mentally ill*. This approach led me to some key articles, but the output was limited in scope. As a result, I initiated a search within specific scholarly databases including Proquest Central and Psychiatry Online. The Psychiatry Online database contains major journals for the scholarly discipline. I conducted journal searches within the psychiatry database and specific Proquest database to identify meaningful works. I used the keywords to conduct advanced searchs within each database. At times, I entered a single phrase such as *wellness interventions,* while at other times I entered two fields separated by *and* to accomplish an adequate search.

The keyword and advanced search strategies revealed multiple articles in the subject area. The articles largely reflected scholarly works from professionals in the mental health field during the period of 2007 to 2014. These scholars included psychologists, clinical social workers, nurses, and public health professionals. The literature included federal reports, VA studies, and research conducted in the community. The seminal works were noted in studies that targeted veterans with SMI. The articles comprised relevant topics such as medical comorbidity in veterans, wellness planning,

and quality of life. I flagged the articles within the databases when possible, and saved them to a list. Whenever a publication could not be flagged, I downloaded and saved the document. Subsequently, I sorted and grouped the articles according to themes that emerged during the literature review.

My review of the scholarly works revealed other avenues to pursue with regard to the relevant literature including publications from organizations and lead public health agencies that have a stake in the mental health arena. Publications from these organizations, including SAMHSA and the National Association of State Mental Health Program Directors (NASMHPD), were instrumental in advancing some aspects of the issue. The NASMHPD published two studies during the first decade of 2000s which investigated morbidity, mortality, and health status of persons with SMI.

Mental Health Recovery and Veterans

While recovery has traditionally been used in the context of substance use disorders, the concept has come to be used in reference to mental illness. Recovery was introduced in the 1990s following a period in which people with mental illness were reintegrating into communities (Anthony, 1993; Ralph & Corrigan, 2005). Mental health recovery reflects the person and their experience; it pertains to a meaningful life for one living with the illness. Recovery was a guiding vision for 1990s care providers to support rehabilitation of people with mental illness (Anthony, 1993). Wellness and recovery appear key to the rehabilitation of affected persons (Hutchinson et al., 2006, Swarbrick, 2006).

History and Inception

The President's New Freedom Commission on Mental Health (2003) was instrumental in evaluating the mental health care system in the 21st century. The commission was appointed as part of President Bush's New Freedom Initiative to promote opportunities for the disabled (SAMHSA, 2003). The commission was charged with examining the mental health system to identify gaps, and it recommended systematic transformation oriented towards recovery-oriented care (SAMHSA, 2004; Goldberg & Resnick, 2010). Recovery was identified as a means to facilitate partnerships between patients, their families, and health care providers (President's New Freedom Commission on Mental Health, 2013). The VA responded to this recommendation in 2005 by appointing a taskforce to develop a strategic plan for its health system.

The VA Mental Health Strategic Plan Workgroup determined the need for a recovery-oriented transformation (Goldberg & Resnick, 2010). Recovery-oriented services were to be delivered through the mental health continuum of care. Specialized VA programs such as peer support, and positions such as local recovery coordinator were key components for implementing the model and stimulating the care environment (Goldberg & Resnick, 2010). Recovery services are intended to promote a veteran's wellness, community integration, and personal goals. VA MHICM programs are an integral component of mental health recovery services. MHICM programs promote the quality of life of SMI veterans and provide direct services under whole health principles (VHA, 2012).

Recovery-Oriented Treatment

VA MHICM programs which are modeled after assertive community treatment (ACT) incorporate a recovery approach. In this model, staff must adjust to a culture of recovery, and areas such as human resources, organizational boundaries, and the nature of services are impacted (Salyers & Tsemberis, 2007). Human resources are focused on building a team to support cross-coverage. However, this shift in emphasis could minimize focus on practitioners' work with patients on individual recovery. This challenge is overcome in MHICM programs because a primary clinician serves a single caseload which enables continuity and therapeutic rapport with clients (Neale & Rosenheck, 1995). Additionally, the organizational goal of sustaining a person in their community may conflict with the need for a hospital admission. In their chart audit of SMI patients in the community at 1 year post-entry into ACT, Udechuku et al. (2005) found that the mean number of hospital days decreased from 80 to 10. Although the models reduce psychiatric hospital readmissions, there could be a need for hospitalization to support a patient's recovery (Burns et al., 2007).

Professionals on the multidisciplinary team can provide interventions that align with best practices for recovery. These would comprise evidence-based interventions from disciplines such as social work and nursing. Recovery-oriented treatment can be used to foster a patient's rehabilitation. This was illustrated by Morrisey, Domino, and Cuddeback (2013) in their evaluation of outcomes associated with recovery-oriented care in ACT services to persons in the community. The greatest reduction in hospital admission was among those patients who frequently used the inpatient services. These findings showed the potential efficacy of a recovery model within VA MHICM

programs. MHICM programs can employ a recovery-oriented model to improve the QOL and health status of veterans with SMI. Recovery-oriented services may include innovations such as wellness programming.

VA MHICM Services

The services that MHICM programs provide are holistic, with the aim of delivering high quality care. MHICM case managers provide flexible services in the veterans' communities to improve their adjustment, functioning, and QOL (VHA, 2006). A veteran's rehabilitation is guided by recovery principles such as hope and responsibility (Goldberg & Resnick, 2010). The MHICM team responsible for a veteran's care is composed of practitioners from multiple disciplines including nursing, social work, and psychiatry. A nurse or social worker serves as the primary case manager for a veteran.

Therapeutic Alliance and Transitions

The alliance that a veteran forms with the MHICM case manager has some influence on recovery. The alliance is a trusting relationship that enables the therapeutic process (Neale & Rosenheck, 1995). In follow-up MHICM surveys, veterans have reported confidence that the case manager is able to help them achieve recovery goals (Mohamed, Neale, & Rosenheck, 2009). The veterans' responses have indicated a high rating on client-case manager alliance (Neale & Rosenheck, 1995). The therapeutic alliance supports the delivery of wellness interventions because veterans are receptive to the information, and the application of the information has significance towards the veteran's perceived QOL (Mohamed, Neale, & Rosenheck, 2009). For example, if the alliance encourages the veteran's follow through with a walking plan, it could change

attitudes and lifestyle behaviors. Consistent participation in the MHICM service contributes to retention in the program. Moreover, holistic care provided in the context of illness management promotes a veteran's rehabilitation (Mohamed, Rosenheck, & Cuerdon, 2010). Components such as therapy, medication management, and health promotion prepare the veteran for transition and promote self-direction and independence (SAMHSA, 2012). These components form the wellness component of the MHICM program in my study.

MHICM veterans transition to a lower level of care when they progress towards their recovery (VHA, 2016). Recovery may be indicated through improved functional status such as independent living in a housing community. Clinical status is also a factor in a veteran's transition. VA MHICM policy contains criteria for clinical stability (VHA, 2016). These include a reduction in use of inpatient psychiatric services and the absence of substance use (Rosenheck, Neale, & Mohamed, 2010). These behaviors demonstrate a veteran's capability to self-maintain in the community (VHA, 2016). Consequently, veterans are able to transition from intensive case management to outpatient care. These veterans display improved symptom management and QOL in comparison to those who do not transition to lower intensity care (Rosenheck, Neale & Mohamed, 2010). They may choose to continue participation in the wellness programming based on their preference. For many veterans, continued participation supports their maintenance of a personal wellness plan.

Provision of Intensive Case Management Services

Intensive case management services are provided with the goal of improving veterans' functioning in the community. Services are provided among a widespread

group of SMI veterans. They live in urban and rural areas and vary with regard to age-related needs. Intensive case management aims to reduce the incidence of psychiatric hospital re admission. Burns et al. (2007) conducted a systematic review of the service; their meta-analysis of 42 trials revealed great benefit for those patients having the highest use of inpatient services. MHICM services are deployed in 30-50 mile catchment areas within the VA health system (VHA, 2016). A population of 5,221 veterans receiving MHICM services was studied during a 5 year period (Mohamed, Neale, & Rosenheck, 2009). Schizophrenia was found to be more prevalent among veterans in the rural areas. However, the rural veterans reported greater QOL in comparison to the urban ones. The evidence shows that resource availability and social supports are factors in these geographical differences (Meyer & Morrisey, 2007; Philips et al., 2001). These factors support community functioning.

Veteran Characteristics. Differences in outcomes are also notable with regard to the age groups of SMI veterans. Of the 7% SMI veterans who are eligible for MHICM services, the majority of recipients are younger (50-60 yrs old); (McCarthy, 2009). Service provision is also noted in older veterans (Mohamed, Neale, and Rosencheck, 2009). This has implications for program development and the types of interventions employed in MHICM programs. The younger SMI veterans appear more engaged in the service and may be receptive to evidence-based treatments. The older SMI veterans receive more medical based and crisis management services (Mohamed, Neale & Rosenheck, 2009). Both male and female veterans with SMI enroll in MHICM programs and engage in the service. Given the above findings, it is indicated that MHICM programs target the vast population of SMI veterans spanning an age range of 30-70 and

offer a variety of therapeutic interventions (Mohamed, Neale & Rosenheck, 2009; Holloway & Carson, 2002). Wellness activities such as counseling, medication monitoring, health promotion and psychoeducation are delivered by MHICM teams. These interventions support veterans in managing their chronic condition such as schizophrenia and schizoaffective disorder.

SMI Veterans Gender, Age, and Psychiatric Disorders: Veterans with SMI include both male and females between 29 years and older. This reflects the younger and older age group of veterans consistent with various military eras: Vietnam, Post Vietnam, Persian Gulf, Iraqi, and Afghanistan (VBA, 2014). Analysis of data on SMI veterans in MHICM programs during 2000-2005 entailed 5,221 veteran recipients. The mean age for participants in urban and rural areas was 51 (Mohamed, Neale, & Rosenheck, 2009). A total of 51% were males. The participants' QOL as measured by the Lehman inventory ranged from 26-27 with 28 being the highest possible score (Mohamed, Neale, & Rosenheck, 2009). The QOL in this population was further investigated by Bowersox, Lai, and Kilbourne (2012) who found an association between QOL and recovery oriented care for SMI veterans. The 2,394 veterans were mostly between ages 45-64 and 90% were males. The SMIs represented included schizophrenia, schizoaffective disorder, bipolar disorder and other psychosis (Bowersox, Lai, & Kilboure, 2012).

Studies involving age, gender, and mental disorders indicate that these factors are meaningful with regard to mental health services. An inquiry on cross-national associations between genders and mental disorders employed the use of survey data from the World Health Organization. The sample size consisted of 72,933 individuals aged 18 or greater representing 15 countries (Soraya et al., 2009). The investigators found women

to have a higher risk of mood disorders in comparison to males (Sorays et al., 2009). Similarly, a study involving the diagnostic and statistical manual of mental disorder's criteria identified higher rates of schizoaffective diagnosis in females; the research indicated equal rates of schizophrenia between the two genders (Hartung & Widiger, 1998). These findings suggest the need to assess gender differentials when evaluating mental health services for patients. Gonzalez et al. (2011) investigated how attitudes towards mental health treatment and service use differed by age, gender, race, and education. They found a positive relationship between past year specialty care use and willingness to seek mental health services. Men who reported a low willingness to obtain help were less than half likely to have sought specialty care in comparison to females (Gonzalez et al., 2011). The younger age group, 18-34 reported greater specialty service use as comfort level improved. In contrast, specialty service use did not improve for older age groups as their comfort level increased. These findings support the basis for evaluating age as a covariate in the provision of services to mentally ill persons including SMI veterans. There could be contrasts when self-rating on a variety of measures, including QOL, due to general differences in gender and age.

Schizophrenia and schizoaffective disorder are common among SMI veterans. These psychotic disorders are among the primary criteria for a veteran's enrollment in a MHICM program (VHA, 2016). The initial data collected on MHICM intake forms show a high prevalence of schizophrenic disorders (Mohamed, Neale, & Rosencheck, 2010). Schizophrenia and schizoaffective disorder results in marked mental health symptoms such as cognitive impairment and unstable mood. Schizophrenia is associated with a cluster of symptoms including hallucinations, delusions, and speech disorganization

(DSM-IV-TR. 2000). Schizoaffective disorder is distinguished from schizophrenia by an affective component. The abnormal mood and psychosis are recurring. Both diagnoses predominantly encompass the psychotic disorders among SMI veterans served in VA MHICM programs (Mohamed, Neale, & Rosencheck, 2010). The QOL of SMI veterans are evaluated during follow-up monitoring in MHICM programs (VHA, 2016). A study of 5,221 veterans receiving MHICM services showed that individuals self-reported a medium score on the lehman's quality of life scale. The average score was 4 on a range of 1 to 7 (Mohamed, Neale, & Rosencheck, 2009). This ongoing program evaluation supports the significance of conducting other assessment to explore SMI veterans' QOL in association with factors. The lehman's QOL scale is limited to four questions. SMI veterans' QOL was studied by Bowersox, Lai, and Kilbourne (2012) in relationship to factors including integrated care and recovery. This study was pertinent but did not target veterans served by MHICM programs.

Medical Comorbidity in People with SMI

The morbidity and mortality among SMI veterans resulted in VA re engagement initiatives and enhanced case management services. This occurred VA wide throughout various U.S. states. In early 2012, the VHA implemented a re-engagement directive to outreach this special veteran population (VHA, 2012). Outreach from clinical staff can facilitate their entry into care. Access to primary care with regular follow-up may reduce morbidity and mortality (Cradock O'leary et al., 2002). The re-engagement is intended to prevent a SMI veteran's lost to follow-up. The policy asserts benefits of re-engaging this population to significantly impact their mortality rates (VHA, 2016). Once re engaged, their access to clinical care is coordinated and is not limited to medical services. They are

re engaged to receive mental health care and ancillary services such as social work and case management. Access to case management supports a veteran in navigating the VA system. This is evident in the MHICM model whereby the case manager provides care coordination and support towards whole health. SMI veterans are assisted with obtaining medical care, managing medications, and accessing preventive services. VA intensive case management is enhanced through the expansion of services to rural areas. Rural Access Network for Growth Enhancement (RANGE) is a variation of the intensive case management. It serves SMI veterans who reside in outlying areas (VHA, 2016).

Morbidity and Mortality in SMI Veterans

The morbidity and mortality of persons with SMI gained increased attention in recent years. Lead mental health organizations such as the SAMHSA and the National Association of State Mental Health Program Directors (NASMHPD) studied the disparity (SAMHSA, 2012; NASMHPD, 2008). National funding for primary care and behavioral health integrative programs are allotted to SAMHSA (2012). These programs are purposeful in deploying tailored services to address mental and physical wellness. The NASMHPD (2008) proposed 12 standard health indicators for SMI patients. These indicators are founded on wellness principles and incorporate objective monitors that are measurable during the care experience. For example, social support falls within the social dimension of wellness and is measurable through a standardized tool (NASMHPD, 2008). These indicators could facilitate treatment planning and inform wellness interventions. A treatment plan outlines interventions and progress on the individual level (Roberts, 2009). Individual and group outcomes inform clinical practice which has implications for addressing morbidity and mortality in SMI patients.

The evidence shows that SMI patients experience reduction in life span and whole health approaches can reduce the disease burden. Their morbidity and mortality is contingent on identifying and managing chronic conditions. A number of chronic medical problems affect this population. Obesity, smoking, heart disease, diabetes, and hypertension are among them (NASMHPD, 2006, SAMHSA, 2012; Miller, Paschall, & Svendsen, 2006). A reciprocal relationship is indicated between mental and physical health. The connection is supported in NASMHPD's stance: (a) "overall health is essential to mental health; and (b) "recovery includes wellness (2006, pgs 5-8)." Mitigation or elimination of risk factors could increase wellness. For example, proper intervention for smoking behaviors could improve a person's mental hygiene. The individual could become invested in taking the prescribed psychotropic medication instead of using nicotine. Wellness education has an important role in affecting this positive behavior.

Morbidity and mortality within the SMI population is prevalent on a national level. Multi-state studies indicate that chronic health problems are widespread. A sixteen state study was conducted among public mental health systems (NASMHPD, 2006). Extensive data was submitted on eight states. Health problems such as heart disease, respiratory illness, and cancer were found to be associated with mortality. Evidence from the study showed that patients who receive public mental health service have a higher relative risk of death (NASMHPD, 2006). These years lost in life are attributed to co-occurring chronic medical conditions. The prevalence of morbidity and mortality is further demonstrated in a national study on drug use. A portion of the aggregate data for this national study revealed statistics on people with SMI. Chronic diseases among the

SMI included: hypertension (22% SMI; 18% non SMI), asthma (19% SMI; 12% non SMI), diabetes (8% SMI; 7% non-SMI), and heart disease (5% SMI and 4 non SM); (SAMHSA, 2012). Additional chronic conditions identified are obesity, hypertension, diabetes mellitus, and chronic obstructive pulmonary disease (Miller, Paschall & Svendsen, 2006; SAMHSA, 2012). In summary, people with SMI have a higher likelihood of developing a medical problem which impacts their mortality.

Recovery and wellness frameworks can guide systems in addressing the whole health of SMI patients (Swarbrick, 2006). Mental health professionals have a role in supporting a patient's recovery. They can offer wellness interventions to foster whole health (NASMHPD, 2006; SAMHSA, 2012). This can be provided through evidence-based care smoking cessation groups. Common risk factors among the SMI population such as weight gain and smoking require attention in the practice setting. This setting could be within mental health or primary care to support proactive responses. The wellness interventions offered by MIHCM programs illustrates this approach.

Healthcare Utilization

Healthcare utilization is a factor in the whole health of SMI patients. National data indicates increased health care utilization among persons with mental illness (Goldberg, Seybolt, & Lehman, 2002). However, emergency care had the greatest utilization. Adults with mental illness had a higher proportion of ER use (39%) within the past year in comparison to the general population (27%); (SAMHSA, 2012). Similarly, a self-report from individuals with SMI revealed strong reliability in their reporting of ER use during the past six months (Goldberg, Seybolt, & Lehman, 2002). Specific services such as medication receipt were moderately reliable. Frequent ER visits among SMI

patients provide indication of poorly managed chronic health problems; the lack of health insurance may be a factor for non-veterans. This emergency care prompts the need to explore the use of routine outpatient services and case management. Intensive case management interventions such as medication monitoring are shown to prevent acute episodes (Mohamed, Neale & Rosenheck, 2009).

The use of general medical services was investigated to examine associated diagnoses and other variables. Cradock O'Leary et al.'s (2002) investigation of a VA health system employed regression analysis. There was less use of medical services by younger veterans with schizophrenia (Cradock O'Leary et al., 2002). These findings indicated a lower likelihood of SMI patients' receipt of medical care. Co-occurring chronic conditions such as hypertension and diabetes are among the most mismanaged (Cradock O'Leary et al., 2002). Similar findings were noted in Chwastiak, Rosenheck, and Kazis' inquiry (2008). They analyzed a data set from a large veteran health study on primary care service utilization. Logistic regression showed that veterans with SMI such as schizophrenia and bipolar were less likely to receive a primary care visit (Chwastiak, Rosenheck, & Kazis, 2008). The findings from these veteran studies prompted the need for integrated approaches towards whole health.

Alternate types of interventions are indicated for the wellness of SMI veterans with chronic medical conditions. When they receive mental health care, health promotion could be integrated during VA psychiatric visits. VA mental health professionals are trained in evidence- based interventions such as motivational interviewing (VHA, 2012). These are used to reinforce healthy behaviors. Furthermore, the VA continuum of care provides an array of services to promote whole health (VHA, 2002; VHA, 2014).

Specialized programs such as MHICM provide care coordination and health promotion to improve service utilization in SMI veterans. These integrated approaches are necessary to engage SMI veterans.

Health Promotion in the Mental Health Setting

Health education and discipline specific interventions can be used in mental health settings to improve the wellness of people with SMI. MHICM interventions such as family education, psychiatric medication monitoring, and care coordination are provided by disciplines (Mohamed, Neale, & Rosenheck, 2009). Health promotion includes screening and teaching in the SMI population. White, Gray and Jones (2009) demonstrated the importance of screening SMI patients. Their Health Improvement Profile identified 28 health parameters based on problems affecting SMI patients (White, Gray, & Jones, 2009). Having parameters will inform mental health clinicians on action needed to address the health problems. These tools could inform the wellness approach in a mental health care setting by defining the health issues.

Clubhouse settings for mental health patients also show the benefits of preventive health screenings. The clubhouse provides a rehabilitative center where mutual support and skills training occur (Tratnack & Kane, 2010). Leisure involvement and other activities such as employment skill building are offered to empower the individual. SMI patients could be more receptive to health promotion in these settings due to less stigmatization. MHICM programs exude this type of supportive environment. Tratnack and Kane (2010) used a health maintenance review form to screen clubhouse participants. The respondents demonstrated the ability to give feedback on their use of preventive services such as mammograms and vaccination barriers in the provider setting.

Supportive environments can facilitate health promotion among SMI patients. The evidence shows that they face fewer barriers such as the perception of a negative attitude (Tratnack & Kane, 2010). Assertive community treatment models and VA MHICM programs offer such support using a multidisciplinary team (Salyers & Tsemberis, 2007; Mohamed, Neale, & Rosenheck, 2009).

The MHICM treatment model provides a unique service that addresses multifaceted issues in SMI veterans. The team consists of nurses, nurse practitioners, social workers, peer specialists, vocational rehabilitation specialists, and psychiatrists. (Goldberg & Resnick, 2010; Mohamed, Neale, & Rosenheck, 2009). Each discipline offers a perspective on bio psychosocial issues. The physician and nurse practitioner provides medication evaluation and management. The effects of psychotropic medication are a contributing factor to co-occurring medical illness in SMI patients (McEvoy et al., 2005). Gill et al. (2009) review the issue of comorbid psychiatric and medical disorders. The evidence links the atypical, newer formulations, of psychotropic medications to metabolic syndrome. Side effects of these atypical drugs can induce metabolic syndrome, diabetes, hyperglycemia, and change in lipid levels (Gill et al., 2009). Additionally, unhealthy risk behaviors occur among persons with psychiatric disorders (Gill et al., 2009, Cradock O'Leary et al., 2002). A proactive intervention is necessary to promote whole health. The interdisciplinary team contains the expertise to intervene with issues such as symptom relapse, poor health literacy, and non-adherence to medications. The clinical case manager on an ACT team or within a MHICM program provides care coordination (Salyers & Tsemberis, 2007; Mohamed, Neale, & Rosenheck, 2009). This care coordination fosters whole health through collaborative approaches. For example,

the nurse case manager liaisons with the medical provider to improve outcomes on patient management. Lastly, the use of best practices and evidence-based interventions are essential with this population. Gill et al. (2009) discusses the change model and use of motivational techniques when engaging persons with SMI. Clinical social workers are trained on these theoretical models and application. A person centered approach is used to understand the needs of a patient and develop a realistic care plan. MHICM programs operate under the recovery model which builds on the veterans' strengths (Goldberg & Resnick, 2010).

Wellness Interventions

Wellness and recovery encompasses one's overall well-being. Wellness includes various aspects of the person such as the emotional, physical, and spiritual (SAMHSA, 2013). The *Eight Dimensions of Wellness* was released in recent years as a holistic guide for serving persons with mental illness (SAMHSA, 2013). The eight dimensions include: "emotional, environmental, financial, intellectual, occupational, physical, social, and spiritual" (p. 1). An individual's mental health recovery and wellness have similarities. A major component of recovery is health. It not only involves the person's ability to manage disease but to also live physically and emotionally healthy. Among the guiding principles of recovery is *holistic*. Holistic refers to the mind, body, spirit, and community (SAMHSA, 2011). The holistic services provided by MHICM programs support the whole health of SMI patients (VHA, 2006; VHA, 2012). Moreover, wellness self-management is taught and reinforced through individual skill building. MHICM clinicians and peer specialists assist SMI veterans with self-maintenance in their communities.

Sustained wellness could have positive outcomes for a person's recovery. In its early stages, recovery was largely applied to persons with an addiction to substances (Sterling et al., 2010). Recovery has since evolved to encompass mental illness as a whole. Self-management is a related concept within this paradigm and is based on self-efficacy (Sterling et al., 2010). It pertains to the person's self-perception of his or her ability to achieve recovery. Recovery is person-centered and defined by the individual's achievement of a meaningful life. Self-management entails an individualized plan to foster wellness in one's daily life. The Wellness Recovery Action Plan (WRAP) is a widely used tool for self-management (Sterling et al., 2010). The WRAP consists of a written plan that articulates how one's illness presents, signs of relapse, and coping strategies (Sterling et al., 2010). Tools such as the WRAP are preventative and can integrate various aspects of the person including interpersonal strengths and physical self-care. Similarly, the Whole Health Action Management (WHAM) is a tool to encourage wellness and resiliency. It consists of 10 modules and is taught by peer specialists (SAMHSA, 2013). Peer support has gained a role in the realm of wellness planning for persons with SMI. A peer support specialist is an individual in recovery from mental illness or who has recovered (Sterling et al., 2010). Wellness and ultimately recovery are thus determined by the interventions provided and the individual's self-management of illness.

Physical Health Interventions

Lifestyle changes are essential to achieving whole health wellness. The evidence shows that risk factors can be reduced through healthy living behaviors. A systematic review of lifestyle interventions for SMI people identified practices that could promote

physical health (Cabass, Ezell, & Lewis-Fernandez, 2010). Activities such as exercise and consuming balanced nutritional meals have positive implications for health. The literature indicates that these lifestyle behaviors can be taught in various settings including: outpatient clinics, inpatient units, day programs, and residential treatment facilities. (Cabass, Ezell, & Lewis-Fernandez, 2010). Both the individual and group format is effective when teaching these skills. Psychoeducational groups offer a unique opportunity to engage SMI patients towards lifestyle changes (Kraezle, Schneider & Cook, 2005). Professionals such as nurses and social workers plan and lead groups based on specific topics. This is the practice of the MHICM program psychoeducational groups in the proposed study. The group setting enables SMI veterans to observe peer behaviors and model them. Studies also show that modeling of lifestyle changes occurs during shopping trips and education on meal preparation. Nutritionists are effective in these areas (Cabass, Ezell, & Lewis-Fernandez, 2010; Jarskog et al., 2013). Thus, the expertise of each clinical team member is essential for addressing whole health.

Behavioral change strategies are also an integral part of lifestyle interventions. Motivational interviewing, skills training, and relapse prevention are employed to effect change (Casagrande et al., 2010; Cabass, Ezell, & Lewis-Fernandez, 2010; Miller and Rollnick, 2004). These techniques dissuade self-defeating thoughts and empower the individual through education. For example, when taught healthy living skills from curricula such as diabetes prevention and wellness solutions, patients were more apt to apply them (Casa Grande et al., 2010). Positive outcomes were found in weight loss, blood pressure, blood glucose, and triglyceride (Cabass, Ezell, & Lewis-Fernandez,

2010). The efficacy of these lifestyle interventions for physical health affirms the benefits of offering such services to people with SMI.

Diabetes. Metabolic syndrome and diabetes contribute to morbidity in SMI patients. Metabolic syndrome is a precursor to diabetes and early intervention could mitigate or eliminate progression (American Diabetes Association, 2012). Although medications (Jarskog et al., 2013) are effective in addressing some side effects of psychotropic agents, preventative health is essential. The clinical guidelines for diabetes entail self-management (American Diabetes Association, 2012). Self-management can be practiced through application of nutrition education and physical activity. A well balanced approach for diabetes self-management was implemented though a psychiatric nursing intervention in a New York community (Chiverton et al., 2007). Evidence-based guidelines for diabetes were integrated during a 16-week program entitled *8 Steps to Wellness*. Education and risk reduction interventions impacted A1C levels at follow-up. The number of people having an A1C lower than 6% increased from 32% to 43% at program completion (Chiverton et al., 2007). A similar approach is employed in the MHICM wellness group series on diabetes. VA health promotion materials are integrated for education to SMI veterans with diabetes or at risk.

Systematic reviews of evidence-based practices in diabetes management advance the benefit of lifestyle interventions. Glycaemic control and patient education were identified as key interventions (Abu-Qamar & Wilson, 2007). Blood glucose management is contingent on diet, exercise, and medication therapy. Variations may occur in how these are employed within care settings. MHICM clinicians can integrate aspects of the evidence-based techniques during groups and individual sessions to

reinforce the diabetes plan. Health education and screenings are provided within the scope of MHICM services (Rosenheck, Neale, & Cuerdon, 2010). There are benefits in developing diabetic self-management techniques for the SMI population. MHICM programs integrate this approach into its services as indicated by reinforcement of blood glucose monitoring and balanced nutritional meals.

Medication Adherence. Medication adherence is another factor pertaining to the physical wellness of SMI patients. Individuals with SMI are prescribed psychotropic drugs to target symptoms (Gray et al., 2010). Clinical practitioners have a role in enhancing medication adherence. MHICM clinicians provide medication monitoring to the special population of SMI veterans. The alliance formed with the patient facilitates shared decision making (Gray et al., 2010; Jarskog et al., 2013). Characteristics of the clinician were one among several concepts that emerged from a qualitative study. The others included: (a) medication efficacy, (b) self-management of side effects, (c) medication side-effects, (d) patients' subjective experience of illness, and (e) convictions about medication. Consequently, the clinician's effectiveness in connecting with the patient will impact adherence therapy. Adherence has implications for compliance with the primary treatment and secondary medications for side effects such as weight gain. These side effects are risk factors for chronic disease in SMI patients. Inconsistencies are present in the patients and providers perception of medication adherence. A study of 1,600 SMI veterans who received enhanced care illustrates this issue (Valenstein et al., 1998). Their agreement with the clinician on medication compliance was low. The pattern of noncompliance within the enhanced programs was agreed to 61% of the time by clinicians whenever the veteran reported noncompliance (Valenstein et al., 1998). Yet

the veterans agreed only 10% of the time whenever a clinician rated them as noncompliant. These findings suggested the need for patient-centered approaches to promote whole health. Perhaps, health literacy and wellness education could improve patient-provider communication.

Specialized Health Promotion for Veterans

Specialized health promotion services for SMI veterans can enhance their wellness. A specialized wellness center for SMI veterans was implemented at a VA health facility in the New England. The wellness center was developed in connection with the psychosocial rehabilitative program (Klee & Lee, 2012). Specialized interventions such as these are critical for engaging the special population. SMI veterans face stigmatization in mainstream settings. The wellness center team provides evidence on the efficacy of tailored programs. They focused on: fitness and weight management, healthy nutrition for disease management, preventive health interventions such as smoking cessation and stress reduction. The veterans self-reported interest in nutritional services (53%), fitness activities (96%), stress reduction (46%), and motivational counseling (38%) and smoking cessation (16%). Hence, wellness services may be more attractive to veterans with SMI when integrated into the mental health program. Barriers such as inadequate transportation and unfamiliar providers are eliminated in this supportive setting. VA MHICM programming presents a unique opportunity to integrate these tailored wellness activities.

MOVE program. Wellness programs have been implemented in the VA health system. These include programs under the umbrella of VHA health promotion and disease prevention. Veterans' wellness encompasses whole health. The focus in this area

is evidenced by The Managing Overweight Veterans Everywhere (MOVE) program. It was implemented in response to the growing problem of obesity among veterans (Brooks & Younce, 2006). There is a 72% prevalence of overweight or obesity among veterans compared to the general population (Kissinger et al., 2009). An estimated 66% of adults are overweight or obese in the U.S. compared to 72% of veterans (Kissinger et al., 2009). Veterans also have greater physical and mental health problems. The MOVE program is an interdisciplinary team composed of the primary care physician, a nurse, and a dietician (Brooks & Younce, 2006). Veterans are evaluated and participate at a single level, one through five with intensified weight loss interventions. The varying levels provide access to individualized treatment. Yet, modifications may be necessary for special veteran populations. One facility supplemented its MOVE program by using newsletters and motivational telephone calls to promote a high fruit and vegetable diet (Allicock, et al., 2010). Veterans who perceived the tailored newsletter as pertinent to their lifestyle (β = 0.12; $p < 0.01$) reported greater consumption of fruits and vegetables (Allicock et al., 2010).

The MOVE programs are available to all veterans including those with mental health disorders. However, a limitation is the ability to engage SMI veterans and sustain their participation. SMI veterans are affected by cognitive impairment and psychiatric symptoms (Daumit et al., 2013). Tailored approaches are essential to engaging this special population. Moreover, individualized plans with frequent monitoring could be effective. MHICM clinicians introduce veterans to activities such as personalized walking plans and assist with goal-setting towards adaptive skill building (VHA, 2006; Neale & Rosenheck, 1995). Findings from a manualized MOVE program for veterans

with SMI indicated no significance difference with regard to weight loss outcomes (Goldberg et al., 2013). Hence, focused assessment combined with behavioral techniques is necessary to intervene. The evidence shows that when these are applied, positive outcomes are attained. A 12 week weight control program for SMI patients entailed a clinical interview, a physical exam, and a motivational evaluation (Vreeland et al., 2003). A combination of interventions was provided including nutritional counseling, exercise, and behavioral management. Statistically significant results emerged in weight loss and body mass index between groups (Vreeland et al., 2003). The intervention group reported a mean weight loss of 6 pounds and BMI reduction of .98 points. The control group reported a mean weight gain of 6.4 pounds and BMI gain of 1.2 points (Vreeland et al., 2003). Thus, similar approaches can be applied when treating SMI patients in health care systems. The group format is the ideal setting given the presence of veteran peers and opportunities for role modeling.

Adequate assessment and behavioral plans are necessary to impact the lifestyle behaviors of people with SMI. The evidence shows that when these are applied, positive outcomes are attained. These outcomes have implications for veterans' quality of life (QOL). A 12 week weight control program serving 31 SMI patients entailed a clinical interview, a physical exam, and a motivational evaluation (Vreeland et al., 2003). A combination of interventions was provided including nutritional counseling, exercise, and behavioral management. There was a positive correlation between the program interventions and weight loss measures. Statistically significant results emerged in weight loss, change in body mass index, and various ratings such as knowledge of nutrition (Vreeland et al., 2003). Thus, similar approaches can be applied when treating SMI

patients in health care systems. The group format is the ideal setting given the presence of peer support and opportunities for role modeling (Roberts, 2009).

Mental Health Interventions

Mental health interventions are employed through a variety of techniques to promote wellness in SMI patients. These include treatment models designed for the population and specific therapeutic approaches. Systematic reviews of the evidence identify various interventions for people with SMI. A Cochrane review of non-medication based therapeutic interventions found strong support for assertive community treatment and psychoeducation (Jung & Newton, 2009). Assertive community treatment such as VA MHICM programs uses multidisciplinary team to outreach the patient. The Cochrane review revealed that persons receiving assertive community treatment were more likely to remain in contact with services (Jung & Newton, 2009). They demonstrated positive social outcomes including improved quality of life. The evidence also identifies psychoeducation as an effective intervention for SMI patients. Psychoeducation can be provided one-on-one or in a group setting. This is further supported in that certain educational topics are better related in the group setting (Vreeland, 2012; Kraenzle, Schneider, & Cook, 2005). Psychoeducation aims to teach the client about the illness and provide coping skills towards relapse prevention. Thus, the effect of psychoeducation can be ascertained through change in knowledge, attitudes, and behaviors

Illness Management and Recovery. Illness management and recovery (IMR) is a primary approach employed for psychoeducation. IMR focuses on the management of symptoms. It used for SMI veterans in the MHICM program. IMR provides education on

maintaining optimal mental hygiene (McGuire et al., 2014; Salyers et al., 2014). This evidence-based intervention is critical for SMIs such as schizophrenia. Schizophrenia is among the most debilitating SMIs as indicated by cognitive impairment, social dysfunction, and perceptual disturbance (Vreeland, 2012; Mueser, 2004). The evidence shows that IMR is effective in improving the knowledge base of SMI patients (Hasson-Ohayon, Roe, & Kravetz, 2007). Consequently, patients are able to define their recovery goals and demonstrate progress. These goals could pertain to reducing re admission into the hospital, obtaining work and improving social skills. IMR fosters mutual exchange and shared decision making. The patient learns about their illness and is supported in the care setting. When IMR is integrated into models such as assertive community treatment, it can reduce re admission for psychiatric hospital service (Salyers et al., 2010). Hence, IMR is a preferred psychoeducational tool for SMI veterans served in assertive community treatment programs such as MHICM (Jung & Newton, 2009). It can be integrated into wellness programs to reinforce mental wellness through teaching on the disorder, relapse prevention, and coping skills (SAMHSA, 2012). IMR curriculum from SAMHSA was adapted for use in the proposed study wellness group. IMR, cognitive behavior therapy, and, social skills are associated with improved outcomes (Mueser, 2004). For example, IMR fosters improved medication adherence and reduction in relapse to symptoms. This has implications for the QOL of veterans in the proposed study. Social skills training is yet another evidence-based mental health intervention for people with SMI.

Social skills training. Social skills training promotes wellness through teaching on effective interpersonal relations, assertiveness, and conflict resolution. Outcomes are

indicated in patients' improved relationships and leisure involvement. Meta-analysis of social skills intervention show mastery of living skills, community functioning, and relapse prevention (Kurtz & Mueser, 2008). The evidence supports this intervention for schizophrenia and schizoaffective disorder. Among the 1, 599 patients in the meta-analysis, 87% had those disorders (Kurtz & Mueser, 2008). The largest effect from SST is noted in mastery of the content. Patients learn through role playing in social skills scenarios and practice these skills during the 12 weeks (Kurtz & Mueser, 2008). MHICM clinicians employ SST in the wellness group setting and individually to model behaviors for veterans. It has relevance in that the mastery of social skills enables the veteran to relate to others. Their improved skills have implication for preventing psychiatric relapse. In short, they are better prepared to communicate change in symptoms and assert needs. Galderisi et al. (2010) had similar findings in their investigation of social skills and neurocognitive training in schizophrenia. The social skills and neurocognitive groups were provided by psychiatric rehabilitation technicians in a day treatment program. At six month follow up, clients in the latter group demonstrated greater personal and social functioning (Galderisi et al., 2010). These findings regarding social skills training advance its utility as an intervention to use in MHICM wellness programming. Social skills training contributes to improved psychosocial functioning and has positive implications for quality of life. Social skills training and other evidence-based practices such as motivational interviewing are encouraged for use with veterans having SMI (VHA, 2008).

Motivational interviewing. Motivational interviewing is a patient-centered technique that encourages change. Self-identified change has significance in that the

patient assumes some ownership towards personal wellness. The person's values, motives, and resources are believed to contribute to his or her readiness for change (Miller & Rollnick, 2004). Change talk is employed to address the client's ambivalence which interferes with healthy behaviors. Motivational interviewing can be used in a variety of treatment contexts for health problems. The literature indicates integration of motivational interviewing and counseling in teaching lifestyle behaviors (Cabass, Ezell, & Lewis-Fernandez, 2010; Perlman et al., 2010). The reduction of cardiovascular risk factors illustrates this application (Cabass, Ezell, & Lewis-Fernandez, 2010). Motivational interviewing sessions were provided in conjunction with treatment in a control study. The comparison group received standard information in the form of a leaflet and no motivational interviewing (Hardcastle, 2013). At 6 month and 18 month follow-up the treatment group had a significant difference in walking behavior in comparison to the minimal intervention group. In summary, motivational interviewing helps the patient develop an argument for positive change. The clinician is effective when able to guide the patient towards recognizing and expressing the need for change. MHICM clinicians in the proposed study received training in the technique. Motivational interviewing is applied when serving a SMI veteran to encourage effective symptom management. The technique is a practical approach for improving whole health.

Wellness groups. Psychoeducational groups are another mechanism to motivate change among people with SMI. The group setting provides a supportive environment whereby individuals are able to share their experience. Professionals such as social workers, peer specialists, and nurses lead such groups (Salyers et al., 2010; Roberts, 2009; Bryne et al., 1999). The wellness group in the proposed study is co facilitated by a

clinical social worker and registered nurse. Preparation for the psychoeducational group entails identifying a wellness topic pertinent to the unique patient needs. The group curriculum provides a structure for outlining the objectives aimed at change in attitudes and behaviors (Kraenzle, Schneider, & Cook, 2005). Focused psychoeducational sessions are important for SMI patients. Although a variety of topics are available, sessions are planned to target areas such as illness management and health promotion. The scope and type of a psychoeducational group can also vary. The literature shows that some groups may be closed, lasting for 12 weeks and others are open indefinitely (Roberts, 2009). The group in the proposed study is open for veterans to join with no more than 12 participants.

Wellness groups tailored to mentally ill veterans are a unique approach to whole health. These multidimensional groups address overall health behavior. The evidence shows positive outcomes on lifestyle and coping skills (Perlman et al., 2010). A wellness group for veterans with comorbid psychiatric and medical problems was implemented through 15 sessions (Perlman et al., 2010). Post intervention results from the wellness group were improvements in: emotional role functioning, social role functioning, mental health, physical role functioning, bodily pain, and general health (Perlman et al., 2010). These were self-reported by participants. In short, the patient's quality of life is elevated when whole health care is provided. The benefits of wellness group intervention were also illustrated in a program in the State of New York mental health system (Salerno et al., 2010). The wellness self-management curriculum incorporated recovery principles and expanded on illness management (Salerno et al., 2012). The program integrated a workbook and a physical health component into the curriculum. Core competencies

guided the wellness self-management approach. Participants provided a self-rating at completion. A total of 75% out of 409 reported progress towards their goals (Salerno et al., 2012). This evidence on wellness groups supports the benefit of whole health approaches in the mental health setting. The total wellness of people with SMI is predicated on addressing multiple domains. These domains are recognized in MHICM wellness groups as indicated by a variety of topics.

Wellness recovery action planning. Personalized tools such as wellness self-management workbooks outline a routine to reinforce healthy behaviors. The Wellness Recovery Action Plan (WRAP) is a tool that helps the person with mental illness plan their wellness hygiene (Fukui, 2009, Starnino et al., 2010). The WRAP was founded by Mary Ellen Copeland and the format is individualized to promote personal recovery (Cook et al., 2009). The individual could use a workbook, binder, or computerized record. SMI veterans served by the program in the proposed study use a variety of recovery action planning. The MHICM program incorporates recovery workbooks and WRAP worksheets to promote rehabilitation (VHA, 2016). These tools are integrated in conjunction with the wellness programming. WRAP has been investigated in community mental health centers. Its teaching based on Copeland Center guidelines showed effective implementation following 8-12 weeks of sessions. Patients developed a WRAP to address: "(1) wellness tools, (2) daily maintenance activities, (3) triggers, (4) early warning signs, (5) plan for when things are breaking down, (6) develop a crisis plan and, (7) develop a post-crisis plan" (Starnino et al., 2010, p. 2). The effects of using a WRAP are indicated in symptoms management. Persons who apply the WRAP plan display reduction in psychiatric symptoms and report enhanced QOL (Cook, Copeland, Jonikas,

& Hamilton, 2012). For example, SMI veterans served by the MHICM program refer to their WRAP when stressors present. They are then able to be guided by the steps outlined in their personal plan.

The utility of WRAP is illustrated in recent studies. Significant changes were found in a treatment group when compared to a comparison group that did not participate in WRAP (Fukui et al., 2009). The outcomes of a self-management group provide evidence (Starnino et al., 2010). Patients with a severe, persistent mental illness completed WRAP sessions and participated in a post-test. Assessment of hope, recovery, and symptoms showed statistically significant increases: hope ($t\ 29 = 3.86$, $p = .001$) and recovery ($t\ 28 = -4.11$, $p < .001$); (Starnino et al., 2009). Thus, WRAP provides a proactive approach whereby the patient specifies their wellness hygiene. It is adequate for self-management of psychiatric and general medical problems (Bartels et al., 2014). Wellness self-management techniques such as these have positive implications for improved quality of life.

Quality of Life for the Chronically Mentally Ill

The QOL for persons with chronic mental illness warrants attention given the impact of disease on their wellbeing. QOL in this population gained focus following the period of deinstitutionalization (Rosenfield, 1992; Athony, 1994). Patients were left to function in communities where they faced stigmatization. Additionally, there was a lack of caregivers and provisions to meet their basic needs (Rosenfield, 1992). Community support services were recommended by mental health advocates (Rosenfield, 1992). These services were intended to foster the rehabilitation of chronically mentally ill patients. They required skills and resources to help them function in their communities.

In recent years, recovery has gained new focus given the integration of evidence-based treatments and self-reports from individual's experience (Anthony & Mizock, 2014; Jenkins, Strauss & Carpenter, 2005). Individuals with an SMI such as schizophrenia are now able to have a quality life as indicated by participation in work and independent living (Anthony, 2014). Additionally, the recovery model has also resulted in peer support specialists to guide individuals with mental illness. Peer specialists promote quality living by providing non clinical services based on their lived experience with mental illness (Gidugu et al., 2015). The peer support services were beneficial in normalizing the illness experience.

Quality of Life following Deinstitutionalization.

Community support services emerged to address the psychosocial needs of chronically mentally ill persons. Best practices such as assertive community treatment and clubhouse models were founded (Rosenfield, 1992). MHICM programs are the VA version of ACT; they were piloted in the VA health system during the early 1990s (Golberg & Resnick, 2010). The evidence shows that these assertive models affect positive QOL (Prince & Gerber, 2005; Mohamed, Rosenheck, & Cuerdon, 2010). The life satisfaction of clubhouse participants was studied to evaluate areas such as vocational, social skills, and daily living (Rosenfield, 1992). Regression analysis from self-ratings on the Lehman's instrument revealed significant relationships between life satisfaction and clubhouse components. Vocational functioning (β .2086, $p = .018$) and empowerment (β -.1879, $p = .028$) were two areas of benefit (Tratnack & Kane, 2010). Mastery is a concept closely related to subjective QOL (Rosenfield, 1992). It speaks to the person's perception of having maximized functioning in a domain. Within the

clubhouse setting, members' perception of mastery was assessed through analysis of three components: economic services, empowerment, and structure (Rosenfield, 1992). There was a reduction in the relationship between QOL and those components when the analysis controlled for mastery (Rosenfield, 1992). This finding speaks to the individuals' sense of attainment when given the appropriate resources. In contrast Tempier et al. (1998) found greater satisfaction among persons with mental illness when basic needs such as housing and income were met. The outcome of these studies suggests that the domains employed to assess QOL may impact patients' view of the construct itself. People with chronic mental illness such as those in the proposed study are able to self-rate their QOL. The literature indicates that the instrument should be commensurate with the scope of the QOL construct (Chopra et al., 2008)). A number of measurements are used in the VA system to study health outcomes such as QOL.

Measurements of Quality of Life in the Mentally Ill

A variety of instruments have been employed to study QOL in the mentally ill. Systematic reviews of treatment milieu and focused inquiry within programs were conducted to evaluate QOL measures. Instruments such as the Lancashire quality of life profile (LQOLP) and Lehman's QOL interview emerged as the more commonly used (Oliver, Huxley & Priebe, 1997; Lehman, Postrado & Rachuba, 1993). These and others are designed to assess QOL of life in the context of factors present in chronic mental illness.

Lancashire quality of life profile. The LQOLP was developed as an instrument to measure both objective and subjective elements (Oliver, Huxley & Priebe, 1997). Systematic reviews found its utility and reliability to be strong attributes. It is among the

oldest QOL measurements. The LQOLP addresses four major areas during the client interview: personal characteristics, objective QOL indicators, subjective QOL indicators, and global well-being (Oliver, Huxley & Priebe, 1997). It consists of eight life domains including "living situation, family, social relationships, leisure activities, work/education, finances, personal safety, and health (Oliver, Huxley & Priebe, 1997, p. 77). These domains are relevant to the circumstances of SMI veterans in the proposed study. MHICM programs aim to improve their QOL. Wellness interventions in the MHICM program incorporate psychosocial components from the LQOLP.

The LQOLP profile has an interviewer assessed component and the life satisfaction scale from the Lehman's instrument. The interviewer component enables the evaluator to provide an assessment of the client (Oliver, Huxley & Priebe, 1997). The LQOLP is an easy to use instrument among respondents. However, the client's mental health status and motivation to participate requires consideration. Barriers can present during the interview if these areas are problematic. The internal reliability of the LQOLP is favorable across diverse mental health settings such as psychosocial rehabilitation, case management, and community teams (Oliver, Huxley & Priebe, 1997).

Given its applicability across settings, the LQOLP establishes a solid framework for QOL domains. The domains have similarities to wellness dimensions such as health. There is strong construct validity for the LQOLP. A sample of more than 1,500 cases revealed that clients are able to express their life satisfaction through the domains (Oliver, Huxley & Priebe, 1997). A limitation was found with regard to consistency of the LQOLP scores in diverse settings. These areas entailed living situation, safety, and religion. These differentials from treatment settings could be due to factors such as type

of housing. For example, a client who resides in an apartment may perceive less safety than one who lives in a home. Lehman had similar findings in his evaluation of psychopathology as a confounder of QOL (Oliver, Huxley & Priebe, 1997).

Lehman QOL interview. The Lehman QOL interview is among the most widely used measurements. The Lehaman's instrument is employed using a structured interview. The client provides self-ratings of QOL (Lehman, Postrado & Rachuba, 1993). The self-report contains a 7 point life satisfaction scale. For example, the terrible-delighted scale, with a scoring range of 1-7, ascertains the patient's evaluation regarding specific relationships and their life as a whole (Rosenfield, 1992). The evidence supports the utility of the Lehman's measurement. It was employed at follow-up to measure QOL in participants from a health education group (Byrne et al., 1999). In particular, education modalities were evaluated for impact on QOL. A health education group was compared to an empowerment group; both were facilitated by nurses (Byrne et al., 1999). The Lehman's interview was conducted at baseline, six months, and at one year post-intervention (Byrne et al., 1999). A statistically significant difference was found in leisure ratings between the study groups. The health education group had a higher leisure score ($F_{2,107} = 4.13$, $p = .04$) [Byrne et al., 1999]. Although the Lehman's life satisfaction scale is incorporated into VA MHICM program evaluations, the scale is limited. It does not address the scope of variables pertinent to health related QOL. Domains including physical and emotional are not evaluated. These are indicated as key components in QOL measures (Lehman, Postrado & Rachuba, 1993; Oliver, Huxley & Priebe, 1997).

The Lehman's scale evaluates life satisfaction in general. The subjective QOL of assertive community treatment participants was explored using this scale (Prince &

Gerber, 2005). The clients had severe mental illness and were served in the community setting. The global satisfaction score was 4.66 among the sample. The mean ratings in categories were: 18.68 for social support and 17.74 for self-esteem. These were above the midpoint score of 12 (Prince & Gerber, 2005). Accordingly, there is a positive association between community based programs such as MHICM and self-reported QOL. These specialized teams provide holistic care. The findings of these studies advanced the need for more in depth measurement of QOL in people SMI veterans.

Quality of life enjoyment scale. QOL was further explored through a pilot instrument, the quality of life enjoyment scale (Q-LES-Q); (Bishop et al., 1999). Four subscales were evaluated on the Q-LES-Q. The scale examines subjective QOL. The inquiry to validate this scale had positive findings (Bishop et al., 1999). Factor analysis of the subscales indicated good construct validity. Therefore subjective aspects such as feelings, leisure activity, and social relationships were adequately measured by the Q-LES-Q. The findings of this study illustrate similar concepts relevant to measuring QOL in SMI patients. These concepts such as subjective well-being, leisure involvement, life satisfaction, and social support appear to be essential components in QOL. Health-related QOL is yet another area pertinent to the SMI population, especially patients having medical co morbidity. VA RAND health surveys are a tool for measuring this construct.

Health-related Quality of Life in Veterans

Health related QOL is related to physical and emotional well-being and is widely studied in veteran populations to understand their perceptions. A recent inquiry focused on factors associated with health related QOL in SMI veterans. Data from the VA Survey of Healthcare Experiences of Patients (SHEP) and Mental Health Program Survey

(MHPS) were incorporated (Bowersox, Lai, & Kilbourne, 2013). VA studies pursue insights from veterans on the care environment. Thus, self-reported data from the veterans are valued. They inform the administration of services and practice. Health related QOL is a key outcome variable as it addresses a broad area pertinent to the veteran experience. Large data sets derived from the SHEP and MHPS provide evidence on integrated care and recovery for veterans (Bowersox, Lai, & Kilbourne, 2013). Aggregate data from SMI veterans informed these features of the care environment. The evidence showed that co-llocated primary care clinics and mental health are effective (Bowersox, Lai, & Kilbourne, 2013). These infrastructures promote whole health by addressing physical and mental components of wellness. Veterans had positive perception of services such as peer support on their recovery as opposed to the traditional clinical services (Bowersox, Lai, & Kilbourne, 2013). Thus, a veteran's recovery and wellbeing is contingent on perception of the types of services offered. This underscored the importance of administering self-rated QOL measurements.

A large scale review of 2,394 SMI veterans sought to determine the care environment's relationship with health related QOL (Bowersox, Lai, & Kilbourne, 2013). This level of inquiry informs the delivery of treatment and services in programs such as MHICM. MHICM programs are charged with improving QOL of veterans with SMI. The data set pertaining to health related QOL was extracted from the SHEP. The Veterans RAND 12 (VR-12) health survey was the source. The VR-12 measures health-related QOL and has been validated in previous veteran surveys (Bowersox, Lai, & Kilbourne, 2013). It is self-administered and produces two measures: a mental component score (MCS) and a physical component score (MCS). These scores define health related QOL

based on a veteran's perception. Thus, veterans with SMI are provided this survey to self-report their functioning. Review of the VR-12 data revealed a higher mental health component score ($\beta = 1.48$, $p < .05$) in association with care features such as peer support and vocational rehabilitation (Bowersox, Lai, & Kilbourne, 2013). A higher physical component score ($\beta = .80$, $p < .01$) was related to patients having greater understanding of the care environment (Bowersox, Lai, & Kilbourne, 2013) . Overall, the sample provided a low self-rating for health-related QOL (MCS, 38.60 and PCS, 37.10) on a scale of 1-100 (Bowersox, Lai, & Kilbourne, 2013). The findings of this research indicate the need for additional efforts to integrate care. Innovations such as wellness interventions in VA MHICM programs could improve access to whole health care. MHICM teams provide holistic case management services (VHA, 2016).

Quality of life measures in MHICM. Mental Health Intensive Case Management (MHICM) programs conduct follow-up surveying as part of the VA evaluation system (VHA, 2016). The VA Northeastern Program Evaluation Center (NEPEC) oversees the evaluation process for MHICM programs (VHA, 2016). As such, the collection of baseline and follow-up data is necessary to inform practice within this specialty program. Moreover, the data relates patient satisfaction, self-reported quality of life, and transitions based on recovery. The Lehaman's global satisfaction with life scale is integrated into the follow-up survey. It is used to evaluate the veteran's QOL. The evidence shows that veterans' length of time MHICM programs are associated with QOL. An inquiry on early termination from MHICM services showed greater self-rated QOL among veterans who remained in the program (Mohamed, Rosenheck, & Cuerdon, 2010). Mean scores on the Lehman's scale were: 27 for termination at less than one year,

27 for termination at 1-3 years, and 28 for termination at greater than 3 years (Mohamed, Rosenheck, and Cuerdon, 2010). Items on the Lehman scale are scored from 1 to 7 with a total score range of 5-35. This data indicated an association between MHICM services and QOL of veterans served. It prompted the need for more in depth inquiry on QOL in veterans served by MHICM teams.

Veterans RAND 12 item health survey. The Veterans RAND 12 Item Health Survey (VR-12) is used in patient populations to evaluate QOL. The VR-12 is a "brief, generic, multi-use, self-administered health survey comprised of 12 items" (Iqbal et al., n.d., pg 1). The VR-12 is derived from the SF-36 which measures change in health among a general population (Hemingway et al., 1997). These instruments contain brief scales and measure QOL. Public and federal patient populations have been studied using the VR-12 or SF-36. The health outcomes study from the Center for Medicare and Medicaid employed items from the VR-12 to assess QOL (Iqbal et al., n.d.). The SF-36 was investigated in civil servants residing in London. The longitudinal study reviewed change according to age, employment rank, and morbidity (Hemingway et al., 1997). At 3 year follow up, mean scores were lower on all SF-36 scales (Hemingway et al., 1997). Age was found to be related to people's self-reported QOL over the years. In short, a population specific survey is necessary to study health related QOL. Target populations could be the youth, veterans, elderly people or other.

Health researchers within the VA system adapted the SF-36 to create a Veterans RAND health survey (Kazis et al., n.d.). The VR-12 consists of eight domains: 1) physical functioning, 2) role limitations due to physical problems, 3) bodily pain, 4) general health perceptions, 5) vitality, 6) social functioning, 7) role limitations due to

emotional problems, and 8) mental health (Kazis et al., n.d.). This QOL instrument pertains to a wide array of the veteran population. The VR-12 is a reliable measure of QOL in mentally ill veterans (Bowersox, Lai, & Kilbourne, 2013, Iqbal et al., n.d.). Therefore it is adequate to employ for evaluating SMI veterans' perception of QOL in conjunction with a wellness intervention. The proposed study incorporated secondary data collected on VR-12 surveys SMI veterans who received MHICM wellness services.

Theoretical Framework

Social cognitive theory (SCT) is founded on behavioral principles and is one of the most commonly used frameworks in public health planning (Schneiderman et al., 2001). It examines the reciprocity between persons and their environments along with the social determinants of health (National Cancer Institute, 2005). Social cognitive theory purports that if one has a sense of personal effectiveness, the conditions affecting their behaviors can be changed (Schneiderman et al., 2001). The theory is based on six major concepts including: reciprocal determinism, behavioral capability, expectations, self-efficacy, observational learning, and reinforcements (National Cancer Institute, 2005). Reciprocal determinism relates to the interplay between individual factors and the environment (Bandura, 2001), where various systems influence the person's cognitions. These systems include but are not limited to family, community and society. The thought patterns that emerge from the environmental factors are expressed through individuals' behaviors. Veterans are affected by their social environment including the peer group and familial functioning.

Behavioral capability involves the knowledge and skill to perform a given behavior (National Cancer Institute, 2005). It seems that behavioral capability is fostered

in the veteran by providing him psychoeducation and skill building (VHA, 2012). Evidence based mental health treatments such as social skills training are provided in VA care (VHA, 2008). These strengths are applied to achieve self-care and coping. The expectations in SCT refer to the outcomes that are projected following a healthy behavior ((National Cancer Institute, 2005). The veterans' practice of positive coping skills could result in benefits such as increased participation in social activities (SAMHSA, 2010). Social skills training fosters their interpersonal behaviors and positive interactions (Kurtz & Mueser, 2008). The multifaceted wellness interventions are planned to promote a change in lifestyle and social functioning. A veteran's self-efficacy or belief that he or she can overcome a barrier is another component associated with SCT. The faulty cognitions that develop from negative life experiences can be restructured through teaching and practice (Bandura, 2001).

Self-efficacy can be fostered through observational learning between peers in the wellness group setting. The concept of reinforcement can aid in strengthening the veterans' belief in self. Positive reinforcements increase the likelihood that he or she will repeat a healthy behavior such as using coping skills or consuming the appropriate foods (Cabass, Ezell, & Lewis-Fernandez, 2010). The major elements of SCT including reciprocal determinism and observational learning are believed to be in effect during the course of wellness interventions (Bandura, 2001). Veterans are affected by the interplay between factors in his or her environment as well as by observing the experiences and responses of peers (VHA, 2012; Goldberg & Resnick, 2010). These interactions align with social learning. During the course of receiving MHICM services, veterans engage in therapeutic alliances and reciprocate behaviors (Neale & Rosenheck, 1995). These could

be learned through role play with the clinician or through peer observation. The wellness intervention is aimed at improved health outcomes for veterans having a SMI. A positive relationship is expected between wellness program participation and self-rated QOL. Quantitative data from the clinical chart combined with a survey instrument will comprise the methods to be employed during this study. A quantitative design was used to evaluate the veterans' health-related QOL following the wellness intervention. The wellness component of the MHICM program and the psychoeducational group incorporate social learning. The outcome of MHICM services are aimed at improved QOL for veterans (VHA, 2016; Goldberg & Resnick, 2010).

Summary

A comprehensive review of the literature was discussed in chapter 2. The review consists of major works related to the research questions. The questions involve veterans' perceived health related QOL in connection with wellness interventions provided by a MHICM program. Scholarly studies and inquiry conducted by expert entities were included in the literature review. Entities such as SAMHSA and the NASMHPDs were instrumental in advancing the cause of recovery and wellness in people with SMI. Several threads emerged and became the focus within the literature review. They included: mental health recovery and veterans, VHA MHICM services, medical comorbidity in people with SMI, wellness interventions, and quality of life for the chronically mentally ill. The content revealed a gap with regard to inquiry on wellness interventions' association with QOL in SMI veterans.

Chapter 3: Research Method

Introduction

The purpose of the study was to evaluate the perceived health-related QOL of veterans with SMI who received a wellness intervention. The wellness intervention was a combination of mental illness management and health promotion activities. The group of veterans with SMI in this study was served by the MHICM. The veterans had severe, persistent mental illnesses, and were affected by medical comorbidities (Cradock O'Leary et al., 2002). The major methodology I used for the study included a cross-sectional design, a convenience sample of veterans, and archival data collection techniques. I specifically sought to investigate the association between wellness interventions and veterans' QOL. I measured self-reported QOL using a validated survey instrument in keeping with other studies of QOL in mentally ill persons (Prince & Gerber, 2005; Bowersox, Lai, & Kilbourne, 2012).

In this chapter, I discuss the research design and rationale for the study and explain how the design, including the independent and dependent variables, fits with the quantitative inquiry. In the remainder of the chapter I focus on the methodology and discuss the study's population, sampling, data collection, and instrumentation. The methods in this study were largely dependent on secondary data including a survey and chart audit. I determined the sample and instrument based on the original project which entailed a program evaluation of mental health intensive case management services. A VA quality of life survey was issued as part of the evaluation and self-adminstered by veterans.

Research Design and Rationale

In the study I used a retrospective, cross-sectional design to determine veterans' health-related QOL following a wellness intervention. The main outcome, QOL, was evaluated based on veterans' perceptions. The veteran's perception of the wellness component of the MHICM program was one factor. The other factor was the veteran's perception of the psychoeducational group setting within the wellness service. Other researchers have contended that health-related QOL depends on the veterans' experience (Bowersox, Lai, & Kilbourne, 2012). Health-related QOL was self-rated. Table 1 provides an overview of the two research questions and related variables.

Table 1

Wellness Study Research Questions and Variables

Research questions	Independent variable	Dependent variables	Covariates
RQ1 In male and female veterans with a SMI, between the ages of 30 and 70, what is the association between involvement in MHICM wellness interventions and self-reported QOL?	Involvement in the MHICM wellness interventions	Self reported QOL	Age, gender, and type of SMI diagnosis
RQ2 In male and female veterans with SMI, between the ages of 30 and 70, what is the association between involvement in the MHICM pyschoeducational group and self-reported of QOL?	MHICM psychoeducational group	Self reported QOL	Age, gender, and type of SMI diagnosis

The retrospective, cross-sectional design guided the data collection. I used data from the VR-12 health survey and archival data from the veterans' clinical charts. The VR-12 is a self-administered QOL survey. I extracted independent variables from the patients' charts, and measured each variable at one point in time (Yegidis & Weinbach, 2002).. They include: (a) involvement in the wellness component of the MHICM program and (b) involvement in the psychoeducational group setting of the MHICM program. Involvement in the wellness component was measured by the veterans' number of years served in the MHICM program. Their involvement in the psychoeducational setting was based on the number of episodes participated in the group.

I hypothesized that the wellness intervention was a predictor of health-related QOL, and selected this intervention because it has a spectrum of activities aimed towards recovery for SMI veterans. Wellness activities were oriented to both mental and physical health. These comprehensive services were provided to improve health status, quality of life, and community adjustment (VHA, 2016). They used a holistic approach to mental health recovery including a psychoeducational group in recent years. I identified the covariates age, gender, and type of SMI diagnosis as independent variables in predicting QOL. I hypothesized that self-reported QOL, in association with the wellness interventions, would vary based on these factors.

Methodology

Sampling Procedures

For this study, I identified a convenience sample of 112 veterans served by a MHICM program. Convenience sampling is a practical approach when a pool of persons comprises the attributes sought by the study (Frankfort-Nachmias & Nachmias, 2008).

The 112 veterans were selected based on variables pertinent to the study. These 112 veterans completed the VR-12 survey. Other attributes included an SMI diagnosis and comorbid medical problems. The veterans also participated in the wellness component of the program. A systematic review of studies on psychological, educational, and behavioral interventions provided information on effect sizes. The meta-analysis conducted by Lipsey and Wilson (1993) showed the treatment effect from select mental health interventions. They identified the effect size of 0.36 for "other counseling, psycho-educational treatment or special therapy" (Lipsey and Wilson, 1993, p. 1184). This effect size is applicable to noninstitutional programs for chronic mental illness and reflects the general population of individuals with severe mental illness. Veterans served by MHICM programs have SMI and reside in their communities. Specific studies involving ACT for SMI patients indicate effect sizes of <.33 (small), .33-.55 (medium) and >.55 (large; Bond et al., 2001; Bond & Salyers, 2004). These effect sizes are pertinent to SMI veterans who receive MHICM services. MHICM services are the VA's version of ACT (Mohamed, Neale, & Rosenheck, 2009; Goldberg & Resnick, 2010).

A power analysis was a key consideration for this study due to secondary data. I could determine the power given the fixed sample size of 112 and the effect size of 0.55 (Salkind, 2010). The effect size of 0.55 is recommended value for individuals receiving ACT services (Bond et al., 2001; Bond & Salyers, 2004). The power analysis procedures should factor in effect size, the alpha level, and sample size. An alpha level of 0.05 is acceptable in research (Gertsman, 2008). I used the G Power online calculator to compute the power (Faul, Erdfelder, Buchner, & Lang, 2009). Under test family, I selected linear multiple regression, random model. Compute achieved power – given α, sample size, and

effect size was chosen for the type of power analysis. I then selected two-tailed since the hypothesis was nondirectional (Gertsman, 2008). Under alpha error probability, I entered a value of 0.05. For probability H1, I entered 0.55 and for H2, I entered 0.33 respectively for effect sizes. The number 112 was entered for the total sample size. Lastly, I inputted 5 for the number of predictors. G Power analyzed these figures and produced a power value of 0.93. The output calculated by G Power is displayed in Table 2. A power analysis is acceptable in research to determine power when given a fixed sample size (Sage Research Methods, 2010). The sample size of 112 was set from the convenience pool of veterans.

Table 2

Sample Size Output from G Power 3.16

	Fixed Sample Size	Lower Critical R2	Upper Critical R2	Power
Wellness Study	112	0.4371655	0.6799079	0.9349683

Note. The power analysis produced a value of 0.93 given the fixed sample size of 112. The sample size was derived based on 112 veterans who completed the survey.

Population

Veterans in this study were enrolled in a MHICM program at a VA medical center in the Southeast. The medical center is in a metropolitan area and is a tertiary facility. It provides outpatient care, inpatient services, and long-term care. Its mental health service comprises a large continuum of care, and the MHICM program is one of the various specialty mental health services.

History. The MHICM program is situated in a catchment area with over 3,000 veterans on the national psychosis registry. The National Psychosis Registry (NPR) number is determined based on the number of complex mentally ill veterans receiving

outpatient care. A percentage of the NPR data is calculated to estimate the number of SMI veterans requiring MHICM services (VHA, 2011). There are over 100 MHICM programs within the veterans health network (Mohamed, Neale, & Rosenheck, 2009). Approximately 6,000 SMI veterans are served per year by programs. The VA health system recognizes a SMI as psychotic disorder or other illness that causes functional impairment. During fiscal year 2007, a total of 87% of veterans in VA MHICM programs had diagnoses of a psychotic nature (Mohamed, Neale, & Rosenheck, 2009).

Statistics on study program. In recent years, the NPR target for the MHICM program has increased from 116 (2009) to 134 (2013). Veterans served by the MHICM program in this study have SMIs such as schizophrenia, schizoaffective disorder, major depressive disorder, bipolar disorder, and post-traumatic stress disorder (VA NEPEC, 2013). They also have a history of high hospital use and were inadequately served by standard outpatient care. These veterans were assessed as requiring higher-intensity services to improve their health status, quality of life, and community adjustment. The veterans served in this MHICM program have comorbid medical problems. During fiscal year 2012, a number of patients had diabetes (37%), hypertension (72%), hyperlipidemia (58%), and obesity (51%).

Recruitment

The primary MHICM clinician informed veterans about the program evaluation. It was conducted in conjunction with a nursing research hospital event during October 2012. The MHICM program is multidisciplinary, and standards include evidence based practices (VHA, 2016). The initial program evaluation was conducted to assess evidence-based practices provided to SMI veterans. My dissertation study evaluated

veterans' perceived QOL in relation to the wellness component of the program. I used secondary data from the program evaluation. Veterans provided it on the self-administerd VR-12 survey. The program identified the survey instrument through VA customer service to measure QOL in veterans. MHICM clinicians approached veterans on their caseloads during October 2012. Veterans were asked to participate in the evaluation. The MHICM clinician, who is a registered nurse or clinical social worker, provided a brief overview of the survey's purpose. Veterans self-administered the survey within a single visit and returned it to the clinician. Surveying occurred during clinic visits and home visits. The original data was summarized for descriptive presentation during the nursing research event in Fall 2012.

Participant categories. A veteran could refuse to participate in the survey if he or she chose to. Veterans were screened out by the clinician based on substantial cognitive impairment. These were veterans with secondary diagnoses such as dementia or cognitive disorder. A total of 112 veterans gave verbal consent and completed the self-administered survey.

Characteristics of Participants

The veteran participants were those enrolled in the MHICM Program at a single VA health facility. Veterans met the criteria for program admission based on (a) a severe, persistent mental illness, (b) inadequately served by conventional clinic-based services, and (c) need for community-based mental health services. Approximately 56% of the panel had a diagnosis of schizophrenia; this is followed by 15% having schizoaffective disorder. The others had SMIs such as major depression and bipolar disorder.

Veterans in the program also had a functional impairment as indicated by inability to act independently in one or more domains (VHA, 2016). These domains of functioning include work, family, interpersonal, and independent living. (Mueser, 2004). A person with schizophrenia may be limited in his or her ability to perform activities of daily living such as medication management, budgeting, and housekeeping (VA NEPEC, 2011). MHICM programs are evaluated by VA administration to determine the efficacy of services. Change in a veteran's functional status may be observed during the annual follow-up. Improved functional status is an indicator for transition to low intensity status or discharge from the program.

Data Collection

I used secondary data from the VR-12 survey as a data source. The surveys contained a case # for each of the 112 respondents. I also conducted a chart audit to collect information on the veteran's number of years in the program and types of wellness services received (see appendix A). Similar methods were used in a study that employed a clinical case audit to measure service effectiveness. Researchers used the audit tool to collect retrospective data such length of hospital stay (e.g., Udechuku et al., 2005). I inputted the audit data into SPSS using the corresponding case #. This data included: age, gender, type of SMI diagnosis, years of participation in the MHICM program, and type of wellness interventions received. The audit comprised clinical notes during October 2011 through December 2012. This timeframe was essential as it was a prime period for the integration of recovery-based wellness activities. The psychoeducational group was implemented in December 2011. I selected the clinical note from the mid-month visit with a MHICM provider; this approach ensured consistency and captured documentation

throughout the one year period. In addition, I identified a veteran's involvement in the psychoeducational group by reviewing those specific notes. A veteran's involvement in the wellness component was constituted by participation in activities such as supportive counseling and medication monitoring. Their involvement in the psychoeducational group component of the program was constituted by attendance in the group session. Attendance in one or more wellness group sessions was captured during the audit.

Permissions to Access Data

I submitted a protocol for the study to the VA institutional review board. The final approval was given by the VA research and development (R&D) department. I am credentialed research staff and submitted the protocol according to VA processes. The VA IRB's approval was necessary due to the involvement of veteran participants and the intent to add to the body of literature. The VA distinguishes research as any activity that constitutes scientific inquiry for contributing to the scholarly literature (VHA, 2011). I am credentialed through the VA research department to conduct projects at the VA medical center. The credentialing process entails online training modules on informed consent, human subjects, information security, and biosafety. I also completed a scope of practice to conduct the project. The scope of practice specifies privileges on a project such as entering data, interacting with participants, and conducting recruitment. I received an approval letter from the VA Research and Development department. It served as written permission to conduct the study.

Survey Instrument

The Veterans RAND 12 (VR-12) is a brief survey and is used across the veteran population to measure health related quality of life (Iqbal, n.d.). It was developed from

the Veterans RAND 36 (VR-36) and has been distributed to nearly 2 million veterans (Iqbal, n.d.). The VR-12 contains the 12 most important questions from the VR-36 and has a mix of response scales. The items on the VR-12 correspond with the physical and mental domains (see figure 1.). The emotional health of veterans with SMI is essential information due to its influence on functional status. The survey is self-administered to veterans having various chronic health problems such as diabetes, lung disease, depression and alcoholism (Iqbal, n.d.).

The VR-12 was employed in October 2012 during program evaluation of mental health intensive case management (MHICM) services at a VA medical center. This instrument was chosen due to alignment with physical and mental health domains outlined in figure 1. Veterans served by the MHICM program are affected by medical comorbidities in addition to having a SMI. More than half of the survey participants have a co-occurring medical problem; the top three include: include hypertension, hyperlipidemia, and obesity. The VR-12 was determined to be adequate due to its ability to measure health related quality of life. It was employed in a VA wide study regarding SMI veterans' QOL (Bowersox, Lai, Kilbourne, 2012). The mission of VA MHICM programs is to improve a veteran's QOL, health status and community adjustment (VA MHICM Conference, 2008). The VR-12 has been distributed widely in veteran health studies specifically in the areas of hypertension, osteoarthritis, schizophrenia, etc (Iqbal, n.d.). The majority of survey participants have a DSM IV diagnosis of schizophrenia.

Reliability and validity. Reliability of the VR-12 health survey (see appendix B) is evident given its wide distribution within the veteran population. It is used at the system and program level to evaluate health outcomes in conditions such as hypertension,

osteoarthritis, and schizophrenia (Iqbal et al., n.d.). The VR-12 is regarded as a reliable and valid measure of health related quality of life (Iqbal et al., n.d.). The reliability of the VR-12 is noted in the consistency of scores when administered to veterans over time. It was derived using normative data from studies totaling more than 2 million veterans (Iqbal et al., n.d.). Test -retest reliability is indicated in this widely used survey. Bowersox, Lai, and Kilbourne (2012) analyzed results from the VR-12 administered to 2,394 SMI veterans from 107 VA sites. Construct validity is present in that the VR-12 contains QOL domains. Quality of life was studied in previous studies and a number of concepts emerged with regard to the construct. Concepts that collectively defined QOL included emotional well-being, physical health, social role functioning, and self-efficacy (Prince & Gerber, 2005; Bowersox, Lai, & Kilbourne, 2013). Quality of life also emerged as a self-reported measure according to the methods employed in past studies (Bowersox, Lai, & Kilbourne, 2013; Mohamed, Rosenheck, & Cuerdon, 2010).

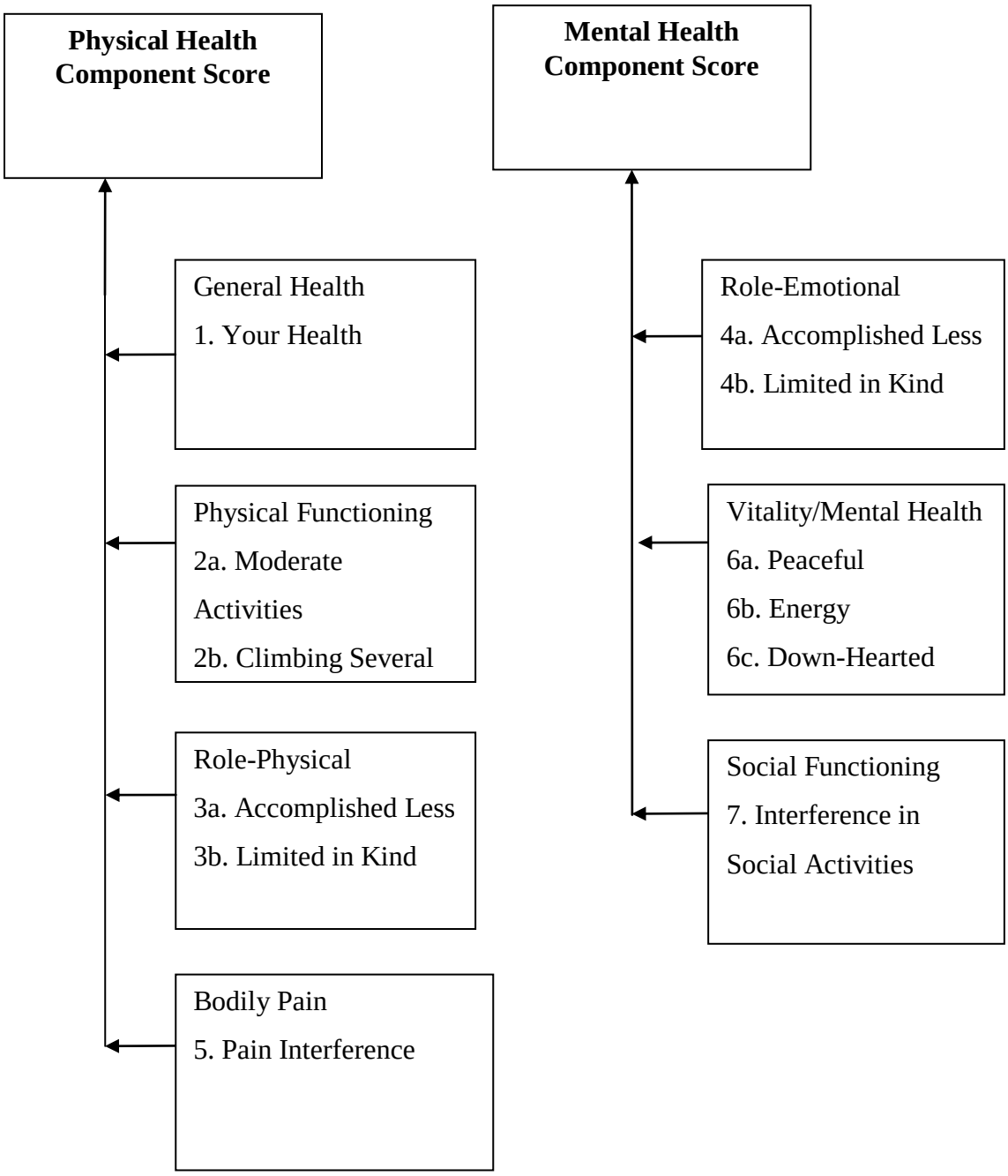

Figure 1. Dimensions of the VR-12 health survey include a mental and physical component. The components consist of domains which correspond with survey questions. The score from each component were used in the data analysis plan for the study.

Study Variables and Constructs

The major constructs in the study included wellness and health related QOL. These constructs were central to the inquiry in the study. I operationalized wellness consistent with SAMHSA's concept of the term as holistic and multi-dimensional (SAMHSA, 2012). Wellness intervention in this study consisted of mental illness management or health promotion activity. These interventions were provided directly during individual visits with the MHICM clinician. For this study, I measured them as: (a) medication monitoring, (b) mental wellness planning, and (c) health promotion (see appendix A). The psychoeducational group included mental and physical health elements for veterans with SMI. I audited psychoeducational group attendance for a 15 month period to determine attendance of the 112 veterans. I used the veterans' number of years participated in the MHICM program to measure the independent variable, wellness intervention. Data on the specific interventions and group attendance were entered into SPSS. Table 3 delineates the variables, value labels and levels of measurement for SPSS.

I determined the veteran's SMI based on diagnostic and statistical manual of mental disorders (DSM IV) criteria. The diagnosis was assessed and entered by a VA psychiatrist during a mental health care episode. I identified wellness interventions in the veteran's chart under three categories: medication monitoring, mental wellness planning, and health promotion. Documentation from the mid-month MHICM visit during the period of October 1, 2011 through December 31, 2012 were reviewed for wellness interventions and counted towards the total for each category. I entered the total respectively in SPSS as a numerical value. A veteran could have one or more wellness intervention within a given mid-month visit. For example, medication monitoring and

wellness planning could both be counted if provided during the visit. The value would be 2 for that month. If a veteran was not present for a mid-month visit due to vacation or other, I assigned a value of zero to that month. Similarly, if a veteran discharged from the program, a value of zero was assigned for subsequent months.

- Medication monitoring indicators encompassed: review of prescribed medications, assisting with medication ordering and, or delivery, medication education, and setting up the patient's medication tray.
- Mental wellness planning indicators encompassed: supportive counseling, assistance with WRAP planning, safety planning, crisis prevention.
- Health promotion indicators encompassed: diabetes management reinforcement, care coordination for physical problems, and nutritional and, or fitness goal planning.

Table 3

Wellness Study Variables for SPSS

Variable Name	Value	Value Label	SPSS Level of Measurement	Variable Label
Age	N/A	N/A	Scale	Age
Gender	1 2	Male Female	Nominal	Gender
SMI Diagnosis	1 2 3 4 5	Schizophrenia Schizoaffective Major Depression Bipolar Other	Nominal	SMI DX
Medication Monitoring	N/A	N/A	Scale	MED MONITOR
Mental Wellness Planning	N/A	N/A	Scale	MENT WELL PLN
Health Promotion	N/A	N/A	Scale	HEAL PROM
Psycho ed Grp	N/A	N/A	Scale	PSYCHO ED GRP
VR-12 Scales	Mental Composite Physical Composite	Mental Score Physical Score	Scale Scale	MENTAL SCORE PHSYSICAL SCORE

Note. The study variables were coded in SPSS using the above names, labels, and value labels. VR-12 composite scores for the mental and physical scales were used during statistical analysis to evaluate the research questions.

For this study, I operationalized QOL as the veteran's subjective report of his or her well-being. This concept is similar to that employed in a study involving clients in assertive community treatment (Prince & Gerber, 2005). QOL in the study consisted of self-rated well-being from a physical and mental perspective. The construct was operationalized through two subscales in the instrument: physical and mental scales. The mental health scale addresses emotional and social. The physical health scale targets areas such as general health and bodily pain (Iqbal et al., n.d.). Scores from the mental

and physical scales were selected as the dependent variables during statistical analysis. Scores on the physical and mental subscales range from zero to 100 (see figure 2.). The population norms are around 50 for veterans (Bowersox, Lai, and Kilbourne, 2012). Each of the 12 items on the survey required a numeric value to facilitate the scoring. The mental and physical score was entered into SPSS on each of the 112 cases. The VR-12 scoring algorithm uses modified regression estimate to account for any missing values (Kazis et al., n.d.). The scoring methods of Kazis et al. (n.d.) were employed. They are credited for this contribution to the study.

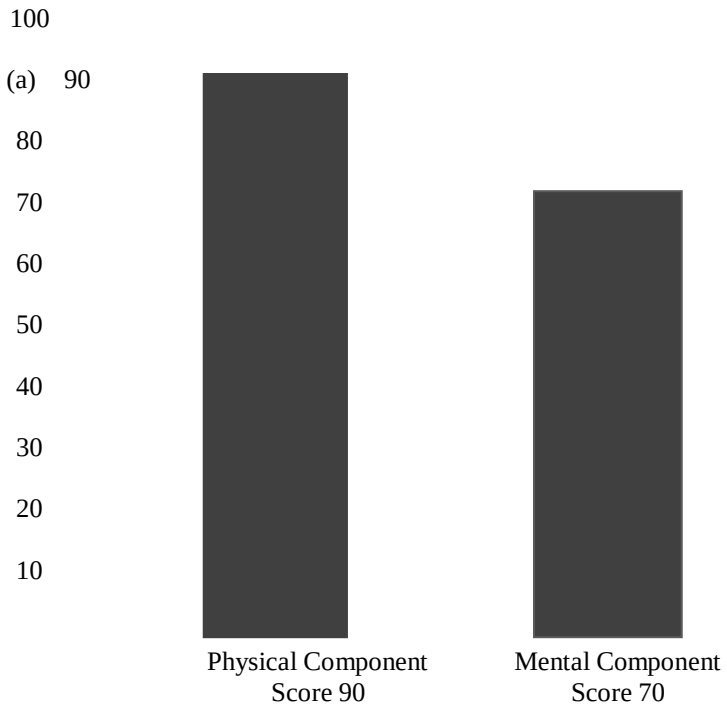

Figure 2. Physical and Mental Component scoring of the VR-12 depicts the range of scores that are computed using the algorithm. A score of 50 represents the mean population of veterans.

Data Analysis Plan

I used SPSS software to input and conduct data analysis for the wellness study. The survey responses from all 112 veterans were coded in SPSS. These consisted of the

VR-12 mental and physical score. Each participant was identified using a case #. Information from the chart audit was used to generate descriptive statistics. I inputted variables including: age, gender, SMI diagnosis, number of years in the program, types of wellness interventions received, and number of group sessions attended. Missing information was accounted for during data entry through the respective categories: other for SMI diagnoses not represented by the four disorders. The missing data category was used accordingly in SPSS to account for information not found in the chart due to a veteran's absence or discharge. I used date of enrollment to determine the participant's number of years in the wellness component of the program. Involvement in the psychoeducational group setting was computed based on number of sessions attended within the 15 month period. I identified the15 month time-frame because the psychoeducational group was first provided within this period and follow-up surveying occurred. Other wellness components (i.e., medication monitoring) were in place prior to starting the group.

The study variables were entered into SPSS using the coding outlined in table 3. Descriptive and respondent data were entered for the 112 cases. I cleaned the data by generating descriptives and frequencies (Green & Salkind, 2011). The following was reviewed during the data cleaning process: missing data, minimum and maximum, and skewness of the curve. Outliers such as an age outside of the participant range were identified and corrected. The chart feature was selected to generate a graph showing the curves. I determined the distribution of data based on the curves' direction. If the assumptions were not met for the regression analysis, I determined the appropriate parametric or nonparametric test based on level of measurements and other factors

(Green & Salkind, 2011). If the assumptions were met, I proceeded with the multivariate analysis. Multiple factors were entered simultaneously into the regression model. These included the dependent variable and all independent variables including covariates: age, gender, and diagnosis. The inclusion of covariates in the analysis provided data with regard to their function as confounding variables.

I added interaction terms to the regression model to evaluate change in the dependent variable, QOL, given each covariate (Sage Research Methods, 2015). The relationship between the independent variables and dependent variable was hypothesized to covary due to these factors. The interaction terms were added by multiplying each covariate by the independent variable: involvement in the MHICM wellness intervention and involvement in the MHICM psyschoeducational group. The product term from each equation was then entered into a bivariate correlation to determine the relationship between it and the independent variables (Sage Research Methods, 2015). I conducted multivariate analysis was through simultaneous entry of all independent variables, product terms and dependent variables into the regression model. The presence of multicollinearity between predictors was evaluated through indication such as substantial change in coefficients when and independent variable is included or excluded (Sage Research Methods, 2015). Adjustments were made to reduce multicollinearity if indicated. This could include omitting a dummy variable to reduce the number of explanatory variables. I reported the coefficients the output data and summarized it to describe statistically significant results.

Table 4

Wellness Study Data Analysis

Research Hypotheses	Variables to Test	Type of Test and Model	Process Employed for SPSS data analysis
RQ1 In male and female veterans with a SMI, between the ages of 30 – 70 years old what is the association between involvement in MHICM wellness interventions and self-reported QOL?	Involvement in MHICM Wellness interventions QOL score Covariates: age, SMI diagnosis, gender	Multiple Linear Regression, Hierarchal Model (RQ1 and RQ2)	Multivariate analysis will be conducted by entering all variables into the regression model. The model will test for the confounding effects of the covariates and interacting effects.
RQ2 In male and female veterans with SMI, between the ages of 30 – 70 years old what is the association between involvement in the MHICM pyschoeducational group and self-reported of QOL?	Involvement in the MHICM psychoeducationl group QOL score Covariates: age, SMI diagnosis, gender		Interaction terms will be added to the model by multiplying IVs by the covariates. The product terms will be applied to the regression model. The resulting beta weights and coefficients will be presented and summarized. Data limitations such as multicollinearity will be described. (RQ1 and RQ2)

Note. The hypotheses were tested using the above procedures for data analysis in SPSS. The statistical model was multiple linear regression, hiearchal

Multiple linear regression. I used regression modeling as the statistical approach for this study because it enables analysis between multiple variables (Gertsman, 2008). It provides analysis between continuous variables and derives a predictive statistic. The resulting coefficients, beta values, and level of significance informed the inferences for this study. They are presented in the next chapter. I used multiple linear regression determine the relationship between the predictor and criterion variables. The predictor variables in this study were: involvement in the MHICM wellness interventions [number

of years in the program] and involvement in the MHICM psychoeducational group [number of group sessions attend]. The criterion variable was self-reported QOL [total VR-12 score]. For this study, I employed hierarchal regression modeling. Variables were entered into the model in stages as outlined in table 4. Hierarchal regression modeling enabled the variables to be entered into blocks consistent with theory (Sage Research Methods, 2005). This plan was preferred based on the identified predictors and their theoretical association with QOL.

Covariates. The covariates in this study were age, gender, and SMI diagnosis. Covariation was addressed by employing multiple linear regression to analyze relationships between: years in the MHICM program, number of group sessions attended, VR-12 score, age, gender, and SMI diagnosis. The interaction terms described earlier were added to the model. Multiple linear regression was conducted on gender and SMI diagnosis by creating dummy variables in SPSS (Green and Salkind, 2011). I entered a nominal level variable such as gender and inputted values to correspond with each category: male = 1 and female = 2. The SPSS software recognized and included the numerical values as part of the analysis. The resulting statistic informed the reader of the change in predictive relationships based on a covariate.

A hierarchal regression model was employed to analyze the relationship between covariates and QOL. I inputted them into the model as follows: age, gender, and type of SMI diagnosis. Hierarchal was determined to be the best fit based on theory. The threshold for inclusion consisted of the age range, 30-70, male and female gender, and SMI diagnoses: schizophrenia, schizoaffective, major depression, and bipolar. I used the category *other* to record diagnoses outside of the four mentioned above.

I used descriptive statistics to analyze the data collected in the chart audit tool, appendix B. The data includes demographic information on the sample and wellness interventions received: medication monitoring, mental wellness planning, health promotion, and group psychoeducation. This data described the proportion of the sample that engaged in various types of wellness interventions. These activities also informed the reader of specific MHICM wellness interventions provided within the program.

Threats to Validity

The threats to validity involved the use of secondary data; the original study was a program evaluation. Internal validity was limited because the design was not experimental nor did it entail random assignment (Creswell, 2009). Veterans were provided the wellness intervention based on their interest. The original study also was only composed of veterans with a SMI from one VA site. Similar wellness programming may or may not have been available to veterans with SMI at other VA sites. The external validity was threatened in that results are not generalizable to veterans receiving mental health care at other VA medical centers. Because not all 239,482 cases were included from VA wide, results could not be generalized to the overall population of veterans with SMI (Creswell, 2009).

There is a threat to criterion validity due to the absence of a measure to compare the survey score. Criterion validity pertains to the consistency between scores produced from different measurements (Yegidis & Weinbach, 2002). Quality of life was the criterion being predicted in my study. The VR-12 survey is a valid measure of health related quality of life (Iqbal et al., n.d.). The threat to criterion validity could be addressed by comparing results from another QOL survey administered to veterans. However, the

sample of 112 veterans did not complete another measurement of quality of life during the program evaluation.

Ethical Procedures

I assured the ethical aspects of the study through the VA IRB process. I am the administrator of the program and credentialed research staff at the VA facility. I served as principal investigator for this study and had a co-investigator to assist with quality checks. An expedited review was obtained through the VA IRB due to the use of secondary data; there was no direct contact with human subjects. The secondary data consisted of results from the 112 surveys administered in 2012. Data was also collected from the charts of the 112 veterans. The chart audits were retrospective with methods to assure the anonymity of patients. Privacy and confidentiality were maintained through limited access to the patient list. Only the principal investigator and co-investigator had access. The patient list, containing names and social security numbers were necessary to find and select the computerized record. I used a pre assigned case # to code the chart audit form. This same case # was previously used to code the VR-12 survey. The case # was used throughout the course of the study during data analysis and reporting to maintain the anonymity of subjects.

Data security. The patient list was maintained electronically on the secure VA server and was destroyed when the chart audits were completed. The principal investigator and co investigator received special training from a course entitled *information security for research* staff during the credentialing process. Electronic documents were secured on the password protected VA server. The research binder, surveys and other paper documents (i.e., chart audit) forms were secured in a locked

cabinet in the principal investigator's office. The principal investigator secured the cabinet key on her person. Research records will be destroyed in accordance with VA policies following a defined period of time. The appropriate continuous reviews occurred through the VA R&D department to insure compliance.

Summary

The research method is detailed in chapter 3. Its major components including the research design and rationale, methodology, data analysis plan, and ethical procedures were discussed. The study design was cross-sectional, evaluating a group of veterans at one point in time. The research questions were examined through use of secondary data analysis from the VR-12 survey. A chart audit also informed the data particularly the demographics and covariates: age, gender, and SMI diagnosis. A regression model was employed to analyze the data using a hierarchal approach. Interaction terms were added to the model to evaluate covariates.

Chapter 4 Results

Introduction

In this chapter I report the results of this study involving wellness interventions for veterans with SMI. The aim of the study was to evaluate the perceived health related QOL of veterans with SMI who received a wellness intervention that consisted of mental illness management and health promotion activities. The first major research question was: In male and female veterans with a SMI, between the ages of 30 and 70, what is the association between involvement in MHICM wellness interventions and self-reported QOL?

$H_0$1: There is no association between a SMI veteran's involvement in MHICM wellness interventions and self-reported QOL as measured by years participated and VR-12 survey score.

H_A1: There is an association between a SMI veteran's involvement in MHICM wellness interventions and self-reported QOL as measured by years participated and VR-12 survey score.

The second major research question and hypotheses were: In male and female veterans with SMI, between the ages of 30 and 70, what is the association between involvement in the MHICM pyschoeducational group and self-reported of QOL?

$H_0$1: In male and female veterans' with SMI, between the ages of 30 and 70, there is no association between involvement in the MHICM pyschoeducational group and self-reported of QOL as measured by number of groups attended and VR-12 survey score.

H_A1: In male and female veterans' with SMI between the ages of 30 and 70, there is an association between involvement in the MHICM pyschoeducational group and self-reported of QOL as measured by number of groups attended and VR-12 survey score.

I hypothesized that the covariates age, gender, and SMI diagnosis each had some interaction on the outcome of QOL. The outcome entailed the association between a veteran's involvement in the MHICM wellness interventions and self-reported QOL not varying by each of the covariates. The alternative hypothesis entailed QOL varying by each of the covariates with respect to a veteran's involvement in the MHICM wellness interventions. Similarly, I hypothesized that the association between a veteran's involvement in the MHICM psychoeducational group and self-reported QOL would not vary by each covariate. The alternative hypothesis entailed QOL varying by each of the covariates with respect to a veteran's involvement in the MHICM psychoeducational group.

Data Collection

The data for the study was originally collected in 2012 for a nursing quality event. Veterans actively served by the MHICM program were provided the survey for completion. The quality project was proposed and led by a MHICM nurse practioner. Each veteran's primary MHICM clinician provided and collected the self-administered survey. A total of 115 veterans participated in the survey and 112 completed it. The data was presented descriptively for the quality event. I proposed a research project in 2014 with the aim of contributing to the literature on wellness interventions for veterans with SMI. The VA IRB approved the project to evaluate wellness interventions as a predictor

of veterans' QOL. The Walden IRB also approved the project (#02-08-16-0119035) and oversaw data analysis along with results reporting. I used a chart audit to collect demographic and service use data. Secondary data from the survey and chart audits were analyzed to answer the research questions in this study.

Study Results

Descriptive statistics of key demographic variables are outlined in table 5. The other demographic variables are described further in the next section.

Table 5

Descriptive Statistics for Veterans in Wellness Study

Characteristic	N(%)[a]	Mean	Std. Deviation	Std. Error
Age (years)	115	53.88	10.894	1.016
Gender				
Male	108 (93.9)			
Female	7 (6.1)			
SMI Diagnosis				
Schizophrenia	68 (59.1)			
Schizoaffective	18 (15.7)			
Major Depression	15 (13.0)			
Bipolar	10 (8.7)			
Other	4 (3.5)			
MHICM Years (years in program)	115	5.59	4.811	.449
Psycho Ed Grp (# of times attended)	115	5.70	11.814	1.102

[a] $n = 115$

The veteran participants' ages ranged from 23-82. The mean age was 54 which is representative of the veteran population served by the MHICM program (Mohamed, Neale, & Rosenheck, 2009). A total of 59% (68) had a diagnosis of schizophrenia, followed by 16% (18) having schizoaffective disorder. This finding is also representative of the veteran population served by MHICM (Rosenheck, Neale, & Mohamed, 2010). The descriptive analysis also revealed that the sample was largely composed of male veteran participants 94% (108) in contrast to 6% (7) females. Among the wellness

interventions provided within the 15 month period, the mean number are as follows: medication management (n = 10, SD = 4), health promotion (n = 13, SD 3), mental wellness planning (n = 13, SD = 3), and psychoeducational wellness group (n = 6, SD =12). These wellness interventions describe the average number of times the specific activity occurred or the group was provided based on chart review findings. The mean number of 6 for psychoeducational group intervention is low in comparison to the others.

I cleansed the data using SPSS features to determine ages and survey scores for testing the hypotheses. A total of 2 veteran participants (23 and 81 years old) were excluded because they were outside the age range of 30-70. I retained two 28 year old veterans and rounded their ages to 30 because the late 20s is within the range reported by large-scale studies on MHICM programs (Mohamed, Neale & Rosenheck, 2009; Mohamed Neale & Rosenheck, 2009). I also excluded a total of 2 veterans who did not answer the survey. Among the 115 cases, a total of 111 were analyzed to test the hypotheses.

Testing for Assumptions

Assumptions for multiple linear regression were tested using the study variables. The assumptions included normality, the linear relationship, multicollinearity, and homoscedasticity. The normality assumption was tested by examining the curve of variables: age, MHICM years, psycho ed group, physical score, and mental score. Figures 3 through 8 depict the distribution of variables within the study sample. The curves show normal distribution for the variables age, MHICM years, physical score, and mental score. The curve for the psychoeducational group was skewed in a positive direction. Based on this, I categorized the data into 3 sets with the lowest value as the reference

group. Figure 5 shows the curve which I also found to be a nonnormal distribution. In an effort to achieve a normal curve, consistent with regression standards, I then log transformed the variable data. The variable was transformed in SPSS using Lg10 and label as *PsyGrp Log*. Figure 6 depicts the curve of *PsyGrp Log* which is slightly skewed in a negative direction. I retained this variable and used it for regression analyses in the study.

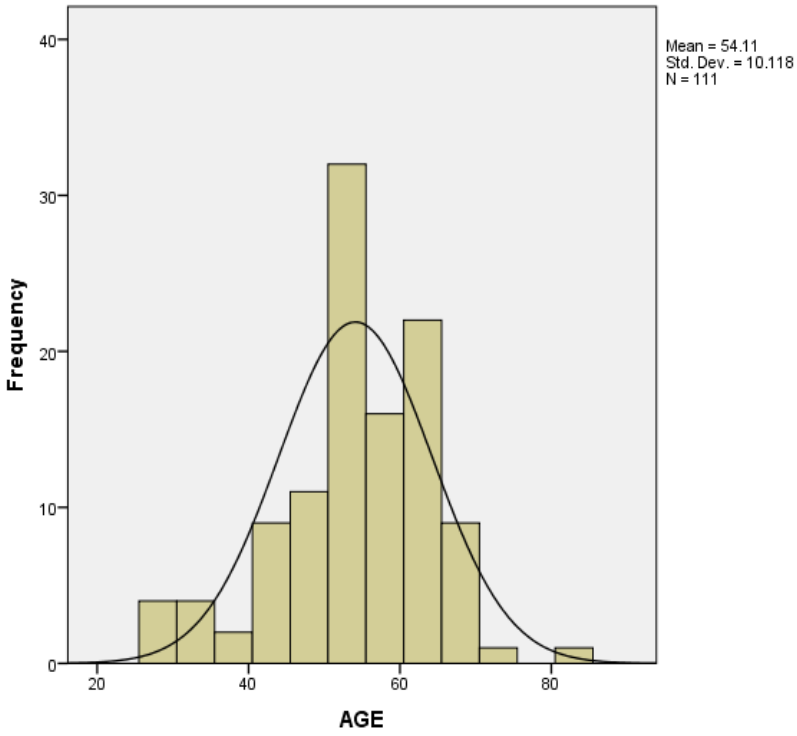

Figure 3. Histogram of age, reveals a normal curve. It is not skewed in either direction.

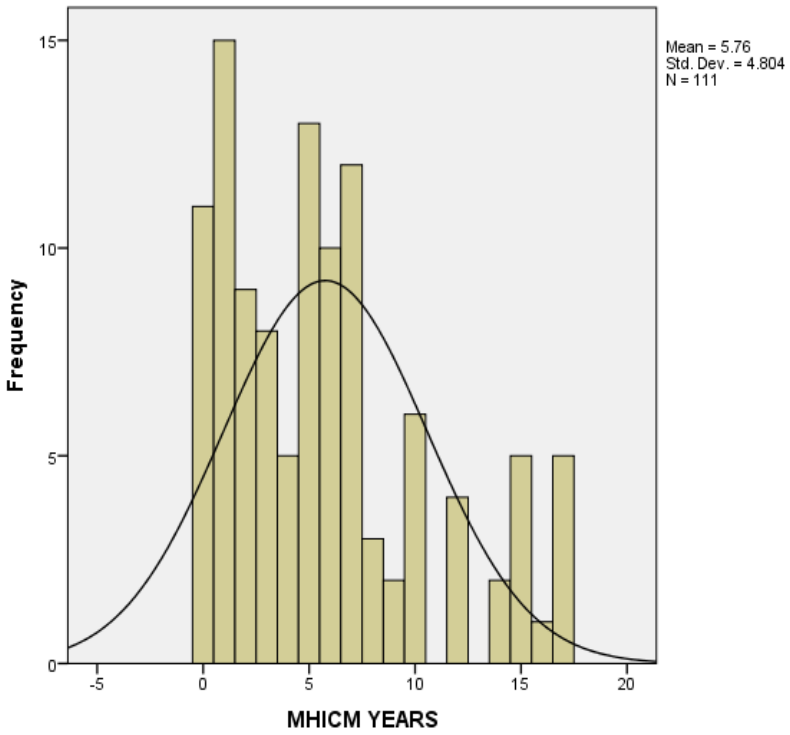

Figure 4. MHICM Years shows a normal distribution of the variable within the sample.

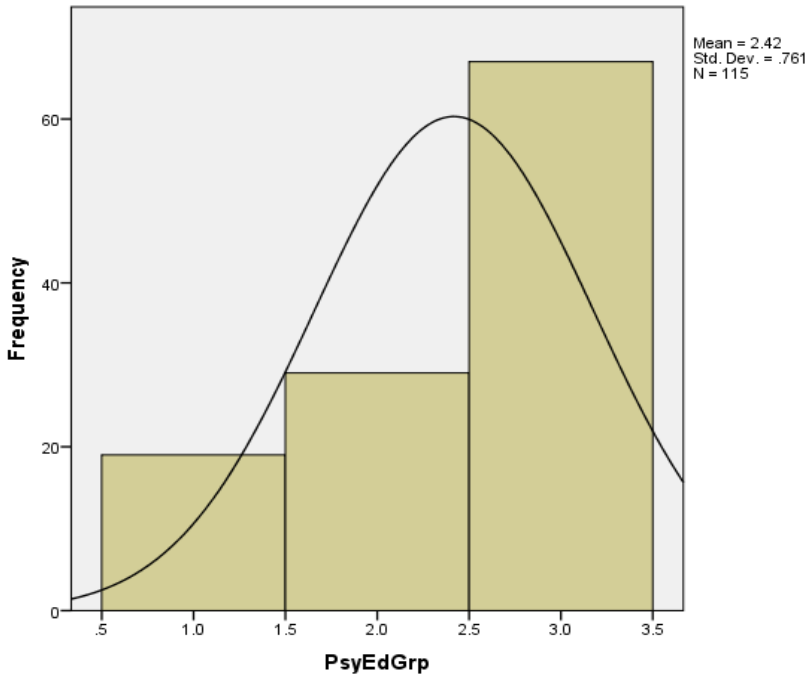

Figure 5. Histogram of PsyEd Grp indicates a non-normal distribution. The variable was coded into categories based on the data yielded from veteran participants in the group within a 15 month period.

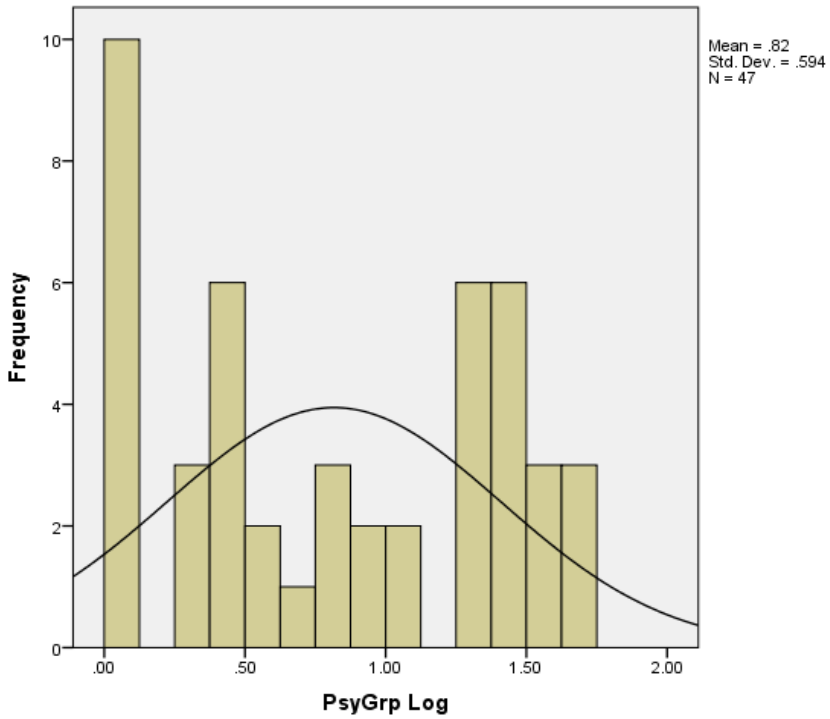

Figure 6. Histogram of Psy Grp Log reveals the distribution resulting from the log transformation of Psych Ed Grp. The curve is slightly skewed in a positive direction.

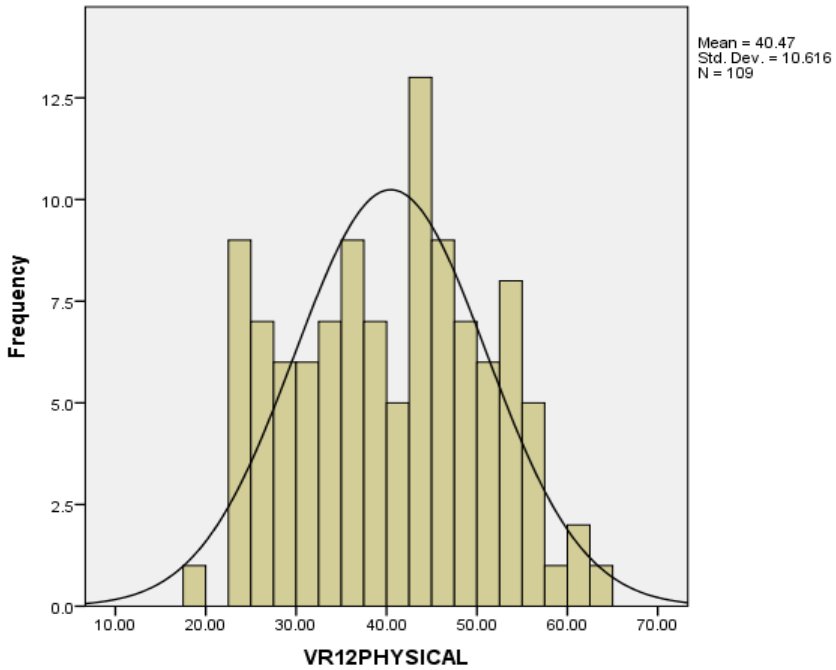

Figure 7. VR-12 PHYSICAL reveals that scores on the physical component scale are normally distributed.

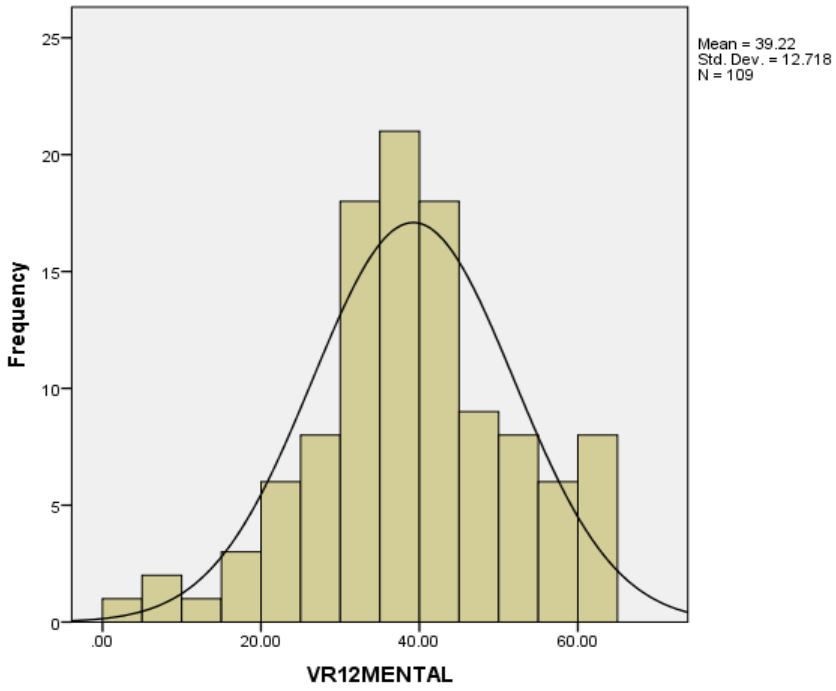

Figure 8. VR-12 MENTAL reveals that scores on the mental component scale are normally distributed.

The linearity assumption was checked by examining scatterplots of the dependent variables, physical score and mental score, and the independent variables. First, I conducted bivariate analysis to check for indication of magnitude between the variables. Table 6 contains the Pearson correlations which reveal no significant findings.

Table 6

Pearson Correlation of Wellness Study Variables

		VR12 PHYSICAL	VR12 MENTAL	MHICM YEARS	AGE	PSY GRP LOG
VR12 PHYSICAL	Pearson Correlation	1	.111	.091	-.107	.080
	Sig. (2-tailed)		.242	.338	.261	.595
VR12 MENTAL	Pearson Correlation	.111	1	.003	.160	-.110
	Sig. (2-tailed)	.242		.975	.091	.460
MHICM YEARS	Pearson Correlation	.091	.003	1	.019	.078
	Sig. (2-tailed)	.330	.975		.837	.603
AGE	Pearson Correlation	-.107	.160	.019	1	.056
	Sig. (2-tailed)	.261	.091	.837		.706
PSY GRP LOG	Pearson Correlation	.80	-.110	.078	.056	1
	Sig. (2-tailed)	.595	.460	.603	.706	

Note: There are no significant correlation between independent and dependent variables.

The variables age, MHICM years, and psy grp log are depicted in the scatterplots, Figures 9 through 12. There are no patterns indicated among the residuals in Figure 7; points are scattered in a nonlinear manner. Thus, the linear assumption is not violated. In Figures 10 through 12, there is some indication of a linear pattern. Figure 11 is a scatterplot depicting the variable psy grp log in relation to the mental score. The pattern depicts a linear relationship.

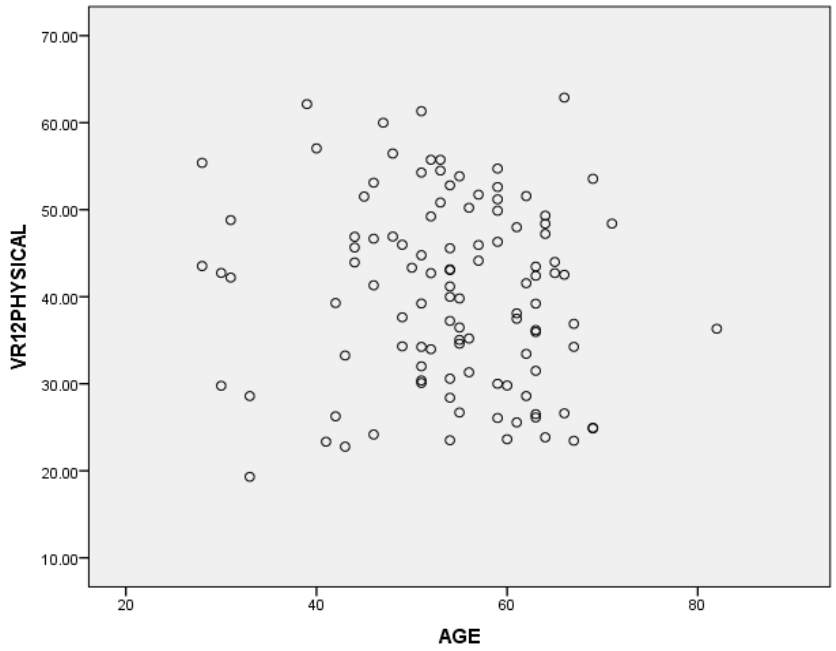

Figure 9. Scatterplot of age in relation to VR-12 Physical score.

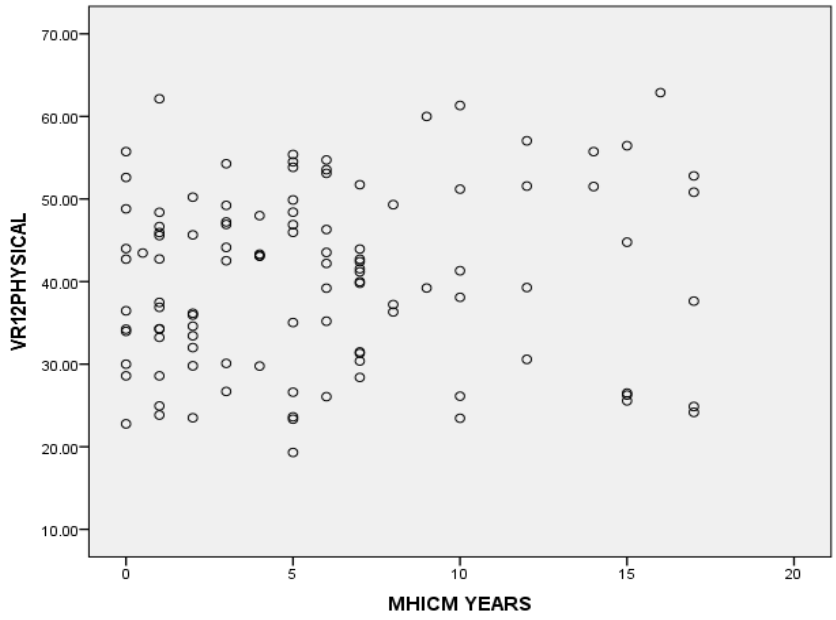

Figure 10. Scatterplot of MHICM Years in relation to VR-12 Physical score.

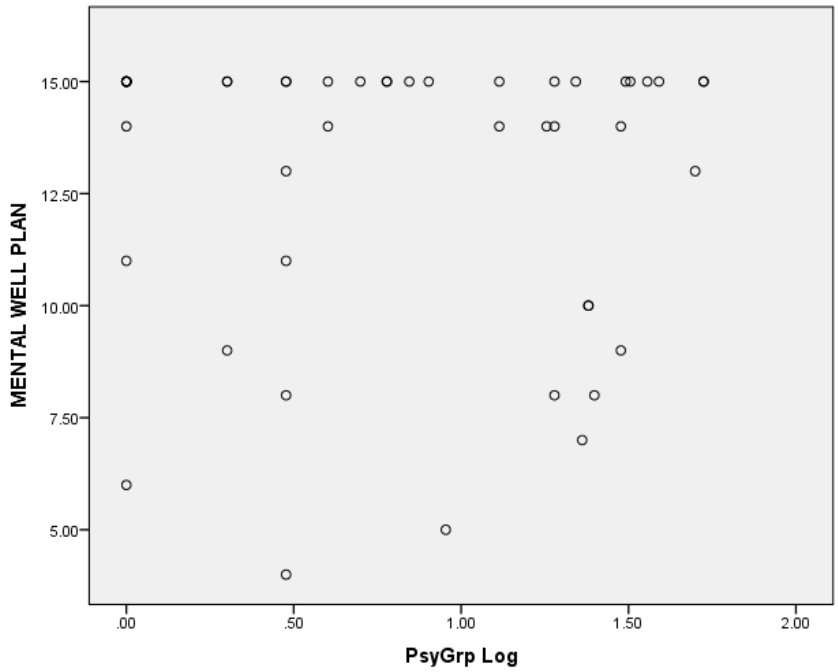

Figure 11. Scatterplot of PsyGrp Log in relation to VR-12 Mental Score

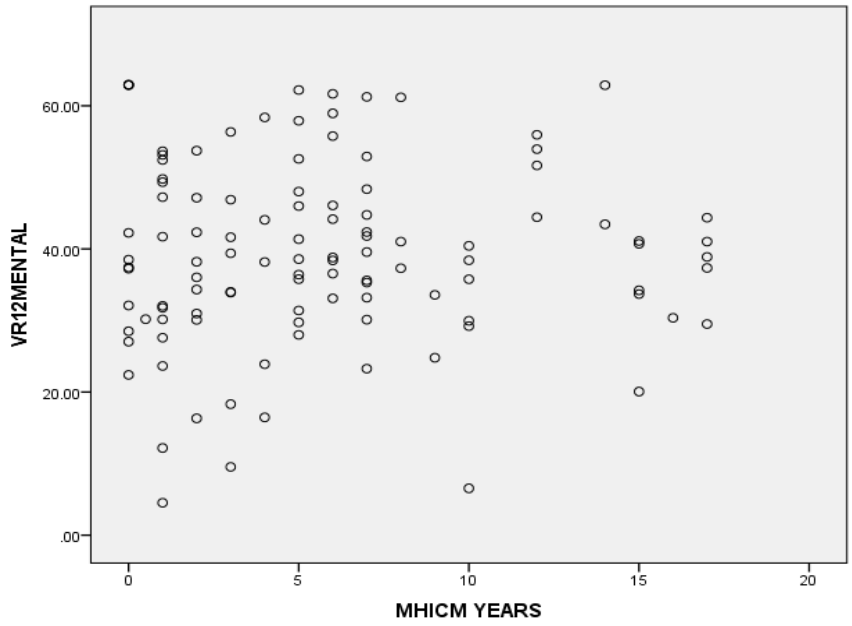

Figure 12. Scatterplot of MHICM Years in relation to Physical score

The study independent variables were tested for multicollinearity and it was found not to be an issue. The variance inflation factor (VIF) is less than three which indicates

no problem with multicollinearity. The findings with regard to study variables are outlined in Tables 7 and 8.

Table 7.

Multicollinearity Statistics of Study Variables

Unstandardized Coefficients			Std. Coefficients			Collinearity Statistics	
	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
(Constant)	35.187	11.635		3.024	.004		
AGE	-.027	-.146	- .030	-.182	.856	.881	1.135
MHICM YEARS	-.258	.387	-.0108	.667	.508	.882	1.134
GENDER	6.225	5.485	.192	1.135	.263	.812	1.231
SMI DX	.310	1.286	.037	.241	.811	.978	1.022
PSY GRP LOG	1.168	2.373	.076	.492	.625	.979	1.021

Note: The dependent variable is VR-12 physical score

Table 8.

Multicollinearity Statistics of Study Variables

Unstandardized Coefficients			Std. Coefficients			Collinearity Statistics	
	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
(Constant)	16.924	15.931		1.062	.294		
AGE	.305	.200	.230	1.528	.134	.881	1.135
MHICM YEARS	-..854	.531	-.243	-.1.609	.115	.882	1.134
GENDER	16.795	7.510	.350	2.236	.031	.812	1.231
SMI DX	-2.186	1.761	-.177	-1.241	.222	.978	1.022
PSYCHO ED GRP	-2.540	3.249	-.111	-.782	.439	.979	1.021

Note: The dependent variable is VR-12 mental score

I evaluated the normality of residuals and residuals against predicted values. Residuals histograms Figure 13 and 14 show a normal distribution of the dependent variables physical score and mental score. Figures 15 and 16 show no pattern of the residuals against predicted values, thus homoscedasticity is not violated.

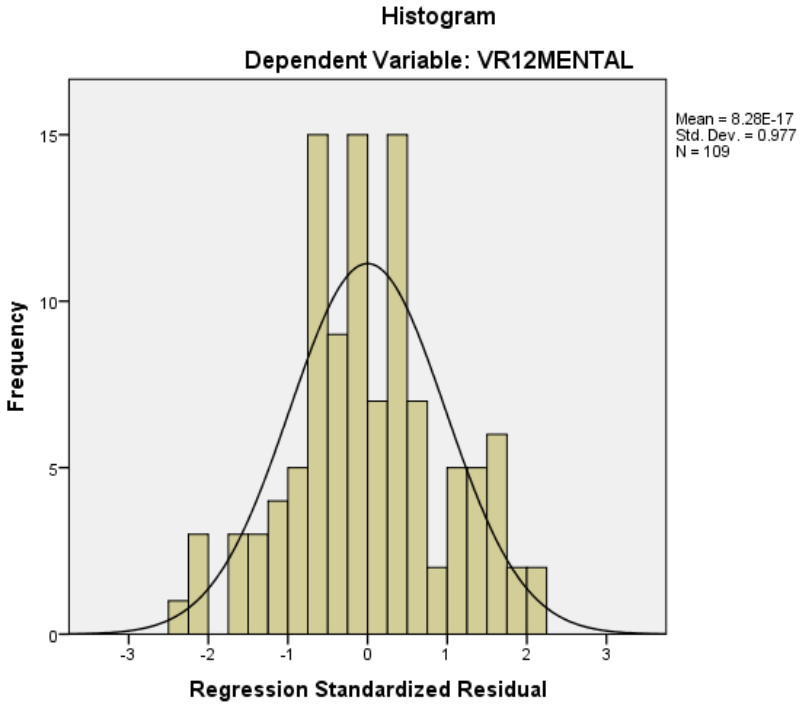

Figure 13. Histogram of regression residual, VR-12 mental score.

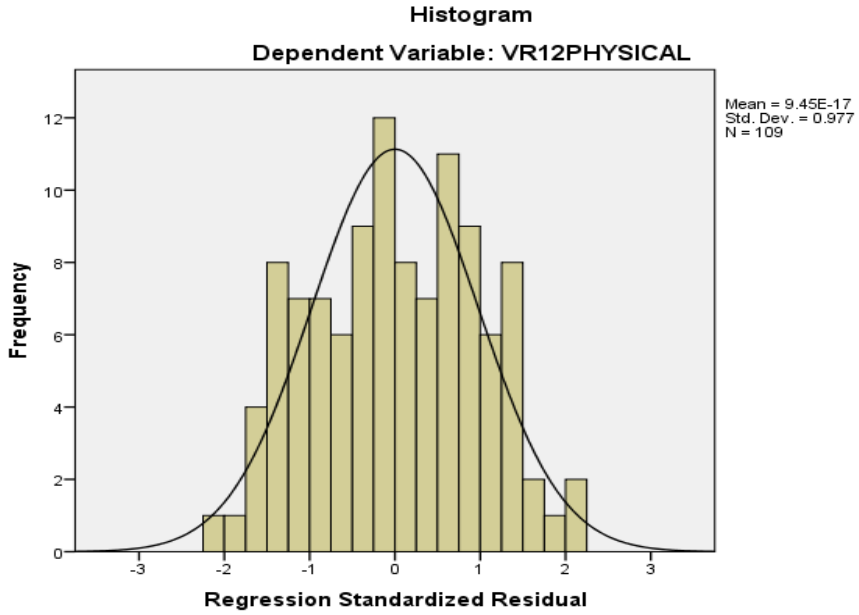

Figure 14. Histogram of regression residual, VR-12 physical score.

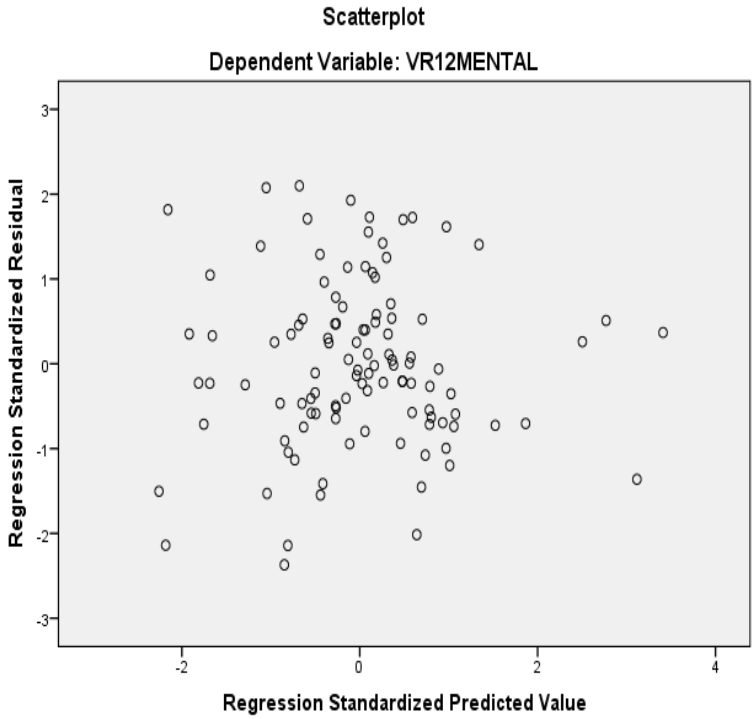

Figure 15. Scatterplot of standardized predicted value, VR-12 mental score.

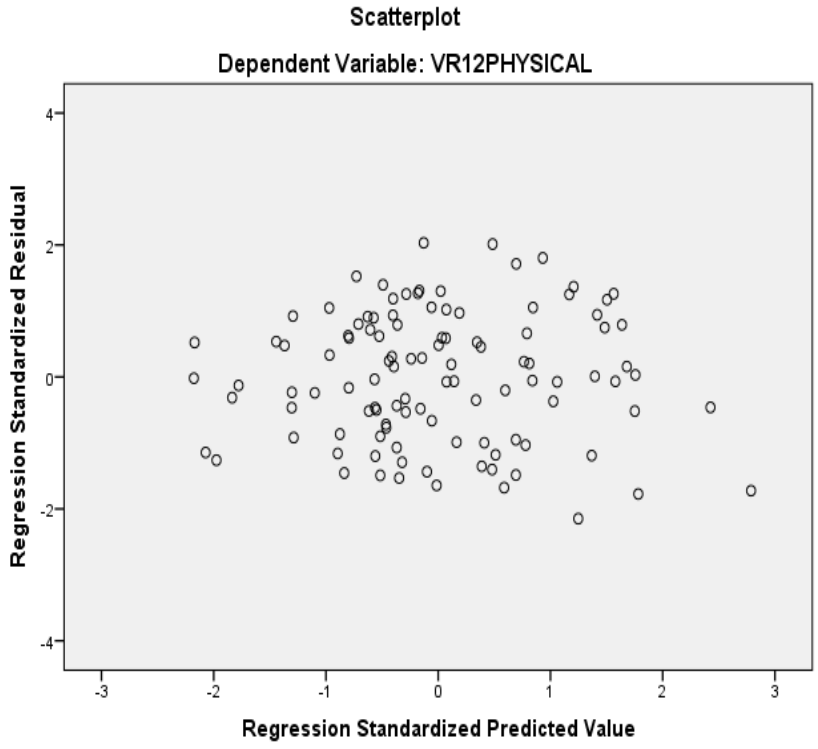

Figure 16. Scatterplot of standardized predicted value, VR-12 physical score.

Assumptions Summary

I tested the assumptions for multiple linear regression including normality, linearity, multicollinearity, and homeoscedasticity. The normality assumption was violated with regard to the curve for the variable *psycho ed grp*. The non normal distribution of the curve is a limitation and may be corrected in subsequent studies during the data collection process. I log transformed the variable after categorical recoding did not yield a normal curve. The log transformed variable, *psy grp log*, produced a slightly skewed curve. A limitation was that the data did not closely follow the curve's line. Linearity was not observed between the study variables with the exception of the relationship between the *psycho grp log* and mental score. This relates to the limitation involving the variable *psycho grp log*. Multicollinearity assumptions were met in the study as revealed in the correlation matrix and variance inflation factor. This shows that the independent variables are independent of each other (Green & Salkind, 2011). I found indication of homeoscedasticity as displayed by scatter plots of the regression standardized predicted values. This indicates that the variance of errors is the same across all levels of the independent variables.

Regression Analysis

I used the linear regression model to analyze data and compute inferential statistics with respect to predictive relationships. I retained the variables that were evaluated during testing of assumptions. The linear regression model was applied to each research question and corresponding hypotheses. The findings are presented in Tables 9

through 10. Results are displayed according to the VR-12 mental and physical composite score as dependent variable.

RQ1 In male and female veterans with a SMI, between the ages of 30 – 70 years old what is the association between involvement in MHICM wellness interventions and self-reported QOL?

$H_0$1 There is no association between a SMI veteran's involvement in MHICM wellness interventions and self-reported QOL as measured by years participated and VR-12 survey score.

H_A1 There is an association between a SMI veteran's involvement in MHICM wellness interventions and self-reported QOL as measured by years participated and VR-12 survey score.

Research Question 1

To approach the question, *In male and female veterans with a SMI, between the ages of 30 – 70 years old what is the association between involvement in MHICM wellness interventions and self-reported QOL,* a multiple linear regression analysis was conducted. I evaluated the prediction of QOL from independent variables: *MHICM years, Age, Gender, and SMI diagnosis*. The results of the multiple linear regression analysis revealed *MHICM years* and *SMI diagnosis* not to be statistically significant predictors to the model ($p > .05$) when the outcome was *mental QOL* score. However, the results of the multiple linear regression analysis revealed a statistically significant association for the predictors: *Age* and *Gender*. The results are presented in Table 9. Controlling for *Gender*, the regression coefficient [$B = .271$, 95% *C.I.* (.045, .498) $p < .05$] associated with age suggests that with each one year increase in a veteran's age, the mental QOL score

increases by approximately 0.27 units. Similar results were found for the predictor *Gender*. For this analysis, I value coded *Gender* as [Males = 1] and [Females=2]. Controlling for *Age*, the regression coefficient for *Gender* was [*B* = 10.6, 95% *C.I.* (.455, .498) $p < .05$]. Thus, there was approximately an 11 unit increase in *mental QOL* score unit for females over males.

Table 9.

Outcome of predictive relationship between veteran years in program and QOL Mental score

Predictors	B	Std. Error	Beta	t Value	Significance
(Constant)	15.875	9.601		1.653	.101
MHICM Years	-.083	.248	-.032	-.335	.738
Age	.271	.114	.235	2.376	.019
Gender	10.699	5.168	.204	2.070	.041
SMI Diagnosis	-1.008	1.029	-.093	-.980	.329

Note. The analysis pertains to the relationship between the wellness intervention as measured by number of years participated in the program and the VR-12 mental composite score. SMI Diagnosis was value coded as: SCHIZ [schizophrenia] = 1, SCAD [schizoaffective] = 2, MDD [major depression] = 3, BIP [bipolar] = 4, and Other = 5.

I used the research question to evaluate the association between veterans' involvement in MHICM wellness interventions and self-reported QOL, varying by *age*, *gender*, and *SMI diagnosis*. I introduced interaction terms to the regression model. They represent a product term computed for each covariate, depicted in Figure 17 and 18. I analyzed the data to test the interaction between the independent variables, covariates: age, gender, SMI diagnosis, and the outcome variable mental component score. I entered all independent variables and product terms in to the regression model. The predictors entered included: MHICM years, age, gender, SMI diagnosis followed by product terms: Age MHICM yrs, Gender MHICM yrs, SMI MHICM yrs, Age Psy Grp Log, Gender Psy Grp Log, and SMI Psy Grp Log. The outcome variable was mental component score. The

linear regression model revealed no significant findings with the addition of product terms. Thus, the previous model was the best fit to use for the study analysis.

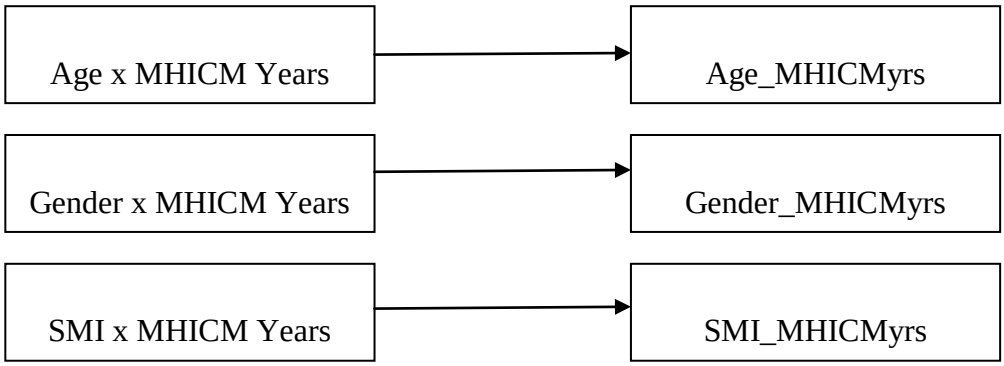

Figure 17. Computation of each product term is depicted. Each covariate was multiplied by the independent variable number of years involved in the MHICM program.

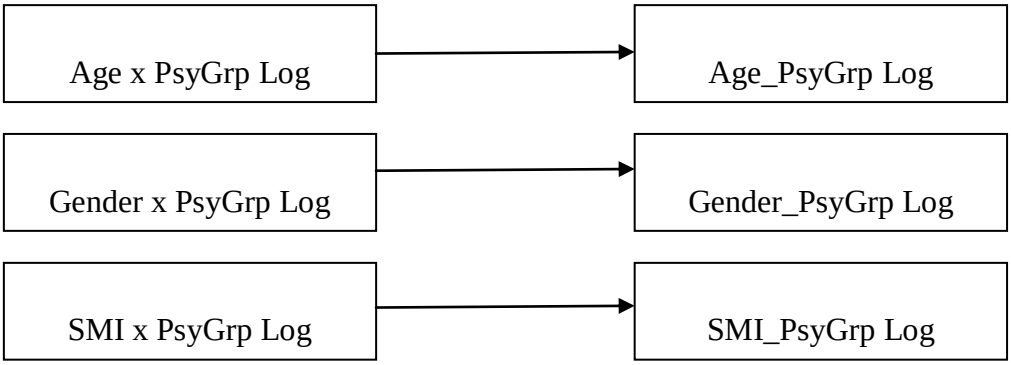

Figure 18. Computation of each product terms depicted. Each covariates was multiplied by the independent variable psychoeducational group participation.

To predict QOL in relation to involvement in the wellness intervention, I also evaluated the independent variables: MHICM years, age, gender, and SMI diagnosis on the outcome variable, physical QOL score. There was no statistically significant relationship between the predictors and physical QOL score. Results are presented in Table 10. Thus, the alternative hypothesis is rejected and the null hypothesis is retained. The finding was also non significant when product terms were introduced.

Table 10.

Outcome of predictive relationship between veteran years in program and QOL Physical score

Predictors	B	Std. Error	Beta	t Value	Significance
(Constant)	45.935	8.149		5.637	.000
MHICM Years	.188	.210	.087	.895	.373
Age	-.103	.097	-.108	-1.064	.290
Gender	-.336	4.387	-.008	-.077	.939
SMI Diagnosis	-.345	.873	-.038	-.395	.694

Note. The analysis pertains to the relationship between the wellness intervention as measured by number of years participated in the program and the VR-12 physical composite score. SMI Diagnosis was value coded as: SCHIZ [schizophrenia] = 1, SCAD [schizoaffective] = 2, MDD [major depression] = 3, BIP [bipolar] = 4, and Other = 5.

Research Question 2

To approach the question, *In male and female veterans with SMI, between the ages of 30 – 70 years old what is the association between involvement in the MHICM pyschoeducational group and self-reported of QOL,* a multiple linear regression analysis was conducted. I evaluated the prediction of QOL from independent variables: *MHICM years, Age, Gender, and SMI diagnosis*. The results of the multiple linear regression analysis revealed *MHICM years* and *SMI diagnosis* not to be statistically significant predictors to the model ($p > .05$) when the outcome was *physical QOL* score. However, the results of the multiple linear regression analysis revealed a statistically significant association for the predictors: *Age* and *Gender*. The results are presented in Table 11. Controlling for *Gender*, the regression coefficient [$B = .268$, 95% *C.I.* (.040, .497) $p < .05$] associated with *Age* suggests that with one year increase in a veteran's age, the mental QOL score increases by approximately 0.27 units. Similar results were found for the predictor, *Gender.* For this analysis, *Gender* was value coded as [Males = 1] and [Females=2]. Controlling for age, the regression coefficient for *Gender* was [$B = 10.5$,

95% *C.I.* (.160, 20.8) $p < .05$]. Thus there was approximately an 11 unit increase in *mental QOL* score unit for females over males.

Table 11.

Outcome of relationship between veteran participation in the psycho ed group and QOL mental score

Predictors	B	Std. Error	Beta	t Value	Significance
(Constant)	15.619	9.657		1.617	.109
Psy Grp Log	.003	.101	.002	.026	.979
Age	.268	.115	.232	2.326	.022
Gender	10.526	5.230	.201	2.013	.047
SMI Diagnosis	-.946	1.012	-.087	-.934	.352

Note. The analysis pertains to relationship between the wellness intervention as measured by involvement in the psychoeducational group and the VR-12 mental composite score. SMI Diagnosis was value coded as: SCHIZ [schizophrenia] = 1, SCAD [schizoaffective] = 2, MDD [major depression] = 3, BIP [bipolar] = 4, and Other = 5.

I used the second research question to evaluatethe association between veterans' involvement in psychoeducational group and self-reported QOL, varying by *age*, *gender*, and *SMI diagnosis*. I introduced interaction terms to the regression model. They represent a product term computed for each covariate. The terms are displayed in Figure 17 and 18. The data was analyzed to test the interaction between the independent variables, covariates: age, gender, SMI diagnosis, and the outcome variable physical component score. I entered all independent variables and product terms in to the regression model. The predictors entered included: MHICM years, age, gender, SMI diagnosis followed by product terms: Age MHICM yrs, Gender MHICM yrs, SMI MHICM yrs, Age Psy Grp Log, Gender Psy Grp Log, and SMI Psy Grp Log. The outcome variable was physical component score. The linear regression model revealed no significant findings with the addition of product terms. Thus, the previous model was the best fit to use for the study analysis.

To predict QOL in relation to involvement in the psychoeducational group, I evaluated independent variables: MHICM years, age, gender, and SMI diagnosis on the outcome variable, physical QOL score. There was no statistically significant relationship between the predictors and physical QOL score. Results are presented in Table 12. Thus, the alternative hypothesis is rejected and the null hypothesis is retained. The finding was also non significant when product terms were introduced.

Table 12.

Outcome of predictive relationship between participation in psycho ed group and QOL physical score

Predictors	B	Std. Error	Beta	t Value	Significance
(Constant)	35.808	11.544		3.015	.004
Psy Grp Log	1.053	2.351	.068	.448	.656
Age	-.021	.145	-.028	-.145	.885
Gender	5.142	5.205	.159	.988	.329
SMI Diagnosis	.380	1.274	.046	.298	.767

Note. The analysis pertains to the relationship between the wellness intervention as measured by veterans' involvement in the psychoeducational group and the VR-12 physical composite score. SMI Diagnosis was value coded as: SCHIZ [schizophrenia] = 1, SCAD [schizoaffective] = 2, MDD [major depression] = 3, BIP [bipolar] = 4, and Other = 5.

Overall, the study results reveal no significant relationship between key independent variables: number of years in the wellness program and psychoeducational group participation in association with QOL. The covariates *Age* and *Gender* did yield significant relationships. This finding implicates the need for further exploration to determine age related QOL among veterans with SMI as well as gender related QOL. The variables' role as confounders also requires additional investigation. The significant findings pertain to the relationship between covariates and the outcome variable, *mental QOL* score. There were no significant findings evaluated between any predictors and the outcome variable, *physical QOL* score. The findings regarding acceptance of null hypotheses are outlined below.

RQ1 In male and female veterans with a SMI, between the ages of 30 and 70 years old what is the association between involvement in MHICM wellness interventions and self-reported QOL?

Study Finding:

H_01 There is no association between a SMI veteran's involvement in MHICM wellness interventions and self-reported QOL as measured by years participated and VR-12 survey score.

H_A2 The association between a SMI veteran's involvement in MHICM wellness interventions and self-reported QOL does vary by age.

H_03 The association between a SMI veteran's involvement in MHICM wellness interventions and self-reported QOL does not vary by mental health diagnosis.

H_04 The association between a SMI veteran's involvement in MHICM wellness interventions and self-reported QOL does vary by gender.

RQ2 In male and female veterans with SMI, between the ages of 30 and 70 years old what is the association between involvement in the MHICM psychoeducational group and self-reported of QOL?

Study Finding:

H_01 In male and female veterans' with SMI, between the ages of 30 and 70 years old there is no association between involvement in the MHICM psychoeducational group and self-reported of QOL as measured by number of groups attended and VR-12 survey score.

H_02 The association between a SMI veteran's involvement in the MHICM psychoeducational group and self-reported QOL does vary by age.

$H_0 3$ The association between a SMI veteran's involvement in the MHICM psychoeducational group and self-reported QOL does not vary by mental health diagnosis.

$H_0 4$ The association between a SMI veteran's involvement in the MHICM psychoeducational group and self-reported QOL does vary by gender.

Summary

The chapter presents the study data analysis and its findings. The descriptive data are presented and described. The findings are representative of the SMI veteran population served by MHICM programs. The sample contained a plurality of males and veterans with the diagnosis schizophrenia. Linear regression modeling was consistently employed to conduct the multivariate analyses. The inferential findings show that the wellness interventions were not a significant predictor of veterans' self-rated QOL. The covariates, age and gender were found to have significance in the regression model with regard to the mental score outcome. However, less than 7% of the variance was attributed to each of these covariates. Chapter 5 discusses the results of the dissertation and compares the findings to previous studies. The implications related to wellness interventions for veterans with SMI are discussed.

Chapter 5 Discussion

Introduction

I conducted this study to evaluate wellness intervention as a QOL predictor in veterans with SMI. Veterans with SMI experience medical comorbidities in addition to their severe mental illness (Bingham & Blow, 2001; Cradock O'Leary et al., 2002). The study interventions were the veterans' number of years served in the wellness program and their participation in the psychoeducational group. Veterans served by the MHICM program received various wellness interventions: medication management, health promotion, mental wellness planning, and psychoeducational group intervention. This was a quantitative, nonexperimental study. In which I used secondary data from the VR-12 survey which provides for self-rated QOL data on mental and physical wellbeing (Kazis et al., n.d.). I analyzed a total of 111 survey results and also included data from a chart audit.

The key descriptive findings of the study revealed a sample representative of the SMI veteran population. Schizophrenia is a prominent primary diagnosis, and male veterans are the largest group served by MHICM programs (Rosenheck, Neale, & Mohamed, 2010). The multivariate analysis showed some nonsignificant relationships between the wellness intervention and veterans' self-rated QOL. I found the covariates age and gender to be predictors of QOL mental score; they are potential confounders of true relationships in the study. Regression modeling was employed to assess the hypotheses and the null ones were accepted. I further analyzed the covariates age, gender, and SMI diagnosis to compute interactions using product terms. No significant relationships were found with the addition of product terms.

Interpretation of Findings

The findings of the study indicate the need to explore other factors that may contribute to QOL among persons with SMI. These factors are multidimensional, as indicated by QOL measures. For example, the Lancashire Quality of Life Profile evaluates eight life domains: living situation, family social relationships, leisure activities, work/education, finances, personal safety, and health (Oliver, Huxley, & Priebe, 1997). In contrast, the VR-12 survey evaluates health related quality of life in two domains: mental and physical (Iqbal et al., n.d.). These domains are consistent with the study findings in that a large percentage of the variance was explained by variables not included. With regard to wellness interventions, my study differed from previous literature in that no significant association was found between the activities and QOL. The lifestyle interventions for individuals with SMI discussed by Cabassa, Ezell, and Lewis-Fernandez (2010) are similar to the wellness activities employed in the study. However the clinical activities that Cabass et al. outlined targeted areas such as balanced meal planning and physical activity. Mental interventions such as motivational interviewing were also emphasized. The wellness interventions in my study--medication management, health promotion, mental wellness planning, and psychoeducational groups--are broader categories. There may be a need to target specific interventions within these categories when conceptualizing future studies. For example, MHICM programs employ motivational interviewing to promote veteran ownership of health (VHA, 2016). Motivational interviewing could be a specific predictor.

The other key independent variable, involvement in the psychoeducational group, could be defined to evaluate unique elements in relation to QOL. The intent is to educate

persons with mental illness and provide them the skills to function in their daily lives (Kraenzle, Schneider, & Cook, 2005). In comparison, the MHICM psychoeducational group's aim is similar, but the focus is on various topics such as social skills training and health and wellness (VHA, 2016). Perlman et al. (2010) conducted a multidimensional group for veterans with mental illness. The study yielded outcomes on multiple domains: emotional role, social, mental, and physical. Again, there may be a need to tease out certain aspects of the MHICM wellness intervention and include them as predictors in future studies. The recovery model is the framework from which MHICM services operate (Goldberg & Resnick, 2010). Recovery components would be another consideration when defining the psychoeducational group. Peer support is a recovery principle. The literature shows that when peer support is integrated into SMI veterans' care, positive recovery is achieved (Bowersox, Lai, & Kilbourne, 2012).

The study findings may inform the discipline of public health with regard to care features that integrate wellness. Over 43 million adults have a mental illness (SAMHSA, 2013). The public health problem is exacerbated by the proportion of individuals having a SMI. Severe mental illness affects a person's functional ability, thus disabling them from full engagement in daily living activities (Healthy People 2013). This extends to their functional ability to work, participate in health care, and engage in their communities. The results from this study contribute to the body of literature that could inform exploratory and explanatory studies. In particular, public health research focused on the wellness of people with severe mental illness is a theme in the literature. Wellness is a holistic concept, and the public health arena is well-suited to investigate wellness with a targeted focus on subgroups. The American Public Health Association (2013)

exemplifies a multidisciplinary body. Special sections such as mental health provide the impetus to advance issues affecting persons with psychiatric illness.

The social cognitive theoretical framework proved to be instrumental to this study. The sample of veterans with SMI exercised behavioral capability, self-efficacy and observational learning. Their behavioral capability was evident in their ability to engage the wellness service and continuously interact with the care environment. The years served by the program ranged from 1 to nearly 20 years for veterans. The data also indicates that the veterans exhibited self-efficacy in that they demonstrated ongoing participation in wellness activities. A veteran's follow-through with activities such as managing their medications and adhering to a wellness plan illustrates self-efficacy. Veterans were exposed to and practiced recovery skills such as medication self-management (VHA, 2016). Role modeling is practiced within the psychoeducational group setting and during individual sessions. These group and individual sessions are components of the wellness intervention.

Limitations of the Study

The study's limitations were consistent with those I described in Chapter 1. The generalizability of the findings involve their relevance to other SMI veterans. The study sample consisted of participants served by a single MHICM program in the Southeast. The results cannot be generalized to other VA MHICM programs or to veterans with SMI served outside of the specialty program. The program within the study contained unique characteristics such as its psychoeducational group. The study is trustworthy in that I incorporated self-reported data from the veterans, information from their chart, and sound methodology. However, the design and type of data could be strengthened. A limitation

also resulted from the method of data analysis. The normality assumption was violated when examining the variable psychoeducational group. The curve was positively skewed which indicates that there were some extreme outliers. The number of group sessions attended by some veterans was zero and another was as high as 53 sessions. This finding may have distorted the relationship between variables found during statistical analysis. With regard to veterans' participation in the psychoeducation group, barriers such as no transportation and lack of tolerance for the group setting may have prevented attendance (Mohamed, Neale, & Rosenheck, 2009). These potential barriers affecting attendance may have contributed to the nonnormally distributed *Psycho ed Grp* variable. There were also linear patterns in some scatterplots of standardized predicted values. Thus, the study results may underestimate the true relationships involving independent variables *MHICM years* and *Psycho ed Grp*.

This wellness study of SMI veterans also had limitations involving its design and use of secondary data. The study's design was nonexperimental which posed limitations with deriving causal relationships. An experimental design using random assignment to a treatment group and a control group would support strong empirical findings (Crosby, DiClemente, & Salazar, 2006). Both groups could receive a pretest using the VR-12, followed by the wellness intervention. The wellness intervention could be the standard one offered by the program and provided to the treatment group. A modified version having minimal emphasis on wellness could be offered to the control group. A posttest on the VR-12 could have yielded data to test for group differences using baseline and outcome data. The major strength of experimental studies is causal inference (Crosby, DiClemente, & Salazar, 2006). For the wellness study, an experimental design would

allow fair conclusions with regard to the interventions causing a change in veterans' QOL.

The secondary nature of the data has limitations that involve the veteran's self-ratings. Although the survey data was self-reported from veterans with SMI, the original purpose of the survey was not for the wellness project. Perhaps the VR-12 QOL survey or another administered directly to evaluate the wellness intervention would have yielded more relevant findings. The findings would also have greater validity.

Recommendations

My recommendations for further research are grounded in strategies to improve (a) sampling, (b) design, and (c) measurements. The ability to generalize findings to veterans with SMI could be enhanced by targeting a larger pool of participants. The outpatient mental health clinics and day treatment programs serving veterans with SMI could be targeted for sample recruitment. The recruitment could be extended to other VA sites nationwide to obtain an inclusive sample of veterans from various geographic areas. The design of the study would gain strength by employing experimental or quasi-experimental approaches. The experimental design could entail a randomized trial of the wellness intervention using a treatment and control group. A pretest and posttest would enable the researcher to conduct baseline comparison to posttest outcomes. The wellness study produced nonsignificant findings. Factors that may have contributed include the lack of a pretest to discern QOL status prior to the wellness intervention.

The type of measurement is another area for consideration for when recommending further research regarding wellness interventions for veterans with SMI. The VR-12 is a valid measure of QOL in veteran populations (Kazis et al. n.d.). There are

other survey instruments that may be relevant to evaluate QOL in the subgroup with SMI. For example, Prince and Gerber (2005) discussed the subjective wellbeing ratings from individuals with SMI served by an ACT program. In another study, subjective QOL was investigated among a sample using the Satisfaction with Life Domain Scale (Tempier, Caron, Mercier, & Leouffre, 1998). Tempier et al. defined QOL from the perspective of the person's living as a whole. This includes not only health but also social resources such as housing. Perhaps, another instrument could be incorporated into the wellness study to expand the scope of quality of life. There are implications for social wellbeing.

Implications

The implications for the wellness study in veterans with SMI involve positive social change for the individual and society. There are also implications for organizations in evaluating mental health consumer's QOL. The sample of veterans with SMI displayed behaviors consistent with the SCT principles, self-efficacy and behavioral capability. These were demonstrated through continuous engagement in the one on one wellness services. The recovery model remains the framework for VA mental health services (VHA, 2016). Innovations such as wellness groups are provided within mental health programs (Perlman et al., 2010). Specific interventions such as social skills training provide the living skills to build positive interpersonal relationships (Galdersisi et al., 2010). These skills support the persons' ability to function in their communities and to integrate into society. For example, the SMI could re enter the workforce, participate in civic activities, and maintain involvement with a church. Re integration into the workforce is promoted by VA supported employment which operates alongside MHICM programs (Goldberg & Resnick, 2010). Their recovery progress is evident through

increased personal responsibility, hope and peer support (SAMHSA, 2011). Peer support extends beyond their veteran peers and could also emerge in community settings. For example, SMI veterans may serve on a local or state council or in organizations such as the National Alliance for Mental Illness (2015).

Although the wellness framework is discussed, no theory exists to define sound tenets. The literature indicates that the wellness framework requires scholarly investigation to establish its scientific relevance (Swarbrick, 2006). Studies are required to investigate a wellness framework for persons with severe mental illness. Once the theory is established, organizations may be better prepared to conceptualize wellness studies to evaluate services for the SMI population. Public health employs the use of theoretical frameworks when designing programs. The framework informs the evaluation component by assuring alignment with theoretical principles (National Cancer Institute, 2005). The wellness framework is implicated for evaluating programs serving the special population of people with SMI.

The study findings were not significant but enrich the body of knowledge to inform scholars and infrastructures. The unique wellness services provide some perspective on understanding the types of interventions to include in a program. These evidence-based interventions such as social skills training and motivational interviewing are described in VA MHICM policy (VHA, 2016). The study limitations could be addressed by refining the design and data analysis plan. With regard to the wellness intervention and the psychoeducational group, elements within each could be isolated and tested. For example, the medication self-management efficacy of group participants could be compared pre and post teaching after a series of session. Exploratory or explanatory

studies could give insight to program planning and evaluation for serving persons with SMI. The wellness study demographics also reveal some useful information in reference to types of SMIs affecting the veteran population. Public health planners could incorporate this data to target persons with schizophrenia when conducting formative evaluation. This group was the highest represented with SMIs in the study. Thus, public health programs would be better equipped to serve the demographics of SMI persons.

Conclusions

The major conclusions from this study encompass the relevance of evidence-based interventions for veterans with SMI. The literature supports these interventions such as social skills training, peers support, and wellness recovery planning. Such interventions are pertinent to the VA's practice of a recovery model in treating veterans with SMI (Goldberg & Resnick, 2010). The study results do not advance the implementation of wellness programs to improve SMI veterans' QOL. However, the guiding principles of recovery are connected to the broad dimensions of wellness. These general dimensions: emotional, environmental, financial, intellectual, occupational, physical, social, and spiritual relate to the holistic care provided by MHICM programs (SAMSHA, 2013; VHA, 2016). The wellness of populations with mental illness is consistent with these holistic dimensions and public health's mission. Public health is concerned with the overall person and encompasses the mental, physical, living, and work. The goal of public health to "promote and protect the health of people and the communities where they live, learn, work and play" (APHA, 2013 para. 1). Public health

programs including state mental health departments could integrate evidence-based inputs to affect the overall health of persons.

References

Abu-Qamar, M. E., & Wilson, A. (2007). Evidence-based decision-making: The case for diabetes care. *International Journal of Evidence-Based Healthcare*, *5*(2), 254-260. doi:101111/j.1479-6988.2007.00066.x

Allicock, M., Ko, L., Van der Sterren, E., Valle, C. G., Campbell, M. K., & Carr, C. (2010). Pilot weight control intervention among us veterans to promote diets high in fruits and vegetables. *Preventive Medicine, 51*, 279-281. doi:10.1016 /jypmed.2010.06.010

American Diabetes Association. (2012). Standards of medical care in diabetes-2012. *Diabetes care*, *35*, S11. doi:10.2337/dc12-s011

American Public Health Association. (2013). *Overview*. Retrieved from http://www.apha .org/about/

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text revision). Washington, DC: Author.

Anthony, W. A. (2014). Living beyond schizophrenia: recovery is possible. *World Mental Health Day 2014*, p. 37. Retrieved from http://lambethcollaborative. org.uk/wp-content/uploads/2014/10/WMHD_English.pdf

Anthony, W. A., & Mizock, L. (2014). Evidence based processes in an era of recovery. *Rehabilitation Counseling Bulletin 57*(4), 219-227. doi :10117710034355213507979

Anthony, W. A. (1993). Recovery from mental illness: The guiding vision of the mental health service system in the 1990s. *Psychosocial rehabilitation journal*, *16*(4), 11-21. doi:http://dx.doi.org/10.1037/h0095655

Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual review of psychology*, *52*(1), 1-26. doi: 10.1146/annurev.psych.52.1.1

Bellack, A., Mueser, K., Gingerich, S., & Agresta, J. (2004). *Social skills training for schizophrenia: a step-by-step guide.* New York, NY: The Guilford Press.

Bingham, C.R., & Blow, F.C. (2001, February). *Characterization and prediction of high mortality rates among veterans with serious mental illness.* Paper presented at the VA Health Services and Research Development National Meeting, National Harbor, MD. Retrieved from http://www.hsrd.research.va.gov/meetings/2001 /hsrd2001amab168htm

Bishop, S. L., Walling, D. P., Dott, S. G., Folkes, C. C., & Bucy, J. (1999). Refining quality of life: validating a multidimensional factor measure in the severe mentally ill. *Quality of life Research*, *8*(1-2), 151-160. doi:http://dx.doi.org /10.1023/a1026489331009

Blow, C., McCarthy, J., Valenstein, M., Austin, K., & Gillon, L. (2004). *Care for veterans with psychosis in the veterans health administration*. Ann Arbor, MI: Serious Mental Illness Treatment Research and Evaluation Center.

Bond, G. R., & Salyers, M. P. (2004). Prediction of outcome from the Dartmouth assertive community treatment fidelity scale. *CNS spectrums*, *9*(12), 937-942. doi: http://dx.doi.org/10.1017/S1092852900009792

Bond, G. R., Drake, R. E., Mueser, K. T., & Latimer, E. (2001). Assertive community treatment for people with severe mental illness. *Disease Management and Health Outcomes*, *9*(3), 141-159. doi:10.2165/00115677-200109030-00003

Boston University Center for Psychiatric Rehabilitation. (2014). Completed research. Retrieved from http://cpr.bu.edu/

Bowersox, N., Lai, Z., & Kilbourne, A. (2012). Integrated care, recovery-consistent care features, and quality of life for patients with serious mental illness. *Psychiatric Services, 63*(11), 1142-1145. doi:10.2165/00115677-200109030-00003

Brooks, E., & Younce, J. (2006). Managing overweight veterans everywhere. *AACN Viewpoint, 28*(3), 3-4. Retrieved from https://www.aaacn.org/sites/default/files /members/viewpoint/mayjun06.pdf

Brown, W., & Kandirikirira, N. (2007). The possibility of wellness. *Mental Health Today (Brighton, England)*, 23. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed /17933056

Bryne, C., Brown, B., Voorberg, N., Schofield, R., Browne, G., Gafni, A., & Hoxby, H. (1999). Health education or empowerment education with individuals with a serious persistent psychiatric disability. *22*(4), 368-380. doi:http://dx.doi.org/10 .1037/h0095213

Burns, T., Catty, J., Dash, M., Roberts, C., Lockwood, A., & Marshall, M. (2007). Use of intensive case management to reduce time in hospital in people with severe mental illness: systematic review and meta-regression. *BMJ, 335*(7615), 336. doi :http://dx.doi.org/10.1136/bmj.39251.599259.55

Cabassa, L., Ezell, J., & Lewis-Fernandez, R. (2010). Lifestyle interventions for adults with serious mental illness: a systematic literature review. *Psychiatric Services 61*(8), 774-782. doi:10.1176/appi.ps.61.8.774

Casagrande, S. S., Jerome, G. J., Dalcin, A. T., Dickerson, F. B., Anderson, C. A., Appel, L. J., ... & Daumit, G. L. (2010). Randomized trial of achieving healthy lifestyles in psychiatric rehabilitation: the ACHIEVE trial. *BMC psychiatry*, *10*(1), 108. doi:10.1186/1471-244X-10-108

Chiverton, P., Lindley, P., Tortoretti, D. M., & Plum, K. C. (2007). Well balanced: 8 steps to wellness for adults with mental illness and diabetes. *Journal of psychosocial nursing and mental health services*, *45*(11), 46-55. Retrieved from http://www.healio.com/nursing/psychiatric-nursing/journals/jpn/2007-11-45-11/%7B55276373-8689-4b64-82bd-a779968c629e%7D/well-balanced-8-steps-to-wellness-for-adults-with-mental-illness-and-diabetes

Chopra, P., Herrman, H., and Kennedy, G. (2008). Comparison of disability and quality of life measures in patients with long-term psychotic disorders and patients with multiple sclerosis: An application of the WHO Disability Assessment Schedule II and WHO Quality of Life-BREF. *International Journal of Rehabilitation Research 31*(2), 141-149. doi:10.1097/MRR.0b013e32830150e6

Chwastiak, L. A., Rosenheck, R. A., & Kazis, L. E. (2008). Utilization of primary care by veterans with psychiatric illness in the National Department of Veterans Affairs Health Care System. *Journal of general internal medicine*, *23*(11), 1835-1840. doi:10.1007/s11606-008-0786-7

Cook, J. (2011). Physical wellness: An integral feature of recovery. *Psychiatric Rehabilitation Journal, 34*(4), 271-272. doi:10.2975/3442011271272

Cook, J., Copeland, M. E., Hamilton, M., Jonikas, J., Razzano, L., Floyd, C….Grey, D. (2009). Initial outcomes of a mental illness self-management program based on wellness recovery action planning. *Psychiatric Services, 60*(2), 246-249. doi :http://dx.doi.org/10.1176/ps.2009.60.2.246

Copeland, L. A., Zeber, J. E., Wang, C. P., Parchman, M. L., Lawrence, V. A., Valenstein, M., & Miller, A. L. (2009). Patterns of primary care and mortality among patients with schizophrenia or diabetes: A cluster analysis approach to the retrospective study of healthcare utilization. *BMC Health Services Research, 9*(1), 127. doi:10.1186/1472-6963-9-127

Copeland, L., Zeber, J., Rosenheck, R., & Miller, A., (2006). Unforseen inpatient mortality among veterans with schizophrenia, *Medical Care. 44*(6). 110-116. doi:10.1097/01.mlr.0000196973.99080.fb

Covington, H. (2003). Delineation of a concept of holistic nursing. *Journal of Holistic Nursing, (21)*53, 301-317. doi:10.1177/0898010103254915

Cradock-O'Leary, J., Alexander, S., Yano, E., Mingming, W. & Martin, L. (2002). Use of general medical services by VA patients with psychiatric disorders. *Psychiatric Services, 53*(7), 874-878. doi: http://dx.doi.org/10.1176/appi.ps.53.7.874

Crosby, R., DiClemente, R., & Salazar, L. (2006). *Research methods in health promotion*. San Francisco, CA: Jossey-Bass.

Daumit, G. L., Dickerson, F. B., Wang, N. Y., Dalcin, A., Jerome, G. J., Anderson, C.A …Appel, L. J. (2013). A behavioral weight-loss intervention in persons with serious mental illness. *New England Journal of Medicine, 368*(17), 1594-1602. doi:10.1056/NEJMoa1214530

De Hert, M., Van Winkel, R., Van Eyck, D., Hanssens, L., Wampers, M., Scheen, A., & Peuskens, J. (2006). Prevalence of diabetes, metabolic syndrome and metabolic abnormalities in schizophrenia over the course of the illness: A cross-sectional study. *Clinical Practice and Epidemiology in Mental Health*, *2*(1), 14. doi:10 .1186/1745-0179-2-14

Ellis, T. & Samter, J. (May, 2012), *Mental Health Intensive Case Management: Use of Evidence based interventions in a population of Veterans*. Didactic presentation at the 28th Annual Assertive Community Treatment Association Conference, Boston, MASS. Retrieved from http://blog.case.edu/msass/2012/05/02/annual_act _conference_2012_boston.html

Ervin, B. (2009). Prevalence of Metabolic Syndrome Among Adults 20 Years of Age and Over, by Sex, Age, Race and Ethnicity, and Body Mass Index: United States, 2003–2006, National Health Statistics Report. No 13. Retrieved from http ://europepmc.org/abstract/med/19634296

Faul, F., Erdfelder, E., Buchner, A., & Lang, A. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods 41*(4), 1149-1160. doi:10.3758/BRM.41.4.1149

Fotiades, J., Smelson, D.A., Kaune, M., & Losonczy, M. (February, 2001). Characterizing the medical-comorbidites and the provision of preventive services to chronic institutionalized veterans with serious mental illness (SM). Paper presented at the VA Health Services and Research Development National Meeting, Washington D.C. Retrieved from http://www.hsrd.research.va.gov /meetings/2001/hsrd2001amab168htm/

Friis, R.H., & Sellers, T.A. (2003). *Epidemiology for public health practice*. 3rd ed. Sudbury, MA: Jones and Bartlett.

Fukui, S., Starnino, V. R., Susana, M., Davidson, L. J., Cook, K., Rapp, C. A., & Gowdy, E. A. (2011). Effect of Wellness Recovery Action Plan (WRAP) participation on psychiatric symptoms, sense of hope, and recovery. *Psychiatric Rehabilitation Journal*, *34*(3), 214. doi:http://dx.doi.org/10.2975/34.3.2011.214.222

Galderisi, S., Piegari, G., Mucci, A., Acerra, A., Luciano, L., Rabasca…Maj, M. (2010). Social skills and neurocognitive individualized training in schizophrenia: comparison with structured leisure activities. *European Archives of Psychiatry and Clinical Neuroscience*, *260*(4), 305-315. doi:10.1007/s00406-009-0078-1

Gerard, K. & Scott, J. (1990). Medication compliance and health education among outpatients with chronic mental disorders. *Medical Care, 28*(22). 1111-1207.

Gertsman, B. (2008). *Basic biostatistics: Statistics for public health practice*. Boston, MA: Jones and Bartlett Publishers.

Gidugu, V., Rogers, S., Harrington, S., Maru, M., Johnson, G., Cohee, J., & Jenkil, J. (2015). Individual peer support: a qualitative study of mechanisms of its effectiveness. *Community Mental Health Journal*, 51(4), 445-452. doi:10.1007/s10597-014-9801-0

Gill, K. J., Swarbrick, M., Murphy, A. A., Spagnolo, A. B., & Zechner, M. R. (2009). Co-morbid psychiatric and medical disorders: challenges and strategies. *Journal of Rehabilitation*, 75(3), 32-40. Retrieved from http://search.proquest.com /openview/71ef72c85fad5f273a9534b4388f4d87/1?pq-origsite=gscholar

Goff, D. C., Sullivan, L. M., McEvoy, J. P., Meyer, J. M., Nasrallah, H. A., Daumit, G. L ... Lieberman, J. A. (2005). A comparison of ten-year cardiac risk estimates in schizophrenia patients from the CATIE study and matched controls. *Schizophrenia research*, *80*(1), 45-53. doi: http://dx.doi.org/10.1016/j.schres .2005.08.010

Goldberg, R., Reeves, R., Tapscott, S., Medoff, D., Dickerson, F., Goldberg, A.,,,Dixon, L. (2013). Move: outcomes of a weight loss program modified for veterans with serious mental illness. *Psychiatric Services*, *64*(8), 734-744. doi:10.1176/appi.ps.201200314

Goldberg, R., & Resnick, S. (2010). Us department of veterans affairs (VA) efforts to promote psychosocial rehabilitation and recovery. *Psychiatric Rehabilitation Journal*, *33*(4), 255-258. doi: http://dx.doi.org/10.2975/33.4.2010.255.258

Goldberg, R. W., Seybolt, D. C., & Lehman, A. (2002). Reliable self-report of health service use by individuals with serious mental illness. *Psychiatric Services*, *53*(7), 879-881. doi: http://dx.doi.org/10.1176/appi.ps.53.7.879

Gonzalez, J. M., Alegria, M., & Prihoda, T. J. (2005). How do attitudes toward mental health treatment vary by age, gender, and ethnicity/race in young adults?. *Journal of Community Psychology*, *33*(5), 611-629. doi: 10.1002/jcop.20071

Gray, R., White, J., Schulz, M., & Abderhalden, C. (2010). Enhancing medication adherence in people with schizophrenia: An international programme of research. *International Journal of Mental Health Nursing*, *19*(1), 36-44. doi: 10.1111/j .1447-0349.2009.00649.x

Green, S. & Salkind, N. (2011). Using SPSS for windows and macintosh: Analyzing and understanding data. (4th ed.). Boston, MA: Prentice Hall.

Hare, I. (2004). Defining social work for the 21st century: The international federation of social workers' revised definition of social work. *International Social Work Journal, 47*(3), 407-424. doi:10.1177/0020872804043973

Hartung, C. M., & Widiger, T. A. (1998). Gender differences in the diagnosis of mental disorders: Conclusions and controversies of the DSM–IV. *Psychological bulletin*, *123*(3), 260. doi:http://dx.doi.org/10.1037/0033-2909.123.3.260

Harvard Health Publications. Weight gain and other unhealthy attributes increase risk of diabetes and heart disease. (2011). *Harvard Mental Health Letter*, *28*(2), 5. Retrieved from http://www.health.harvard.edu/newsletters/harvard_mental_health letter/2011/august

Hasson-Ohayon, I., Roe, D., & Kravetz, S. (2007). A randomized controlled trial of the effectiveness of the illness management and recovery program. *Psychiatric Services*, *58*(11), 1461-1466. doi:10.1176/appi.ps.58.11.1461

Healthy People. (2013). Mental health and mental disorders. Retrieved from http://www.healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid =28

Hemingway, H., Stafford, M., Stansfeld, S., Shipley, M., & Marmot, M. (1997). Is the SF-36 a valid measure of change in population health? Results from the Whitehall II study. *Bmj*, *315*(7118), 1273-1279. doi: http://dx.doi.org/10.1136/bmj.315 .7118.1273

Hoerster, K. D., Jakupcak, M., McFall, M., Unützer, J., & Nelson, K. M. (2012). Mental health and somatic symptom severity are associated with reduced physical activity among US Iraq and Afghanistan veterans. *Preventive medicine*, *55*(5), 450-452. doi:10.1016/j.ypmed.2012.08.017

Hutchinson, D., Gagne, C., Bowers, A., Russinova, Z., Skrinar, G., & Anthony W. (2006). A framework for health promotion services for people with psychiatric disabilities. *Psychiatric Rehabilitation Journal, 29*(4), 241-250. doi: http://dx.doi .org/10.2975/29.2006.241.250

Iqbal, S., Rogers, W., Selim, A., Qian, S., Lee, A., Ren, X….Kazis, L. (n.d.). The veterans rand 12 item health survey (vr-12): What it is and how it is used [White Paper]. Retrieved from http://www.chqoer.research.va.gov /docs/VR12.pdf

Jarskog, L. F., Hamer, R. M., Catellier, D. J., Stewart, D. D., LaVange, L., Ray, N.... Stroup, T. S. (2013). Metformin for weight loss and metabolic control in overweight outpatients with schizophrenia and schizoaffective disorder. *American Journal of Psychiatry*, *170*(9), 1032-1040. doi:10.1176/appi.ajp.2013.12010127

Jenkins, J. H., Strauss, M. E., Carpenter, E. A., Miller, D., Floersch, J., & Sajatovic, M. (2005). Subjective experience of recovery from schizophrenia-related disorders and atypical antipsychotics. *International Journal of Social Psychiatry*, *51*(3), 211-227. doi:10.1177/0020764005056986

Jung, X. & Newton, R. (2009). Cochrane reviews of non-medication based psychotherapeutic and other interventions for schizophrenia, psychosis, and

bipolar disorder: a systematic literature review. *International Journal of Mental Health Nursing, 18*(4), 239-249. doi:10.1111/j.1447-0349.2009.00613.x

Kassi, E., Pervanidou, P., Kaltsas, G., & Chrousos, G. (2011). Metabolic syndrome: definitions and controversies. *BMC Medicine*, *9*48. doi**:**10.1186/1741-7015-9-48

Kazis, L., Selim, A., Rogers, W., Ren, X., Lee, A., & Miller, D. (n.d.). Veterans rand 12 item health survey (vr-12): A white paper summary [White Paper]. Retrieved from http://www.hosonline.org/surveys/hos/download/Veterans_RAND 12_Item_Health_Survey_White_Paper_Summary.pdf

Kilbourne, A., Ignacio, R., Kim, H. M., & Blow, F. (2009). Are va patients with serious mental illness dying younger? *Psychiatric Services, 60*(5), 589. doi:http://dx .doi.org/10.1176/ps.2009.60.5.589

Kilbourne, A. M., Pirraglia, P. A., Lai, Z., Bauer, M. S., Charns, M. P., Greenwald, D.... Yano, E. M. (2011). Quality of general medical care among patients with serious mental illness: does colocation of services matter?. *Psychiatric Services*, *62*(8), 922-928. doi:http://dx.doi.org/10.1176/ps.62.8.pss6208_0922

Kilbourne, A., Morden, N., Austin, K., Ilgen, M., Welsh, D., & McCarthy, J. (2009, February). *Excess cardiovascular disease related mortality in veterans with serious mental illness: are behavioral or treatment factors to blame?* Paper presented at the VA Health Services and Research Development National Meeting, Baltimore, MD. Retrieved from http://www.hsrd.research.va.gov /meetings/2001 /hsrd2001amab168htm

Kinsinger, L. S., Jones, K. R., Kahwati, L., Harvey, R., Burdick, M., Zele,…Yevich, S. J. (2009). SPECIAL TOPIC Design and Dissemination of the MOVE! Weight-Management Program for Veterans. *Preventing chronic disease*, 08_0150. Retrieved from http://europepmc.org/articles/pmc2722407

Klee, A., Lee, A., Henricks, C., & Rosenberger, P. (2012, August). *Study of specialized wellness services for veterans with serious mental illness* presented at the APA Convention, Orlando, FLA. Retrieved from http://www.norc.org /NewsEventsPublications/Events/Pages/the-american-psychological -association-convention.aspx

Kurtz, M. M., & Mueser, K. T. (2008). A meta-analysis of controlled research on social skills training for schizophrenia. *Journal of consulting and clinical psychology*, *76*(3), 491. doi: http://dx.doi.org/10.1037/0022-006X.76.3.491

Lehman, A. F., Postrado, L. T., & Rachuba, L. T. (1993). Convergent validation of quality of life assessments for persons with severe mental illnesses. *Quality of life research*, *2*(5), 327-333. doi:10.1007/BF00449427

Lipsey, M. & Wilson, D. (1993). The efficacy of psychological, educational, and behavioral treatment. *American Psychologist, 48* (12), 1181-1209. Doi : http://dx.doi.org/10.1037/0003-066X.48.12.1181

Marcussen, K., Ritter, C., & Munetz, M. (2010). The effect of services and stigma on quality of life for persons with serious mental illnesses. *Psychiatric Services*, *61*(5), 489-494. doi: http://dx.doi.org/10.1176/ps.2010.61.5.489

McEvoy, J. P., Meyer, J. M., Goff, D. C., Nasrallah, H. A., Davis, S. M., Sullivan, L... & Lieberman, J. A. (2005). Prevalence of the metabolic syndrome in patients with

schizophrenia: Baseline results from the Clinical Antipsychotic Trials of Intervention Effectiveness (CATIE) schizophrenia trial and comparison with national estimates from NHANES III. *Schizophrenia research*, *80*(1), 19-32. doi: http://dx.doi.org/10.1016/j.schres.2005.07.014

McGuire, A., Kula, M., Green, A., Gilbride, D., Mueser, K., & Salyers, M. (2014). Illness management and recovery: a review of the literature. *Psychiatric Services.* doi: 10.1176/appi.ps.201200274. doi:10.1176/appi.ps.201200274

Meyer, P., & Morrissey, J. (2007). A comparison of assertive community treatment and intensive case management for patients in rural areas. *Psychiatric Services*, *58*(1), 121-127. doi:10.1176/appi.ps.58.1.121-a

Miller, B., Paschall, C. & Svendsen, D. (2006). Mortality and medical comorbidity among patients with serious mental illness. *Psychiatric Services*, *57*(10), 1482-1487. doi: http://dx.doi.org/10.1176/foc.6.2.foc239

Miller, W., & Rollnick, S. (2004). Talking oneself into change: Motivational interviewing, stages of change, and therapeutic process. *Journal of Cognitive Psychotherapy: An International Quarterly*, *18*(4). 299-308. doi**:**http://dx .doi.org/10.1891/jcop.18.4.299.64003

Miller, W., Moyers, T., Ernst, D., & Amrhein, P. (2008). Manual for the motivational interviewing skill code (misc). Retrieved from http://casaa.unm.edu /download/misc.pdf

Mohamed, S., Neale, M. S., & Rosenheck, R. (2009). Veterans affairs intensive case management for older Veterans. *The American Journal of Geriatric Psychiatry*, *17*(8), 671-681. doi:10.1097/JGP.0b013e3181a88340

Mohamed, S., Neale, M., & Rosenheck, R. (2009). VA intensive mental health case management in urban and rural areas: Veteran characteristics and service delivery. *Psychiatric Services, 60*(7), 914-921. doi:10.1176/ps.2009.60.7.914

Mohamed, S., Rosenheck, R., & Cuerdon, T. (2010). Who terminates from ACT and why? Data from the national VA mental health intensive case management program. *Psychiatric Services*, *61*(7), 675-683. doi:http://dx.doi.org/10 .1176/ps.2010.61.7.675

Morrissey, J. P., Domino, M. E., & Cuddeback, G. S. (2013). Assessing the effectiveness of recovery-oriented ACT in reducing state psychiatric hospital use. *Psychiatric Services*, *64*(4), 303-311. doi:10.1176/appi.ps.201200095

Mueser, K. T., Bartels, S. J., Santos, M., Pratt, S. I., & Riera, E. G. (2012). Integrated Illness Management and Recovery: a program for integrating physical and psychiatric illness self-management in older persons with severe mental illness. *American Journal of Psychiatric Rehabilitation*, *15*(2), 131-156. doi:http://dx.doi .org/10.1080/15487768.2012.679558

Mueser, K., & McGurk, S. (2004). Schizophrenia. *The Lancet*, 363, 2063-2072. doi:http ://dx.doi.org/10.1016/S0140-6736(04)16458-1

Markowitz, F. E. (2001). Modeling processes in recovery from mental illness: Relationships between symptoms, life satisfaction, and self-concept. *Journal of Health and Social Behavior*, 64-79. Retrieved from http://www.jstor.org /stable/3090227

National Alliance for Mental Illness. (2015). Get involved. Retrieved from http://www.nami.org/Get-Involved

National Cancer Institute. (2005). Theory at a glance: A guide for health promotion practice. Publication No. 05-3896. National Cancer Institute.

National Institute of Mental Health. (2013). The numbers count: mental disorders in America. Retrieved from http://www.nimh.nih.gov/health/publications/the-numbers-count-mental-disorders-in-America/index.shtml

National Resource Center on Psychiatric Advance Directives. (2013). Patients and consumers. Retrieved from http://www.nrc-pad.org/patients-and-consumers

Neale, M. S., & Rosenheck, R. A. (1995). Therapeutic alliance and outcome in a VA intensive case management program. *Psychiatric Services*, *46*(7), 719-721. doi :http://dx.doi.org/10.1176/ps.46.7.719

Oliver, J. P. J., Huxley, P. J., Priebe, S., & Kaiser, W. (1997). Measuring the quality of life of severely mentally ill people using the Lancashire Quality of Life Profile. *Social Psychiatry and Psychiatric Epidemiology*, *32*(2), 76-83. doi:10.1007 /BF00788924

Parabiaghi, A., Bonetto, C., Ruggeri, M., Lasalvia, A., & Leese, M. (2006). Severe and persistent mental illness: a useful definition for prioritizing community-based mental health service interventions. *Social psychiatry and psychiatric epidemiology*, *41*(6), 457-463. doi: 10.1007/s00127-006-0048-0

Parks, J., Radke, A., & Mazade, N.A. (2008). Measurement of health status for people with serious mental illnesses. Alexandria, VA: National Association of State Mental Health Program Directors. Retrieved from http://www.nasmhpd.org/sites

/default /files/NASMHPD%20Medical%20Directors%20Health%20Indicators%20Report%2011-19-08.pdf

Parks, J., Svendsen, D., Singer, P., & Foti, M. (2006). Morbidity and mortality in people with serious mental illness. Alexandria, VA: National Association of State Mental Health Program Directors. Retrieved fromhttp://www.nasmhpd.org/sites/default/files/Mortality%20and%20Morbidity%20Final%20Report%208.18.08.pdf

Perlman, L. M., Cohen, J. L., Altiere, M. J., Brennan, J. A., Brown, S. R., Mainka, J., & Diroff, C. R. (2010). A multidimensional wellness group therapy program for veterans with comorbid psychiatric and medical conditions. *Professional Psychology: Research and Practice*, *41*(2), 120-127. doi:10.1037/a0018800

Prince, P., & Gerber, G. (2005). Subjective well-being and community integration among clients of assertive community treatment. *Quality of Life Research, 14*(1), 161-169. doi: 10.1007/s11136-004-2407-1

Roberts, A. (2009). Social workers desk reference. New York, NY: Oxford University Press Inc.

Rollnick, S., Butler, C. C., Kinnersley, P., Gregory, J., & Mash, B. (2010). COMPETENT NOVICE: Motivational interviewing. *BMJ: British Medical Journal*, 1242-1245. Retrieved from http://www.jstor.org/stable/40701844

Rosenheck, R. A., Neale, M. S., & Mohamed, S. (2010). Transition to low intensity case management in a VA assertive community treatment model program. *Psychiatric Rehabilitation Journal*, *33*(4), 288-296. doi:10.2975/33.4.2010.288.296

Rosenfield, S. (1992). Factors contributing to the subjective quality of life of the chronic mentally ill. *Journal of Health and Social Behavior, 33*(4), 299-315. Retrieved from http://www.jstor.org/stable/2137310

Sage Research Methods. (2014). Power analysis and sample size calcuation [online]. Retrieved from http://knowledge.sagepub.com.ezp.waldenulibrary.org/

Sage Research Methods. (2015). Interaction terms in regression [online]. Retrieved from http://knowledge.sagepub.com.ezp.waldenulibrary.org/

Salerno, A., Margolies, P., Cleek, A., Pollock, M., Gopalan, G., & Jackson, C. (2011). Wellness self-management: An adaptation of the illness management and recovery program in new york state. *Psychiatric Services, 62*(5), 457-458. doi:10.1176/appi.ps.62.5.456

Salyers, M., McGuire, A., Kukla, M., Fukui, S., Lysaker, P., & Mueser, K. (2014). A randomized controlled trial of illness management and recovery with an active control group. *Psychiatric Services.* doi: 10.1176/appi.ps.201300354

Salyers, M. P., McGuire, A. B., Rollins, A. L., Bond, G. R., Mueser, K. T., & Macy, V. R. (2010). Integrating assertive community treatment and illness management and recovery for consumers with severe mental illness. *Community Mental Health Journal*, *46*(4), 319-329. doi: 10.1007/s10597-009-9284-6

Salyers, M. P., & Tsemberis, S. (2007). ACT and recovery: Integrating evidence-based practice and recovery orientation on assertive community treatment teams. *Community Mental Health Journal*, *43*(6), 619-641. doi:10.1007/s10597-007 -9088-5

Schmutte, T., Flanagan, E., Bedregal, L., Ridgeway, P., Sells, D., Styron T., & Davison, L. (2009). Self-efficacy and self-care: Missing ingredients in health and healthcare among adults with serious mental illnesses. *Psychiatric Quarterly, 80*(1), 1-8. doi:10.1007/s11126-008-9088-9

Schneider, J.K. & Cook, J.H. (2005). Planning psychoeducational groups for older adults. *Journal of Gerontological Nursing, 31*, 33-38. doi:10.3928/0098-9134-20050801-12

Schneiderman, N., Speers, M., Silva, J., Tomes, H., & Gentry, J. (2001). Integrating behavioral and social sciences with public health. Washington, DC: American Psychological Association.

Seedat, S., Scott, K. M., Angermeyer, M. C., Berglund, P., Bromet, E. J., Brugha, T. S ... Kessler, R. C. (2009). Cross-national associations between gender and mental disorders in the World Health Organization World Mental Health Surveys. *Archives of general psychiatry*, *66*(7), 785-795. doi: 10.1001/archgenpsychiatry.2009.36

Starnino, V. R., Mariscal, S., Holter, M. C., Davidson, L. J., Cook, K. S., Fukui, S…Rapp, C. A. (2010). Outcomes of an illness self-management group using wellness recovery action planning. *Psychiatric rehabilitation journal*, *34*(1), 57-60. doi:http://dx.doi.org/10.2975/34.1.2010.57.60

Sterling, E. W., Silke, A., Tucker, S., Fricks, L., & Druss, B. G. (2010). Integrating wellness, recovery, and self-management for mental health consumers. *Community Mental Health Journal*, *46*(2), 130-138. doi:10.1007/s10597-009-9276-6

Substance Abuse and Mental Health Services Administration. (2010). Illness management and recovery evidence based practices kit. Retrieved from http://store.samhsa.gov/product/Illness-Management-and-Recovery-Evidence-Based-Practices-EBP-KIT/SMA09-4463

Substance Abuse and Mental Health Services Administration. (2011). SAMHSA announces a working definition of "recovery" from mental disorders and substance use disorders [News Release]. Retrieved from http://www.samhsa.gov /newsroom/advisories/1112223420.aspx

Substance Abuse and Mental Health Services Administration. (2012). What people with mental illness and substance use disorders need to know about wellness. Retrieved from http://www.promoteacceptance.samhsa.gov/10by10/PDF/Facts_ pdf

Substance Abuse and Mental Health Services Administration. (2012). Adults experiencing mental illness have higher rates of certain chronic physical illnesses [News Release]. Retrieved from http://www.samhsa.gov/newsroom /advisories/1204102228.aspx

Substance Abuse and Mental Health Services Administration. (2012). What people with mental illness and substance use disorders need to know about wellness. Retrieved from http://www.promoteacceptance.samhsa.gov/10by10/PDF/Facts_ pdf

Substance Abuse and Mental Health Services Administration. (2012). National survey on drug use and health: physical health conditions among adults with mental illnesses. Retrieved from http://www.samhsa.gov/data/NSDUH.aspx

Substance Abuse and Mental Health Services Administration. (2013). Eight dimensions of wellness. Retrieved from http://www.promoteacceptance.samhsa.gov /10by10/dimensions.aspx

Substance Abuse and Mental Health Services Administration. (2013). Wham: Whole health action management. Retrieved from http://www.integration.samhsa .gov/health-wellness/wham/WHAM_Participant_Guide.pdf

Swarbrick, M. (2006). A wellness approach. *Psychiatric Rehabilitation Journal*, *29*(4), 311-314. Retrieved from http://dx.doi.org/10.2975/29.2006.311.314

The Joint Commission. (2013). Behavioral health care. Retrieved from http://www .jointcommission.org/accreditation/behavioral_health_care.aspx

The President's New Freedom Commission on Mental Health. (2003). Achieving the promise: transforming mental health care in america. Retrieved from http://store.samhsa.gov/product/Achieving-the-Promise-Transforming-Mental Health Care-in-America-Executive-Summary/SMA03-3831

Tempier, R., Caron, J., Mercier, C., & Leouffre, P. (1998). Quality of life of severely mentally ill individuals: A comparative study. *Community mental health journal*, *34*(5), 477-485. doi:10.1023/A:1018738312734

Tomaras, V., Ginieri-Coccossis, M., Vassiliadou, M., Malliori, M., Ferentinos, S., Soldatos, C., & Tylee, A. (2011). Education in mental health promotion and its impact on the participants' attitudes and perceived mental health. *Annals of General Psychiatry, 10*(33), 1-10. doi: 10.1186/1744-859X-10-33

Tratnack, S. & Kane, C. (2010). Preventive health screenings in a clubhouse setting for persons with serious mental illness. The *American Journal for Nurse Practitioners, 14*(4), 8-18.

Udechuku, A., Olver, J., Hallam, K., Blyth, F., Leslie, M., Nasso, M… Burrows, G. (2005). Assertive community treatment of the mentally ill: service model and effectiveness. *Australasian Psychiatry, 13*(2), 129-134. doi:10.1111/j.1440-1665.2005.02175.x

Valenstein, M., Barry, K. L., Blow, F. C., Copeland, L., & Ullman, E. (1998). Agreement between seriously mentally ill veterans and their clinicians about medication compliance. *Psychiatric Services, 49*(8), 1043-1048. doi:http://dx.doi.org/10.1176/ps.49.8.1043

Veterans Benefits Administration. (2014). Benefits booklet. Retrieved from http://www.va.gov/opa/publications/benefits_book.asp

Veterans Health Administration. (2012). Guide to va mental health services for veterans and families. Washington, DC: Author.

Veterans Health Administration. (2011). Re-engaging veterans with serious mental illness in treatment. Retrieved from http://www.va.gov/vhapublications/ViewPublication.asp?pub_ID=2476

Veterans Health Administration. (2008). Uniform Mental Health Services Handbook. Retrieved from http://www1.va.gov/vhapublications/ViewPublication.asp?pub_ID=1762

Veterans Health Administration. (2011). Psychosocial Rehabilitation and Recovery Services Peer Support. Retrieved from http://www.va.gov/vhapublications /ViewPublication.asp?pub_ID=2430

Veterans Health Administration. (2016). Intensive community mental health recovery services handbook. Retrieved from http://www1.va.gov/vhapublications /ViewPublication.asp?pub_ID=3164

Veterans Health Administration. (2014). National center for health promotion and disease prevention. Retrieved from http://www.prevention.va.gov/

Vogt, P., (2005). Central limit theorem. Retrieved from http://srmo.sagepub.com/view /encyclopedia -of-measurement-and-statistics/n75.xml

Vreeland, B., Minsky, S., Gara, M. A., Toto, A. M., Kosseff, C. O., Verna, M., & Haytas, L. A. (2010). Solutions for wellness: Results of a manualized psychoeducational program for adults with psychiatric disorders. *American Journal of Psychiatric Rehabilitation, 13*(1), 55. doi: http://dx.doi.org/10.1080/15487761003673032

Vreeland, B., Minsky, S., Menza, M., Radler, D. R., Roemheld-Hamm, B., & Stern, R. (2003). A program for managing weight gain associated with atypical antipsychotics. *Psychiatric Services, 54*(8), 1155-1157. doi:10.1176/appi.ps .54.8.1155

Van Winkel, R., De Hert, M., Van Eyck, D., Hanssens, L., Wampers, M., Scheen, A., & Peuskens, J. (2008). Prevalence of diabetes and the metabolic syndrome in a sample of patients with bipolar disorder. *Bipolar disorders, 10*(2), 342-348. doi: 10.1186/1745-0179-2-14

White, J. J., Gray, R. R., & Jones, M. M. (2009). The development of the serious mental illness physical Health Improvement Profile. *Journal Of Psychiatric & Mental Health Nursing*, *16*(5), 493-498. doi:10.1111/j.1365-2850.2009.01375. doi:10.1111/j.1365-2850.2009.01375.x

Yegidis, B.L. & Weinbach, R. W. (2002). Research methods for social workers.(4th ed.). Boston, MA: Allyn and Bacon.

Appendix A: Chart Audit Form

Case # _____ Date of Audit _____

1. Age *Note: Refer to Patient ID Tab or Face Sheet*	18-29 □ 30-49 □ 50-69 □ 70+ □
2. Number of Years in MHICM Program *Indicators: MHICM Initial Assessment Note, Initial Data Form (IDF) Completion Date, Progress Note of first MHICM visit*	Less than 1 Year □ 1-5 Years □ 6-10 Years □ 11-15 Years □ 16-20 Years □ 21 Years or Greater □
3. Primary Psychiatric Diagnosis *Note: Refer to Problem List or Last Psychiatric Visit Note*	Schizophrenia □ Schizoaffective □ Major Depression □ Bipolar □ PTSD □ Other □
4. Medication Monitoring *Indicators: observed medication set up, reviewed/educated on, delivered medication, etc.*	_____ *(Number of episodes during the 15 months)*
5. Mental Wellness Planning *Indicators: WRAP completion, safety plan, crisis plan, supportive counseling, etc.*	_____ *(Number of episodes during the 15 months)*
6. Health promotion *Indicators: Walking plan, diabetes management reinforcement, care coordination for physical problems, nutritional and, or fitness goal planning, etc.*	_____ *(Number of episodes during the 15 months)*
7. Group Psychoeducation *Indicators: Participation in a MHICM Wellness Group session.*	_____ *(Number of sessions during the 15 months)*

Instructions: Use the audit tool to generate a report on findings from the veteran's CPRS chart during the period of October 1, 2011 – December 31st, 2012. These contacts are specific to MHICM visits. Refer to MHICM visits notes including contacts with the social worker, nurse, nurse practitioner, and psychiatrist. The mid month note from the 15 month period will be reviewed during the audit to determine specific wellness interventions such as medication monitoring.

Appendix B

***OMB* ###-####**

Administrative use only:
Local Identifier

Study ID: _____ **Navigator:** _____

Date: _____

THE VETERANS RAND 12-ITEM HEALTH SURVEY (VR-12)

The following questions ask for your views about your health—how you feel and how well you are able to do your usual activities. All kinds of people across the country are being asked these same questions. Their answers and yours will help to improve health care for everyone. There are no right or wrong answers; please choose the answer that best fits your life right now.

Answer each question by marking an 'X' next to the best response. For example:

What is your gender?

☐ Male
☒ Female

Q1. In general, would you say your health is:

- ❑ Excellent
- ❑ Very good
- ❑ Good
- ❑ Fair
- ❑ Poor

Q2. The following questions are about activities you might do during a typical day. Does **your health now limit you** in these activities? If so, how much?

a. **Moderate activities**, such as moving a table, pushing a vacuum cleaner, bowling or

playing golf?

- ❑ Yes, limited a lot
- ❑ Yes, limited a little
- ❑ No, not limited at all

b. Climbing **several** flights of stairs?

- ❑ Yes, limited a lot
- ❑ Yes, limited a little
- ❑ No, not limited at all

Rev 19-Sep-2011 **Entered: __ __ / __ __ / __ By:** _____

Q3. During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities **as a result of your physical health**?

a. Accomplished **less** than you would like.

- ❑ No, none of the time
- ❑ Yes, a little of the time
- ❑ Yes, some of the time
- ❑ Yes, most of the time
- ❑ Yes, all of the time

b. Were limited in the **kind** of work or other activities.

- ❑ No, none of the time
- ❑ Yes, a little of the time
- ❑ Yes, some of the time
- ❑ Yes, most of the time
- ❑ Yes, all of the time

Q4. During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities **as a result of any emotional problems** (such as feeling depressed or anxious)?

a. **Accomplished less** than you would like.

- ❑ No, none of the time
- ❑ Yes, a little of the time
- ❑ Yes, some of the time
- ❑ Yes, most of the time
- ❑ Yes, all of the time

b. Didn't do work or other activities as **carefully** as usual.

- ❑ No, none of the time
- ❑ Yes, a little of the time
- ❑ Yes, some of the time
- ❑ Yes, most of the time
- ❑ Yes, all of the time

Q5. During the past 4 weeks, how much did **pain** interfere with your normal work (including both work outside the home and housework)?

- ❑ Not at all
- ❑ A little bit
- ❑ Moderately
- ❑ Quite a bit
- ❑ Extremely

These questions are about how you feel and how things have been with you during the past 4 weeks. For each question, please give the one answer that comes closest to the way you have been feeling.

Q6a. How much of the time during the

past 4 weeks:

Have you felt calm and peaceful?

- ❑ All of the time
- ❑ Most of the time
- ❑ A good bit of the time

- ❑ Some of the time
- ❑ A little of the time
- ❑ None of the time

Q6b. How much of the time during the <u>past 4 weeks:</u>

Did you have a lot of

energy?

- ❑ All of the time
- ❑ Most of the time
- ❑ A good bit of the time
- ❑ Some of the time
- ❑ A little of the time
- ❑ None of the time

Q6c. How much of the time during the <u>past 4 weeks:</u>

Have you felt downhearted and blue?

- ❑ All of the time
- ❑ Most of the time
- ❑ A good bit of the time
- ❑ Some of the time
- ❑ A little of the time
- ❑ None of the time

Q7. <u>During the past 4 weeks</u>, how much of the time has your **<u>physical health or emotional</u> <u>problems</u>** interfered with your social activities (like visiting with friends, relatives, etc.)?

- ❑ All of the time
- ❑ Most of the time
- ❑ Some of the time
- ❑ A little of the time
- ❑ None of the time

Now, we'd like to ask you some questions about how your health may have changed.

Q8. Compared to one year ago, how would you rate your **physical health** in general now?

- ❑ Much better
- ❑ Slightly better
- ❑ About the same
- ❑ Slightly worse
- ❑ Much worse

Q9. Compared to one year ago, how would you rate your **emotional problems** (such as feeling anxious, depressed or irritable) **now?**

- ❑ Much better
- ❑ Slightly better
- ❑ About the same
- ❑ Slightly worse
- ❑ Much worse

Your answers are important!

Thank you for completing this questionnaire!