A Thesis
entitled
The Relationship between the Wellness Management and Recovery Program and Physical Health
by
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Submitted to the Graduate Faculty as partial fulfillment of the requirements for the Master of Arts Degree in Psychology

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An Abstract of

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Prior research has demonstrated that individuals diagnosed with severe and persistent mental illness (SPMI) experience high rates of preventable co-occurring medical conditions and higher mortality rates than the general population (Fleischhacker et al., 2008; Miller, Paschall, & Svendsen, 2006). The present study utilized archival mental health recovery outcomes and documentation of physical health variables from the psychiatric treatment records of persons who had previously been recruited to participant in the Wellness Management and Recovery (WMR) program in order to evaluate the proportions of preventable physical health conditions and the physical health care utilization in the subset of individuals with SPMI. The study also investigated the relationship between physical health and participants’ ability to complete the WMR program and make gains in mental health recovery. The results of the present study suggested that WMR participants experience high rates of medical comorbidities similar to those found in persons with SPMI in community settings. Furthermore, preliminary health care utilization data suggests that WMR participants engage in suboptimal use of the medical health care system, characterized by a lack of a usual source of care and low
rates of annual physical health exams. Contrary to expectation, WMR participants with physical health conditions were more likely than those without such conditions to successfully complete the program. Within the individuals who completed the WMR program, having physical health conditions was not related to their ability to make mental health gains from pre-WMR to post-WMR.
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Chapter One

Introduction

Prior research has established a large body of evidence that suggests individuals with severe and persistent mental illness (SPMI) experience higher rates of comorbid physical health conditions than persons in the general population (Fleischhacker et al., 2008; Miller, Paschall & Svendsen, 2006). This body of research also indicates that this population is at risk for higher mortality rates associated with their poorer physical health (Miller et al., 2006). Despite being at a higher risk for medical comorbidities and excess mortality rates, research suggests that this population utilizes primary health care in a suboptimal manner due to a combination of patient-related and provider issues (Felker et al., 1996; Goldman, 1999; Lawrence & Kisely, 2010; Millar, 2008).

Outcome research from prior studies of the WMR program, a community-based group therapy program with a holistic approach to wellness, has established the program’s efficacy in significantly improving participants’ mental health recovery and knowledge of curriculum topics and maintaining these improvements following participation in the program (Bullock et al., 2009); however, little is known about the physical health of WMR participants and the ways in which physical health is related to participation in the WMR program. The present study was designed to evaluate gain an accurate picture of the preventable physical health conditions and primary health care utilization experienced by WMR participants. In addition, the current study served to evaluate the relationship between participants’ physical health and their ability to both complete the WMR program and make mental health recovery gains. The WMR current curriculum is based on a holistic approach to wellness and includes topics relevant to
physical health; however, the WMR program, in its current form, does not place great emphasis on improving physical health and decreasing the disparity between the health of persons with SPMI and that of the general population.

Participants in the present study consisted of 192 persons with SPMI diagnoses who had been previously recruited to participate in the WMR program at a large, urban community mental health center. The present study is an adjunct to an ongoing, open clinical trial evaluating recovery outcomes of the WMR program. Archival data consisting of WMR outcome data and physical health data from psychiatric treatment records was obtained for the present study.

The following pages will provide a review of the literature on the comorbidity of preventable physical health problems in persons with SPMI, including prior estimates of the physical health of persons with SPMI and the primary causes of physical health problems in this population. Following the discussion of comorbid physical health problems, the impact of health care utilization and integrated health care initiatives on this population will be reviewed. Next, an overview of the WMR program will be provided and prior research will be discussed. Finally, an overview of the present study’s methods and results will be provided. In addition, the study’s findings will be discussed in relation to prior research, limitations, as well as clinical implications and recommendations for future research in this area.
Chapter Two

Literature Review

Comorbidity of Preventable Physical Health Problems in Persons with SPMI

The prevalence of poor physical health and its clinical implications for individuals with severe and persistent mental illness (SPMI) is an area growing concern, particularly in the United States. The term SPMI is used predominately by researchers to refer to having a Diagnostic and Statistical Manual, 4th Edition, Text Revision Axis I diagnosis of schizophrenia, schizoaffective disorder, bipolar disorder, or major depressive disorder (Fleischhacker et al., 2008; Miller et al., 2006). Within the population of persons diagnosed with SPMI, there is a high rate of comorbidity with physical health conditions, such as obesity, hypertension, diabetes mellitus, hyperlipidemia, and tobacco use (Fleishchhacker et al., 2008). An estimated 54% of individuals with SPMI meet criteria for obesity, the second leading cause of preventable disease, compared to 33.9% of individuals in the general population (Flegal, Carroll, & Ogden, 2010; Kennedy, Salsberry, Nickel, Hunt, & Chipps, 2005).

In a study of the Ohio Department of Mental Health (ODMH) mortality and morbidity data from 1998 to 2003, the mean age of death in individuals with SPMI was found to be 47.7±15.3 years, corresponding to an average 32.0±12.6 years of potential life lost per patient when compared to the general population (Miller et al., 2006). Consistent with the general population, the leading cause of death in the SPMI population was found to be heart disease (Miller et al., 2006). Furthermore, Daumit, Pratt, Crum, Powe, & Ford (2002) found that individuals with SPMI are more likely than individuals without SPMI to report at least three health conditions that increase their likelihood of
heart disease during a visit with their physician. The most frequently reported of these conditions were obesity, diabetes mellitus, and current tobacco smoking. These findings highlight the serious physical healthcare gap evident in the population of persons with SPMI, which suggests the need to target interventions that are effective in improving both mental health recovery and physical health within this population.

**Estimated Physical Health of Persons with SPMI**

Prior literature has indicated that particular physical health conditions occur more frequently among persons with SPMI when compared to the general population (Daumit et al., 2002; Deakin, et al., 2010). Research also indicates that persons with SPMI were more likely to have reported common conditions that negatively impact cardiovascular health (i.e., obesity, smoking, hypertension, and diabetes mellitus) than those in the general population (Daumit et al., 2002; Deakin, et al., 2010). Within the growing body of literature on the prevalence of physical health conditions in persons with SPMI, the prevalence rates vary largely due to the method of measurement (e.g., self-report, medical records, insurance billing records, and standardized objective measurements) and the specific criteria used for each condition.

Kennedy et al., (2005) investigated the prevalence of obesity and hypertension in a sample of individuals with SPMI receiving services from a community mental health center by measuring the height, weight, and blood pressure of all study participants. BMI measurements indicated that 54% of these consumers had a BMI which met criteria for obesity and an additional 19% with a BMI indicating that they were overweight (Kennedy et al., 2005). Obesity is typically defined as having a body mass index (BMI) greater than 30 kg/m² (Centers for Disease Control and Prevention, 2009). Furthermore,
Kennedy et al., (2005) found that 37% of their participants had blood pressure levels indicating hypertension (i.e., systolic blood pressure of 140 mm Hg or greater or a diastolic blood pressure of 90 mm Hg or greater).

Many other studies rely on client self-report, medical chart documentation, or DSM Axis III diagnoses to determine the physical health of persons with SPMI. Using this type of information in a study of persons with SPMI in a combination of inpatient and outpatient settings, De Leon, Susce, Diaz, Rendon, & Velsquez (2005) found that approximately 27% of the study participants had diagnoses of hypertension, 18% had diagnoses of diabetes mellitus, and 13% of individuals with SPMI were found to have a form of hyperlipidemia (i.e., an elevated concentration of any or all of the lipids in plasma most commonly discussed in regard to cholesterol and triglyceride levels in the blood). Daumit et al. (2002) conducted a study of the medical records of persons with SPMI and found lower rates of hypertension with 14.4% of the sample used having documentation of this condition. Additionally, 13.4% of the sample was documented as meeting criteria for obesity. Kennedy et al. (2005) obtained similar prevalence rates of diabetes when investigating self-report and psychiatric records of an outpatient sample of persons with SPMI, suggesting that approximately 14% of the SPMI population have this disorder. Kennedy et al. (2005) also indicated that approximately 22% were diagnosed with chronic respiratory disorders.

In a recent study investigating physical health conditions in persons with SPMI using Ohio Medicaid claims, this population was found to have higher prevalence rates of all measured co-occurring physical health conditions including hypertension (36%), chronic respiratory disorders (28%), diabetes (18%), arthritis (38%), heart disease (21%),
cerebrovascular disorders (7%), obesity (10%), dental disease (8%), and liver disease (3%) when compared to the general population (Best Practices in Schizophrenia Treatment Center, 2011). The prevalence rates for the following co-occurring conditions were also found to be even higher in individuals diagnosed with schizophrenia when compared to the entire population of persons with SPMI: hypertension, chronic respiratory disorders, diabetes, heart disease, cerebrovascular disease, obesity, and liver disease. Furthermore, preventable physical health conditions were found to result in more frequent hospitalizations and emergency room visits in persons with SPMI than was found in the general population (Best Practices in Schizophrenia Treatment Center, 2011).

**Primary Causes of Physical Health Problems in Individuals with SPMI**

Weight gain in persons diagnosed with SPMI has been attributed to many factors, including side effects of antipsychotic medication, symptoms of mental illness, and socioeconomic factors, such as poor diet or lack of physical activity (Melamed et al., 2008). These factors can work as both internal and external (i.e., environmental) factors which lead to difficulty in maintaining personal wellness. Prior literature concerning the prevalence of obesity and weight-related physical health conditions in persons with SPMI has primarily been devoted to the link between antipsychotic medications and weight gain, while it appears that relatively less attention has been given to the association between these conditions and the individuals’ lifestyle or psychiatric symptoms.

The treatment of SPMI, particularly schizophrenia, traditionally involves the prescription of antipsychotic medications and psychosocial treatment (Walker, Kestler, Bollini, & Hochman, 2004). First-generation, or typical, antipsychotic medications were
most frequently used from their introduction in the 1950s until the 1980s. These medications often reduced positive symptoms of schizophrenia (e.g., hallucinations and delusions) by causing a reduction in the brain’s dopamine activity as a result of blocking dopamine receptors, particularly the D2 subtype (Walker et al., 2004). Typical antipsychotic medications are associated with many adverse side effects, particularly drug-induced movement abnormalities. Movement abnormalities can occur when using these medications because the coordination of body movements requires dopamine to communicate between neurons. Early-emerging movement abnormalities include pseudoparkinsonism (i.e., limb stiffness, slowness of movement, face stiffness, and slowness of thinking), dystonic reactions (i.e., sudden intense muscle contraction), and akathesia (i.e., feelings of inner restlessness and unease). The predominant late-emerging side effect is tardive dyskinesia (i.e., involuntary repetitive tic-like movements, especially in the lower face). Drug-induced movement abnormalities typically decrease upon discontinuation of the medication, but can be permanent (Walker et al., 2004).

As a result of these unfavorable effects, scientists searched for new pharmacological treatments with less movement side effects. Second-generation, or atypical, antipsychotic medications were produced in the 1980s. Atypical antipsychotics vary in the specific neurotransmitter receptors that they occupy and are often preferable due to their reduced propensity to cause both early- and late-emerging movement abnormalities. Consequently, many clinicians predominately ceased the prescription of typical antipsychotic medications in favor of atypical antipsychotic drugs (Walker et al., 2004). Despite these improvements, generations of individuals with SMI continue to live
with movement side effects which can limit their movement and consequently restrict their level of physical fitness.

Atypical antipsychotic medications are associated with a separate set of side effects which induce weight gain and metabolic disturbances. The weight gain potential for these atypical antipsychotics has been studied extensively, most notably in the Clinical Antipsychotic Trials of Intervention Effectiveness (CATIE) trial (Beebe, 2008; Rege, 2007). The method by which atypical antipsychotics induce weight gain is a complex process which appears to result in persons consuming more calories than they expect through multiple mechanisms, such as causing a reduced rate of energy expenditure, increasing appetite and cravings for sweets and fatty foods, inducing food intake despite being satiated, and having an adverse effect on metabolism which increases this populations risk for glucose regulation abnormalities, diabetes mellitus, and hyperlipidemia (Beebe, 2008; Compton, Daumit, & Druss, 2006; Rege, 2007). Although the prevalence of schizophrenia in the United States has remained fairly consistent, the prescription of atypical antipsychotic medications has increased. This increase is a result of a shift from predominately on-label use of atypical antipsychotic medications to increased levels of off-label use for other psychiatric conditions, primarily affective disorders (Domino & Swartz, 2008).

Studies have consistently found that individuals with SPMI consume more saturated fat and refined sugar and less fruits, vegetables, and fiber than the general population (Beebe, 2008; Brown, Birtwistle, & Thompson, 1999; Compton et al., 2006; Henderson et al., 2006). This poor diet is likely linked to a complexity of circumstances. Henderson et al. (2006) suggests cognitive deficits may lead this population to choose
easily obtainable foods which are often high in saturated fats and low in fiber. Prepared foods are also generally less expensive and more accessible than healthier fresh foods. Diet may also be further influenced by socioeconomic factors common to these persons with SPMI, such as unemployment, social isolation, and high hospitalization rates (Compton et al., 2006; Henderson et al., 2006). Social disadvantage alone, however, has not been found to explain the unhealthy diet observed in individuals with SPMI (Brown et al., 1999).

Prior research suggests that persons with SPMI are less active than the general population (Beebe, 2008; Brown et al., 1999; Compton et al., 2006; Henderson et al., 2006; Jerome et al., 2009). A lack of access to fitness information, facilities, and equipment, as well as the sedative effects of medications and other comorbid health conditions appear to contribute to reduced activity levels in this population (Beebe, 2008). Jerome et al. (2009) investigated self-reported reasons for inactivity in this population and found that persons with SPMI often attribute the majority of their inactivity to symptoms of their mental illness and negative affective states, such as depression or sadness. Little objective research has been done to determine whether psychological symptoms, such as negative affect or cognitive function, are the primary cause of this lack of physical activity. Research also suggests that individuals with low cognitive functioning or disordered thought are typically less active than the general population (Jerome et al., 2009; Robertson et al., 2000).

**Primary Health Care Utilization in Persons with SPMI**

In a review of the literature concerning excess mortality and comorbid medical conditions in individuals with SPMI, Felker, Yazel, and Short (1996) concluded that the
comorbid medical illnesses are largely undiagnosed and untreated in this population. More specifically, approximately 50% of psychiatric patients were found to have known medical comorbidities, 35% were harboring undiagnosed medical disorders, and 20% had medical conditions that may be causing or exacerbating their psychiatric symptoms (Felker et al., 1996). Prior research suggests that this lack of detection and treatment of co-occurring medical conditions is associated with both patient-related factors and provider issues, including inefficient utilization of the health care industry, difficulty communicating health needs, reduced likelihood to engage in help-seeking behaviors and to comply with medical recommendations, the lack of integration of mental health and physical health services, and time and resource constraints (Felker et al., 1996; Goldman, 1999; Khaykin, 2008; Lawrence & Kisely, 2010). Low socioeconomic status and inadequate insurance coverage commonly associated with this population appear to further exacerbate this issue (Millar, 2008).

Although controversy has emerged regarding the use and value of annual physical health exams in the last decade, there continues to be evidence of the efficacy of particular preventative services typically obtained at physical health exams (Agency for Healthcare Research and Quality, 2006; Merenstein, Daumit, & Powe 2006). For adults ages 25 to 65, the U.S. Department of Health and Human Services Preventative Services Task Force has recommended periodic physical health examinations for delivery of preventative medical services including screening (e.g., blood pressure, height and weight, total blood cholesterol, and Pap tests and mammograms for women), counseling (e.g., substance use, diet and exercise, injury prevention, sexual behavior), and immunizations (e.g., tetanus-diptheria boosters and rubella for women of childbearing
age). Their age-based recommendations for preventative services are guided by the leading causes of morbidity in each group (U.S. Department of Health and Human Services, 1996).

Crews, Batal, Elasy, Casper, & Mehler (1998) conducted a survey of primary health care utilization in persons with SPMI receiving outpatient mental health services. Their results suggest that a significant number of persons with SPMI are not linked to a routine source of primary health care. Sixty-one percent of the study’s participants reported that they use emergency departments or urgent care clinics for medical care when sick, while only 20% reported that they have a primary care physician. Within the 20% who indicated that they have a primary care physician, half identified a family doctor or internist as their primary source of care, while the other half identified their psychiatrist (Crews et al., 1998). Berren Santiago, Zent and Carbone (1999) found that individuals with SPMI were more than twice as likely as adults in the general population to receive their medical treatment through emergency rooms and ambulances, highlighting this population’s inefficient use of the medical health care system. Grumbach, Kean, & Bindman (1993) indicated that individuals who are not affiliated with a usual source of care are more often poor and uninsured. Persons who are unaffiliated with a primary care physician are also more likely to seek emergency care for non-emergency conditions (Grumbach, Kean, & Bindman, 1993). These inefficient uses of the health care industry lead to excess costs accrued by using emergency care, rather than periodic outpatient office visits which often include preventative screening and patient education for non-emergency physical health conditions (Williams, 1996).
Although it is well-documented that persons with SPMI are at an increased risk for many physical health problems, Roberts, Roalfe, Wilson, and Lester (2006) found that this population is no more likely than the general population to receive physical health checks (e.g., blood pressure and cholesterol) that may identify the early-onset of physical health issues. Roberts et al. (2006) suggested that these deficiencies in preventative health care are unlikely to be a result of the burden of having a chronic illness (i.e., mental or physical illness), as these deficiencies were not present in samples of individuals diagnosed with chronic physical illness (e.g., asthma). Goldman (1999) indicated that persons with SPMI are less likely than the general population to voice medical complaints to a medical health care professional. In many cases this population’s only contact with medical services is through their psychiatric treatment team (Millar, 2008). Research suggests that when physical health complaints are expressed to one’s psychiatric treatment team, rather than a medical health care professional, these complaints are often overlooked or not prioritized by psychiatric service providers due to the strain of managing the individual’s chronic mental illness (Kennedy et al., 2005). In cases in which medical complaints are addressed, Druss, Bradford, Rosenheck, Radford & Krumholz (2001) found that persons with SPMI are less likely than the general population to receive adequate health care for their physical health conditions.

**Integrated Health Care Initiatives**

Psychiatrists have not traditionally integrated physical health care into their patients’ appointments, meaning that the provision of physical healthcare falls solely on primary health care providers (Roberts et al., 2006). However, more recently integrated health care has increased in popularity. As such, some mental health care providers have
begun to incorporate regular physical health checks and physical healthcare topics into their appointments to reduce this discrepancy (Druss et al., 2008). On a national level, efforts to reduce the early mortality rates and disparity of medical health care services in persons with SPMI are currently being funded by a federal initiative grant program benefiting agencies integrating mental and physical healthcare services. This federal initiative aims to improve the physical health of individuals with SPMI by providing proper screening, appropriate brief interventions, and/or referrals to more extensive treatment services if necessary (U.S. Department of Health and Human Services, 2010). A growing body of literature evaluating the improvements in physical health outcomes associated with participation in an IHC program, suggests that participation in IHC is associated with fewer emergency room visits, higher rates of screening behaviors, and improvements in physical health conditions (Boardman, 2006; Druss et al., 2001).

The Wellness Management and Recovery Program

The Wellness Management and Recovery (WMR) program is a community-based treatment program with a holistic approach to the concept of wellness. WMR was created by the Wellness Management and Recovery Coordinating Center of Excellence (WMR CCOE), a technical assistance and training center developed and sustained by the Ohio Department of Mental Health (ODMH). The WMR CCOE seeks to accelerate the adoption of evidence-based treatment practices in Ohio’s public mental health system (Bullock et al., 2009). The WMR program is a 10-week manualized psychoeducational program co-facilitated by a mental health care provider and a peer in recovery. WMR staff members promote mental health recovery and better overall health by facilitating the discussion and development of skills that empower individuals with SPMI to: (1) identify
and achieve personal recovery and wellness goals, (2) develop informed, collaborative approaches with mental health providers to effectively select and manage their treatment and recovery, and (3) achieve an overall healthier lifestyle. The curriculum and learning process is inclusive of cultural competence, dual diagnosis, and co-occurring health problems (Bullock et al., 2009). Furthermore, the WMR program’s peer-provider approach highlights the need for collaboration and peer support in the promotion of mental health recovery. Both agency staff members and peer specialists participate in training regarding the WMR curriculum and group facilitation techniques (Bullock et al., 2009).

Individuals participating in the WMR program attend one orientation session and ten weekly group therapy sessions lasting two hours each. Participants are encouraged to continue participating in any ongoing psychiatric, substance use, and support services they are currently receiving through a community agency (Bullock et al., 2009). During the ten weekly sessions, the following ten topics are discussed: (1) Mental Health Recovery, (2) An Understanding of Mental Health, (3) The Role of Medication in Recovery and Wellness, (4) Learning to Manage Symptoms and Side Effects, (5) Effective Communication, (6) Communicating with Your Providers, (7) Wellness, (8) Coordinating Your Care, (9) Building Social Supports and Involving Others, and (10) Planning for Wellness (Bullock et al., 2009).

The holistic, “wellness-centered,” approach unique to the WMR program is intended to improve participants’ awareness of the importance of integrating many facets of wellness into their vision of recovery, including mental and physical wellness. In the WMR curriculum, session topics such as Learning to Manage Symptoms and Side
Effects, Communication with Your Providers, and Coordinating Your Care focus on the importance on maintaining a consistent relationship with one’s mental and physical healthcare providers, as well as your social support, in order to ensure one’s healthcare needs are being met and regular health screenings are performed (Bullock et al., 2009). These particular topics raise participants’ awareness to the importance of monitoring one’s physical health, communicating clearly and effectively with health care providers, and being an active participant in the decision-making process concerning one’s health care. The group dynamics of the WMR program allow participants to discuss and process these topics while also being given the opportunity to practice implementing these ideas first within the comfort of the group before trying them in their everyday life. WMR is also facilitated in a flexible way which allows individuals to contribute personal experiences, problem-solve within the group setting, and create their unique individual goals (Bullock et al., 2009).

Prior WMR research has established the efficacy of the program in significantly improving mental health recovery from pre-treatment to post-treatment and maintaining this improvement six months following participation in the program (Bullock et al., 2009). Prior research also indicates that completion of the WMR program is associated with increased knowledge in areas addressed by the WMR curriculum, use of recovery strategies and coping skills learned in the WMR program, progress toward personal recovery goals (Bullock et al., 2009). The physical health needs of WMR participants and the relationship between participants’ physical health and their ability to complete the WMR program or make mental health gains have not yet been investigated. Although research investigating the efficacy of other community-based recovery-oriented wellness
programs (e.g., Wellness Recovery Action Planning, WRAP) have demonstrated improvements in the rates of obesity, physical health risk factors, and self-reported physical role functioning, bodily pain, and general health, the relationships between the baseline physical health and participants’ ability to complete the program or make mental health gains has not been be established by prior research (Cook et al., 2009).

Statement of the Problem

Given the literature documenting the high rates of co-occurring physical health conditions and inefficient utilization of primary health care in persons with SPMI, it is important to understand these aspects as they apply to WMR program participants. Literature is not yet available for this particular subset of individuals diagnosed with SPMI (i.e., WMR participants); however, access and availability to such information would be used to better target the specific physical health needs of participants in the WMR program. The relationship between physical health and participants’ ability to complete a recovery-focused wellness program in a community setting (e.g., the WMR program) has never been evaluated. If physical health is found to be related to completion of the WMR program, this information could be useful in finding ways to decrease attrition from the WMR program for those persons who find it difficult to attend the program due to physical health problems. Additionally, it would be beneficial to determine whether co-occurring physical health conditions interferes with participants’ ability to make significant gains in mental health recovery following participation in the program.
Purpose of the Present Study and Research Questions

The primary purpose of the present study was to gain an accurate picture of the proportions of preventable physical health conditions and utilization of primary health care in a population of individuals diagnosed with SPMI who participated in the Wellness Management and Recovery (WMR) program. These primary research questions were answered using descriptive statistics: 1) What are the prevalence rates of preventable physical health conditions (i.e., hypertension, heart disease, chronic respiratory disorders, obesity, diabetes mellitus, arthritis, cerebrovascular disorders, lipid disorders, gastrointestinal disorders, seizure disorders, and infectious diseases) in a population of persons with SPMI who participate in the WMR program as documented by their psychiatric treatment team?; 2) What proportion of WMR participants will have at least one documented physical condition and two or more documented physical conditions?; 3) What proportions of WMR participants report having/not having a primary care physician upon intake?; 4) What is the average length of time since WMR participants’ last physical health assessment when beginning the WMR program?; 5) What proportion of WMR participants are assigned to each of the Synthesis, Inc. cluster-based planning categories? These percentages will be compared with the proportions provided by Synthesis, Inc. for persons with SPMI.

Secondly, the current study served to evaluate the relationship between the physical health conditions this population experiences and participants’ ability to complete the WMR program and to make mental health recovery gains. The following were the questions of interest and associated hypotheses: 1) What is the relationship between the physical health conditions WMR participants experience and their ability to
complete the WMR program? It was hypothesized that the number of physical health conditions WMR participants have will be negatively correlated with completion of the WMR program (i.e., completing post-WMR measures), 2) What is the relationship between the physical health conditions WMR participants experience and their ability to make mental health gains as assessed by the Mental Health Recovery Measure? It was hypothesized that the number of physical health conditions WMR participants have will be negatively correlated with mental health gains (i.e., gains from pre- to post-WMR on the Mental Health Recovery Measure).

In summary, prior literature relevant to present study indicates that persons with SPMI in community settings typically experience a higher rate of medical comorbidities than the general population resulting in a physical health disparity in this population. This disparity is impacted by a number of patient-related and provider issues. In response to this disparity, many initiatives have been developed with holistic approaches to wellness, including integrated health care and the WMR program. The current study was developed in order to address a gap in our knowledge of the application of prior research findings to persons with SPMI who participate in the WMR program and ways in which physical health impacts their participation.
Chapter Three

Method

Participants

The current study is an adjunct to an ongoing, open clinical trial evaluating recovery outcomes of the WMR program. The participants were mental health consumers (N = 192) who had been previously recruited to participate in the WMR program. Currently, there are 22 mental health and consumer-operated agencies implementing the WMR program across the state of Ohio. For the current study, archival WMR outcome data was used in combination with archival physical health and demographic information for WMR participants at the Southeast, Inc. site. The primary referral sources for the WMR program were staff members, case managers, therapists, and psychiatrists working at Southeast, Inc. Participants were at least 18 years of age and legally competent and able to sign consent for themselves. (See Appendix A for Informed Consent form.)

Southeast, Inc. is a large community mental health center located in an urban setting in Columbus, Ohio. Approximately half of participants (51%) were female and half were male (49%). The majority of participants identified their ethnicity as “White” (62.5%), followed by participants identifying themselves as “Black/African American” (34.9%). Few participants self-identified as “Asian” (1.0%) or “American Indian” (0.5%). The majority of participants reported being single (60.4%), followed by participants who are divorced (27.1%), married (10.4%), and widowed (1%). The mean age of participants was 43 (SD = 10.65; Range: 19 to 84). With regard to their highest level of education, 29.3% of participants completed fewer than 12 years of education, 40.3% completed 12 years of education, 16.2% completed 13-14 years of education, and
14.1% completed between 15 and 18 years of education. The average education level for this participant sample was 12.2 years (SD = 2.32). The average level of income for this participant sample was $608 per month (SD = 434.34; Range: 0 to $2,174), or $7,296 per year. With regard to their current living situation, the largest proportion of participants (41.1%) reported that they lived in their own home, followed by individuals residing in supervised group living (20.3%), individuals residing in a relative’s home (13.5%), and individuals who reported being homeless (10.9%).

The majority of participants in the present study were identified as having primary mental health diagnoses of mood disorders (51.0%), schizophrenia and other psychotic-spectrum disorders (41.1%), and substance-related disorders (3.1%). The majority of participants did not have a secondary mental health diagnosis (69.3%), followed by secondary diagnoses of personality disorders (26.6%), and diagnoses usually first diagnosed in infancy, childhood, or adolescence (3.6%). Table 1 and Table 2 provide a detailed listing of the frequencies of participants’ primary (N = 189) and secondary (N = 151) mental health diagnoses. Global Assessment of Functioning (GAF) scores were available for the majority of the WMR participants (N = 132). The GAF scores were current at the time data was obtained from their psychiatric treatment records. Participants had GAF scores ranging from 20 to 75 out of a possible 100. The majority of participants had a GAF of 50 or below (64.4%) and the vast majority had a GAF of 60 or below (90.2%). It should be noted that the length of time between the documentation of the participants’ GAF scores and WMR participation is unknown.
Table 1

*WMR Participant Primary Mental Health Diagnoses (N =189)*

<table>
<thead>
<tr>
<th>DSM-IV-TR Category</th>
<th>DSM-IV-TR Diagnosis</th>
<th>Number of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mood Disorders</td>
<td>Major Depressive Disorder, Recurrent</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>Major Depressive Disorder, Single Episode</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Depressive Disorder NOS</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Bipolar I Disorder</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Bipolar II Disorder</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Bipolar Disorder NOS</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Mood Disorder NOS</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Mood Disorder Due to a General Medical Condition</td>
<td>1</td>
</tr>
<tr>
<td>Schizophrenia and Other Psychotic Disorders</td>
<td>Schizophrenia, Paranoid Type</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>Schizophrenia, Disorganized Type</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Schizophrenia, Catatonic Type</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Schizophrenia, Undifferentiated Type</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Schizophreniform Disorder</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>Delusional Disorder</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Psychotic Disorder NOS</td>
<td>2</td>
</tr>
<tr>
<td>Substance-related Disorders</td>
<td>Polysubstance Dependence</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Alcohol Dependence</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Cocaine Dependence</td>
<td>1</td>
</tr>
<tr>
<td>Anxiety Disorders</td>
<td>Posttraumatic Stress Disorder</td>
<td>3</td>
</tr>
<tr>
<td>Impulse-control Disorders</td>
<td>Intermittent Explosive Disorder</td>
<td>1</td>
</tr>
<tr>
<td>Not Elsewhere Classified</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disorders Usually First Diagnosed in Infancy, Childhood, or Adolescence</td>
<td>Attention Deficit/ Hyperactivity Disorder</td>
<td>1</td>
</tr>
</tbody>
</table>
Table 2

WMR Participant Secondary Mental Health Diagnoses (N = 151)

<table>
<thead>
<tr>
<th>DSM-IV-TR Category</th>
<th>DSM-IV-TR Diagnosis</th>
<th>Number of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personality Disorders</td>
<td>Borderline Personality Disorder</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>Antisocial Personality Disorder</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Schizotypal Personality Disorder</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Schizoid Personality Disorder</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Personality Disorder NOS</td>
<td>16</td>
</tr>
<tr>
<td>Disorders Usually First Diagnosed in Infancy, Childhood, or Adolescence</td>
<td>Mild Mental Retardation</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Mental Retardation, Severity</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Unspecified</td>
<td></td>
</tr>
<tr>
<td>Impulse Control Disorders</td>
<td>Intermittent Explosive Disorder</td>
<td>1</td>
</tr>
<tr>
<td>Additional Codes</td>
<td>Diagnosis or Condition Deferred</td>
<td>92</td>
</tr>
</tbody>
</table>

The majority of participants were identified as Medicaid recipients (54.7%) or Medicaid and Medicare recipients (12.5%). The remaining participants were identified as self-subsidized (25.0%) or private insurance (1.0%). Of the 192 individuals who attended the initial WMR orientation session and completed the pre-WMR outcome questionnaires, 42.2% of participants completed outcome data at the completion of the WMR program. This suggests that 57.8% either dropped out before the completion of the WMR program or completed the WMR program but did not complete the post-WMR outcome data.

Measures

**Mental Health Recovery Measure.** The Mental Health Recovery Measure (MHRM) is a 30-item, self-report measure of mental health recovery developed by Young and Bullock (2003) (See Appendix B). The MHRM is based on a specific model
that assesses actual behaviors, rather than intent or attitude, used in an individual’s recovery process (Young & Ensing, 1999). The MHRM was developed qualitatively based on a specific model of mental health recovery using a grounded theory of analysis to analyze data obtained from focus groups and individual interviews with persons with SPMI. The measure is comprised of eight recovery domains: 1) Overcoming Stuckness, 2) Self-Empowerment, 3) Learning and Self-Redefinition, 4) Basic Functioning, 5) Overall Well-Being, 6) Spirituality, 7) New Potentials, and 8) Advocacy/Quality of Life. The measure’s 30 items are based on a 5-point Likert scale, ranging from Strongly Disagree to Strongly Agree, and the potential Total score ranges from 1-120. Normative data is available for persons with SPMI utilizing community mental health resources and supports (MHRM Total score: $M = 80$, $SD = 20$). Psychometric data for the MHRM suggests strong internal consistency for the measure (Cronbach’s alpha = 0.91), good construct validity, and good convergent validity with another measure of recovery (i.e., the Making Decisions Empowerment scale), $r = .70$. (Bullock et al., 2009; Bullock & Young, 2003; O’Rourke, 2007; Rogers, Chamberlin, Ellison, & Crean, 1997).

**Psychiatric Treatment Team Documentation**

Archival demographic and physical health data was obtained from the electronic records of the 192 Southeast, Inc. clients who participated in the WMR program. This archival data included information regarding each WMR participant’s (1) Axis III diagnoses and relevant physical health information from available medical records, as well as participant self-report of physical conditions and complaints, (2) primary and secondary Axis I and Axis II disorders, (3) self-report of having a primary health care provider at the time of intake at Southeast, (4) date of last physical health assessment, (5)
source of medical insurance, (6) cluster-based planning assignment, (7) current GAF, and (8) additional demographic information, such as occupation, monthly income, educational level, marital status, and living situation.

It should be noted that, although the physical health conditions provided for Southeast, Inc. WMR participants were labeled as Axis III diagnoses, these conditions were not limited to physical injuries or medical conditions relevant to diagnosing or treating a mental health disorder. Southeast, Inc. staff typically include any physical health conditions documented in the participant’s medical record or self-reported by the participant when documenting Axis III diagnoses. Eleven medical conditions were selected for use in the present study. Initial medical conditions were selected for the present study based on the demonstration of high rates of comorbidity in persons with SPMI in prior literature and preventability (e.g., hypertension, chronic respiratory disorders, diabetes, and obesity). Additional medical conditions were later added based on their high rates of comorbidity in the present sample (e.g., infectious diseases, gastrointestinal disorders, and seizure disorders).

**WMR Procedure**

The WMR program consists of 10 to 12 group sessions lasting approximately two hours each, with a ten-minute break in the middle. Depending on the composition of the group members and each group’s individual needs, the length of the sessions are flexible, as long as participants spend a minimum of 20 hours in the program. Groups typically include eight to ten mental health consumers. Each WMR group follows the same general format, curriculum, and procedures for the facilitation of the WMR sessions (Appendix B). Participants are asked to complete the Mental Health Recovery Measure, as well as
other outcome measures, at pre-program and after they have completed the final session.

The WMR research design involves an open clinical trial and does not include randomization to comparison treatment groups or a wait-list control group.

In summary, the present study’s design utilized archival data regarding the mental health recovery and physical health of 192 mental health consumers who had previously engaged in WMR program participation at an urban community mental health center. These participants largely identified as “White” and “Black/African American,” single or divorced, low income persons with primary mental health diagnoses of mood disorders or schizophrenia and other psychotic spectrum disorders.
Chapter Four

Results

Descriptive Statistics for Physical Health Conditions and Health Care Utilization

The proportions of preventable physical health conditions and utilization of primary health care in WMR program participants was analyzed using descriptive statistics. Frequencies of each physical health condition category were tallied. The results indicated that the physical health condition with the highest prevalence among WMR participants was hypertension (22.4%), followed by chronic respiratory disorders (19.3%), obesity (17.7%), gastrointestinal disorders (16.7%), arthritis (15.6%), diabetes (14.1%), lipid disorders (13.0%), infectious disease (11.5%), seizure disorders (7.8%), heart disease (6.3%), and cerebrovascular disorders (0.5%). Table 3 provides the proportions of physical health conditions found in WMR participants in the present study. No significant gender differences were identified with regard to the prevalence of each physical health condition.

The majority of WMR participants (72.4%) were documented as having at least one of the aforementioned physical health conditions, while 44.3% were documented as having two or more of these physical health conditions. When asked upon intake at Southeast, Inc., 61.5% of participants reported that they did not have a primary health care provider.
Table 3

**WMR Participant Proportions of Physical Health Conditions (N = 192)**

<table>
<thead>
<tr>
<th>Physical Health Condition</th>
<th>Percentage of WMR Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypertension</td>
<td>22.4%</td>
</tr>
<tr>
<td>Chronic Respiratory Disorders</td>
<td>19.3%</td>
</tr>
<tr>
<td>Obesity</td>
<td>17.7%</td>
</tr>
<tr>
<td>Gastrointestinal Disorders</td>
<td>16.7%</td>
</tr>
<tr>
<td>Arthritis</td>
<td>15.6%</td>
</tr>
<tr>
<td>Diabetes</td>
<td>14.1%</td>
</tr>
<tr>
<td>Lipid Disorders</td>
<td>13.0%</td>
</tr>
<tr>
<td>Infectious Diseases</td>
<td>11.5%</td>
</tr>
<tr>
<td>Seizure Disorders</td>
<td>7.8%</td>
</tr>
<tr>
<td>Heart Disease</td>
<td>6.3%</td>
</tr>
<tr>
<td>Cerebrovascular Disease</td>
<td>0.5%</td>
</tr>
</tbody>
</table>

Information available for a portion of the sample (N=56) suggests that WMR participants obtain annual physical health assessments in a suboptimal manner, as the mean length of time since the last physical health assessment was found to be 1.82 years (SD = 1.66) with a median length of time of 1.54 years prior to participation in the WMR program (Range = .03 to 6.36 years). The average length of time since the last physical health assessment was found to be slightly longer for females (Mean = 1.95 years; SD = 1.92) than males (Mean = 1.68 years; SD = 1.36) in the present sample.

Twenty-four percent of the participants for which this information was available (N=23) were documented as having a physical health assessment within one year prior to their participation in the WMR program. Additionally, 9.38% of participants (N=9) were documented as having a physical health assessment between one and two years prior to their participation in the WMR program while 25% of participants (N=24) were documented as having a physical health assessment more than two years prior to their participation in the WMR program. It should be noted that for a portion of the sample, this information was either not available (N=96) or not used in these analyses because the
participant obtained a physical health assessment following their participation in the initial orientation session for the WMR program (N=40; 42%).

**Observed and Expected WMR Participant Cluster-based Planning Assignments**

Cluster-based planning assignments were developed by Synthesis, Inc. on the basis that persons with mental illness fall into natural subgroups, regardless of their DSM-IV-TR diagnoses, based on common histories, experiences, symptoms, strengths, problems, life situations, and response to psychiatric services (Rubin & Panzano, 2002). Cluster-based planning recognizes that the differences that exist between individuals with similar DSM-IV-TR diagnoses can be highlighted within the context of their bio-psychosocial experience. Cluster-based planning assignments can therefore assist treatment providers in evaluation, treatment planning, and decision-making (Rubin & Panzano, 2002; Rubin et al., 2005). Research evaluating the cluster-based planning suggests that members of different clusters typically utilize different types and intensities of psychiatric services (Rubin et al., 2005). As a result, cluster-based planning assignments provide unique information regarding a person’s bio-psychosocial experience that cannot be gained by knowing their DSM-IV-TR diagnosis alone.

The proportions of each Synthesis, Inc. cluster-based planning assignment were identified for the present sample using descriptive statistics. The largest proportions of WMR participants were assigned to Cluster 2A, *Adults with Serious Substance Abuse, Mental Health, and Community Living Problems*, (34.4%), Cluster 3A, *Adults Who are Severely Disabled in Many Life Areas*, (22.4%), and Cluster 2B, *Adults with Severe Substance Abuse Problems and Less Severe Mental Health Problems*, (17.2%). The remainder of participants fell in one of the remaining Clusters categories (See Table 4).
Synthesis, Inc. has provided predicted proportions of persons with SPMI in community settings that typically fall into each of the cluster-based planning categories (Synthesis, Inc., 2004). The present WMR participant sample (i.e., observed frequencies) was compared to these predicted proportions (i.e., expected frequencies) using a chi-square goodness of fit test. For cluster-based planning categories in which a range of percentages was used by Synthesis, Inc., the median of the range was used for the purpose of the chi-square goodness of fit analysis. The chi-square goodness of fit test indicated that WMR participants’ cluster-based planning assignments were significantly different than the theoretical proportions predicted by Synthesis, Inc. for persons with SPMI in community settings, $\chi^2 (7, N = 192) = 83.453, p < .000$.

Relative to Synthesis, Inc.’s predicted proportions for persons with SPMI, WMR participants were relatively more likely to be assigned to Cluster 2A (Adults with Serious Substance Abuse, Mental Health, and Community Living Problems) and Cluster 2B (Adults with Severe Substance Abuse Problems and Less Severe Mental Health Problems), while appearing less likely to be assigned to Cluster 1 (Adults with Chronic Physical Health Conditions and Psychiatric Disabilities), Cluster 4A (Adults Who Struggle with Anxiety and Depression, and Who Avoid Growth Opportunities), Cluster 4B (Adults Who Struggle with Anxiety and Tend to Focus on Their Physical Health Conditions), and Cluster 5 (Adults Who Have Functioned Well in Their Communities). WMR participants appeared to have similar proportions to those predicted by Synthesis, Inc. for the following clusters: 3A (Adults Who are Severely Disabled in Many Life Areas) and 3B (Younger Adults Who are Severely Disabled but are Not Convinced of the Usefulness of Treatment). Table 4 provides a comparison of WMR
participant cluster assignments and Synthesis, Inc. predicted prevalence rates for persons with SPMI (Synthesis, Inc., 2004).

### Table 4

_WMR Participant Cluster Assignments and Predicted Proportions (N=192)_

<table>
<thead>
<tr>
<th>Cluster</th>
<th>WMR participants</th>
<th>Persons with SPMI (Synthesis, Inc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2.6%</td>
<td>10%</td>
</tr>
<tr>
<td>2A</td>
<td>34.4%</td>
<td>15-20%</td>
</tr>
<tr>
<td>2B</td>
<td>17.2%</td>
<td>10%</td>
</tr>
<tr>
<td>3A</td>
<td>22.4%</td>
<td>20%</td>
</tr>
<tr>
<td>3B</td>
<td>7.3%</td>
<td>5-8%</td>
</tr>
<tr>
<td>4A</td>
<td>6.8%</td>
<td>15-20%</td>
</tr>
<tr>
<td>4B</td>
<td>1.6%</td>
<td>5-8%</td>
</tr>
<tr>
<td>5</td>
<td>3.1%</td>
<td>10%</td>
</tr>
</tbody>
</table>

### Correlations between the Physical Health and WMR Program Completion

The relationship between the participants’ physical health conditions and their ability to complete the WMR program (i.e., completing post-WMR measures) was analyzed using correlational analyses. It was hypothesized that the number of physical health conditions WMR participants have would be negatively correlated with completion of the WMR program. The Kolmogorov-Smirnov test of normality and graphical depictions (i.e., histogram, Q-Q plot, and boxplot) indicate that the distribution of total number of physical health conditions was significantly non-normal, $D(192)=.192$, $p<.001$; therefore, Spearman’s rho was used to assess the relationship between participants’ total number of physical health conditions and completion of the WMR program. The results of the correlation indicated that the total number of physical health conditions participants experienced was significantly related to participants’ ability to complete the WMR program, $r_s = .15$, $p<.05$, such that as the total number of physical health conditions increases, the ability to complete the WMR program decreases.
health conditions increased, WMR participants’ likelihood of completing the WMR program also increased. In addition, a chi-square analysis was conducted in order to determine whether having at least one physical health condition was significantly related to participants’ ability to complete the WMR program. The results of the chi-square analysis indicated that having at least one physical health condition was significantly related to WMR participants’ ability to complete the WMR program, \( \chi^2 (1, N = 192) = 5.79, p < .05 \), such that WMR participants who had at least one physical health condition were significantly more likely to complete the WMR program (N=66) than participants who were not documented as having any physical health conditions (N=15).

**Correlations between the Physical Health and MHRM Gains**

The relationship between WMR participants’ total number of physical health conditions and their ability to make mental health gains (i.e., gains from pre-WMR to post-WMR on the Mental Health Recovery Measure) was analyzed using correlational analyses. It was hypothesized that the number of physical health conditions WMR participants have would be negatively correlated with mental health gains (i.e., gains from pre- to post-WMR on the Mental Health Recovery Measure). Results of Spearman’s rho indicated that the total number of physical health conditions participants experience was not significantly related to WMR participants’ mental health gains as measured by the MHRM, \( r_s = .037, p = .745 \). Similarly, the presence of at least one physical health condition was not significantly related to WMR participants’ mental health gains as measured by the Mental Health Recovery Measure, \( r_{pb} = -.034, p = .767 \).
Correlations between Non-Physical Health Variables and WMR Completion

The relationship between other non-physical health variables of interest and completion of the WMR program was examined in order to provide additional information about WMR participants who did not complete the program (i.e., did not complete post-WMR outcomes). The following variables were correlated with WMR completion: age, income, and number of dependents. No significant relationships were found between WMR completion and any of the aforementioned variables. Chi-square analyses were conducted to determine whether there was a significant relationship between WMR completion and the following variables: gender, race, marital status, living situation, cluster-based planning assignment, and primary mental health diagnosis upon intake at Southeast, Inc. No significant relationships were found between WMR completion and any of the aforementioned variables.

In general, the results of the present study indicate that the majority (72.4%) of WMR participants were documented as experiencing medical comorbidities, the most common including hypertension, chronic respiratory disorders, and obesity. On average, WMR participants obtain physical health assessments every 1.82 years with 25% receiving their last assessment more than two years prior to WMR participation. The cluster-based planning assignments of WMR participants were found to be significantly different from the predicted assignments for persons with SPMI in community settings. In addition, correlational analyses indicated that there was a positive correlation between the number of physical health conditions a participant experienced and WMR program completion and no significant relationship between the presence of physical health conditions and mental health gains from pre- to post-WMR.
Chapter Five

Discussion

Physical Health Conditions and Health Care Utilization

Prior literature on the physical health of persons with serious and persistent mental illness (SPMI) indicates that individuals within this population experience a well-documented high rate of comorbidity with physical health conditions, such as obesity, hypertension, diabetes, and lipid disorders (Fleishchhacker et al., 2008). These medical comorbidities have contributed to a mean age of death for persons with SPMI well below that of the general population (Miller et al., 2006). Prior to the current study, research was not available regarding the relationship between medical comorbidities and the participation of persons with SPMI in recovery-focused wellness programs in community settings. The purpose of the present study was to examine the proportions of preventable physical health conditions and utilization of primary health care in a population of persons with SPMI who participated in the WMR program in order to determine the relative health care needs of this population. Additionally, the study served to examine the relationship between WMR participants’ medical comorbidities and their ability to complete the WMR program and to make mental health recovery gains, as measured by the MHRM.

The results of the prevalence rates of physical health conditions in WMR participants were fairly consistent with literature describing high rates of medical comorbidities in persons with SPMI (Daumit et al., 2002; Kennedy et al., 2005; Osborn et al., 2006). The current study found that nearly three-fourths of WMR participants (72.4%) were documented as having at least one physical health condition and
approximately half of the participants (44.3%) were documented as having two or more physical health condition. A wide variety of potentially preventable health conditions were present, with the top three being hypertension, chronic respiratory disorders, and obesity. It is important to note that the prevalence rates of physical health conditions for individuals in the current study, while high, may still under-represent the actual presence of physical health conditions in these individuals. Prior research suggests that physical health conditions documented as Axis III diagnoses, as was the case in the present study, under-represents the actual presence of physical health conditions (D’Ercole, Skodol, Struening, Curtis, & Millman, 1991). As a result, it is likely that the actual prevalence rates of medical comorbidities in WMR participants are even higher than those found in the present study. Given that the majority of WMR participants have problems with their physical health and almost half of the participants have complex physical health problems that consist of more than one preventable health condition, this population displays a need for services that are focused on improving physical health and health-enhancing behaviors.

With integrated care clinics not yet being widely available to persons with SPMI, the majority of this population continues to access their primary health care needs through less efficient means, such as emergency rooms and urgent care clinics, rather than routine primary care appointments (Grumbach, Kean, & Bindman, 1993). The data from the present study is consistent with this literature in that only 38.5% of participants reported that they were affiliated with any primary care provider upon intake at Southeast, Inc. This suggests that WMR participants access primary health care in a suboptimal manner. Furthermore, WMR participants appear to be less likely than adults
in the general population to report having a usual source of care (e.g., affiliation with a primary care physician), as prior research suggests that approximately 79% of adults in the general population report having a usual source of care (DeVoe, Fryer, Phillips, & Green, 2003). Prior studies suggest that individuals who do not have a usual source of care are more likely to seek health care through emergency care providers (Grumbach, Keane, & Bindman, 1993). Although information regarding WMR participants’ use of emergency care was not directly measured, it is likely that WMR participants utilize emergency care at a higher rate than adults in the general population. Inefficient use of the health care industry, such as utilization of emergency care for non-emergent health conditions leads to excess costs when compared to routine primary care visits that include preventative screening and patient education (Williams, 1996). Overall, it appears that WMR participants would benefit from services which promote routine preventative health care with a usual source of care.

Although information regarding WMR participants’ most recent physical health assessment was limited, the length of time since last physical health assessment was available for 50% of this sample of WMR participants. With regard to this portion of WMR participants, the average amount of time since the last physical health assessment was approximately two years prior to beginning the WMR program, with a range between zero and 6 years since last assessment. Twenty-four percent of WMR participants had received a physical health assessment within one year prior to their participation in the WMR program, while 9.38% of participants were found to have one between one to two years prior to participation and 25% of the participants were found to have one more than two years prior to their participation in WMR. Although these results
should be interpreted with caution due to the limited data available, WMR participants appear to be less likely to access an annual physical health assessment than adults in the general population (47%) (DeVoe et al., 2003). Furthermore, prior research suggests that WMR participants obtain annual physical health assessments at a similar rate to the subgroup of adults in the general population who have no affiliation with a primary care physician and no insurance (23%) (DeVoe et al., 2003). Those adults in the general population who do not have insurance but are affiliated with a usual source of care were found to obtain annual physical health care assessments at a higher rate (38%) than adults who do not have insurance and are not affiliated with a usual source of care (23%) (DeVoe et al., 2003). Thus, services that improve or facilitate access to a usual source of care may increase the utilization of annual physical health exams in WMR participants as a source of preventative healthcare and education.

**Cluster-Based Planning Assignments**

The documented cluster-based planning assignments for WMR participants were compared to the predicted cluster proportions for persons with SPMI in order to determine whether these participants fall into the same natural subgroups with similar bio-psychosocial experiences as the general population of persons with similar DSM-IV-TR diagnoses. Differences were found between the predicted proportions and the proportions found for WMR participants in each cluster, suggesting that there are unique aspects of this group’s experiences, histories, symptoms, strengths, problems, life situations, and response to psychiatric services. Specifically, WMR participants were relatively more likely to be assigned to Cluster 2A or Cluster 2B which suggests that they are more likely than persons with SPMI in other community mental health settings to
have comorbid substance abuse problems coupled with a range of other mental health symptoms.

WMR participants were relatively less likely to be assigned to Cluster 1, Cluster 4A, Cluster 4B, and Cluster 5. Based on Synthesis, Inc.’s descriptions of these clusters, this finding suggests that WMR participants are less likely than the persons with SPMI in other community settings to: 1) have serious, chronic, medical comorbidities that greatly interfere with their functioning and ability to care for themselves, 2) experience anxiety and/or depression but continue to function reasonably well in the community despite typically avoiding working through their mental health problems, 3) experience anxiety and/or depression coupled with medical conditions that are more of a focus than their mental health problems, or 4) have already been on a meaningful path of recovery and appropriately utilized psychiatric services in the past. In general, it appears that lower proportions of individuals who function reasonably well despite their mental health symptoms or who have other areas of illness as their primary focus (e.g., co-occurring medical conditions) participate in the WMR program than exist in the general population of persons with SPMI.

**Relationship between Physical Health and WMR Program Completion**

The present study also examined the relationship between WMR participants’ physical health conditions and their ability to complete the WMR program (i.e., completing post-WMR measures). The total number of physical health conditions WMR participants experience was found to be related to whether or not they completed the WMR program (i.e., completed post-WMR outcomes). However, the relationship was opposite to that which was predicted, in that participants with more physical health
conditions were actually more likely to complete the WMR program. Furthermore, having at least one documented physical health condition was related to participants’ ability to complete the WMR program, in that individuals who had at least one physical health condition were significantly more likely to complete the WMR program than individuals with no documented physical health conditions. Thus, not only were individuals with more medical comorbidities able to complete the WMR program despite these conditions, it appears that they were more likely to complete the program than participants who were not documented as having physical health conditions. In one sense, these unexpected results are heartening, as they suggest that individuals who would benefit from the holistic approach of the WMR program due to their medical comorbidities are not less likely to complete the program than participants with fewer or no medical comorbidities.

Although the present study was unable to empirically explain the positive correlation between the total number of physical health conditions and WMR program completion, a number of hypotheses can be made to be investigated in future research. One potential explanation is that persons with more co-occurring medical conditions are more invested in moving toward mental health recovery. Such individuals may be more likely to complete WMR if they view the program as a holistic approach to wellness that may be particularly relevant for their circumstances (i.e., experiencing mental health problems and co-occurring medical conditions). As previously mentioned, the WMR program aims to promote mental health recovery and better overall health through the development of personal recovery and wellness goals, informed and collaborative approaches with mental health providers, and an overall healthier lifestyle. When
individuals begin the WMR program, it is possible that those who have medical comorbidities relate to the need for a holistic approach to their personal wellness and path to recovery and subsequently are more likely to invest their time in completing the program than those without medical conditions. Another hypothesis could be that those individuals experiencing both mental health and physical health problems have a greater need or desire for the social support that a group setting provides.

Due to the present study being the first of its nature, it is possible that the significant relationship between medical comorbidities and completion of the WMR is a product of the uniqueness of the present sample. The present sample was obtained from a large community mental health center in an urban setting. The majority of participants were single or divorced and identified as “White” or “Black/African American.” The majority of the sample had completed at or below 12 years of education and are low income. With respect to their primary mental health diagnoses, the majority of participants had diagnoses of mood disorders or schizophrenia and other psychotic-spectrum disorders and the majority of participants did not have a secondary mental health diagnosis. In addition, it is important to note that the data used in the study was obtained from one WMR implementation site, Southeast, Inc., which also houses the WMR CCOE. Although the implication of this site’s proximity and access to the WMR CCOE is unknown, it is possible that participants in the WMR at this site receive a unique experience in some way. Replication of the present study at additional WMR implementation sites with diverse samples of participants in both rural and urban locations is needed to be able to generalize the present results to all WMR participants.
**Relationship between Physical Health and Mental Health Gains**

Within the population of participants who completed the WMR program, the relationship between their medical comorbidities and participants’ ability to make mental health gains (i.e., gains from pre-WMR to post-WMR on the MHRM) was examined. No significant relationship was found between the total number of physical health conditions participants experienced and their ability to make mental health gains on the MHRM. Furthermore, no significant relationship was found between the presence of at least one physical health condition and WMR participants’ ability to make mental health gains on the MHRM. These results suggest that, for WMR participants who complete the program, having medical comorbidities does not deter them from making gains and benefiting from the promotion of mental health recovery in the group. It appears that although the majority of WMR participants are likely to have at least one medical comorbidity, and almost half have more than one, these medical issues and their associated limitations do not appear to prevent individuals from embarking on a road to mental health recovery similar to those who do no experience these medical issues.

**Summary**

In general, the results of the present study suggest that WMR participants are likely to have high rates of medical comorbidities similar to those found in persons with SPMI in community settings. Furthermore, WMR participants appear to engage in suboptimal use of the medical health care system, characterized by a lack of a usual source of care and low rates of annual physical health exams. Contrary to expectation, the present study found that individuals with physical health conditions successfully completed the WMR program in higher proportions than individuals without physical
health conditions. Additionally, for those who completed the WMR program, having physical health conditions did not appear to deter their ability to make mental health recovery gains from pre-WMR to post-WMR.

**Limitations**

The present study’s participants were recruited to participate in the WMR program at a large, urban community mental health center in Columbus, OH. This agency, Southeast, Inc., is the home of the statewide WMR Coordinating Center of Excellence (WMR CCOE) that created and continues to evaluate the impact of the WMR program. As a result, it is unclear whether the result of the present study would generalize to other samples of WMR participants located in rural settings or attending the WMR program through agencies that are not as close in proximity to the WMR CCOE.

One limitation of the current study involved the method by which the data was collected. The MHRM was completed by WMR participants, collected by mental health care providers and peer facilitators at a traditional mental health center in Columbus, Ohio, and returned to the University of Toledo research team. Attendance records for each group participant were not readily available, meaning participants could have attended fewer than 8 sessions, the preferred minimum number of sessions in order to obtain the maximum benefit from the WMR program and to demonstrate these changes in the mental health outcomes. Furthermore, ongoing research trials associated with the WMR program do not utilize random assignment to groups or comparison to other active treatment programs (Bullock et al., 2009).

Participants in the present study continued their regular psychiatric services in addition to their participation in the study. Although this is a representation of real-world
applications of the WMR program, as the WMR program is often used in conjunction with other psychiatric services, it is not possible to definitively separate the effects of the WMR program from other services which may be in progress or changing during the time period of the proposed study.

Using correlational analyses is also associated with particular limitations. Although correlations can suggest the presence of a significant relationship between two variables, causal conclusions that one variable causes change in another variable are not possible. For example, in the present study, the total number of physical health conditions was significantly related to completion of the WMR program; however, no causation can be assumed between the two variables. In addition, we cannot rule out alternative explanations or additional variables which may influence the two variables of interest in the correlation.

There are also limitations to the generalizability of some important variables in the present study. For example, the dates of last physical health assessment were only available for half of the present sample. It is difficult to infer the length of time since last physical health assessment for the portion of participants for which this data was not present. As a result, the present study could only report the status of this information of one half of the sample while the status of the other half may vary drastically from these findings.

**Implications and Future Directions**

Regardless of its limitations, the current research has implications for future research and the use of the WMR program and similar recovery-focused programs in outpatient settings. The rates of medical comorbidities of WMR participants suggest that
these individuals experience high rates of medical problems and utilize the medical health care system in suboptimal ways. Thus, due to their high risk of medical comorbidities, WMR participants would benefit from increased assessment and physical health monitoring of physical health indicators (e.g., blood pressure, glucose levels and lipid panels); however, this type of consistent monitoring is often overlooked in persons with SPMI (Beebe, 2008; Compton et al., 2006; Roberts et al., 2007). Although information regarding the frequency of WMR participants’ physical health assessments was limited, it appears that they would benefit from services that encouraged or provided more frequent physical health monitoring.

In the current WMR curriculum, session topics such as Learning to Manage Symptoms and Side Effects, Communication with Your Providers, and Coordinating Your Care focus on the importance on maintaining a consistent relationship with one’s mental and physical healthcare providers in order to ensure one’s healthcare needs are being met (Bullock et al., 2009). These topics are used to increase participants’ awareness of the importance of monitoring one’s symptoms and side effects, communicating clearly and effectively with care providers, and the importance of being an active participant in the decision-making process concerning one’s care. The group dynamics of the WMR program allow participants to learn about and discuss these topics while also being given the opportunity to practice implementing these ideas first within the comfort of the group before trying them in their everyday life. WMR is also facilitated in a flexible way which allows individuals to contribute personal experiences, problem-solve within the group setting, and create their unique individual goals (Bullock et al., 2009).
Despite the application of these topics that touch on issues related to physical health, based on the present study’s findings, it is recommended that WMR curriculum be altered to allow for a greater emphasis on the importance of monitoring physical health, engaging in health-enhancing behaviors, and incorporating physical wellness into one’s view of wellness (e.g., developing and implementing physical health goals). In addition, it is recommended that a continuation, or second phase, of the WMR program be offered to participants with a specific emphasis on physical health. It is recommended that the primary focus of this continuation of WMR be on (1) identifying and achieving personal physical health goals, (2) developing informed, collaborative approaches with physical health providers to effectively select and manage their medical treatment and recovery, and (3) achieving an overall healthier lifestyle.

It is also recommended that WMR providers place a particular emphasis on referring persons with SPMI and medical comorbidities to the WMR program. Limitations associated with medical comorbidities do not appear to interfere with participants’ ability to complete the program and group members with medical comorbidities are able to make similar mental health gains as those in better physical health. Although the reason for higher completion rates in individuals with medical conditions is currently unknown, this finding is heartening and suggests that these individuals may find aspects of the WMR to be particularly relevant and beneficial to their unique experience.

In future research, it would be beneficial to investigate the efficacy of the WMR program in promoting health-enhancing behaviors and improving physical health conditions in program participants. Specifically, it would be beneficial to assess whether
completion of the WMR program is associated with significant improvements in objective measures of physical health. Furthermore, as integrated health care programs begin to become more readily available to persons with SPMI, it would be beneficial to evaluate the additive or potentially interactive relationship between completion of the WMR program and participation in an integrated health care program and participants’ intention to engage in health-enhancing behaviors, as well as improvements in objective measures of physical health.
References


of Toledo, Department of Psychology, Toledo, Ohio: Author.


comorbidity among patients with serious mental illness. *Psychiatric Services*, 57(10), 1482-1487. doi: 10.1176/appi.ps.57.10.1482


http://www.sj.cmha.ca/data/1/rec_docs/760_exploring_recovery_psychiatric_disabilities.pdf
Appendix A

Informed Consent for Adult Research Participation

Title of Project: Wellness Management and Recovery (WMR) Program
Project Director: Wesley A. Bullock, Ph.D.
Department of Psychology (M.S.#948), University of Toledo
Project Assistant: Brittany A. Tenbarge

Description of Project:
The University of Toledo, in collaboration with the Ohio Coordinating Center of Excellence for Wellness Management and Recovery (WMR), is inviting individuals to participate in a clinical service and research project designed to evaluate the effectiveness and outcomes of the Wellness Management and Recovery program (WMR).

The WMR program is based on clinical best practices promoted by the Ohio Department of Mental Health. WMR is a psycho-educational program designed to provide people with knowledge and skills to better cope with their mental health problems, to develop and pursue goals, and to gain more control over their lives. The WMR curriculum teaches strategies designed to help individuals work collaboratively with mental health professionals, reduce their susceptibility to illness, and cope effectively with their symptoms. Recovery occurs when people discover, or re-discover, their strengths and abilities for pursuing personal goals and develop a sense of identity that allows them to grow beyond their mental health problems. The WMR program curriculum will be provided in a group format, with approximately eight persons in each WMR group. The WMR curriculum is 10 sessions long. Each session is two hours, with a 10 minute break in the middle. Volunteer participants will play an important role in helping to evaluate the effectiveness of the WMR program. Information and feedback will be requested from mental health consumers and WMR service providers, to evaluate how well the program is working.

As a WMR program and research participant, you will be asked to complete a group of self-report opinion questionnaires at three times: (1) before starting in the WMR program, (2) immediately after the WMR program is completed (after 10 sessions), and (3) six months after completion of the WMR program. The group of outcome questionnaires includes: 1) the Ohio Consumer Outcomes Scales designed by the Ohio Department of Mental Health (67 items), 2) the Mental Health Recovery Measure (30 items), 3) The WMR Client Self-Report Scales, and 4) The WMR Client Feedback form. This packet of self-report questionnaires takes about an hour to complete and asks your opinion about your mental health symptoms, your quality of life, and your mental health recovery process. These outcome measures will also be used by your WMR treatment provider to help tailor the WMR program to best meet your unique needs and recovery goals.
Summary of Important Points:

• **Voluntary Participation:** Your participation in the Wellness Management and Recovery (WMR) program is voluntary. Participation in the WMR program is not necessary for you to receive your usual mental health services through your community agency. A decision to not participate, or a decision to withdraw from this project, will *not* affect your current or future relationship with your mental health provider agency, or the University of Toledo.

• **Confidentiality:** All data collected for the purpose of evaluating the effectiveness of the WMR program will be kept strictly confidential. Names of participants will not be used on research records – only identification numbers. Only group data or group themes, not individual responses, will be reported in any publications coming from the outcome evaluation of this project.

• **Protected Health Information:** Some of the information to be collected for the purpose of the project evaluation is protected health information (such as your clinical service utilization information). By signing this consent, you are allowing the University of Toledo, Department of Psychology to collect this information from you for the purpose of the program evaluation only.

• **Risks:** Participation in the WMR program offers you a chance to change, grow, and take responsibility for your life; change can be difficult and you run the risk of facing emotional issues that may be raised in the course of your participation.

• **Benefits:** By volunteering for this program, you will have the opportunity to participate in a treatment program that is based on best clinical practices in mental health. The primary goal of this program is to help individuals develop personal strategies for coping with mental illness, and identify and pursue goals that are important to them. Participating in the outcome evaluation may contribute to our understanding of the recovery process for persons with mental health problems.

• **You May Withdraw From The Project At Any Time:** You do not need to answer any question that you do not want to, and you may revoke your consent to participate in the program or its evaluation. You will continue to receive your regular standard care from your mental health provider whether or not you participate in this program. If you revoke your consent to participate, your data will not be used in any project analysis, so long as no irreversible use of the data has been made (such as the publication of summary results that include your data).

• **Questions:** You will receive a copy of this consent to keep. The individual reviewing this consent form with you will be happy to answer any questions you may have about the research project at any time. You may also contact the University researcher by mail, phone, or email (listed on the letterhead and at the end of this form). If you have a question about your rights as a research participant you may also contact Jeffrey Busch, Ph.D. at the University of Toledo Office of Research at 419-530-2416.
**Consent:** This is to certify that I have read the above information describing this project, and have had the project explained to me verbally. I understand the nature of the project and the nature of my participation. I give consent to participate in the project for the purpose of evaluating the WMR program outcomes.

Client Signature: __________________________________________
Date: ______________

Please Print Client Name: ______________________________________

Person Obtaining Informed Consent: ______________________________
Date: ______________

Please notify Wesley A. Bullock, Ph.D. at the University of Toledo if you have any questions or if you wish to revoke your consent:

Department of Psychology (MS#948)   Phone: 419-530-2719
University of Toledo
2801 W. Bancroft St.
Toledo, OH  43606-3390   Email: wesley.bullock@utoledo.edu
Appendix B

Mental Health Recovery Measure (MHRM)

Agency Name: __________________________ Date: _______________________
Pre-Assessment _____ Post-Assessment _____ Follow-up Assessment _____

Mental Health Recovery Measure (MHRM)©
(Young & Bullock, 2003)

Your First Name: __________________ Last Four Numbers of Your SSN: _____________

The goal of this questionnaire is to find out how you view your own current recovery process. The mental health recovery process is complex and is different for each individual. There are no right or wrong answers. Please read each statement carefully, with regard to your own current recovery process, and indicate how much you agree or disagree with each item by filling in the appropriate circle.

SD = Strongly Disagree  D = Disagree  NS = Not Sure  A = Agree  SA = Strongly Agree

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1. I work hard towards my mental health recovery. | O O O O O |
| 2. Even though there are hard days, things are improving for me. | O O O O O |
| 3. I ask for help when I am not feeling well. | O O O O O |
| 4. I take risks to move forward with my recovery. | O O O O O |
| 5. I believe in myself. | O O O O O |
| 6. I have control over my mental health problems. | O O O O O |
| 7. I am in control of my life. | O O O O O |
| 8. I socialize and make friends. | O O O O O |
| 9. Every day is a new opportunity for learning. | O O O O O |
| 10. I still grow and change in positive ways despite my mental health problems. | O O O O O |
| 11. Even though I may still have problems, I value myself as a person of worth. | O O O O O |
| 12. I understand myself and have a good sense of who I am. | O O O O O |
| 13. I eat nutritious meals everyday. | O O O O O |
| 14. I go out and participate in enjoyable activities every week. | O O O O O |
| 15. I make the effort to get to know other people. | O O O O O |

Please continue on next page.
SD = Strongly Disagree  D = Disagree  NS = Not Sure  A = Agree  SA = Strongly Agree

16. I am comfortable with my use of prescribed medications.  O O O O O
17. I feel good about myself.  O O O O O
18. The way I think about things helps me to achieve my goals.  O O O O O

19. My life is pretty normal.  O O O O O
20. I feel at peace with myself.  O O O O O
21. I maintain a positive attitude for weeks at a time.  O O O O O

22. My quality of life will get better in the future.  O O O O O
23. Every day that I get up, I do something productive.  O O O O O
24. I am making progress towards my goals.  O O O O O

25. When I am feeling low, my religious faith or spirituality helps me feel better.  O O O O O
26. My religious faith or spirituality supports my recovery.  O O O O O
27. I advocate for the rights of myself and others with mental health problems.  O O O O O

28. I engage in work or other activities that enrich myself and the world around me.  O O O O O
29. I cope effectively with stigma associated with having a mental health problem.  O O O O O
30. I have enough money to spend on extra things or activities that enrich my life.  O O O O O

Thank you for completing this measure.

The MHRM© was developed with the help of mental health consumers by researchers at the University of Toledo, Department of Psychology. This research was supported through a grant from the Ohio Department of Mental Health, Office of Program Evaluation and Research. For further information, please contact Wesley A. Bullock, Ph.D. at (419) 530-2721 or email: wesley.bullock@utoledo.edu.
Appendix C

WMR Curriculum

Session 1: Mental Heath Recovery

Session 2: Wellness

Session 3: An Understanding of Mental Health

Session 4: The Role of Medication in Recovery and Wellness

Session 5: Learning to Manage Symptoms and Side Effects

Session 6: Effective Communication

Session 7: Communication with Your Providers

Session 8: Coordinating Your Care

Session 9: Developing Relationships and Building Social Supports

Session 10: Planning for Wellness