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The Roles of Resilience and Recovery in PTSD Symptom Relief Following Participation in the Wellness Management and Recovery Program

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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The present study sought to evaluate the impact of participation in the Wellness Management and Recovery (WMR) program, a 10-week psychoeducational program aimed at promoting recovery in individuals with severe mental illness (SMI), on PTSD symptomatology, resilience, and recovery. The rates of PTSD in this sample and the relationship between PTSD, resilience and recovery were also explored. Data was collected from 75 individuals with SMI who were receiving services at five sites currently implementing the WMR program throughout Ohio. Participants completed self-report measures assessing their PTSD symptomatology, resilience, and recovery at the first and last WMR sessions.

Results indicated that rates of PTSD in the present sample were three-times higher than rates in the general population and that PTSD symptomatology at pre-WMR was significantly negatively correlated with both resilience and recovery. Furthermore, the results demonstrated that individuals’ average level of self-reported PTSD symptomatology significantly decreased from pre- to post-WMR. The hypotheses that
WMR would increase resilience and would promote recovery in participants from pre- to post-WMR were not supported. However, the average self-reported level of recovery of individuals who had both complete PTSD symptomatology data and complete recovery data was found to significantly increase from pre- to post-WMR. The present study highlights the disparities in PTSD rates in the SMI and general populations and provides empirical support for WMR’s ability to aid in the reduction of trauma symptoms in individuals with SMI.
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Table of Contents

Abstract iii
Acknowledgments iv
Table of Contents vi
List of Tables viii
I. Introduction 1
II. Literature Review 3
   A. Posttraumatic Stress Disorder and Severe Mental Illness 3
      a. Lack of Acknowledgment of Trauma 4
      b. Barriers to Treatment 6
      c. Exacerbation of Symptoms 8
      d. Substance Abuse 11
      e. Gender Differences in PTSD 13
      f. Treating the SMI Population 15
   B. Resilience 18
   C. Wellness Management and Recovery 28
D. Statement of the Problem 33
E. Purpose of the Study 34
F. Research Questions 34
G. Hypotheses 35
H. Additional Research Questions 35
III. Method 36
   A. Participants 36
   B. Measures 38
a. Posttraumatic Stress Disorder Checklist  
   b. Connor-Davidson Resilience Scale  
   c. Mental Health Recovery Measure  

C. Procedure  

IV. Results  
   A. Posttraumatic Stress Disorder Checklist (PCL)  
   B. Connor-Davidson Resilience Scale (CD-RISC)  
   C. Mental Health Recovery Measure (MHRM)  
   D. Relationship between the PCL, CD-RISC, and MHRM  
   E. Changes in PSTD Symptoms Following Participation in WMR  
   F. CD-RISC Results Following Participation in the WMR Program  
   G. Changes in Mental Health Recovery Following Participation in the WMR Program  

V. Discussion  
   A. Limitations and Recommendations for Future Research  
   B. Clinical Implications  

References  

Appendices  
   A. Appendix A  
   B. Appendix B  
   C. Appendix C  
   D. Appendix D  
   E. Appendix E
List of Tables

Table 1. Components of Resilience addressed in WMR 34

Table 2. Demographics for Total WMR Sample Pre/Post-WMR subsample 37

Table 3. Descriptive Statistics for Pre-WMR PCL, CD-RISC, and MHRM 42

Table 4. Prevalence Rates for PTSD at Pre-WMR for Total Sample, Men, and Women 43

Table 5. Correlations between the PCL, CD-RISC, and MHRM 46

Table 6. Dependent t-test Results for the PCL, CD-RISC, and MHRM 47

Table 7. PTSD Prevalence for Combined Sample, Men, and Women with Pre- and Post-WMR Data 47
Chapter One

Introduction

Previous research has revealed that individuals with severe mental illness (SMI) experience trauma and suffer from posttraumatic stress disorder (PTSD) at rates much higher than the general population (Mueser et al., 1998). Research in this area also indicates that trauma and PTSD are rarely addressed in the treatment of the SMI population (Cusack, Grubaugh, Knapp, & Frueh, 2006); despite findings that the trauma experiences of these individuals often exacerbate the symptoms of their primary illnesses (Cusack, Frueh, & Brady, 2004). These conclusions highlight the importance of ensuring that programs designed for this unique population address PTSD symptomatology.

Outcome research on the Wellness Management and Recovery (WMR) program, a program designed to promote recovery in individuals with SMI, has indicated that following participation in WMR, individuals report both an increase in knowledge regarding their illnesses and significant gains in recovery (Bullock et al., 2009); however, little is known about WMR’s ability to help its participants cope with past trauma experiences and PTSD symptoms. Thus, the present study was designed to evaluate whether individuals report a decreased level of PTSD symptomatology following participation WMR. Although WMR’s curriculum does not directly address PTSD symptomatology, many of the ideas discussed and interpersonal skills taught as part of the WMR curriculum promote characteristics of resilience, which research has identified as seminal to an individual’s ability to recover from traumatic experiences (Bonnano, 2004). Thus, the present study also sought to determine whether WMR participants report an increase in levels of both resilience and recovery.
Participants of the present study were individuals diagnosed with a severe and persistent mental illness (N = 75) who were receiving services at five sites across the state of Ohio that implement the WMR program. The present study was part of an ongoing open clinical trial evaluating the effectiveness of the WMR program. Participants completed three measures—the Posttraumatic Stress Disorder Checklist (PCL) (Weathers, Huska, & Keane, 1991), the Connor-Davidson Resilience Scale (CD-RISC) (Connors & Davidson, 2003), and the Mental Health Recovery Measure (MHRM) (Young & Bullock, 2003)—at the first (pre-WMR) and last (post-WMR) sessions of the WMR program in order to assess their self-reported changes in levels of PTSD symptomatology, resilience, and recovery.

The following pages will provide a review of the literature on PTSD in individuals with SMI, including the extent to which it is addressed in the treatment of this population, the impact of PTSD on this population’s level of functioning, and those treatments which have been proven effective for treating PTSD in this population. Following this discussion, research will be reviewed on the definition of resilience, its relationship to PTSD and recovery, and the extent to which it can be promoted in individuals. Finally, the curriculum of the WMR program will be explicated and past research on the program’s effect on participants’ recovery will be discussed. This paper then will describe further the method and participants of this study, followed by a discussion of the analyses used in and results of the study. The paper will conclude with a discussion of the findings of the study as it relates to prior research as well as the limitations and clinical implications of the study.
Chapter Two

Literature Review

Posttraumatic Stress Disorder and Individuals with Severe Mental Illness

The term severe mental illness (SMI) is associated with a heterogeneous population of persons with disorders that cause significant impairments relative to psychological and social functioning, including aspects of interpersonal relations, personal care, leisure, and work (Mueser & McGurk, 2004; Mueser, Rosenberg, Jankowski, Hamblen & Descamps, 2004). Disorders which fall within this category often include schizophrenia-spectrum disorders, bipolar disorder, borderline personality disorder, and chronic major depression (American Psychiatric Association, 2000). SMI does not refer to a diagnosis, however, but rather takes into account the duration of psychiatric symptoms and how much the symptoms impair the functioning of the individual (Bachrach, 1988). As a result of their disorders, the individuals of this population experience a debilitating level of distress. For this reason, any experiences or stressors which cause additional impairment in the lives of persons with SMI have drawn the attention of researchers.

As such, both the trauma experiences and resultant posttraumatic stress disorder (PTSD) that the SMI population often experiences have recently been explored by the research community. The *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev.; DSM-IV-TR; American Psychiatric Association, 2000) describes a traumatic stressor as an event in which a person experiences an actual or perceived threat of death or serious injury, either to themselves or to another person. A traumatic stressor may also involve an individual learning about the threat of death or injury to a friend or
family member as well as the actual death or injury of these persons. Furthermore, the DSM-IV-TR indicates that in order for an individual to be diagnosed with PTSD, a person must respond to an extreme traumatic stressor with intense fear, horror, and helplessness, resulting in the individual reexperiencing the event, avoiding stimuli associated with the event, and exhibiting hyperarousal (American Psychiatric Association, 2000). While the lifetime prevalence rates for trauma and PTSD in the general population are 58% and 8-12%, respectively (Kessler, Chiu, Dembler, & Walters, 2005; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995), recent literature reveals the prevalence rates to be significantly higher in the SMI population, reaching 74% for trauma and 33% for PTSD (Howgego et al., 2005).

**Lack of acknowledgment of trauma.** Not only has literature indicated significantly higher levels of trauma and PTSD in the SMI population than in the general population, but recent studies also have documented the lack of awareness of clinicians concerning these elevated rates (Brady, Rierdan, Penk, Losardo, & Meschede, 2003). One such study (Cusack, Grubaugh, Knapp, & Frueh, 2006) first examined prevalence rates of various types of trauma and PTSD and then compared these findings with the chart notes and diagnoses of the participants. In a population of both women and men with SMI, researchers reported that 87% had reported at least one traumatic event in their lifetime. When assessing for PTSD using the Posttraumatic Stress Disorder Checklist (PCL), researchers discovered that 29.6% of participants met criteria for PTSD when using a more liberal set of criteria (i.e., a clinical cut-off score of 45 on the PCL), and that 19% met criteria when using a more conservative set of criteria (i.e., a clinical cut-off score of 50 on the PCL). Despite the participants being drawn from a community mental
health clinic which was part of a statewide initiative to focus on trauma, only 28% had recognition of trauma in their medical charts, despite 87% of participants reporting at least one traumatic event. Furthermore, while 30% of individuals actually met criteria for PTSD, only 3% of individuals had a diagnosis of PTSD in their charts. Similar findings occurred in an earlier study (Mueser et al., 1998) in which 98% of the individuals reported at least one traumatic event in their lifetimes, with participants reporting, on average, 3.5 traumatic events in their lifetimes. Additionally, 43% of the sample met criteria for PTSD, while only 3 out of 119 (2.5%) had a PTSD diagnosis in their charts.

Individuals with SMI not only experience trauma on the street or in precarious situations, but also as a direct result of their mental illnesses. Mueser and Rosenberg (2003) suggest that various aspects of an individual’s first psychotic episode could qualify as a traumatic event. As mentioned, a traumatic event involves a perceived threat. Many forms of psychosis, such as paranoia, often result in an individual feeling severely threatened and are often accompanied by negative emotions. Stigma and social isolation, two common results of a psychotic episode, may also be experienced as traumatic. The authors also suggest that the experience of being hospitalized could also be viewed as traumatic (Mueser & Rosenberg, 2003). Recent research has proven this latter hypothesis to be accurate, as one study indicated that after hospitalization, significant proportions of individuals report severe levels of distress in response to events which occur when being hospitalized (Frueh et al., 2005). For example, of individuals who had been hospitalized as a result of their mental illnesses, 82% reported being handcuffed when transported to the hospital, 46% reported being sexually or physically abused once inside the hospital, 46% reported experiencing coercive measures, 63% stated that they had witnessed a
traumatic event, and 42% reported experiencing verbal intimidation (Frueh, et al., 2005). Later research indicated those individuals who may be especially susceptible to experiencing trauma during hospitalization. Grubaugh, Cusack, Yim, Knapp, and Frueh (2007) reported that both men and women who had reported a lifetime history of sexual assault were more likely to report some type of physical or sexual assault during their psychiatric care, whether perpetrated by a staff member or another patient. This is expected given the findings of other researchers that one of the most significant predictors of exposure to sexual assault or rape is prior victimization (Cougle, Resnick & Kilpatrick, 2009). Furthermore, these findings regarding the traumatization that occurs simply as a result of having a mental illness and requiring psychiatric care are especially important in light of the findings that the impact of trauma on the SMI population is an increase symptom severity, the risk of substance abuse, and the number of times the individual is hospitalized (Briere, Woo, McRae, Foltz, & Sitzman, 1997). Evaluation of the psychiatric hospital system is necessary to ensure that treatment is in fact beneficial rather than harmful to its patients.

**Barriers to treatment.** Not only do researchers recognize the importance of treating trauma in persons with serious and persistent mental illness, but consumers with SMI also report the belief that part of their functional impairment is associated with the trauma they have experienced and should be recognized as a fundamental aspect of their disorders (Reeves, 2000). Despite the recognition of individuals with SMI that trauma is an integral part of their disorders, barriers remain which prevent clinicians from adequately addressing trauma and PTSD in therapy.
One such problem is a lack of training of clinicians in this area. A survey completed by mental health providers revealed that only 30% of providers had six or more hours of training in the area of trauma or PTSD, suggesting that the hours of required training in this area should be increased (Frueh, Cusack, Grubaugh, Sauvageot, & Wells, 2006). Clinicians also have personally expressed a lack of confidence regarding their abilities to adequately treat PTSD, citing their lack of training on trauma and how to help clients manage their PTSD symptoms in conjunction with managing their primary disorder as reasons for this lack of confidence (Frueh et al., 2001).

The personal perspectives of clinicians on treating trauma in an SMI population provide further insight. Although clinicians report that they are not surprised by the high prevalence of trauma in this population, the negative impact it has on these individual’s functioning, and that trauma is not currently being adequately addressed, trauma is still often overlooked in treatment. This is large in part due to clinicians’ beliefs that psychotic symptoms, such as hallucinations and delusions, interfere with their ability to treat PTSD and more importantly, that psychotic symptoms should take precedence over PTSD symptoms in persons with SMI (Frueh, et al., 2006; Frueh, Grubaugh, Cusack, & Elhai, 2009; Salyers, Evans, Bond, & Meyer, 2004).

Furthermore, clinicians report that clients often are unwilling to discuss traumatic events or that the cognitive impairments of these individuals make them unable to communicate their symptoms or the traumatic events which transpired (Salyers et al., 2004). Additionally, clinicians stated that they feared addressing the trauma of their clients, feeling that it may aggravate their psychiatric symptoms, even distressing them to the point of becoming suicidal (Frueh et al, 2006). However, research has indicated this
fear may be unfounded. One study reported that when participants were screened for trauma and PTSD, which involved the participants discussing their traumatic experiences, they expressed no significant distress at any point during the screening process (Cusack et al., 2006).

**Exacerbation of symptoms.** While individuals may not be distressed by discussing their traumatic experiences, they are distressed by the exacerbated symptoms they experience as a result of their comorbid PTSD and SMI. Literature in this area has consistently reported that the co-occurrence of trauma, or PTSD, and a severe mental illness increases the severity of symptoms experienced by the individual, decreasing his or her quality of life and self-esteem and increasing the individual’s level of cognitive impairment and number of psychotic symptoms—all of which hinder treatment (Briere et al., 1997; Cusack, Frueh, & Brady, 2004; Mueser, Essock, Haines, Wolfe, & Xie, 2004). These findings have led subsequent research to examine the effects of trauma exposure on symptom severity in populations with specific disorders.

One disorder which research in this area has examined is bipolar disorder. Persons with bipolar disorder fall victim to trauma at alarmingly high rates. In one study, participants who met criteria for bipolar disorder were 2.6 times more likely to have experienced physical or sexual assault than those who did not meet criteria for bipolar disorder (Naria et al., 2008). In the same study, 31.6% of participants with bipolar disorder also had a diagnosis of PTSD. The results of a recent study examining PTSD prevalence in adolescents with bipolar disorder provide an interesting comparison to the high rates of PTSD in adults with PTSD. This study found that only 3% of adolescents with bipolar disorder met criteria for PTSD, and that 14% had clinically significant
symptoms (Strawn et al., 2010). The authors of this article suggested that the lower prevalence of PTSD in adolescents with bipolar disorder than in adults with the disorder may implicate bipolar disorder as a risk factor for developing PTSD later in life.

The diagnosis of PTSD in conjunction with bipolar disorder has been found to be associated with more significant social and family life impairments (Macguire, McCusker, Meenagh, Mulholland, & Shannon, 2008). Researchers suggest that these interpersonal difficulties mediate the effect of trauma on the quality of life of individuals with bipolar disorder. More specifically, the negative impact of trauma on interpersonal difficulties may be what increases the severity of bipolar symptoms in this population. However, the authors are quick to acknowledge the bidirectional relationship of symptom severity and interpersonal relationships. Unlike the findings of Naria et al. (2008), other studies (Leverich et al., 2002; Macguire et al., 2008), demonstrate that a PTSD diagnosis is not required for bipolar symptoms to be exacerbated by trauma. Trauma in individuals with bipolar disorder was found to be associated with an earlier onset of illness, which is associated with a poorer prognosis, faster cycling, an increase in the severity of mania, and an increased risk of suicide attempts (Leverich et. al, 2002). Trauma in this population is also related to lower health-related quality of life and higher levels of inter-episode depressive symptoms, more frequent hospital admissions, and greater interpersonal difficulties (Macguire et al., 2008).

While some studies on bipolar disorder acknowledge that symptom severity increases in those who experience trauma even without a PTSD diagnosis, other researchers (Mueser, Rosenber, Goodman, & Trumbetta, 2002) view the role of PTSD as much more prominent in persons with schizophrenia, proposing that PTSD mediates the
relationship between trauma and symptom severity in this population. This mediational relationship can be explained relative to the three symptom clusters of PTSD—avoidance of stimuli related to trauma, distress related to re-experiencing the trauma, and overarousal. Interpersonal trauma, the most common type of trauma experienced by individuals with SMI, requires individuals in this population to avoid people in order to avoid stimuli related to their trauma, resulting in social isolation (Mueser et al., 2002). This is significant when considered in light of the finding that social isolation is related to symptom relapse and rehospitalization in individuals with schizophrenia (Harrison, Croudace, Mason, Glazebook, & Medley, 1996). Additionally, Mueser et al. identify the distress individuals experience due to re-experiencing the trauma as a chronic stressor. This further explains the role of PTSD in symptom severity, as chronic stressors also often result in symptom relapse (Butzlaff and Hooley, 1998). The third cluster of PTSD symptoms, overarousal, may also negatively impact the course of the individual’s mental illness. Specifically, overarousal is associated with a poor prognosis in this population (Straube & Ohman, 1990). Furthermore, a recent review of the literature on trauma and psychosis reported that in individuals with schizophrenia spectrum disorders, those who had experienced childhood abuse were found to have an increased number of hospitalizations, more severe depression, and increased levels of suicidality (Manning & Stickley, 2009). Additionally, this review reported that over three-fourths of individuals with schizophrenia reported that their auditory hallucinations were related to their traumatic experiences.

For the SMI population, suicide is a very real concern. Even more disconcerting is the research finding that a diagnosis of PTSD often increases the likelihood that an
individual will attempt or complete suicide (Panagioti, Gooding, & Tarrier, 2009). Panagioti et al.’s review of the literature demonstrated that individuals who have experienced combat trauma, childhood abuse or adult sexual assault, and other types of trauma (i.e., accidents or criminal assault) have an increased risk for suicide attempts, completion, and suicidal ideation. Furthermore, this review also revealed that individuals diagnosed with comorbid PTSD and schizophrenia or another psychotic disorder experience higher rates of suicidality than do those individuals without comorbid PTSD. (Panagioti et al., 2009).

**Substance abuse.** The effects of PTSD and trauma on individuals with SMI are not limited to what some researchers have considered direct effects. PTSD may have indirect effects on the individual’s disorder, including the development of substance abuse as a means by which to cope. For example, in a study of individuals with SMI, those who had endured some type of abuse and who were experiencing PTSD symptoms had an increased risk for substance abuse and high risk behaviors, which as part of a bidirectional relationship between PTSD and substance abuse often worsened their PTSD symptomatology (O’Hare, Shen, & Sherrer, 2010). This comorbidity of PTSD and substance abuse is prevalent in both men and women alike. Kessler et al.’s (1995) National Comorbidity Survey found that 51.9% of men and 27.9% of women diagnosed with PTSD also were diagnosed with lifetime alcohol abuse or dependence. In a study of only women, 60% of individuals who had experienced trauma reported using more than one substance, while 94% of whom met criteria for PTSD reported using two or more substances (Ford & Fournier, 2007). Similarly, in a sample of only men, individuals with either a lifetime or current substance abuse disorder were significantly more likely to
meet criteria for PTSD than were men who did not have a substance abuse disorder (Ray, Primack, Chelminski, Young, & Zimmerman, 2011). Furthermore, research has found sexual abuse to be a predictor for alcohol and drug abuse in women, while physical abuse and PTSD were found to be predictors of alcohol and drug abuse in men (Kmett Danielson, Amstadter, Dangelmaier, Resnick, Saunders, & Kilpatrick, 2009).

Adding to the literature highlighting the comorbidity of PTSD of and substance abuse, Gil-Rivas, Prause, and Grella (2009) reported that 98.5% of individuals entering a residential treatment program for substance abuse had experienced a trauma. Furthermore, one third of those individuals reported experiencing at least one additional trauma over the 12-month period following their completion of the treatment program, suggesting that individuals who have experienced one trauma are likely to experience subsequent trauma. The authors’ also reported that individuals who had experienced a trauma during this follow-up period demonstrated an increased likelihood of abusing substances following completion of the program (Gill-Rivas et al., 2009). The authors did report, however, that a lifetime history of trauma or PTSD was not associated with this increased risk for substance abuse post-treatment. Complicating this picture, Khoury, Tang, Bradley, Cubells, and Ressler (2010) reported that among participants in an urban setting, substance use was shown to increase as the extent of childhood trauma that an individual had experienced increased. Additionally, the individuals who were alcohol, cocaine, or marijuana dependent had significantly higher levels of PTSD symptoms than those who were not. The results of these studies indicate that substance abuse both prior to and following trauma or the development of PTSD is common and should be carefully considered as part of the screening and treatment of PTSD.
Gender differences in PTSD. Gender differences in PTSD which have been explored in the general population have implications for the SMI population. Tolin and Foa’s (2008) meta-analysis of the research on gender differences in trauma and PTSD found that women are two times more likely to meet criteria for PTSD than are men. However, this is not simply the result of higher rates of trauma exposure in women, as men are significantly more likely to report having experienced some type of traumatic event than are women (Tolin & Foa, 2008). Specifically, men are more likely to report experiencing an accident, non-sexual assault, combat or war-related trauma, disaster or fire, and witnessing the death or injury of another, while women are more likely to report being the victim of childhood sexual abuse and adult sexual assault (Tolin & Foa, 2008). There were no differences in the rate of men and women’s reports of non-sexual child abuse (Tolin & Foa, 2008).

Women’s higher rates of experiencing sexual assault in combination with other research findings which have suggested that a person is at the highest risk for developing PTSD when the individual has been raped or sexually assaulted, has led some researchers to hypothesize that the higher rates of sexual assault and PTSD in women are directly related (Hapke, Shumann, Rumpf, John, & Meyer, 2006) However, Tolin and Foa reported that when reviewing PTSD rates of men and women within a specific type of trauma (e.g., non-sexual assault, sexual assault, disaster), women consistently demonstrated higher rates or severity of PTSD than men, with the effect for higher PTSD rates being strongest. Thus, this finding suggests that the higher rates of PTSD in women cannot solely be explained by women’s higher exposure to childhood sexual abuse and adult sexual assault (Tolin & Foa, 2008). It is also worth noting that some research has
indicated that being female is not an independent risk factor for developing PTSD (Hapke et. al, 2006).

Men and women not only differ in their overall rates of PTSD and trauma exposure, but also in the life stage in which they are most likely to meet criteria for the disorder. Using two samples of individuals from Denmark and Iceland—a total sample, consisting of participants from both epidemiological studies and trauma samples, and a trauma sample, consisting of only convenience samples of individuals who had experienced a trauma—Ditlevsen and Elklit (2010) explored the lifespan distribution of PTSD among men and women. The authors reported that in both samples, women reported higher levels of PTSD symptoms than men and that twice as many women than men qualified for a PTSD diagnosis, which is consistent with other literature reviewed here. Furthermore, in both samples the highest rates of PTSD in men were found in the age group of 41 to 45 years old, while the highest rates of PTSD in women were found in the age group of 51-55 years old. Furthermore, the authors reported that in both samples, women were actually three times more likely to be diagnosed with PTSD between the ages of 21 and 25 than were men in this age group (Ditlevsen & Elklit, 2009).

The findings of Ditlevsen and Elkit (2009) do differ from the results of the National Comorbidity Survey (Kessler et al., 1995). These researchers reported that in general, as women increase in age, their rates of PTSD decrease. However, as men increase in age, their rates of PTSD also increase. The results of these studies indicate that men and women are more likely to develop PTSD at different stages in their lives, a finding which should influence both the screening and treatment of PTSD in men and women.
Differing rates of PTSD in men and women have led researchers to wonder whether one gender responds better to treatment for the disorder than does the other. Blain, Galovski, and Robinson (2010) conducted a review of the literature to explore this question. Their review of both randomized and non-randomized clinical trials of treatment outcomes for PTSD suggests that in general, men and women experience equal treatment outcomes. Blain et al.'s (2010) review did include some studies which suggested that women fare better in treatment than men; however, the overall conclusion that men and women respond equally well to treatment for PTSD was most appropriate.

Because sexual assault is related to PTSD and is most often experienced by women, a large proportion of the research of PTSD in SMI populations has focused on women. A study of women with SMI in an urban community mental health center found that 100% of women had been exposed to some type of trauma, with rates of current and lifetime PTSD being 44% and 53%, respectively (Ford & Fournier, 2007). Women in this study reported psychosocial problems, such as feeling alienated, damaged, and powerless, as problems associated with trauma and PTSD. Furthermore, as compared to a normative sample, women in this sample expressed lower levels of mental and physical health. Moreover, there was no relationship between PTSD and impairment, again suggesting the importance of addressing trauma even when PTSD is not present (Ford & Fournier, 2007).

**Treating the SMI population.** Despite the reservations of many clinicians, research has indicated that trauma and PTSD can be adequately treated in persons with SMI. Although it may not directly improve their PTSD symptoms, psychoeducation has been shown to be beneficial to persons with comorbid PTSD and SMI (Pratt et al., 2005).
A three session psychoeducation program was implemented in an in-patient setting where all participants were identified as having a severe mental illness and meeting criteria for PTSD. Participants were given a Knowledge of PTSD (KPTSD) test aimed at assessing their knowledge pertaining to PTSD both before and after the three sessions. During these sessions, participants were presented information on the symptomatology and causes of PTSD. Results indicated that the participants’ scores improved following the psychoeducation program. On average, participants answered 70% of the questions correctly before the program and 87% of the questions correctly following the program. The participants’ gains in knowledge of PTSD were evident not only in their scores, but also in reports by participants expressing that they felt the program had increased their knowledge of PTSD. Following the program, participants also reported an increased willingness to seek treatment for PTSD. These findings suggest that psychoeducation may help normalize the individual’s PTSD symptoms, prevent misinterpretation of trauma-related symptoms and instil hope and motivation to seek help in the individual (Pratt et. al, 2005).

The greatest amount of focus on treatment in the area of trauma in the SMI population has been on Cognitive-Behavioral Treatment (CBT). CBT focuses on cognitive restructuring, which involves helping the client to recognize distorted thoughts related to the traumatic experience and to evaluate the accuracy of these thoughts. The client is also provided guidance on how to effectively alter these beliefs if they are identified as being inaccurate (Mueser, Rosenberg, Jankowski, Hamblem, & Descamps, 2004). The CBT program also provides some education on PTSD and trauma, breathing training, and coping skills. Moreover this approach is encouraged in a group setting,
because of the peer-support it provides. Recent findings support the efficacy of using CBT to treat persons with comorbid PTSD and SMI. Mueser et al. (2007) reported that after a 21-week CBT group, participants with SMI experienced an improvement in PTSD symptoms and trauma-related cognitions. A later study indicated similar positive results of CBT on PTSD (Mueser et al., 2008). In this study, completion of a CBT group therapy program was associated with having a positive impact on both trauma-related beliefs and a reduction in PTSD symptoms. Further analysis revealed that CBT had a direct effect on trauma-related beliefs which then provided PTSD symptom relief. Following treatment, 63%-73% of the CBT group still met criteria for PTSD, while in the treatment as usual (TAU) group, 77%-85% of individuals still met criteria for PTSD. Participants in the CBT group also reported a greater improvement in their therapeutic alliance than the TAU group, which was most likely a function of a decrease in interpersonal distrust in the individuals, a prominent symptom of PTSD (Mueser et al, 2008).

Other researchers reported similar success when using exposure-based CBT with individuals with SMI (Frueh, Grubaugh, Cusack, Kimble, Elhai, & Knapp, 2009). These researchers utilized a manual-based treatment program specialized for treating PTSD in individuals with SMI, which consisted of psychoeducation, anxiety management, social skills and anger management training, teaching on how to cope with trauma, and exposure therapy with homework. The results of this study indicated that upon completion of the program, individuals showed a significant reduction in PTSD symptoms. These symptom reductions were also maintained three months after individuals completed the program. Additionally, CBT has been shown to reduce stress
directly associated with depression and schizophrenia, indicating it may have dual roles in the treatment of this population (Kingdon & Turkington, 2004).

It is apparent that the negative outcomes associated with trauma exposure are pervasive and diverse in individuals with SMI. Further complicating this picture is the unwillingness of clinicians’ to both acknowledge and address their clients’ trauma experiences in treatment. However, research has also demonstrated that multiple treatments aimed at increasing the SMI population’s knowledge about PTSD and their ability to cope with their trauma experiences has proven both effective and beneficial. Thus, treatment which ignores trauma experiences in individuals with SMI may not be fully effective, as it ignores a factor which significantly impacts the lives and disorder presentation of these individuals. For this reason, it is important to evaluate a wide range of treatment programs designed for individuals with SMI. This is necessary in order to ensure that these programs are apt to help individuals with SMI as they attempt to recover from their trauma experiences as well as their primary psychological disorders.

**Resilience**

Trauma research has focused not only on its negative consequences, but also on understanding what differentiates individuals who go on to develop PTSD following trauma from those who do not. This research has identified the concept of resilience as being seminal in making this distinction (Paton, 2006). Despite its known importance, the concept of resilience has not been clearly defined, resulting in the use of diverse definitions in resilience research. For example, Atkinson, Martin, and Rankin (2009) describe resilience as “the ability to recover from the extremes of trauma, deprivation, threat, or stress” (p. 137). Rutter’s (2007) definition differs, describing a phenomenon in
which persons exhibit relatively good outcomes given their exposure to adversity, while Wagnild and Young (1990) describe resilience as an ability to re-establish equilibrium following an adverse experience. Still, others stress that resilience refers to more than simply the absence of psychopathology but rather involves the development of skills which will allow the individual to cope with future trauma (Linley & Joseph, 2005).

A widely used definition by Bonanno (2004) emphasizes a return to baseline, describing resiliency as the capacity to continue with one’s normal function following stress or loss. However, other researchers in the area of resilience contend that resilience following a traumatic event means that a person may return to a baseline functioning or that he or she has sufficiently adapted (Akhtar & Wrenn, 2008). These authors align with current stances on recovery, maintaining that resilience does not assert that following trauma a person must become exactly as he or she was before, as this is likely an impossible feat. Instead, resilience involves the person adequately adjusting to the psychological consequences of trauma. Furthermore, there is often an experience in which the person gains insight into him or herself, providing an opportunity for growth following a traumatic experience (Akhtar & Wrenn, 2008).

At the present time, research in the area of resilience is flourishing, uncovering a myriad of characteristics shared by individuals who demonstrate resilience. Collectively, positive emotions have been identified as a common characteristic in individuals who exhibit resilience. Examples of positive emotions include optimism, humor, and hope, which have been demonstrated to help reduce psychological stress and medical care usage following stressful life events (Haglund, Nestadt, Cooper, Southwick, & Charney, 2007). Positive emotions also have been linked to a reduction in autonomic arousal,
which is important in preventing psychopathology such as PTSD (Folkman & Moskowitz, 2002). Resilient individuals have the ability to use positive emotions as resources (i.e., hopeful and optimistic thinking) in times of stress, which helps to moderate the negative emotions that occur during these stressful events (Tugade & Frederickson, 2007). This is salient considering that the avoidance of negative mood states, such as anger, self-pity, and sadness has been identified as one component of resilience (Resnick, 2008). Additionally, Tugade and Frederickson state that positive emotions broaden the individual’s scope of thought, allowing for cognitive flexibility, another important facet of resilience. Cognitive flexibility refers to an individual’s ability to accept the existence of difficult situations and to see problems as temporary and non-pervasive (Haglund et al., 2007).

Cognitive reappraisal is also common in resilient individuals, allowing them to reframe negative experiences in order to find positive meaning in their trauma experiences and in their lives thereafter (Southwick, Vythilingam, & Charney, 2005; Wilson, 1995). Similarly, positive self-appraisals have been demonstrated to moderate the relationship between life stress and suicide, suggesting these self-appraisals provide a source of resilience (Johnson, Gooding, Wood, Tarrier, 2010). This finding is congruent with the work of Southwick et al. (2005), which identified a positive view of self as a characteristic of resilient individuals.

An individual’s level of resilience lies in his or her ability to employ adaptive coping mechanisms in times of stress, and research has uncovered particular coping mechanisms which are indicative of resilience. Lazarus and Folkman (1984) presented a resilient model of coping in which it is believed that individuals exhibit better than
expected stress management through the use of a combination of behavioral and
cognitive efforts. These efforts are characteristic of an active coping style which utilizes
strategies to manage stress, solve problems, and regulate negative emotions in the face of
adversity (Haglund et al., 2007). Examples of active coping include facing fears, seeking
social support, physical exercise, and acknowledging and accepting problems. Facing
fears is especially important to resilience following trauma, as fear avoidance contributes
to the maintenance of PTSD (i.e., avoiding people, situations, and stimuli associated with
trauma). Thus, it is imperative that individuals face their fears in order to extinguish the
conditioned fear responses of PTSD through habituation (Haglund et al., 2007).

Relative to coping style, individuals high in resilience also exhibit a pattern of
“competence” in the presence of extremely difficult circumstances, with competence
involving the appropriate use of psychological resources to overcome stress (Agaibi &
Wilson, 2005). Furthermore, subsequent research has explored whether individuals
exhibit competence in all domains of life or if competence levels vary from one domain
to another (Walsh, Dawson, & Mattingly, 2010). Specifically, resilience researchers
evaluated the competence levels of adolescents in four areas—behavioral, emotional,
social, and academic. Walsh et al. (2010) reported that only 36% of adolescents
demonstrated that they were competent, and thus, exhibited resilience, in more than one
area. The findings of this study suggest that resilience is a dynamic process which can
wax and wane according to the environment in which an individual is placed.

Southwick et al. (2005) identify having a “strong moral compass” as an important
aspect of resilience. This moral compass involves having some level of spiritualism as
well as having a desire to make a positive impact on the world. Furthermore, religiosity
Family cohesion and positive social relationships also contribute to resilience following trauma (Agaibi & Wilson, 2005; Southwick et al., 2005; Wilson, 1995). Connection and interaction with a community of friends or fellow survivors helps to foster resilience by helping to facilitate self-disclosure, positive emotional states, and to reduce exaggerated appraisals of threat (Holahan, Holahan, Moos, & Moos, 1995; Wilson, 1995). Social support involves both the number and quality of the relationships, and the perceived quality of relationships has been demonstrated to be a better prediction of health during stress than the quantity of relationships (Southwick et al., 2005). Furthermore, research has revealed the importance of social support and resilience in PTSD specifically. Boscarino (1995) reported veterans with high levels of social support as 180% less likely to develop PTSD than those with low levels of social support. The type of social support provided is also important, as childhood sexual abuse survivors’ chances of developing PTSD decreased with their perceptions that they were valued by others and that they could go to others for advice when dealing with stress (Hyman, Gold, & Cott, 2003). The role of relationships in resilience was especially prominent in a 20-year follow-up study of individuals with schizophrenia (Torgalsbøen & Rund, 2010). In this study, resilience was postulated as the greatest distinguisher of those who recovered and those who did not, with relationship satisfaction being identified as that which fostered the most resilience. Mature role models and mentors are also seminal in fostering
resilience (Southwick, Ozbay, & Mayes, 2010). This idea is based upon Bandura’s (1977) Social Learning Theory, which states that individuals learn skills, ways of thinking, and behavioral patterns through the imitation of others. Thus, an individual’s interactions with others who have successfully coped with trauma provide him or her the opportunity to model and learn an adaptive way to cope with stressors and trauma (Holahan et al., 1995).

Self-efficacy, which social support has been shown to increase in individuals, is an additional characteristic found to be common in resilient individuals (Gillespie, Chaboyer, & Wallis, 2007). Self-efficacy involves one’s perception of having control over his or her life, as well as having confidence in one’s ability to persevere in a specific situation (Bandura, 1977; Gillespie et al., 2007). Some researchers describe a similar characteristic of resilient individuals, stating these individuals exhibit an internal locus of control (Agaibi & Wilson, 2005). An internal locus of control refers to an individual’s belief that he or she has a general influence on his or her life circumstances, which is associated with less psychopathology and PTSD symptoms.

Hardiness, which is described as one pathway to resilience (Bonanno, 2004), appears to be an independent trait within resilience. Hardiness envelops the components of commitment, control, and challenge (Hoge, Austin, & Pollack, 2007). Commitment is exhibited by an individual when he or she decides to stay involved with activities and individuals despite the stress he or she has endured. Additionally, it involves the individual being “committed to find meaningful purpose in life “(Bonanno, 2004, p. 25). Furthermore, control is exhibited when the individual continues to influence one’s own life outcomes, rather than subscribing to learned helplessness and becoming a passive
participant in life (Hoge et al., 2007). Lastly, the challenge component refers to the phenomenon of accepting stressors as part of every-day life, which provides opportunities for the individual to learn and develop (Maddi, 2006). Together, these three components provide the individual with motivation to overcome stressful or traumatic experiences.

Researchers have also questioned whether or not resilience is distinct from recovery. Breedlove’s (2006) research is able to shed light on this issue. Specifically, Breedlove conducted a factor analysis on resilience and recovery measures to explore the relationship between these two constructs. The results of this study indicated that although resilience and recovery do share some characteristics, they also have unique properties. This conclusion was supported by the discovery of a four factor structure in which factors of both resilience and recovery were identified, suggesting that these constructs can be psychometrically distinguished. Moreover, Breedlove reported that competence and managing negative affect were found to be associated with resilience, while recovery activities and positive self-concept were associated with recovery. In his conclusion, Breedlove suggests that focusing mental health interventions on both recovery and resilience would not be redundant because these constructs do have some unique characteristics.

Also in an attempt to better understand the relationship between recovery and resilience, research has been conducted to explore the various possible responses to stress (Norris, Tracey, & Galea, 2009). Specifically, Norris et al. hypothesized four possible responses to stress—resistance, resilience, recovery, and chronic dysfunction. Resistance is defined as occurring when there is minimal distress following a trauma, resilience as occurring when one can relatively quickly recover from harm but is not necessarily
immune from harm, recovery as occurring when the individual may experience some
dysfunction for a period of time but then gradually recovers, and chronic dysfunction as
occurring when the individual’s initial stress reaction continues (Norris et al., 2009). The
authors tested the existence of these stress trajectories by longitudinally examining the
stress responses of individuals who experienced two different traumas—mudslides in
Mexico in 1999 and the terrorist attacks on New York City in 2001. Relative to the
natural disaster in Mexico, participants were initially interviewed 6 months after the
disaster and again 12, 18, and 24 months after the disaster. Individuals who experienced
the 9/11 terrorist attacked were interviewed 6, 12, 24, and 36 months after the attacks.

Norris et al. (2009) report strong evidence for their four proposed trajectories of
stress response. The authors suggested that three groups, one from Mexico and two from
New York, demonstrated the resistance trajectory, as these groups reported mild and
stable symptoms across all follow-up interviews. Similarly, the authors noted that two
groups, one from both Mexico and New York, demonstrated the resilience trajectory, in
which persons showed moderate to severe symptoms at the first post event interview
(approximately 6 months after the event) but then demonstrated a sharp decrease in
PTSD symptoms at approximately 12 months after the disaster. Specifically, participants
from New York first demonstrated moderate distress then decreased to a mild distress
level at the second interview. This group then eventually showed no distressed.

Somewhat similarly, participants from Mexico demonstrated severe distress at the first
interview, which decreased to moderate distress at the second interview. However, it took
several more months for this group to achieve only a mild level of distress. The authors’
 hypothesized recovery trajectory was supported by one group from each of the two
disasters as well, in which these participants exhibited moderate to severe PTSD symptoms with a gradual decrease of symptoms at later interviews. Lastly, the chronic dysfunction trajectory was supported by several groups who showed moderate to severe symptoms that remained stable over the several interviews (Norris et al., 2009). This investigation further supports the distinction between resilience and recovery.

Specifically, it highlights two important ideas: 1) Resilience can still be demonstrated despite the presence of moderate or even severe symptomatology following the traumatic event, and 2) Resilience and recovery differ not in whether distress is present following the trauma but rather in the rate of improvement that occurs once the individuals begins to rehabilitate.

Controversy exists as to whether resilience is a personality trait or a dynamic process. Wagnild and Young (1990) contend resilience is best described as a cluster of personality characteristics involving having a balanced perspective of life, self-efficacy, perseverance, and the belief that one’s life has meaning. Conversely, Gillespie et al. (2007) state that resilience is a learned process of struggle against hardship, and Rutter (2007) suggests that individuals become resilient when faced with extreme stressors and that resilience can vary across circumstances. Because most individuals in the general population do not develop PTSD following trauma experiences, Masten (2001) suggests resilience is an ordinary aspect of individuals and is something which everyone can achieve. Similarly, other authors contend that resilience is a developmental process influenced by time and experience and thus, can be increased or lost within a person (Parens, 2010). Supporting this conceptualization is the finding that specific factors of resilience can be learned. For example, Hoge et al. (2007) suggest that characteristics
such as having an internal locus of control can be taught following trauma, while the work of Zautra, Arewasikporn, and Davis (2010) suggests that an individual’s capacity for resilience can be increased through mindfulness. Additionally, Tugade and Frederickson’s (2007) work on positive emotions reveals that the ability to use positive emotion as a coping skill can be acquired through practice. Maddi (2006) adds to this debate, finding that hardiness also can be learned.

Recently, researchers have begun to evaluate the effectiveness of interventions specifically developed to increase individuals’ resilience. One such intervention is Fava and Tomba’s (2009) “well-being therapy,” which focuses on teaching its participants aspects of resilience. This intervention attempts to accomplish this goal by addressing six areas—environmental mastery, personal growth, purpose in life, autonomy, and self-acceptance. Fava and Tomba reported that two individuals with PTSD reported increased levels of resilience and decreased problems with posttraumatic stress following participation in their resilience intervention. Other resilience interventions with larger samples have reported similar results. For example, Dolbier, Jaggers, and Steinhardt (2010) examined the effectiveness of a resilience psychoeducation intervention. In a sample of individuals who had experienced a stressful event, individuals who participated in the program showed greater stress-related growth—which occurs when an individual recovers from a stressor and exhibits a higher level of adaptive functioning than prior to the stressor—from pre- to post-test than did individuals in the control group. Furthermore, these changes in growth significantly and positively correlated with changes in resilience, indicating the effectiveness of the intervention in increasing both resilience and stress-related growth.
Schiraldi, Jackson, Brown, and Jordan (2010) also developed a resilience training program, which focused on physical health, rational thinking skills, self-esteem (i.e., the appreciation of one’s worth), emotional intelligence (i.e., acknowledging and managing negative emotions), mindfulness, optimism, learning from others’ journeys, and diverse resilience themes such as altruism, humor, and purpose. The results of the study demonstrated that individuals’ level of resilience increased significantly from pre- to post-test, yielding a large effect size. Together, the findings of these authors provide further support for the notion the resilience can be taught and increased through appropriate intervention.

**Wellness Management and Recovery**

The Wellness Management and Recovery (WMR) program is a psychoeducational program aimed at promoting mental health recovery in individuals with serious and persistent mental illness (Bullock et al., 2009). WMR seeks to increase the self-efficacy of its participants by teaching them to “identify and achieve personal recovery and wellness goals,” “develop informed, collaborative approaches with mental health providers to effectively select and manage their treatment and recovery,” and “achieve an overall healthier lifestyle” (Bullock et al., 2009). Furthermore, the focus of WMR is one of holistic wellness, involving physical, emotional, and spiritual health, rather than illness. The WMR program was developed by the Wellness Management and Recovery Coordinating Center of Excellence (WMR CCOE), a training and technical assistance center created and supported by the Ohio Department of Mental Health. The WMR CCOE works to aid in the implementation of evidenced-based clinical best practices in mental health recovery within Ohio’s public mental health system.
Two recovery-focused programs, the Ohio Medication and Algorithm Project consumer education program and the Illness Management and Recovery program disseminated by the New Hampshire-Dartmouth national EBP project supported by SAMSHA, were adapted to create the current WMR curriculum. (Bullock, O’Rourke, & Smith, 2005; Mueser et al., 2006). The WMR curriculum consists of ten sessions which occur once per week over ten weeks. Each session last for two hours and is co-facilitated by a staff member of the agency and a peer specialist who also receives mental health services. Both agency staff members and peer facilitators receive 24 hours of training focused on the WMR curriculum and the experiential learning of group facilitation techniques. Peer facilitators are a unique and salient aspect of WMR, as it recognizes the central role which peer support has in the recovery process of this population (Mowbray, Moxely, Jasper, & Howell, 1997).

Each of the ten sessions of WMR addresses a particular theme relevant to mental health recovery. The first session is entitled “Mental Health Recovery” and consists of discussion on recovery and setting goals. “Wellness,” the topic discussed in session two, involves topics such as exercise and healthy eating. In session three, “An Understanding of Mental Health,” the group addresses a variety of topics including symptomatology, stigma associated with psychological disorders, and the effects of substances on mental health. Session four, “The Role of Medication,” consists of discussion on the individuals’ beliefs and feelings about medication in conjunction with the importance of medication adherence. “Learning to Manage Symptoms and Side Effects,” the fifth session, focuses on indentifying and managing symptoms, as well as dealing with the side effects which occur as a result of taking medications. The sixth session, entitled “Effective
Communication,” educates individuals about assertive communication, feedback, and sources of bias. Session seven, “Communication with Providers,” focuses on developing skills in the individuals which will better equip them to communicate with their doctors, mental health providers, nurses, and case managers. “Coordinating your Care” is the title of the eighth session, which aims to engender skills in the group members which will allow them to take a more active role in their treatment plan. The ninth session, “Building Social Support and Involving Others,” addresses the importance of social support and provides education on ways to meet and build relationships with others. The final session of WMR, “Planning for Wellness,” focuses on things such as identifying triggers and making plans during crisis, so individuals can successfully maintain their wellness during times of difficulty (Bullock et al., 2009; Wellness Management and Recovery Website, 2009.)

The efficacy of WMR in promoting recovery within its participants has been, and continues to be, evaluated by an ongoing open clinical trial conducted by Bullock et al. (2010). Data for this study is collected prior to participants’ involvement in WMR, immediately following participants’ involvement in WMR, and six months follow participants’ involvement in WMR. Three, primary measures are used to evaluate the efficacy of the WMR program—the WMR Client Self-Rating, the Mental Health Recovery Measure, and the WMR Social Support Questionnaire. The WMR Client Self-Rating Scale is a content-focused measure aimed at measuring an individual’s increase in knowledge, ability to cope with symptoms, use of a wellness plan, and progress toward personal goals. It was borrowed from the Illness Management and Recovery Self-Rating and adapted through the addition of recovery-focused items in order to better align with
WMR’s recovery model. The WMR Social Support Questionnaire measures both the individual’s quantity and quality of social support. The Mental Health Recovery Measure (Young & Bullock, 2003) a consumer-driven measure aimed at assessing an individual’s overall well-being, rather than simply the presence or absence of symptoms, was developed in consideration of consumers’ perspectives of what recovery looks like (Bullock et al., 2010).

Bullock et al. (2010) report that following participation in the WMR program, individuals reported significant gains in recovery, the use of recovery strategies, and perceived personal progress toward recovery goals. These findings hold even 6 months after the completion of the program. More specifically, analysis of the WMR Client Self-Rating revealed that following participation in the WMR program individuals have more knowledge concerning their symptoms, treatment, coping strategies, and medications and are better able to use a wellness plan to prevent relapse. Individuals are also progressing toward personal goals, making healthy life-style choices, coping better with their illnesses on a day-to-day basis, increasing their involvement in self-help activities, integrating the recovery philosophy into their lives, and involving their family friends in their mental health treatment (Bullock et al., 2010). Additionally, analysis of the WMR Social Support questionnaire reveals that individuals increase the number of persons in their social support circle following participation in WMR and that these individuals are more satisfied with the support they receive from their social support group following participation in WMR.

Individual changes on the Mental Health Recovery Measure were also examined, determining the proportion of individuals whose scores indicate they have reliably
improved or reliably deteriorated (p<.05) following participation in WMR and the proportion of individuals who have demonstrated meaningful improvement or meaningful deterioration following participation in WMR (p<.20). Results indicate 4% of individuals showed meaningful deterioration and 5.9% showed reliable deterioration following participation in WMR. The percentage of individuals showing improvement is much greater, as 11.3% of individuals showed meaningful improvement and 27.7% of individuals showed reliable improvement following participation in WMR. 51.1% of participants showed no significant change. The results are noteworthy considering the “one-third rule”, which comes from research demonstrating that without treatment, one-third of individuals with a mental illness show improvement, one-third of individuals show deterioration, and one-third of individuals show neither improvement nor deterioration. Clearly, WMR is proving more efficacious than no treatment, as more than one-third of individuals showed improvement following participation in WMR and less than one-third of individuals showed deterioration following participation in WMR (Bullock et al., 2010).

Qualitative data has been collected in addition to the quantitative data collected on individuals who have participated in WMR. The results of the qualitative analysis revealed that before participating in WMR, individuals felt fearful, isolated, doubtful, inhibited, and stuck in their situations. Conversely, following participation in WMR, individuals expressed feelings of growth, learning, renewed energy, socialization, and an ability to overcome prejudice and stigma. Additionally, individuals shared that participating in WMR helped them to feel empowered and hopeful, to recognize their self-worth, and to see themselves as advocates for persons with mental illness.
Furthermore, individuals shared that WMR benefited them by providing role models for recovery, helping them to see they were not the only ones coping with mental illness, and providing the opportunity to help others (Bullock et al., 2010).

**Statement of the Problem**

Although WMR has been successful in promoting wellness in individuals with SMI, little is known about its ability to address trauma and PTSD symptomatology in this population. Because of the high prevalence of PTSD in individuals with SMI, and the lack of acknowledgement of this high prevalence by mental health professionals, it is important to determine whether WMR is a unique treatment program which does promote PTSD symptom relief in addition to wellness, or whether it follows the trend of other mental health services and does not address the trauma experiences of individuals with SMI. Furthermore, because trauma and PTSD symptoms are not directly addressed in the WMR curriculum, research is required to better understand the mechanisms which underlie the WMR program’s possible influence on PTSD symptomatology.

Although past research has already provided empirical data which demonstrates WMR’s promotion of recovery in individuals, resilience—which has been identified as central to an individual’s ability to cope with trauma—may be another factor influenced by the WMR program, considering the overlap between WMR’s curriculum and attributes of resilience identified by past research. Table 1 presents a full list of the components of resilience which are addressed in WMR. Thus, research is required to determine the effect of WMR participation on participants’ levels of resilience.
Table 1

Components of Resilience addressed in WMR

<table>
<thead>
<tr>
<th>Component of Resilience</th>
<th>Way in which it is addressed in WMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive Emotions</td>
<td>Participants report increased hope following participation</td>
</tr>
<tr>
<td>Active Problem Solving</td>
<td>Curriculum addresses planning for relapse</td>
</tr>
<tr>
<td>Adaptive Coping Mechanisms</td>
<td>Demonstrated by improvements on WMR Client Self-Rating</td>
</tr>
<tr>
<td>Positive Beliefs about Self</td>
<td>Participants report recognition of self-worth</td>
</tr>
<tr>
<td>Sense of Purpose</td>
<td>Participants report desire to be an advocate/help others</td>
</tr>
<tr>
<td>Social Support</td>
<td>Participants increase quality and quantity of social support</td>
</tr>
<tr>
<td>Physical Support</td>
<td>WMR focuses on holistic wellness, including physical, emotional, and spiritual health.</td>
</tr>
<tr>
<td>Spirituality/Religiosity</td>
<td></td>
</tr>
<tr>
<td>Mature Role Models/Mentors</td>
<td>WMR groups are co-facilitated by a person in recovery</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>WMR stresses working toward wellness goals</td>
</tr>
</tbody>
</table>

Note. WMR = Wellness Management and Recovery

Purpose of the Study

The purpose of the present study was to quantitatively determine if WMR participants reported increased levels of resilience and recovery as well as decreased levels of PTSD symptoms following completion of the WMR program.

Research Questions

Given the purpose of the present study to determine WMR’s effect on participants’ resilience, recovery, and PTSD symptom levels, the following questions were of interest: 1) Do participants’ PTSD symptom levels decrease from pre- to post-
WMR? 2) Do participants’ levels of resilience increase from pre- to post-WMR? 3) Do participants’ levels of recovery increase from pre- to post-WMR?

**Hypotheses**

Based on the demonstration of WMR’s successful promotion of recovery in its participants by other research, the WMR curriculum’s relationship to resilience, and the research on the interplay between resilience and PTSD, the following hypotheses were investigated:

1. Individuals will report significantly lower levels of PTSD symptomatology from pre- to post-WMR.

2. Individuals will report significantly higher levels of resilience from pre- to post-WMR.

3. Individuals will report significant gains in recovery from pre- to post-WMR.

**Additional Research Questions**

In addition to the aforementioned hypotheses, the present study also examined the following general research questions: 1) What is the relationship between individuals’ self-reported levels of resilience, recovery, and PTSD symptomatology? and 2) What is the prevalence rate of PTSD for the sample of WMR participants and how do these rates compare to the general population and other samples of individuals with SMI?
Chapter Three

Method

Participants

Participants were individuals currently receiving services at five sites implementing WMR across the state of Ohio. Four of the sites were community mental health centers and one site was a consumer-operated service center. All individuals participating in the current study were living with a severe mental illness. Although specific individual diagnoses were not known, typical diagnoses for this community sample include Axis I diagnoses such as bipolar disorder, schizophrenia, and schiza-affective disorder, often with co-occurring substance abuse disorders. Participants were at least 18 years old, participated voluntarily, and were able to sign a consent form (See Appendix A), despite having a serious and persistent mental illness. The present study is part of an ongoing, open clinical trial evaluating recovery outcomes of WMR. Data for the present study was collected over a 12-month period. Seventy-five individuals provided data used in the present study, making up the total WMR sample.

Of these 75 individuals, ethnicity data was available for 74 individuals. The largest proportion of the sample (80.1%) identified as “White/European American,” while 8.1% identified as “Black/African American,” 4.1% identified as “Native American/Pacific Islander,” 4.1% identified as “Hispanic/Latino,” and 2.7% of the sample identified as “other.” Gender data was available for all 75 of the individuals of the total WMR sample. The sample was well-balanced, with 54.7% being female and 45.3% being male. The mean age of the sample was 43.40 (SD=10.97) years old, with individuals ranging from 23.40 to 64.74 years old. Of the 75 participants in the total
WMR sample, both pre-WMR and post-WMR data was available for 37 individuals on at least one of the measures utilized in the present study. The demographics for individuals with both pre- and post-WMR data differed somewhat from the full sample. Specifically, of the 37 participants who had both pre- and post-WMR data for at least one measure, 75.7% identified as “White/European American,” 10.8% identified as “Black/African American,” 5.4% identified as being “Native American/Pacific Islander,” 5.4% identified as “other,” and 2.7% identified as “Hispanic/Latino.” What differed most between the total WMR sample and pre-WMR/post-WMR subsample was the proportion of men and women in each. Of the 37 individuals with pre- and post-WMR data, 56.8% were male and 43.2% were female. The mean age of these individuals was 41.83 (SD=11.49) years old, with ages ranging from 23.40 years old to 64.24 years old. See Table 2 for the demographics for the total WMR sample and pre/post-WMR subsample.

Table 2

Demographics for Total WMR Sample Pre/Post-WMR subsample

<table>
<thead>
<tr>
<th></th>
<th>Total Sample</th>
<th>Pre and Post-WMR</th>
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<tbody>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White/European American</td>
<td>81.1%</td>
<td>75.7%</td>
</tr>
<tr>
<td>Black/African American</td>
<td>8.1%</td>
<td>10.8%</td>
</tr>
<tr>
<td>Native American/Pacific Islander</td>
<td>4.1%</td>
<td>5.4%</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>4.1%</td>
<td>2.7%</td>
</tr>
<tr>
<td>Other</td>
<td>2.7%</td>
<td>5.4%</td>
</tr>
<tr>
<td><strong>Gender (n=60)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>45.3%</td>
<td>56.8%</td>
</tr>
<tr>
<td>Female</td>
<td>54.7%</td>
<td>43.2%</td>
</tr>
<tr>
<td><strong>Age in years (n=60)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M (SD)</td>
<td>43.40 (10.97)</td>
<td>41.83 (11.49)</td>
</tr>
</tbody>
</table>
Measures

Posttraumatic Stress Disorder Checklist. The Posttraumatic Stress Disorder Checklist (PCL) (Weathers, Huska, & Keane, 1991), a 17-item self-report measure aimed at assessing PTSD symptoms, was used to measure PTSD symptom levels in participants at pre- and post-treatment (See Appendix B). Each of the 17 items are rated by the individual indicating to what degree he or she has been bothered by a symptom in the past month, using a 1 to 5 scale in which 1 indicates “not at all” and 5 indicates “extremely.” An example of an item on the PCL is: “Repeated disturbing memories, thoughts, or images of the (stressful experience).” Scores may range from 17 to 85, with higher scores indicating higher levels of PTSD symptomatology. The initial psychometric data, presented by Weathers Litz, Herman, Huska, & Keane (1993) demonstrated the PCL’s good test-retest reliability ($r=.96$) and high internal consistency among B ($\alpha=.93$), C ($\alpha=.92$), and D ($\alpha=.92$) PTSD symptom clusters and all 17 symptoms ($\alpha=.97$).

More recently, Grubaugh, Elhai, Cusack, Wells, and Frueh (2007) explored the use of the PCL with individuals with SMI; specifically, all participants in their study had diagnoses of schizophrenia or schizoaffective disorder. These authors also reported that the PCL has high internal consistency ($\alpha=.87$) with this sample. Additionally, the authors suggest that this measure provides adequate diagnostic accuracy (AUC=.76) when used with the SMI population. Based on the authors’ findings, they suggest a range of cut-off scores (49-54) for diagnosing PTSD in the SMI population depending on the risks associated with both false negatives and positives (Grubaugh, Elhai et al., 2007).
**Connor-Davidson Resilience Scale.** The Connor-Davidson Resilience Scale (CD-RISC) (Connor & Davidson, 2003) is a 25-item self-report scale (See Appendix C), which the current study used to determine the level of resilience in participants at two times—pre- and post-treatment. Items on this scale were drawn from sources such as Kobasa (1979), Rutter (1985), Lyons (1991) as well as stories of Shackleton’s journeys. Items relating to control, commitment, and change were drawn from Kobasa’s work, while items such as developing strategies with a clear goal, action orientation, coping, humor in the face of stress, stable bonds, and social problem solving skills were drawn from Rutter’s work. Furthermore, items relating to patience and stress endurance were drawn from Lyon’s work, and items of faith were drawn from Shackleton’s experiences. The respondents must indicate to what degree each of the statements is true of themselves. Each item is on a 5-point scale where 0 indicates “not true at all” and 4 indicates “true nearly all of the time.” Examples of items include: “Able to adapt to change” and “Prefer to take the lead in problem solving.” Scores can range from 0-100, with higher scores indicating greater resilience. Using a population of primary care outpatients, psychiatric patients, patients with generalized anxiety disorder, and patients with PTSD, this measure has been found to have good internal-consistency (Cronbach’s $\alpha = .89$) and test-retest reliability ($r = .87$, and to adequately determine levels of resilience in its respondents (Connor & Davidson, 2003).

**Mental Health Recovery Measure.** The Mental Health Recovery Measure (MHRM) (Young & Bullock, 2003) is a self-report measure specifically designed to assess mental health recovery for individuals with severe and persistent mental illness (See Appendix D). The items and domains of the MHRM were developed from a
qualitatively derived grounded-theory model of recovery based upon the phenomenology of recovery from the perspectives of persons with SMI (Young & Ensing, 1999). Items on the MHRM are categorized into one of six domains, corresponding to six higher order categories of the recovery model: 1) Overcoming Stuckness, 2) Self-Empowerment, 3) Learning and Self-Redefinition, 4) Basic Functioning, 5) Overall Well-Being, and 6) Reaching New Potentials. Normative data for persons utilizing community mental health resources and supports is available for the MHRM (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).

**Procedure**

WMR participants completed pre- and post-WMR measures of the PCL, MHRM, and CD-RISC. The initial data collection took place following the WMR orientation session for each group. Participants then attended the 10 sessions, two hours in length, which make up the WMR curriculum (See Appendix E). At the end of the tenth and final session, participants again completed the PCL, MHRM, and CD-RISC, which served as their post-treatment assessment.
Chapter Four

Results

Posttraumatic Stress Disorder Checklist (PCL)

Of the 75 individuals who made up the total WMR sample, pre-WMR data on the PCL was available for 60 of them. The pre-WMR PCL mean for these individuals was found to be 46.47 ($SD = 15.89$; range of 18-81). This mean is somewhat lower than the mean PCL score ($M=52.36$; $SD=14.52$) reported by Grubaugh, Elhai et al. (2007) for their SMI sample. When comparing the mean PCL score of the current sample to samples comprised of only individuals with diagnosed PTSD, it is not surprising that it is substantially lower than these means. For example, Keen, Kutter, and Krinsley (2008) reported that the mean PCL score for a sample of veterans who met criteria for PTSD was 57.0, while Weathers et al.’s (1993) original sample of individuals diagnosed with PTSD had a mean PCL score of 64.2. However, the present sample’s mean PCL score is also substantially higher than other samples comprised of individuals with and without PTSD. Specifically, Harrington and Newman (2007) reported the mean PCL score of a sample of substance abusing women as being 40.91. Similarly, of the individuals who did not qualify for PTSD in Weathers et al.’s (1993) sample, the mean PCL score was 29.4.

Using Grubaugh, Elhai et al.’s (2007) recommended cut-point of 54 on the PCL for diagnosing PTSD in the SMI population, mean PCL scores were calculated separately for the groups of individuals who did and did not meet criteria for PTSD. The mean PCL score for the 21 individuals who met criteria for PTSD was 63.26 ($SD=7.07$; range of 54-81), which much more closely mirrors the average PCL scores of the PTSD samples.
previously mentioned. The mean PCL score for the 35 individuals who did not meet criteria for PTSD was 37.44 (SD=11.22; range of 18-53).

Mean PCL scores were also calculated for men and women separately. The mean PCL score for the 29 men who completed the pre-WMR measure was 47.15 (SD=17.61; range of 18-81), while the mean PCL score for the 31 women who completed the pre-WMR measure was 45.84 (SD=14.35; range of 20-66). These descriptive statistics are presented in Table 3.

Table 3

*Descriptive Statistics for Pre-WMR PCL, CD-RISC, and MHRM*

<table>
<thead>
<tr>
<th></th>
<th>Total Sample</th>
<th>PTSD Diagnosis</th>
<th>No PTSD Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n=60</td>
<td>n=21</td>
<td>n=39</td>
</tr>
<tr>
<td>M (SD)</td>
<td>46.47 (15.89)</td>
<td>63.26 (7.07)</td>
<td>37.44 (11.22)</td>
</tr>
<tr>
<td>Range</td>
<td>18-81</td>
<td>54-81</td>
<td>18-53</td>
</tr>
<tr>
<td></td>
<td>n=60</td>
<td>n=18</td>
<td>n=35</td>
</tr>
<tr>
<td>CD-RISC</td>
<td>59.25 (19.29)</td>
<td>56.39 (20.06)</td>
<td>63.06 (SD=18.58)</td>
</tr>
<tr>
<td></td>
<td>n=70</td>
<td>n=20</td>
<td>n=20</td>
</tr>
<tr>
<td>MHRM</td>
<td>75.89 (21.45)</td>
<td>68.10 (20.79)</td>
<td>78.71 (SD=20.31)</td>
</tr>
<tr>
<td></td>
<td>n=31</td>
<td>n=32</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>18-99</td>
<td>25-95</td>
<td>16-112</td>
</tr>
<tr>
<td></td>
<td>n=31</td>
<td>n=29</td>
<td></td>
</tr>
<tr>
<td></td>
<td>79.63 (19.12)</td>
<td>18-91</td>
<td></td>
</tr>
<tr>
<td></td>
<td>n=38</td>
<td>45-112</td>
<td></td>
</tr>
</tbody>
</table>

Note. PCL=Posttraumatic Stress Disorder Checklist; CD-RISC= Connor-Davidson Resilience Scale; MHRM= Mental Health Recovery Measure.
The percentage of individuals who met criteria for PTSD at pre-WMR was also calculated. In the present sample, 35% of individuals met criteria for PTSD, while 65% did not. This finding is consistent with other rates of PTSD that have been found in the SMI population. Specifically, Howgego et al. (2005) reported that 33% of their SMI sample met criteria for PTSD, and Cusack et al. (2006) reported that 29.6% of individuals with SMI met criteria. As with the mean PCL scores, prevalence rates of PTSD were also explored separately for men and women. In the present sample, 34.5% of the 29 men and 32.3% of the 31 women who completed the PCL at pre-WMR met criteria for PTSD. The PTSD prevalence rates of PTSD for the entire sample, men, and women are presented in Table 4.

Table 4

<table>
<thead>
<tr>
<th>PTSD Diagnosis</th>
<th>Total Sample (n=60)</th>
<th>Men (n=29)</th>
<th>Women (n=31)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>35.0%</td>
<td>34.5%</td>
<td>32.3%</td>
</tr>
<tr>
<td>No</td>
<td>65.0%</td>
<td>65.5%</td>
<td>67.7%</td>
</tr>
</tbody>
</table>

Connor-Davidson Resilience Scale (CD-RISC)

Sixty of the 75 individuals who made up the total WMR sample completed the CD-RISC at pre-WMR. The mean CD-RISC score for this sample was 59.25 (SD = 19.29; range of 21-99). Compared to other research populations, the average level of reported resilience for the WMR participants was higher than that found in some studies and lower than that found in other studies. For example, Connor and Davidson (2003) reported mean CD-RISC scores for several populations. On average, the present sample
of WMR participants had a higher resilience score than a sample of PTSD patients ($M=47.8$), and a comparable level of resilience to a sample of individuals with generalized anxiety disorder ($M=62.4$) (Connor & Davidson, 2003). However, the WMR participants also had a lower average resilience score compared to psychiatric outpatients ($M=68.0$), primary care patients ($M=71.8$), and the general population ($M=80.4$).

Mean CD-RISC scores were calculated for those individuals who met criteria for PTSD based on their PCL scores and those who did not. The 18 individuals who met criteria for PTSD had a mean CD-RISC score of 56.39 ($SD = 20.06$; range of 25-95). The 35 individuals who did not meet criteria for PTSD had a mean CD-RISC score of 63.06 ($SD = 18.58$; range of 27-99). An independent samples $t$-test was conducted in order to determine if individuals who did and did not meet criteria for PTSD differed in their self-reported level of resilience. Results of this analysis were not significant, $t(51)=-1.205$, $p=.234$.

Mean CD-RISC scores were also calculated separately for men and women. The mean score of the 31 men who completed the CD-RISC at pre-WMR was 62.55 ($SD=19.86$; range of 21-99). The mean score of the 29 women who completed the CD-RISC at pre-WMR was 55.72 ($SD=18.34$; range of 25-92). All descriptive statistics are presented in Table 3.

**Mental Health Recovery Measure (MHRM)**

Of the 75 individuals in the total sample, 70 individuals completed the MHRM at pre-WMR. The mean MHRM score for these individuals was 75.89 ($SD=21.45$; range 16-119). The mean MHRM scores for the 20 individuals who met criteria for PTSD based on their PCL responses and the 20 individuals who did not meet criteria were 68.10
An independent samples t-test was conducted in order to explore whether individuals who did and did not meet criteria for PTSD significantly differed in their self-reported level of recovery. Results of this analysis were marginally significant, $t(53)=-1.849, p=.07$. This indicates that individuals who began the WMR program and met criteria for PTSD had significantly lower levels of self-reported recovery than did those individuals who did not meet criteria for PTSD. This corresponded to a medium effect ($d=.52$) of PTSD diagnosis on self-reported levels of recovery.

Mean MHRM scores were also calculated for men and women separately. The 32 men who completed the MHRM at pre-WMR had a mean score of 79.63 ($SD=19.12$; range of 45-112), while the 38 women who completed the MHRM at pre-WMR had a mean score of 72.74 ($SD=23.02$; range of 16-119).

**Relationship between the PCL, CD-RISC, and MHRM**

In order to examine the relationship between individuals’ reported levels of PTSD symptomatology, resilience, and recovery, participants’ pre-WMR scores on the PCL, CD-RISC, and MHRM were correlated. Results of these correlational analyses indicated that individuals’ scores on the PCL and CD-RISC at pre-WMR were significantly negatively correlated; $r = -.409, p < .01$. Similarly, individuals’ scores on the PCL and MHRM at pre-WMR were significantly, negatively correlated; $r = -.411, p < .01$. Additionally, participants’ scores on the MHRM and CD-RISC were significantly, positively correlated; $r = .714, p < .001$. Results of the correlational analyses are presented in Table 5.
Table 5

Correlations between the PCL, CD-RISC, and MHRM

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>r</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCL &amp; CD-RISC</td>
<td>53</td>
<td>-.409</td>
<td>.002</td>
</tr>
<tr>
<td>PCL &amp; MHRM</td>
<td>55</td>
<td>-.411</td>
<td>.002</td>
</tr>
<tr>
<td>CD-RISC &amp; MHRM</td>
<td>56</td>
<td>.714</td>
<td>.000</td>
</tr>
</tbody>
</table>

Note. PCL=Posttraumatic Stress Disorder Checklist; CD-RISC= Connor-Davidson Resilience Scale; MHRM= Mental Health Recovery Measure.

Changes in PTSD Symptoms Following Participation in WMR

Of the individuals who completed the pre-WMR measure of the PCL, post-WMR data was obtained for 26 individuals. Of these 26 individuals, two participants had incomplete data. In order to utilize all of the data collected, a missing value analysis (using SPSS 17.0) was conducted in order to impute the missing data points.

Across these 26 participants, the mean PCL score at pre-WMR and post-WMR was 45.94 (SD=18.03) and 38.91 (SD=14.42), respectively. In order to determine if WMR participant’s self-reported level of PTSD symptomatology decreased following participation in WMR, a dependent samples t-test was conducted to compare participants’ pre- and post-WMR PCL scores. The result of this t-test was significant, \( t(25)= 2.50, p< .05 \). This statistically significant reduction in mean PCL score from pre- to post-WMR corresponded to a medium effect size for WMR participation on PTSD symptom levels, \( d=.50 \). Pre-post PCL means and results of the dependent samples t-test are presented in Table 6.
Table 6

**Dependent t-test Results for the PCL, CD-RISC, and MHRM**

<table>
<thead>
<tr>
<th></th>
<th>Pre M (SD)</th>
<th>Post M (SD)</th>
<th>t</th>
<th>Df</th>
<th>p value</th>
<th>ES</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCL</td>
<td>45.94 (18.03)</td>
<td>38.91 (14.42)</td>
<td>2.50</td>
<td>25</td>
<td>.019</td>
<td>.50</td>
</tr>
<tr>
<td>CD-RISC</td>
<td>67.97 (20.66)</td>
<td>71.15 (17.79)</td>
<td>-1.19</td>
<td>26</td>
<td>.246</td>
<td>.23</td>
</tr>
<tr>
<td>MHRM</td>
<td>82.35 (22.11)</td>
<td>87.35 (20.40)</td>
<td>-1.22</td>
<td>33</td>
<td>.231</td>
<td>.21</td>
</tr>
</tbody>
</table>

*Note: PCL=Posttraumatic Stress Disorder Checklist; CD-RISC= Connor-Davidson Resilience Scale; MHRM= Mental Health Recovery Measure.*

When the clinical cut-offs for the PCL were examined for the sample of 26 individuals with pre- and post-WMR PCL data, 34.6% of the WMR participants met criteria for PTSD at pre-WMR, while 11.5% met criteria at post-WMR. Furthermore, at pre-WMR, 35.3% of men met criteria for PTSD, while at post-WMR, only 5.9% of the men still met criteria for PTSD. With respect to women at pre-WMR, 33.3% met criteria for PTSD, while at post-WMR, 22.2% still met criteria for PTSD. The prevalence rates of PTSD for the entire sample, men, and women who completed the PCL at both pre- and post-WMR are presented in Table 7.

Table 7

**PTSD Prevalence for the Combined Sample, Men, and Women with Pre- and Post-WMR Data**

<table>
<thead>
<tr>
<th></th>
<th>Combined Sample (n=26)</th>
<th>Men (n=17)</th>
<th>Women (n=9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>% with PTSD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-WMR</td>
<td>34.6</td>
<td>35.3</td>
<td>33.3</td>
</tr>
<tr>
<td>Post-WMR</td>
<td>11.5</td>
<td>5.9</td>
<td>22.2</td>
</tr>
</tbody>
</table>
In order to examine individual change in self-reported level of PTSD symptomatology, change scores on the PCL were computed for each individual and evaluated for whether or not they met criteria for reliable change based on the Jacobson and Traux (1991) method for establishing a threshold for statistically reliable change. In order to determine the amount of change on the PCL that would satisfy the criteria for reliable change with an absolute deviation of 1.96 ($p<.05$), the standard deviation ($SD=9.1$) and reliability coefficient ($r=.96$) from Weathers et al.’s (1993) sample of 1,006 veterans were used. Results of this computation indicated that changes of greater than five points indicated a reliable change on the PCL. For the current sample of individuals who completed the WMR program, 46.2% showed reliable improvement on the PCL, 19.2% showed reliable deterioration, and 34.6% showed no reliable change.

Individual scores at pre- and post-WMR were also evaluated to determine the percentage of participants who clinically improved or deteriorated with regard to their PTSD symptom levels (i.e., an individual’s PCL score changed from meeting criteria for PTSD to not meeting criteria or visa versa). In the present sample of WMR participants, 26.9% clinically improved, indicating that they transitioned from meeting criteria to not meeting criteria for PTSD based on the clinical cut-off (Total score=54) used in the present study. Furthermore, 3.9% of the present sample clinically deteriorated. This indicates that although 19.2% of individuals reliably deteriorated, only a small proportion of these individuals’ deterioration resulted in them transitioning from not meeting criteria for PTSD to meeting criteria for PTSD.
**CD-RISC Results Following Participation in the WMR Program**

Of the sixty individuals who completed the CD-RISC at pre-WMR, post-WMR data on the CD-RISC was obtained for 27 of these individuals. Similar to the PCL data, three individuals had incomplete CD-RISC data. As such, missing data imputation was conducted using the Missing Values Analysis module for SPSS 17.0.

The mean CD-RISC score for the 27 individuals with pre- and post-WMR data was 67.97 (SD=20.66) at pre-WMR and 71.15 (SD=17.79) at post-WMR. In order to determine if WMR participant’s self-reported level of resilience increased following participation in WMR, a dependent samples t-test was conducted to compare participants’ pre- and post-WMR CD-RISC scores. Results were not significant, \( t(26) = -1.19, p = .246 \). Results of the dependent samples t-test are presented in Table 6.

**Changes in Mental Health Recovery Following Participation in the WMR Program**

Post-WMR data on the MHRM was available for 34 of the 70 participants who completed the MHRM at pre-WMR. Missing data on this measure was addressed by imputing the individual’s average response to an item. The mean MHRM score for participants at pre- and post-WMR was 82.35 (SD=22.11) and 87.35 (SD=20.41), respectively. In order to determine if WMR participant’s self-reported level of recovery increased following participation in WMR, a dependent samples t-test was conducted to compare participants’ pre- and post-WMR MHRM scores. Results of this analysis were not significant, \( t(33) = -1.22, p = .231 \). Results of the dependent samples t-test are presented in Table 6.

Of the 34 participants who had complete pre- and post-WMR data on the MHRM, 23 of these individuals also had complete pre- and post-WMR data on the PCL. In order
to examine the self-reported changes in recovery for this unique subsample of 23 participants, a dependent samples $t$-test was conducted. The mean MHRM score at pre-WMR for these individuals was 78.61 (SD=23.78), while the MHRM score at post-WMR was 91.13 (SD=20.24). Results of the dependent samples $t$-test were significant, $t(22)=-2.46, p<.05$. Cohen’s $d$ was calculated and found to be .52, indicating a medium effect of WMR participation on self-reported levels of recovery for individuals who also had complete pre- and post-PCL data.
Chapter Five

Discussion

Past research has emphasized the elevated rates of PTSD found among individuals within the SMI population (Howgego et al., 2005, Mueser et al., 1998), the extent to which PTSD is inadequately addressed in the treatment of this population (Cusack et al., 2006; Mueser et al., 1998) and the ways in which PTSD can exacerbate the symptoms of individuals’ primary diagnoses (e.g., more severe psychotic symptoms, increased risk of suicide, more rapid cycling in individuals with bipolar disorder) (Cusack, Frueh, & Brady, 2004; Leverich et al., 2002; Macguire et al., 2008; Manning & Stickley, 2009). The results of the present research support past research findings regarding the high rates of PTSD in the SMI population. Specifically, 35% of WMR participants who completed the pre-WMR assessment qualified for a diagnosis of PTSD using the clinical cut-off suggested by Grubaugh, Elhai et al. (2007) for diagnosing PTSD with the PCL with an SMI sample.

The PTSD rate found in the current study is highly consistent with the rates reported by Howgego et al. (2005), who found that 33% of individuals with SMI met criteria for PTSD, as well as the rate reported by Mueser et al. (1998), who found that 43% of individuals with SMI met criteria for PTSD. When the PTSD prevalence rates found in the present study are compared with the prevalence rates reported for the general population (8-12%; Kessler et al., 2005), it is especially noteworthy that individuals in the current sample reported experiencing PTSD at rates three-times higher than the
general population, again highlighting the necessity of programs aimed at treating individuals with SMI to more specifically address PTSD symptomatology.

Past research on the general population (Tolin & Foa, 2008) has consistently found that women are two-times more likely to experience PTSD than are men. However, research on PTSD in the SMI population is somewhat mixed. Mueser, Salyers, et al. (2004) found that rates of PTSD were nearly equal in men and women while other researchers reported that PTSD was nearly 1.5 times more likely in women than men (Cusack et al., 2006). Like the findings of Mueser, Salyers, et al., prevalence rates for PTSD in the current study were very similar between men and women participating in the WMR program, with 34.5% of men and 32.3% of women meeting criteria.

One explanation as to why the rates of PTSD for the men and women who participated in WMR differ from the general population may be the average age (43.11) of the WMR participants. Specifically, results of the National Comorbidity Survey indicated that as the age of women increases, rates of PTSD generally decrease, while as the age of men increases, rates of PTSD generally increase as well (Kessler et al., 1995). Thus, the equal rates of PTSD found in men and women in the present study may be the result of the differing lifespan distributions of PTSD in men and women. As previous research has indicated (Mueser, Salyers, et al., 2004), it also may be that PTSD rates in the SMI population simply do not follow the same gender trend as in the general population.

An examination of the mean PCL score for WMR participants reveals that their levels of self-reported PTSD symptomatology at pre-WMR is very similar to the mean PCL scores of other SMI samples (Grubaugh et al., 2007) and unsurprisingly, somewhat
lower than samples that have been identified as having PTSD (Keen et al., 2008, Weathers et al., 1993). However, when evaluating the mean PCL score of only individuals that meet criteria for PTSD based on their responses, WMR participants reported that they are experiencing PTSD symptom levels comparable to these other PTSD samples. This suggests that the severity of PTSD that WMR participants reported is analogous to the PTSD severity reported by other individuals with and without SMI.

Because individuals with comorbid PTSD and SMI often experience exacerbated symptoms relative to their primary diagnoses, and because PTSD is often inadequately treated in this population, it was paramount to determine if WMR, as a treatment program designed specifically for individuals with SMI, was effective in addressing participants’ PTSD symptomatology. The results of the current study suggest that completion of the WMR program helps to significantly decrease the self-reported PTSD symptomatology of its participants. Furthermore, the PTSD prevalence rate of WMR participants decreased from being three-times higher than the general population (34.6%) prior to starting the WMR program, to mirroring the PTSD prevalence rate found in the general population (11.5%) following completion of the WMR program. Moreover, just over a quarter of WMR participants both reliably improved in their PTSD symptomatology and clinically improved following participation in the WMR program. The findings of the present study suggest that WMR is effective in addressing the PTSD symptomatology of individuals with SMI, setting itself apart from other treatment programs of this population which have largely ignored PTSD symptomatology.

Although many individuals in both the general and SMI population experience PTSD symptoms, most individuals who have experienced some type of trauma do not go
on to develop full PTSD. This has led researchers to explore what differentiates individuals who develop PTSD from those who do not. As has been previously discussed, researchers have identified resilience—the capacity to continue with one’s normal functioning following stress or loss the (Bonanno, 2004)—as one key attribute which distinguishes these two groups. This conceptualization is supported by the findings of the present research. Specifically, WMR participants’ self-reported levels of PTSD and resilience at pre-WMR were significantly negatively correlated, suggesting that individuals higher in resilience do experience less PTSD symptomatology.

However, resilience does not appear to be the only factor related to PTSD symptom levels, nor does it appear to be completely independent of recovery in general. This was evidenced by the significant negative correlation found between individuals’ self-reported levels of PTSD symptomatology and recovery (MHRM) at pre-WMR, as well as the significant positive correlation found between individuals’ self-reported levels of resilience and recovery at pre-WMR. Additionally, the present study found that the difference in self-reported levels of recovery for individuals with and without PTSD was marginally significant, with individuals with PTSD reporting lower levels of recovery. However, this is not surprising given Breedlove’s (2006) factor analysis of the two measures of resilience and recovery used in the present study. Breedlove noted that resilience and recovery do share some characteristics but also have unique properties that can be psychometrically distinguished. For this reason, he suggested that focusing mental health interventions on both recovery and resilience would not be redundant because these constructs do have some unique characteristics.
Results of the present study indicated that the self-reported level of resilience of WMR participants who completed the pre-WMR measure are somewhat lower than most samples on which resilience research has been conducted. Specifically, using the CD-RISC, the average level of resilience of WMR participants in the current study was found to be lower than the average resilience score of the general population, a sample of primary care patients, and a sample of psychiatric outpatients (Connor & Davidson, 2003). The WMR participants in the current study did, however, report resilience levels comparable to a sample of individuals with generalized anxiety disorder and higher than a sample of individuals identified as having PTSD (Connor & Davidson, 2003).

Given the apparent relationship among PTSD symptomatology, resilience, and recovery, the present study sought to explore the effect of WMR participation on both resilience and recovery. It was expected that following participation in WMR, individuals’ self-reported levels of resilience would significantly increase, because much of the WMR curriculum focuses on characteristics which have been identified by research as being seminal to resilience (e.g., positive emotions, social support, self-efficacy, role models) (Agaibi & Wilson, 2005; Gillespie et al., 2007; Haglund et al., 2007; Southwick et al., 2010). The results of the present study do not support the hypothesis that WMR participants would report a significant increase in their average level of resilience on the CD-RISC from pre- to post-WMR. It is worth noting that the statistical power for the pre-post WMR analyses was low, with an achieved power (1 - \( \beta \)) of this analysis being .20. Furthermore, it may be that the CD-RISC is an inappropriate measure of change in resilience for individuals with SMI. Specifically, they may find it difficult to endorse several of the items on the scale given their unique set of
circumstances. Additionally, Connor and Davidson (2003) reported that the CD-RISC was able to differentiate psychiatric inpatients from other groups; however, there is a lack of research demonstrating the CD-RISC’s ability to measure change in resilience in the SMI population. Still, these results suggest that the WMR curriculum, although it may address some important aspects of resilience, does not focus narrowly enough on this concept to significantly increase participants’ self-reported level of resilience.

The hypothesis that WMR participants would significantly increase in their self-reported level of recovery on the MHRM from pre- to post-WMR was not supported by the present study. Although the change in the average MHRM score from pre- to post-WMR was in the expected direction, there was not a significant difference between individuals’ self-reported levels of recovery at pre- and post-WMR. Furthermore, the magnitude of the change in average self-reported levels of recovery in this sample is smaller than what has been reported by past research which has used larger samples and found statistically significant increases in self-reported levels of recovery from pre- to post-WMR (Bullock et al., 2010). However, an important consideration is that when running the same analysis on only individuals who had pre- and post-WMR data on both the MHRM and PCL, the difference between individuals’ average self-reported levels of recovery at pre- and post-WMR was found to be significant. This indicates that individuals who experience a reduction in PTSD symptoms also report making advances in recovery from pre- to post-WMR.

Previous research indicates that resilience can be increased in individuals through some type of clinical intervention (Dolbier et al., 2010; Schiraldi et al., 2010); however, that result was not found in the current study, at least using the CD-RISC as a measure of
resilience. However, in the current study, WMR participants’ self-reported levels of PTSD symptomatology did significantly decrease following participation in the WMR program. For these changes in PTSD symptomatology to take place some mechanism—whether it be resilience, recovery, or something else—must be at play. Norris et al. (2009) identified resilience as occurring when individuals experience a rapid improvement in their distress once they begin to rehabilitate. Specifically, Norris et al. assigned those individuals whose PTSD symptomatology decreased over the course of approximately six months to the “resilient” group. Thus, WMR participants’ significant decrease in PTSD symptomatology over the course of the 10-week WMR curriculum would also be classified as “rapid improvement,” suggesting that resilience may have been exhibited by WMR participants, but was not captured by the measure of resilience used in the present study.

However, Norris et al. also described a “chronic dysfunction” trajectory in which an individual’s initial stress reaction continues. This definition also appears to describe many individuals who participate in WMR, as many participants have been receiving treatment for their psychiatric illnesses for years prior to beginning the WMR program. Thus, it may be that individuals who fall into this chronic dysfunction group are less likely to increase in resilience, given their previous difficulty employing coping strategies to manage trauma symptoms, and more likely to demonstrate a recovery trajectory. This is consistent with Bonanno’s (2004) conceptualization of recovery in which he posited that recovery involves an individual experiencing several months of dysfunction and then gradually returning to the level of functioning he or she experienced prior to the stressor.

**Limitations and Recommendations for Future Research**
Four limitations should be considered when reviewing the results of the present research. One limitation to the current research is that it is part of an on-going open clinical trial that does not include a comparison treatment or control group. As a result, it cannot be definitively concluded that the individuals’ significant decrease in PTSD symptomatology from pre- to post-WMR was solely the result of the WMR intervention. WMR participants are often concurrently receiving other mental health services, which may also contribute to the significant decrease in individuals’ self-reported level of PTSD symptomatology from pre- to post-WMR. Additionally, the finding of the current study may be attributed to the passage of time or some other change which occurred in the individuals’ lives over the course of the 10-week WMR curriculum.

A second limitation relates to the lack of attendance data for each of the individuals who participated in WMR. Thus, it is unknown whether or not individuals attended the recommended minimum number of sessions (8) to obtain the maximum benefit from WMR.

A third limitation to the current study relates to the measure used to assess PTSD symptomatology. The PCL cannot determine if the respondent meets Criterion A for PTSD (i.e., the person has been exposed to a traumatic event in which the person has experienced, witnessed, or been confronted with an event that involves actual or threatened death or serious injury, or a threat to the physical integrity of oneself or others, and the person’s response involved intense fear, helplessness, or horror). Although participants may have met criteria for PTSD based on the clinical cut-off score on the PCL used in the current study, these participants were not evaluated for whether or not
they met Criterion A for PTSD, as the trauma history of these participants was not collected.

A fourth limitation involves the relatively small sample size obtained for the post-WMR data in this study. As previously mentioned, post-WMR data were only available for about half of the individuals who completed the pre-WMR assessment. Because some of the statistical analyses of pre-post data were underpowered, particularly for the resilience outcomes, it is not clear whether there simply was not an effect of WMR participation on resilience or if the sample size was not large enough to detect this effect. Thus, future research should be conducted in which a larger sample is utilized to more confidently evaluate the effect of WMR participation on resilience and PTSD symptomatology.

Future research is also warranted in order to determine the mechanisms through which WMR works to decrease PTSD symptomatology in individuals who complete the program. This may be accomplished through qualitative research in which semi-structured interviews are employed to obtain rich descriptions of the individuals’ experiences relative to participation in WMR and how it may help them to cope with their trauma symptoms.

**Clinical Implications**

Despite the limitations noted above, the results of the current research do have important clinical implications. The present study reiterates the disparities between rates of PTSD in individuals with SMI and in the general population emphasized in other research. Specifically, the rate of PTSD for the present sample was three times greater than the rate of PTSD reported for the general population. Past research has also revealed
the extent to which PTSD symptomatology has been ignored in individuals with PTSD, despite research which shows that symptoms of PTSD exacerbate symptoms of severe mental illnesses such as bipolar disorder and schizophrenia. However, the current study provides empirical data demonstrating that WMR, a recovery program designed specifically for individuals with severe mental illness, aided in the reduction of PTSD symptomatology in individuals who completed the program. While programs designed to specifically address PTSD in individuals with SMI have proven effective in decreasing PTSD symptomatology (Mueser et al., 2007), such programs require as many as 21 weeks to achieve these results. Results of the present study indicate that WMR accomplishes this same goal in only 10 weeks. Furthermore, research (Salyers et al., 2004) has indicated that two reasons clinicians do not address trauma symptoms with their clients is that the clients often refuse to discuss their trauma history and that the clinicians fear that having the clients discuss their trauma experiences will only aggravate their psychiatric symptoms, despite the vast amount of research which has identified exposure therapy as being an effective treatment for PTSD (Powers, Halpern, Fereschak, Gillihan, & Foa, 2010). Although exposure therapy has been empirically supported as a treatment for PTSD, this type of therapy would likely be inappropriate as part of WMR for 2 reasons: 1) WMR groups are often facilitated by case managers who have not received the appropriate training in this area, indicating it would be unethical for them to conduct exposure therapy, and 2) research suggests that forcing individuals to talk about trauma when they may not be experiencing significant levels of PTSD symptoms may actually make their PTSD symptomatology worse (Deville, Gist, & Cotton, 2006). However, it appears that these areas of contention can be avoided, as the results of the
present study indicate that individuals reported a significant decrease in PTSD symptom levels following participation in the WMR program without having to discussing their trauma experiences.

The data which suggests that WMR may not significantly promote resilience in individuals who complete the program also has implications. Research (Cougle et al., 2009; Mueser et al., 1998) indicates that individuals who experience one trauma are at an increased risk for experiencing subsequent trauma. This stresses the value of engendering resilience in the individuals who participate in WMR, which would allow them to better cope with future trauma that they may experience. Thus, making changes to the WMR curriculum so that it more deliberately teaches individuals how to develop characteristics which research has identified as being associated with resilience may benefit WMR participants and be more likely to lead to levels of resilience change that can be detected over time using the CD-RISC.
References


Appendix A

ADULT RESEARCH PARTICIPANT - INFORMED CONSENT FORM
Title of Project: Wellness Management and Recovery (WMR) Program

Principal Investigator: Wesley A. Bullock, Ph.D. 419-350-2717
Other Investigators: Julie Sage, M.A. Danelle Happ, M.A. Tanya Ozbey
Megan Bodine, Alisha Lee, Brittany Tenbarge

Purpose:
The University of Toledo (UT), working with the Ohio Coordinating Center of Excellence for Wellness Management and Recovery (WMR), is inviting people to take part in a clinical service and research project. The research project is under the direction of Wesley A. Bullock, Ph.D. The goal of this project is to evaluate the effectiveness of the WMR program.

Description of Procedures:
The WMR program is based on clinical best practices promoted by the Ohio Department of Mental Health. WMR is a psycho-educational program that helps people gain knowledge and skills to cope better with their mental health problems, work towards health and wellness goals, and gain more control over their lives. The WMR program helps people work with their mental health team so that they are at less risk for illness and can cope better with their symptoms. Recovery happens when people discover their strengths and abilities to pursue their goals and get a sense of identity beyond their mental health problems.

The WMR program is provided in a group format, with about eight persons in each WMR group. The WMR program is 10 sessions long. Each session is two hours, with a 10 minute break in the middle. Your feedback and feedback from your WMR group leaders will be used to evaluate how well the program is working.

As a WMR research participant, you will complete a group of self-report, opinion measures at three times: (1) before starting in the WMR program, (2) after the WMR program is completed, and (3) six months after the WMR program. The outcome measures include: 1) the Mental Health Recovery Measure (30 items), 2) The WMR Client Self-Report Scales (27 items), and 3) The WMR Social Support Questionnaire. These measures take about an hour to finish. The measures ask for your opinion about your mental health symptoms, your quality of life, and your mental health recovery. These measures will also be used by your WMR treatment provider to help fit the WMR program to best meet your needs and wellness goals.

Voluntary Participation:
Your participation in the WMR program and taking the research measures is voluntary. You do not need to answer any question that you do not want to, and you may stop participating in the program or its evaluation at any time. You will continue to receive your regular care from your mental health provider whether or not you participate.

If you choose not to participate, or decide to withdraw from this project, it will not affect your current or future relationship with the agency providing you services, or with the University of Toledo.

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.

Confidentiality:
All of the data we collect to assess the WMR program will be kept confidential. The consent forms with signatures will be kept apart from the measures. Your name will not be used on research records – only an ID number. Only group data or group themes, not individual responses, will be reported in any publication coming from the outcome evaluation of this project. The researchers will make every effort to prevent anyone who is not on the research team from knowing that you provided this information, or what that information is. Although we will make every effort to protect your confidentiality, there is a low risk that
this might be breached. All data collected will be kept for 5 years following the end of the project and then will be destroyed.

**Potential Risks:**
There are minimal risks to participation in this study, including loss of confidentiality. 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.

**Potential Benefits:**
By volunteering for this program, you will have a chance to participate in a treatment program that is based on best clinical practices in mental health. The main goal of this program is to help people cope better with mental illness, and identify and pursue wellness goals that are important to them. Participating in the research evaluation may help our understanding of the recovery process for persons with mental health problems.

**Contact Information:**
Before you decide to take part in this study, please ask if you have any questions. If you have questions at any time you should contact the Principle Investigator (Wesley A. Bullock, Ph.D.) at 419-530-2717. If you have questions beyond those answered by the research team or your rights as a research participant or research-related injuries, please feel free to contact the Chairperson of the SBE Institutional Review Board, Dr. Barbara Chesney, in the Office of Research on the main campus at 419-530-2844.

Before you sign this form, please ask any questions on any part of this study that is not clear to you. You may take as much time as necessary to think it over. You will receive a copy of this consent form to keep.

**SIGNATURE SECTION – Please read carefully**
You are making a decision whether or not to take part in this research study. Your signature indicates that you have read the information provided above, you have had all your questions answered, and you have decided to take part in this research.

Note: Individuals who are not able to provide written consent must also have a signature by their legal guardian.

You, or your legal guardian, will be given a copy of this consent form to keep.

The date you sign this document to enroll in this study, that is, today's date must fall between the dates indicated at the bottom of the page.

<table>
<thead>
<tr>
<th>Name of Participant (please print)</th>
<th>Signature</th>
<th>Date</th>
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<tbody>
<tr>
<td>Name of Legal Guardian (if required)</td>
<td>Signature</td>
<td>Date</td>
</tr>
<tr>
<td>Name of Person Obtaining Consent</td>
<td>Signature</td>
<td>Date</td>
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</table>
The research project described in this consent form and the form itself have been reviewed and approved by the University of Toledo Social, Behavioral & Educational Review Board (SBE IRB) for the period of specified below.

<table>
<thead>
<tr>
<th>SBE IRB #</th>
<th>Approved Number of Subjects</th>
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<tbody>
<tr>
<td>105783</td>
<td>1,500</td>
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</tbody>
</table>

Project Start Date: 09/1/10  Project Expiration Date: 09/1/11
Appendix B

PTSD Checklist – Civilian Version (PCL-C)

WMR Pre______ Post______ Follow-up______ Date____________

First Name________________________  Birth date _______________ Last 4 digits SSN _____

Instructions: Below is a list of problems and complaints that people sometimes have in response to stressful life experiences. Please read each one carefully, put an “X” in the box to indicate how much you have been bothered by that problem in the last month.

<table>
<thead>
<tr>
<th>No.</th>
<th>Response:</th>
<th>Not at all (1)</th>
<th>A little bit (2)</th>
<th>Moderately (3)</th>
<th>Quite a bit (4)</th>
<th>Extremely (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Repeated, disturbing <em>memories, thoughts, or images</em> of a stressful experience from the past?</td>
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<td>2.</td>
<td>Repeated, disturbing <em>dreams</em> of a stressful experience from the past?</td>
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<td>3.</td>
<td>Suddenly <em>acting or feeling</em> as if a stressful experience were happening again (as if you were reliving it)?</td>
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<td>4.</td>
<td>Feeling very upset when <em>something reminded</em> you of a stressful experience from the past?</td>
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<td>5.</td>
<td>Having <em>physical reactions</em> (e.g., heart pounding, trouble breathing, or sweating) when <em>something reminded</em> you of a stressful experience from the past?</td>
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<td>6.</td>
<td>Avoid <em>thinking about</em> or <em>talking about</em> a stressful experience from the past or avoid <em>having feelings</em> related to it?</td>
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<td>7.</td>
<td>Avoid <em>activities or situations</em> because <em>they remind</em> you of a stressful experience from the past?</td>
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<td>8.</td>
<td>Trouble <em>remembering important parts</em> of a stressful experience from the past?</td>
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<td>9.</td>
<td>Loss of <em>interest in things that you used to enjoy</em>?</td>
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<td>10.</td>
<td>Feeling <em>distant or cut off</em> from other people?</td>
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<td>11.</td>
<td>Feeling <em>emotionally numb</em> or being unable to have loving feelings for those close to you?</td>
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<td>12.</td>
<td>Feeling as if your <em>future</em> will somehow be <em>cut short</em>?</td>
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<td>13.</td>
<td>Trouble <em>falling or staying asleep</em>?</td>
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<td>Question</td>
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<td>14.</td>
<td>Feeling <em>irritable</em> or having <em>angry outbursts</em>?</td>
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<td>15.</td>
<td>Having <em>difficulty concentrating</em>?</td>
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<td>16.</td>
<td>Being “super alert” or watchful on guard?</td>
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<td>17.</td>
<td>Feeling <em>jumpy</em> or easily startled?</td>
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</tbody>
</table>

# Appendix C

**The Connor-Davidson Resilience Scale** (Connor & Davidson, 2003)

<table>
<thead>
<tr>
<th>WMR Pre</th>
<th>Post</th>
<th>Follow-up</th>
<th>Date</th>
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First Name __________________________  Birth date _______________ Last 4 digits SSN _____

**Instructions:** Please indicate how much you agree with the following statements as they apply to you over the last month. If a particular situation has not occurred recently, answer according to how you think you would have felt.

<table>
<thead>
<tr>
<th>Item</th>
<th>Response:</th>
<th>Not True (0)</th>
<th>Rarely True (1)</th>
<th>Sometimes True (2)</th>
<th>Often True (3)</th>
<th>True Nearly All the Time (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>I am able to adapt when changes occur.</td>
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<td>2.</td>
<td>I have at least one close and secure relationship, which helps me when I am stressed.</td>
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<td>3.</td>
<td>When there are no clear solutions to my problems, sometimes fate or God can help.</td>
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<td>4.</td>
<td>I can deal with whatever comes my way.</td>
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<td>5.</td>
<td>Past successes give me confidence in dealing with new challenges and difficulties.</td>
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<td>6.</td>
<td>I try to see the humorous side of things when I am faced with problems.</td>
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<td>7.</td>
<td>Having to cope with stress can make me stronger.</td>
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<td>8.</td>
<td>I tend to bounce back after illness, injury, or other hardships.</td>
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<td>9.</td>
<td>Good or bad, I believe that most things happen for a reason.</td>
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<td>10.</td>
<td>I give my best effort, no matter what the outcome may be.</td>
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<td>11.</td>
<td>I believe I can achieve my goals, even if there are obstacles.</td>
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<td>12.</td>
<td>Even when things look hopeless, I don’t give up.</td>
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<td>13.</td>
<td>During times of stress/crisis, I know where to turn for help.</td>
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<tr>
<td>Item</td>
<td>Response:</td>
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<td>15.</td>
<td>I prefer to take the lead in solving problems, rather than letting others make all the decisions.</td>
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<td>16.</td>
<td>I am not easily discouraged by failure.</td>
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<td>17.</td>
<td>I think of myself as a strong person when dealing with life’s challenges and difficulties.</td>
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<td>18.</td>
<td>I can make unpopular or difficult decisions that affect other people, if it is necessary.</td>
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<td>19.</td>
<td>I am able to handle unpleasant or painful feelings like sadness, fear, and anger.</td>
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<td>20.</td>
<td>In dealing with life’s problems, sometimes you have to act on a hunch, without knowing why.</td>
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<tr>
<td>21.</td>
<td>I have a strong sense of purpose in life.</td>
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<td>22.</td>
<td>I feel in control of my life.</td>
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<td>23.</td>
<td>I like challenges.</td>
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<td>24.</td>
<td>I work to attain my goals, no matter what roadblocks I encounter along the way.</td>
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<td>25.</td>
<td>I take pride in my achievements.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Not True (0)</th>
<th>Rarely True (1)</th>
<th>Sometimes True (2)</th>
<th>Often True (3)</th>
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Appendix D

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.

<table>
<thead>
<tr>
<th>SD = Strongly Disagree</th>
<th>D = Disagree</th>
<th>NS = Not Sure</th>
<th>A = Agree</th>
<th>SA = Strongly Agree</th>
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<tbody>
<tr>
<td>1. I work hard towards my mental health recovery.</td>
<td>O O O O O</td>
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<tr>
<td>2. Even though there are hard days, things are improving for me.</td>
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<td>3. I ask for help when I am not feeling well.</td>
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<td>4. I take risks to move forward with my recovery.</td>
<td>O O O O O</td>
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<td>5. I believe in myself.</td>
<td>O O O O O</td>
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<td>6. I have control over my mental health problems.</td>
<td>O O O O O</td>
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<tr>
<td>7. I am in control of my life.</td>
<td>O O O O O</td>
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<td>8. I socialize and make friends.</td>
<td>O O O O O</td>
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<td>9. Every day is a new opportunity for learning.</td>
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<td>10. I still grow and change in positive ways despite my mental health problems.</td>
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<td>11. Even though I may still have problems, I value myself as a person of worth.</td>
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<td>12. I understand myself and have a good sense of who I am.</td>
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<td>13. I eat nutritious meals everyday.</td>
<td>O O O O O</td>
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<td>14. I go out and participate in enjoyable activities every week.</td>
<td>O O O O O</td>
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<td>15. I make the effort to get to know other people.</td>
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Please continue on next page.
SD = **Strongly Disagree**  D = **Disagree**  NS = **Not Sure**  A = **Agree**  SA = **Strongly Agree**

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<td>16. I am comfortable with my use of prescribed medications.</td>
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<td>17. I feel good about myself.</td>
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<td>18. The way I think about things helps me to achieve my goals.</td>
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<td>19. My life is pretty normal.</td>
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<td>20. I feel at peace with myself.</td>
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<td>21. I maintain a positive attitude for weeks at a time.</td>
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<td>22. My quality of life will get better in the future.</td>
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<td>23. Every day that I get up, I do something productive.</td>
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<td>24. I am making progress towards my goals.</td>
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<td>25. When I am feeling low, my religious faith or spirituality helps me feel better.</td>
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<td>26. My religious faith or spirituality supports my recovery.</td>
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<td>27. I advocate for the rights of myself and others with mental health problems.</td>
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<td>28. I engage in work or other activities that enrich myself and the world around me.</td>
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<td>29. I cope effectively with stigma associated with having a mental health problem.</td>
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<td>30. I have enough money to spend on extra things or activities that enrich my life.</td>
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**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 E

WMR Curriculum

Session 1: Mental Health 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