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A groundbreaking exploration into posttraumatic stress disorder (PTSD) and severe mental illness, encompassing psychotic, severe mood, and borderline personality disorders. This exceptional book equips readers with a meticulous, hands-on guide to assessing and treating these complex conditions. From comprehensive etiological knowledge to evidence-based cognitive restructuring treatment, this book is rich with empirical support. Authored by distinguished clinical researchers in PTSD and psychosis, this work stands as a testament to their expertise. An indispensable resource for clinicians, this is a definitive must-have for anyone working with people with severe mental illness.

—**Tania Lecomte, PhD**, Professor of Psychology, University of Montréal, Montréal, Québec, Canada; Director of The Canadian Network for Research in Schizophrenia and Psychoses

In this important volume, Drs. Mueser and Gottlieb provide us with a sensitive and skillful guide to assessing and treating posttraumatic stress disorder (PTSD) in individuals with serious mental illness (SMI). Their years of clinical experience, combined with their considerable research, shine through in every chapter. Thank you for this important resource and for so ably helping some of the most vulnerable trauma survivors in our care systems.

—**J. Gayle Beck, PhD**, Emerita Professor of Psychology and former Chair of Excellence, University of Memphis, Memphis, TN, United States

CONTENTS

Foreword	ix
Preface	xiii
Acknowledgments	xvii
I. BACKGROUND AND OVERVIEW OF TRAUMA AND PTSD IN SERIOUS MENTAL ILLNESS	1
1. Trauma and PTSD in Serious Mental Illness	3
2. Treatment of PTSD in People With Serious Mental Illness: The Cognitive Restructuring Program	19
3. Understanding and Assessing Trauma and PTSD	45
II. THE COGNITIVE RESTRUCTURING FOR PTSD PROGRAM	69
4. Logistics of Implementing the CR for PTSD Program	71
5. Beginning Treatment: Engagement, Orientation, Wellness Planning, and Breathing Retraining	89
6. Psychoeducation and Goal Setting	109
7. Cognitive Restructuring I: The Thought-Feeling Model and Common Styles of Thinking	133
8. Cognitive Restructuring II: The 5 Steps of Cognitive Restructuring and Action Plans	157
9. Cognitive Restructuring III: Working With Trauma-Related Thoughts, Core Beliefs, and Persistent PTSD Symptoms	197

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viii *Contents*

10. Solutions to Common Challenges	225
11. Skill Generalization and Termination	247
III. SPECIAL CLINICAL CHALLENGES AND POPULATIONS	269
12. Working With People With Psychosis	271
13. Working With People With Borderline Personality Disorder	293
IV. CONCLUSION	307
14. The Role of the CR for PTSD Program in a Comprehensive System of Mental Health Care	309
Appendix: Clinician Tools and Handouts	315
References	385
Index	419
About the Authors	427

1

Trauma and PTSD in Serious Mental Illness

It is now widely recognized that emotionally traumatic events play an important role in the lives of people with serious mental illness (SMI). Early traumatic experiences such as sexual and physical abuse can increase an individual's chances of developing a major psychiatric disorder, such as schizophrenia, bipolar disorder, or severe major depression, which in turn can lead to further trauma after the onset of mental illness as a result of interpersonal victimization. Trauma exposure can also increase vulnerability to posttraumatic stress disorder (PTSD), which can contribute to more severe symptoms of SMI and greater impairments in functioning. Fortunately, there are effective treatments for reducing the burden of PTSD that were first developed and tested in the general population and more recently have been adapted and validated in persons with SMI, as described in this volume. This chapter is aimed at providing critical background information about trauma, PTSD, and the nature of their interactions with SMI to set the stage for the treatment of PTSD in the following chapters.

DEFINITION OF SERIOUS MENTAL ILLNESS

The term *serious mental illness* (SMI; also referred to as *severe mental illness*) is widely used when describing people who have a psychiatric disorder that results in significant and prolonged impairment in psychosocial functioning, including in areas such as role functioning (e.g., work, school, parenting), social functioning, and self-care and independent living skills. The psychiatric disorders most frequently associated with SMI are schizophrenia, schizoaffective disorder, bipolar disorder, and treatment-refractory major depression (Grubaugh

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et al., 2021; Parabiaghi et al., 2006). However, other psychiatric diagnoses may qualify as well, such as borderline personality disorder and schizotypal personality disorder, severe and chronic anxiety disorders, and PTSD. In this volume, we use the term *serious mental illness* mainly to refer to people with any of the four primary disorders listed earlier (schizophrenia, schizoaffective disorder, bipolar disorder, treatment-refractory major depression) or borderline personality disorder. Although substance use disorders are included as psychiatric disorders in classification systems such as the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; *DSM-5*; American Psychiatric Association, 2013) and the *International Statistical Classification of Diseases and Related Health Problems* (11th ed.; *ICD-11*; World Health Organization, 2019) and often have a profound effect on functioning, substance use diagnoses alone are not generally included in definitions of SMI. However, it is common for people to have an SMI due to another mental illness and also to have a co-occurring substance use disorder.

There are some variations in the specific definitions of SMI (Martínez-Martínez et al., 2020). Nevertheless, the following broad definition provided by the Substance Abuse and Mental Health Services Administration (SAMHSA, 2017) captures the essence of the term: “having (within the past year) a diagnosable mental, behavior, or emotional disorder that causes serious functional impairment that substantially interferes with or limits one or more major life activities” (para. 3). In this volume, we adopt SAMHSA’s broad definition of SMI and include anyone who has a psychiatric disorder that results in significant functional impairment.

PREVALENCE OF TRAUMA EXPOSURE IN SMI

The word *trauma* is part of everyday language and has many shades of meaning. For example, people may describe the impact of divorce, financial setbacks, or getting fired from a job as being *traumatic*. These types of stressors are discussed in the mental health literature as “adverse life events,” and there is little question that the accumulation of such experiences can negatively impact health, mental health, and overall functioning (Avison & Gotlib, 1994; Lovallo, 2005). However, in this volume we use the term *trauma* to refer to a more limited and extreme class of events: the experience of an uncontrollable event perceived to threaten a person’s sense of integrity or survival. This usage follows the definitions of trauma adopted by the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed., text rev., *DSM-5-TR*; American Psychiatric Association, 2022) and the *ICD-11*, where a traumatic event is defined as any experience or witnessing of a direct threat of death, severe bodily harm, or psychological injury or knowledge that a traumatic event has occurred to a close family member or friend. People usually react to a traumatic event with intense distress, although such distress is not a required part of the definition.

Between 50% and 70% of all individuals living in the United States have experienced at least one traumatic event (Kessler et al., 1995, 2014;

Stein et al., 2000). Rates of trauma exposure for people with SMI far exceed those in the general population, and multiple traumas are common (Brady et al., 2003; de Vries et al., 2019; Grubaugh et al., 2011; Mueser, Salyers, et al., 2004). A review of 33 studies on interpersonal trauma reported that the mean prevalence of physical abuse in persons with SMI was 46%, and the mean prevalence of sexual abuse was 37%, compared with rates of 21% and 23%, respectively, in the general population (Mauritz et al., 2013).

The results of a large survey study using representative samples of people with SMI illustrate the high prevalence of interpersonal victimization in this population in both childhood and adulthood. This study included 779 persons with SMI receiving either inpatient or outpatient services in one of five treatment settings in the northeastern United States (Goodman et al., 2001). The study found that 49% of women and 29% of men had a history of childhood sexual abuse, with rates of physical abuse in childhood of 54% and 58%, respectively. In adulthood, 57% of women and 25% of men had been sexually assaulted, with corresponding rates of physical assault being 75% and 79%, respectively. Comparable findings were reported in a previous study (Mueser et al., 1998) using similar research methods in 275 persons with SMI from four treatment settings (two inpatient, two outpatient) in two states (Maryland and New Hampshire).

The high rates of interpersonal trauma in childhood for individuals with SMI are broadly consistent with abundant evidence that adverse childhood experiences increase the risk of developing a wide range of health and mental health conditions (Dube et al., 2010; Edwards et al., 2003; Felitti et al., 1998; Matheson et al., 2013). The findings are furthermore in line with research showing that interpersonal trauma in childhood, including sexual and physical abuse, has a major impact on the development of psychotic disorders such as schizophrenia and other SMI (Bendall et al., 2008; McGrath et al., 2017; Morgan et al., 2020; Varese et al., 2012). A broad range of hypotheses have been proposed to account for the influence of early trauma on the development of SMI (Kingdon & Turkington, 2004; Murphy et al., 2013; Read et al., 2001; Rosenfield et al., 2022), and it is likely that multiple pathways exist. For example, the developmental risk factor model of psychosis proposes that childhood adversity interacts with early neurodevelopmental abnormalities (due to factors such as genetic contributions, prenatal exposure to viral infections, poor nutrition, and obstetric hazards) and other factors in adolescence and early adulthood (e.g., urbanicity, migration, cannabis use) to increase risk to developing a psychosis-spectrum disorder (Murray et al., 2017).

In addition to the high prevalence of trauma preceding the onset of major psychiatric disorders, individuals are more likely to be exposed to traumatic events after developing a SMI as well (Dean et al., 2018; Maniglio, 2009; Monahan et al., 2017; Teplin et al., 2005). For example, a national cohort study from Sweden reported that individuals with a previously diagnosed psychiatric condition were 3.4 times more likely to be subjected to violence (defined as outpatient or inpatient treatment or death associated with an injury deliberately inflicted by another person) than their siblings with no diagnosed psychiatric

condition (Sariaslan et al., 2020). Another study of 361 persons with SMI compared to 3,138 general population controls reported that 40% of clients versus 14% of controls had been the victim of a crime in the past year and that 19% of clients versus 3% of controls had been violently assaulted (Khalifeh et al., 2015). Rates of violent victimization are even higher among some subgroups of persons with SMI, such as those who are episodically homeless (Goodman et al., 1995; Roy et al., 2014).

Multiple factors may account for the high rate of trauma following the onset of SMI, including the following:

- Prior trauma exposure increases the risk of subsequent trauma exposure (both in the general population and in persons with SMI) resulting in a vicious cycle of revictimization.
- The symptoms of major mental illnesses and cognitive impairments can make individuals with SMI less able to recognize dangerous social situations, increasing their vulnerability to interpersonal trauma.
- The high prevalence of substance use disorders in people with SMI can result in victimization due to reduced ability to protect themselves when under the influence of alcohol and drugs and engagement in high-risk behaviors related to having an addiction.
- Most persons with SMI have limited economic means and live in low-income neighborhoods with higher crime rates.

PREVALENCE OF PTSD IN SMI

PTSD is a major psychological disorder that is diagnosed based on experiencing specific types of symptoms at least 1 month following exposure to a traumatic event (e.g., sexual or physical abuse/assault, witnessing violence to others, accidents, disasters, combat; American Psychiatric Association, 2013). Four clusters of symptoms are used to define PTSD, including (a) reexperiencing the trauma (e.g., intrusive memories of the event, flashbacks), (b) avoidance of trauma-related stimuli (e.g., people in situations that remind the person of the event), (c) physiological overarousal (e.g., exaggerated startle response, difficulty sleeping), and (d) altered thoughts or feelings (e.g., belief that other people cannot be trusted, pervasive feelings of anxiety). The lifetime prevalence of PTSD in the general population is estimated to be approximately 7% to 12% (Kessler et al., 1995, 2014; Kilpatrick et al., 2013), while approximately 3% to 4% of persons currently meet criteria for PTSD at any given moment (i.e., point prevalence; Kessler et al., 2005). PTSD most often develops during adolescence or early adulthood but can develop at any age. Women in the general population are more likely to develop PTSD than men (Goldstein et al., 2016).

By all accounts, the prevalence of PTSD in persons with SMI far exceeds that of the general population (Grubaugh et al., 2011; Mauritz et al., 2013;

Mueser, Rosenberg, et al., 2002; Seow et al., 2016), with most estimates ranging between 25% and 45%. For example, in one systematic review of 29 studies of PTSD in people with SMI (Zammit et al., 2018), the average prevalence of PTSD was found to be 33%. Another review of 33 studies (Mauritz et al., 2013) reported a population-weighted mean prevalence of PTSD in persons with SMI of 30%. One large epidemiological study with 34,653 participants reported that the rate of PTSD in people with borderline personality disorder was 30% (Pagura et al., 2010).

These high rates of PTSD among people with SMI have been reported in numerous studies throughout the world. For example, two relatively early studies conducted in the United States (Mueser et al., 1998; Mueser, Salyers, et al., 2004) with samples of 275 and 782 persons receiving treatment for SMI found rates of current PTSD 43% and 35%, respectively. The largest study to date in the United States of 3,445 veterans found that the prevalence of PTSD in veterans with schizophrenia was 22% and was 33% in veterans with bipolar disorder (Harvey et al., 2014). A study from Spain of 323 persons with SMI found that 38% met criteria for probable PTSD (Gottlieb et al., 2018). Similarly high rates of PTSD in this population have been reported in studies conducted in other countries, such as Australia (McFarlane et al., 2001), Brazil (Braga et al., 2005), Great Britain (Steel et al., 2011), Germany (Steinert et al., 2006), Hungary (Halász et al., 2013), Italy (Pollice et al., 2010), Morocco (El Jabiry et al., 2022), the Netherlands (Lommen & Restifo, 2009), Singapore (Sin et al., 2010), and South Africa (van Zyl et al., 2008).

Why Is PTSD so Common in Severe Mental Illness?

There are several reasons why the rates of PTSD are so much higher in people with SMI than in the general population. First, degree of trauma exposure is an important predictor of PTSD in the general population, with the number of traumatic events and the severity of trauma exposure increasing the likelihood of someone developing PTSD (Cougle et al., 2009; Gould et al., 2021; Liu et al., 2017). Similar associations between exposure to more types of traumatic events and specifically to childhood sexual abuse have been found to predict PTSD in persons with SMI (DeTore et al., 2021; Mueser et al., 1998; Mueser, Salyers, et al., 2004) and to be correlated with PTSD symptom severity (Lu et al., 2013). Thus, the higher rate of trauma in people with SMI (reviewed in the previous section) is consistent with their higher rate of PTSD.

Second, adverse childhood experiences and trauma in childhood and early adulthood increase the risk of someone developing a major mental illness such as a psychotic disorder (Read, 1997; Rosenfield et al., 2022). As early trauma exposure can also lead to PTSD, trauma may be acting as a “third variable” accounting for some of the increased comorbidity between PTSD and SMI. There may be other third variables that also serve to increase vulnerability to both disorders and explain further their high comorbidity. For example, lower levels of cognitive functioning increase the risk of developing both schizophrenia

(Kendler et al., 2016; MacCabe et al., 2013) and PTSD (Gilbertson et al., 2006; Kremen et al., 2007; Wigham & Emerson, 2015).

Third, prior psychopathology is an established risk factor that increases the chances of a person developing PTSD following exposure to a traumatic event (North et al., 1997; Pietrzak et al., 2014; Zlotnick et al., 2004). This means that when people have developed a SMI, they are more vulnerable to developing PTSD after a traumatic event than they would be if they did not have an SMI diagnosis. Consistent with this, although the prevalence of PTSD is increased in persons with first episode of psychosis (typically ranging between 5% and 20%; DeTore et al., 2021; Neria et al., 2002; Sin et al., 2010), PTSD rates are even higher among individuals with a previously established SMI (Mauritz et al., 2013; Seow et al., 2016), suggesting an increased susceptibility to developing PTSD after the onset of their illness.

Fourth, just as the onset of a SMI can increase the chances of developing PTSD, the onset of PTSD can also increase the risk of developing a SMI. Major depression is the most common comorbid disorder following the development of PTSD and is present in approximately 50% of cases (Flory & Yehuda, 2015). Furthermore, a prospective cohort study in Denmark showed that an inpatient or outpatient psychiatric diagnosis of acute stress disorder or PTSD significantly increased the person's chances of subsequently being diagnosed with either schizophrenia or bipolar disorder over the following 5 years (Okkels et al., 2017).

Last, there is strong evidence that PTSD is often associated with mild psychotic symptoms (e.g., hearing voices, overvalued ideas, paranoid beliefs) that cannot be explained by another psychiatric disorder such as schizophrenia or depression (Sautter et al., 2002; Seedat et al., 2003; Shevlin et al., 2011). Since psychotic symptoms are more frequently associated with SMI and are not mentioned as associated clinical features of PTSD in most diagnostic systems such as *DSM-5* (American Psychiatric Association, 2013), they may sometimes be misconstrued as due to another disorder, resulting in the misdiagnosis of some individuals with PTSD as having a psychotic disorder (Waldfoegel & Mueser, 1988). The fact that PTSD is frequently underdiagnosed in people with SMI (see next section) makes this a distinct possibility.

Underdiagnosis of PTSD

Despite the high prevalence of PTSD in SMI, it is frequently not diagnosed in routine clinical services for this population (Brady et al., 2003; Brooker et al., 2016; Cusack et al., 2006; de Bont et al., 2015; Lu, Silverstein, et al., 2023; Mueser et al., 1998; Mueser, Salyers, et al., 2004). For example, in one large study of 776 clients with SMI receiving public mental health services who had probable PTSD based on screening with the PTSD Checklist (Weathers et al., 2013), only 13.7% had a diagnosis of PTSD documented in their medical records (Lu, Srijevantham, et al., 2022). Individuals with major depression were more likely to have a chart diagnosis of PTSD (18.8%) than those with bipolar disorder (6.3%) or schizophrenia (4.1%). In another study of a large mental health

agency serving people with SMI in Madrid, Spain (Gottlieb et al., 2018), among 334 persons screened for trauma and PTSD, 124 (34%) were found to have probable PTSD with an average five lifetime traumatic events. Yet despite having received mental health services for an average of 16 years, none of them (0%) had a diagnosis of PTSD in their clinic chart.

The extent of the problem of overlooking PTSD in persons with SMI in routine clinical practice is demonstrated in a recent review of research on the topic (Zammit et al., 2018). Across 29 studies, only 2.3% of individuals with SMI had a diagnosis of PTSD in their medical records, compared with a PTSD prevalence rate of 33% based on systematic evaluation. Among those persons who were found to have PTSD following diagnostic assessment, only 11.5% had the diagnosis in their charts.

A variety of factors may explain the low rate of detection of PTSD in people with SMI. Historically, some in the professional mental health community have doubted the accuracy of self-reports of traumatic events such as sexual or physical abuse, hypothesizing that these reports were instead the result of psychotic distortions or delusions with abuse themes (Coverdale & Grunebaum, 1998). However, although there is now abundant evidence that reliable reports of trauma and PTSD symptoms can be obtained from those with SMI, even in persons with delusional ideation (reviewed in Chapter 3, this volume).

Clinicians have also been concerned that inquiring about traumatic experiences in vulnerable populations such as persons with SMI runs the risk of opening Pandora's box, or exacerbating symptoms and distress (Hardy & Mueser, 2017; Havens et al., 2012). However, it has now been well established that assessments of trauma and PTSD can be safely and effectively conducted with these individuals (also reviewed in Chapter 3, this volume).

Aside from the reluctance of clinicians to assess trauma and PTSD in persons with SMI, PTSD may be underdiagnosed because the characteristic symptoms can resemble or overlap with common symptoms of other psychiatric diagnoses. For example, difficulties with anger in PTSD are similar to the irritability and anger often seen during a manic episode of bipolar disorder or in borderline personality disorder (as discussed further in Chapter 3, this volume). Problems with sleep and other overarousal symptoms of PTSD may resemble the high activity level common during a manic episode. In persons with PTSD, social avoidance, interpersonal distrust, relationship problems, or exaggerated fears about safety may be mistaken for paranoia, negative symptoms of schizophrenia, or characteristics of borderline personality disorder. In PTSD, negative thoughts and beliefs about oneself and one's future and associated pervasive feelings of anxiety and depression may be construed solely as symptoms of major depression.

An additional reason for the underdiagnosis of PTSD is that flagrant symptoms of psychosis may overshadow the importance of PTSD symptoms, making them less likely to be recognized and assessed (Grubaugh et al., 2008). These findings are consistent with research showing that a diagnosis of PTSD is more likely to be missed in people with schizophrenia or bipolar disorder than in those

with major depression (Lu, Srijevanthan, et al., 2022). A final factor contributing to missed PTSD diagnoses in persons with SMI is related to the avoidance symptoms of PTSD. As people with PTSD tend to avoid trauma-related stimuli, they often avoid talking about their traumatic experiences unless directly queried. Thus, in the absence of direct inquiry by the clinician, trauma and PTSD are often not broached during clinical assessment.

CLINICAL CORRELATES AND FUNCTIONAL CONSEQUENCES OF TRAUMA AND PTSD

The high prevalence of trauma exposure and PTSD in people with SMI is related to a broad range of negative outcomes. For example, trauma exposure in this population has been found to be associated with an earlier onset of SMI (Dean et al., 2007), greater functional impairment and reduced response to treatment (Aas et al., 2016), more severe symptoms (Alameda et al., 2021), worse cognitive functioning (Wells et al., 2020), comorbid substance use disorder (Tomassi et al., 2017), and more frequent psychiatric hospitalizations (Lu et al., 2008; Rosenberg et al., 2007). Among the numerous clinical correlates of trauma, PTSD is, not surprisingly, one of the most common ones and is of particular importance for addressing the broad range of trauma sequelae in persons with SMI, as discussed in the following sections.

In those with PTSD compared to those without, general psychiatric symptom severity is greater (Abdelghaffar et al., 2018; Picken & Tarrier, 2011; Seow et al., 2016), with particular elevations in psychotic symptoms (Duke et al., 2010; Steel et al., 2011) and depression (DeTore et al., 2021; Mueser, Essock, et al., 2004; Resnick et al., 2003). Risk of suicide is substantially increased in people who have had psychotic experiences (DeVylder et al., 2015), a SMI (Nock et al., 2010), or PTSD (Gradus et al., 2010). Therefore, it is not surprising that individuals with SMI and PTSD are at high risk for suicidal ideation and behavior (Álvarez et al., 2012; Strauss et al., 2006). Also, as might be expected from more severe symptoms associated with PTSD in persons with SMI, these individuals have much higher levels of overall psychological distress (O'Hare et al., 2006; Steel et al., 2011) and poorer quality of life (Calhoun et al., 2006; Mueser, Essock, et al., 2004).

Common comorbid conditions independently associated with both SMI and PTSD tend to be even more frequent or more severe in clients who have both disorders, including cognitive impairment (Fan et al., 2008; Goodman et al., 2007; Halász et al., 2013; Pollice et al., 2010), substance use disorders (Brady et al., 2003; O'Hare & Sherrer, 2011a; Scheller-Gilkey et al., 2004), and medical problems (Calhoun et al., 2006; Mueser, Salyers, et al., 2004). As a result of the confluence of more severe symptoms and comorbid conditions, individuals with SMI and PTSD tend to have poorer psychosocial functioning than those with SMI only. PTSD is associated with worse interpersonal relationships (Mueser, Essock, et al., 2004), higher rates of unemployment (Mueser, Salyers, et al.,

2004; Ng et al., 2016; Russinova et al., 2018), and less benefit from evidence-based supported employment interventions (Mueser, Essock, et al., 2004). People with co-occurring SMI and PTSD are also more likely to be arrested (and have other legal problems) than those without PTSD (McCabe et al., 2012).

The broad range of challenges experienced by people with SMI and PTSD has important service implications. The impact of PTSD appears to further destabilize SMI and contribute to relapses, as discussed in more detail later in this chapter. The net consequence is that individuals with these comorbid disorders have more frequent psychiatric hospitalizations and are more likely to utilize emergency room services (Minsky et al., 2015; Mueser, Salyers, et al., 2004; Switzer et al., 1999). In addition, clients with PTSD are more likely to be placed in seclusion and restraints during inpatient psychiatric treatment (Steinert et al., 2006).

WHY FOCUS ON PTSD?

As reviewed in the previous sections, the evidence documents that people with SMI are more likely to have been exposed to trauma and more likely to have PTSD than in the general population and that the existence of these conditions, if left untreated, contributes to widespread and serious clinical, functional, medical, legal, and occupational consequences. These robust findings suggest that many individuals with SMI could benefit from interventions targeting trauma exposure and PTSD. An additional detailed rationale for focusing treatment efforts on PTSD in this population is provided in this section.

PTSD Is a Well-Established Psychiatric Disorder

PTSD is one of only two psychiatric diagnoses in modern psychiatric nosology that are defined in terms of psychological sequelae precipitated by a traumatic event. The second diagnosis is acute stress disorder (American Psychiatric Association, 2013). The symptoms of acute stress disorder are similar to those of PTSD, except that the diagnosis is given only within a month of the traumatic event, after which PTSD can be diagnosed. While the symptoms of acute stress disorder frequently remit spontaneously, PTSD symptoms tend to be more chronic and enduring (Kessler et al., 2022), suggesting that PTSD is a more suitable target for intervention between the two disorders.

Since the inclusion of PTSD in the *DSM-III* (American Psychiatric Association, 1980), thousands of scientific studies have been published on the psychopathology, epidemiology, neurobiology, and treatment of PTSD. Thus, much is known about the disorder, which can serve to guide efforts to treat it in people with SMI. In contrast, having been exposed to trauma is not a psychiatric disorder but rather a personal experience that can have a wide range of effects on individuals' lives depending on a multitude of factors, such as preexisting psychiatric conditions, social support, and coping style (Schmidt et al., 2017). There are no established treatments for trauma exposure because the impact of trauma is so

variable on individuals. In fact, abundant evidence shows that the majority of people are resilient following exposure to a traumatic event and do not experience long-term negative psychological and psychosocial effects (Besser et al., 2014; Norris et al., 2009; Nurius et al., 2015; Pietrzak et al., 2014). Thus, much more is known about PTSD as a specific psychiatric disorder than about the effects of trauma, and this knowledge base about PTSD can serve to guide efforts to treat it in people with SMI.

High Prevalence of PTSD but Low Detection in Routine Clinical Practice

As reviewed in the previous sections, across numerous studies of people with SMI the prevalence of PTSD has been found to generally range between 25% and 45% (Seow et al., 2016; Zammit et al., 2018), far exceeding the 7% to 12% estimated prevalence in the general population (Kessler et al., 2014; Kilpatrick et al., 2013). Furthermore, PTSD is associated with greater symptom severity, more impaired psychosocial functioning, and worse quality of life in these individuals. At the same time, while PTSD is relatively common in people with SMI, it is frequently not identified in clinical practice and therefore is not treated.

The high prevalence of PTSD in persons with SMI, the substantial burden it imposes on the lives of people struggling with a SMI, and its frequent under-detection in individuals receiving care have clear treatment implications. The confluence of these factors suggests that efforts to systematically screen for PTSD in the SMI population and to treat it when present could have enormous effects on improving the quality of lives of the many people impacted by trauma and PTSD. The established feasibility of screening for PTSD in persons with SMI (described in Chapter 3, this volume) and research showing the positive effects of interventions for PTSD in this population (reviewed in Chapter 2, this volume) suggest that this is not a pipedream but a distinct possibility within our capability of achieving.

PTSD Is a Highly Treatable Disorder

Although untreated PTSD can have a profound impact on the quality and course of an individual's life, there is abundant evidence showing that it is a highly treatable condition. A variety of well-validated psychological interventions, primarily ones based on cognitive behavioral therapy, have been shown to be effective for the treatment of PTSD in the general population (Bisson et al., 2013; Ehring et al., 2014; Ronconi et al., 2015; Watts et al., 2013), and the list of effective treatments continues to grow. Effective interventions for PTSD tend to be relatively brief (typically requiring 9–15 sessions) but potent in terms of reducing PTSD symptom severity and associated depression and often resulting in remission of the PTSD diagnosis.

The fact that PTSD can be treated successfully in the general population with time-limited psychotherapeutic interventions provides realistic hope that similar interventions, adapted for the special needs of these individuals, may be effective in persons with SMI. Indeed, there is also growing evidence that PTSD can be

effectively treated in persons with SMI using similar treatment approaches validated in the general population (Brand et al., 2018; Grubaugh et al., 2021; Van den Berg et al., 2015), including this Cognitive Restructuring for PTSD program.

PTSD Influences the Course of SMI

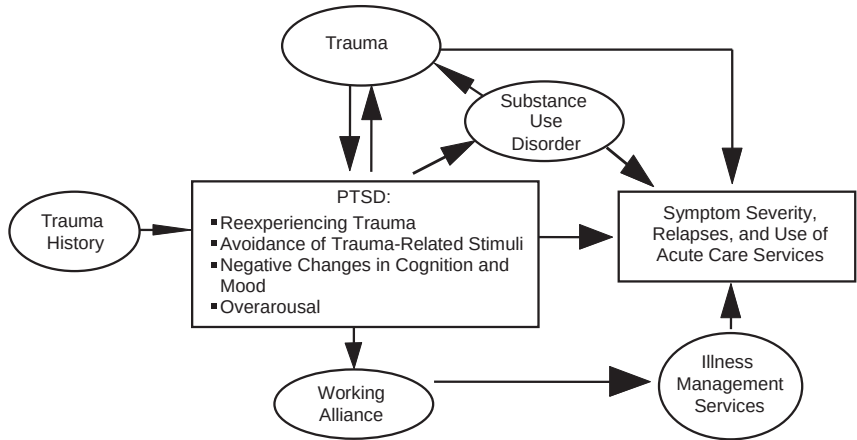
The final reason for focusing on PTSD is that treating the disorder may have far-reaching clinical effects beyond reducing PTSD symptoms. Specifically, treating PTSD may have a broader impact on improving the wide range of negative outcomes associated with SMI. This argument is based on the growing body of evidence showing that PTSD interacts with and worsens the course of SMI. This important interactive model is described next, the implications of which suggest that effective treatment for PTSD could improve the long-term outcome and recovery of people with SMI.

AN INTERACTIVE MODEL OF PTSD AND THE COURSE OF SMI

Based on the abundant research that PTSD in people with SMI is associated with more severe symptoms, more impaired functioning, and higher utilization of acute care services, Mueser, Rosenberg, et al. (2002) proposed a model that explains how PTSD interacts with and worsens the course of SMI. Since the initial model was published, further research has provided support for the model and for the hypothesized role of PTSD as a mediator of the negative effects of trauma on worse outcomes in this population (Cusack et al., 2013; Subica et al., 2011), and we have since updated the model so that it corresponds to the new version of the *DSM-5-TR*.

This model is an extension of stress-vulnerability models that have been proposed to account for variability in the onset and course of SMI (Mueser et al., 2013; Nuechterlein & Dawson, 1984; Zubin & Spring, 1977). Stress-vulnerability models propose that the onset and course of a major mental illness are the result of the dynamic interplay between a combination of biological, environmental, and personal (or psychological) variables. Psychobiological vulnerability to a mental illness, symptom severity, and impaired functioning are determined by a variety of biological factors (e.g., genetics, birth complications) and environmental influences (e.g., early trauma exposure, poverty). Once a mental illness has developed, this psychobiological vulnerability can be increased (hence worsening symptoms and precipitating relapses) by stress and substance abuse and can be decreased through medications, social support, and effective coping strategies for dealing with stress and persistent symptoms. Other illness management strategies—such as understanding the nature of the mental illness, collaborating with treatment providers, and developing a relapse prevention plan—can further buffer against the noxious effects of stress and improve the course of the disorder. As untreated PTSD in and of itself can be a debilitating

FIGURE 1.1. Interactive Model Between PTSD and Course of SMI



Note. PTSD = posttraumatic stress disorder; SMI = serious mental illness.

SMI, similar stress-vulnerability models have been proposed to understand factors that influence its course and outcome (Allen, 2005; McFarlane, 1996).

According to our interactive model, PTSD is a specific, treatable disorder that mediates the effects of trauma on negative outcomes associated with SMI. PTSD affects the course of SMI both directly through the impact of PTSD symptoms and indirectly through the effects of associated features of PTSD on stress-vulnerability factors that can influence the disorder. The model is illustrated in Figure 1.1.

Direct Effects of PTSD Symptoms on SMI

Each of the four different symptom clusters used to define PTSD (reexperiencing the trauma, avoidance of trauma-related stimuli, physiological overarousal, and altered thoughts and feelings) can directly influence the severity and course of the SMI. Reexperiencing symptoms such as intrusive memories, nightmares, and flashback are acutely distressing to people with PTSD, and based on the stress-vulnerability model they can be understood as chronic stressors that exacerbate individuals' symptoms and increase risk of relapse. In addition, in some individuals, the PTSD reexperiencing symptoms may be so intense that they overlap with psychotic symptoms of SMI such as hallucinations of trauma-related events and paranoid ideation (Ibáñez et al., 2014; Mueser & Butler, 1987).

The avoidance symptoms of PTSD often result in fewer social contacts with other people and reduced engagement in a broad range of other potentially rewarding activities, such as work, parenting, civic, or leisure and recreational activities. These symptoms can contribute to an avoidant coping style in individuals with SMI and PTSD, accompanied by higher levels of distress (McNeill & Galovski, 2015). This reduced participation in the social world has important implications for worsening the course of SMI. First, individuals

with PTSD have less access to the beneficial effects of social support, depriving them of personally meaningful relationships, opportunities for reality testing, and the effects of supportive others on buffering the impact of stress. Second, lack of involvement in socially defined roles and other activities can result in reduced meaningful structure in people's lives, which act as a kind of stress precipitating psychotic and other symptoms (Rosen et al., 1981; Wong et al., 1987). For example, there is evidence that competitive employment reduces the chances of someone with SMI having a relapse and rehospitalization (Hoffmann et al., 2014; Kukla et al., 2012; Mueser, Becker, et al., 1997).

The overarousal symptoms of PTSD can have direct effects on worsening the symptoms of SMI. It is well established that chronic autonomic arousal is associated with more severe symptoms and worse functioning in people with SMI. Furthermore, the common PTSD symptom of sleep difficulties, either due to physiological overarousal or nightmares, may specifically interact with SMI. Insomnia and poor-quality sleep have been linked to more severe psychotic symptoms (Freeman et al., 2015) and worse social functioning (Blanchard et al., 2020) in people with SMI and can precipitate episodes of mania in those with bipolar disorder (Goodwin & Jamison, 2007).

Last, the altered thoughts and feelings symptoms of PTSD can have multiple effects on worsening symptoms and functioning in SMI. With respect to altered thoughts, cognitive biases such as distorted perceptions of threat, of oneself, and of one's future are common in PTSD (Ehlers et al., 2012; Naim et al., 2015). These PTSD-related biases may interact with or fuel other cognitive biases contributing to common symptoms in SMI such as delusions (Garety & Hemsley, 1994), hallucinations (Howes & Murray, 2014), and depression (Beevers et al., 2019). In terms of altered feelings, chronic negative feelings associated with PTSD such as depression and anxiety may further worsen these common negative affective states in persons with SMI, potentially increasing their vulnerability to suicide (Álvarez et al., 2012).

Indirect Effects of PTSD on SMI

The model also hypothesizes three different indirect pathways through which PTSD may contribute to a worse course of SMI, via its effects on increasing substance use problems, retraumatization, and interpersonal difficulties that interfere with developing a strong working alliance with treatment providers.

Substance Use Disorder

People with PTSD (both in the general and SMI populations) often use substances to self-medicate or escape distressing symptoms such as intrusive memories and problems sleeping (McCauley et al., 2012; Nishith et al., 2022). PTSD also contributes to the high rate of substance use disorders in persons with SMI (Cusack et al., 2013; Scheller-Gilkey et al., 2004), which have a direct effect on worsening the course of SMI (Noordsy et al., 2013). Furthermore, as previously discussed, the use of substances can lead to

interpersonal victimization, both increasing PTSD symptoms and further worsening outcomes.

Retraumatization

It is well established that individuals with PTSD are at increased risk for retraumatization compared to those without PTSD (Nishith et al., 2000; Polusny & Follette, 1995), and similar associations have been reported in individuals with SMI and PTSD (Newman et al., 2010). The mechanisms underlying this seemingly paradoxical association are unclear, but it is plausible that the cognitive bias of overestimating threat impedes the ability of people with PTSD to correctly detect when they are in danger (Wilson et al., 1999); that is, if almost everything is perceived as a danger signal, there is no ability to discriminate the “signal” (danger) from the “noise” (no danger). In addition, an avoidant coping style, which is characteristic of PTSD, may result in some people ignoring or refusing to attend to potential danger signals and thereby falling prey to Santayana’s (1905) observation that “those who cannot remember the past are condemned to repeat it” (p. 284).

Individuals with SMI are highly sensitive to the stressful effects of major events in their lives, both good and bad, which can precipitate symptom exacerbations and worsen functioning (Bebbington & Kuipers, 1992). Retraumatization of individuals who also have PTSD is an especially pernicious type of life event that can worsen outcomes, due both to the stressful nature of such experiences as well as to the effects on further worsening PTSD severity. Effective treatment of PTSD in people with SMI has been found to reduce the subsequent chances of interpersonal victimization (van den Berg et al., 2016).

Poor Therapeutic Working Alliance

The interpersonal nature of most traumatic events leading to PTSD results in problems establishing and maintaining close, trusting relationships with other people (Monson, 2005). This impact has the potential to influence not only friendships and intimate relationships but therapeutic relationships as well (Cloitre et al., 2004). The “working alliance” has been conceptualized as the therapeutic and collaborative relationship between a clinician and client (Horvath & Greenberg, 1989). There is abundant research showing that the working alliance is an important predictor of outcome across multiple psychotherapeutic approaches and populations (Martin et al., 2000). Mounting evidence also supports the association between a stronger working alliance and better outcomes in people with SMI (Browne et al., 2019). Research shows the importance of the working alliance across a broad range of interventions for these individuals (Brown, Cather, & Mueser, 2021), including the client’s therapeutic alliance with psychiatric rehabilitation providers (Gehrs & Goering, 1994), with case managers (Solomon et al., 1995), with providers of supported employment (Corbière et al., 2017; Kukla & Bond, 2009), with cognitive remediation specialists (Cella & Wykes, 2019), with providers of integrated

treatment for co-occurring substance use disorders (Barrowclough et al., 2010), with assertive community treatment team members (Calsyn et al., 2006), with clinicians providing family psychoeducation (Levy-Frank et al., 2011), and with providers of treatment for first-episode psychosis (Browne, Wright, et al., 2021).

Due to hallmark symptoms of distrust and avoidance, the presence of PTSD in people with SMI may interfere with their ability to form strong working relationships with treatment providers such as case managers, psychiatrists and other prescribers, clinicians providing psychoeducation and coping skills training, and rehabilitation specialists. As a poorer therapeutic relationship can result in minimal engagement and premature dropout from treatment, individuals with PTSD may receive fewer critical services for managing their mental illness effectively or may benefit less from those services. This problem may be particularly acute when PTSD is not detected by treatment providers and incorporated into collaborative treatment planning (Cusack et al., 2006; Mueser & Taub, 2008).

Treatment Implications of the Interactive Model

The interactive model points to how PTSD can worsen the symptoms, functioning, and use of acute care services in people with SMI, via both the direct effects of PTSD symptoms as well as other factors frequently associated with PTSD, including substance use problems, retraumatization, and difficulty with close relationships. The treatment implications of the model suggest that effective treatment for PTSD has the potential not only to reduce the considerable burden of PTSD symptoms but also to improve the long-term course of SMI. The fact that PTSD is a treatable disorder for the general population and, according to compelling research, can be effectively treated in people with SMI (Grubaugh et al., 2021) indicates that these implications are not theoretical but rather are grounded in hard evidence. Therefore, the Cognitive Restructuring for PTSD program outlined in this book is a practical, evidence-based, effective treatment program aimed at reducing or eliminating PTSD symptoms in people with a co-occurring SMI and at empowering individuals to regain control over their recovery and their lives.

CONCLUSION

The importance of trauma in the lives of people with SMI, both before and following the onset of their psychiatric disorder, cannot be overemphasized. The very high prevalence of PTSD in persons with SMI (between 25% and 45%), the numerous reasons that the disorder is so much more common than in the general population, and clinical correlates of PTSD (i.e., symptom severity, impaired psychosocial functioning, greater use of acute care treatment services) paint a clear and alarming picture of this problem. Yet despite the high prevalence

of PTSD in persons with SMI, it is frequently not detected in routine clinical practice for reasons such as diagnostic overshadowing of other more prominent psychiatric symptoms, clinician fear of asking questions about traumatic events, and client avoidance of trauma-related stimuli. This substantial evidence makes a strong case for focusing treatment efforts on PTSD in people with SMI, as its treatment could reduce significant clinical burden in their lives.

Our interactive model of SMI and PTSD highlights the specific interactions between PTSD and the course of SMI, including both the direct effects of PTSD symptoms on SMI and indirect effects of PTSD on the illness (such as via substance use disorder, retraumatization, and problems forming a working alliance with treatment providers). The clinical implications of the model suggest that effective treatment of PTSD has the potential to both alleviate PTSD symptoms in this population and improve the long-term course of SMI, thereby helping clients move forward toward recovery.