



Predictors of undocumented PTSD in persons using public mental health services

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ABSTRACT

Individuals diagnosed with serious mental illness (SMI) have greater trauma exposure and are at increased risk for posttraumatic stress disorder (PTSD). However, PTSD is rarely documented in their clinical records. This study investigated the predictors of PTSD documentation among 776 clients with SMI receiving public mental health services, who had probable PTSD as indicated by a PTSD Checklist score of at least 45. Only 5.3% of clients had PTSD listed as a primary diagnosis, and 8.4% had PTSD as a secondary diagnosis, with a total 13.7% documentation rate. PTSD documentation rate was highest for clients with major depression (18.8%) compared to those with schizophrenia (4.1%) or bipolar disorder (6.3%). Factors that predicted a lower likelihood of having a chart diagnosis of PTSD included being diagnosed with schizophrenia/schizoaffective disorder or bipolar disorder. Factors that predicted a higher likelihood of having a chart diagnosis of PTSD included being of non-white race, being female, and experiencing eight or more types of traumatic events. Findings highlight the need for PTSD screening and trauma informed care for clients with SMI receiving public mental health services.

1. Introduction

People diagnosed with serious mental illness (SMI) have consistently been found to be at high risk for exposure to trauma and the development of PTSD (Lu et al., 2013; Mazor et al., 2018; Nishith et al., 2019). Although there is variability in how SMI is defined (Martínez-Martínez et al., 2020), a commonly used definition is “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” (Substance Abuse and Mental Health Services Administration [SAMHSA], 2017). The most common diagnoses in persons with SMI are schizophrenia, bipolar disorder, and treatment refractory major depression (Ellison et al., 2008; Grubaugh et al., 2021; Parabiaghi et al., 2006; Ruggeri et al., 2000; Russinova et al., 2018). A review of 41 studies found rates of trauma exposure ranging from 49 to 100% among 6566 participants with SMI (Grubaugh et al., 2011). People diagnosed with SMI also have higher rates of PTSD than the general population (3.5%; Kessler et al., 2005), with most

estimates ranging from 19 to 48% based on self-report measures of PTSD (i.e., PTSD Checklist for DSM-IV [PCL; Weathers et al. 1993]) and/or a structured clinical interview for PTSD (e.g., Clinician-Administered PTSD Scale for DSM-IV [CAPS-IV; Blake et al. 1995]; Grubaugh et al., 2011; 2021; Howgego et al., 2005; Mueser et al., 1998, 2004; Switzer et al., 1999).

Although many studies have reported high rates of PTSD among persons with SMI based on self-report measures of PTSD (i.e., PCL) and structured diagnostic interviews of PTSD (e.g., CAPS), the documentation of PTSD in medical records among those who screen positive for PTSD has been found to remarkably low, ranging from 0 to 11% (Cusack et al., 2007a; Gelkopf et al., 2013; Gottlieb et al., 2018; Hatters and Loue, 2007; Lu et al., 2013; Mueser et al., 1998, 2001; Schwartz et al., 2005; Switzer et al., 1999; Zammit et al., 2018; Zanville et al., 2008). Despite the large body of evidence indicating that clinicians can reliably and safely assess for trauma and PTSD without worsening symptoms (Garon et al., 2004; Lu et al., 2013; Mueser et al., 2001, 2004; Ouimette et al. 2006; Skar et al., 2019), trauma and PTSD are still not

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routinely screened during intake and needs assessment (Love and Zatzick, 2014). While professionals may not evaluate trauma and PTSD symptoms because of persisting concerns that reports may be delusional, inadequate training of clinicians in appropriate assessment methods may contribute to their lack of skill and confidence in exploring these topics with clients (Cusack et al., 2007a; Salyers et al., 2004).

In addition to clinician factors, there may also be client-level factors for the non-reporting of PTSD. One of the core symptoms of PTSD is avoidance of trauma-related stimuli, which includes talking about traumatic experiences (American Psychiatric Association, 2013). As such, clients diagnosed with SMI may not discuss their experiences with trauma unless directly asked, and they are less likely to be believed by law enforcement when they do report criminal victimization (Maniglio, 2009; Marley & Buila, 1999); therefore, crimes against people with SMI often go unreported (Maniglio, 2009). Sexual and/or physical abuse by family members or close individuals who they depend on for living needs is a recurring experience for many individuals in vulnerable populations (Najavits et al., 2004; Mueser et al., 1998), and clients with SMI may not report these incidents for fear of losing essential social and economic supports (Rose et al., 2011).

Given the high prevalence of co-occurring PTSD among people diagnosed with SMI, clear evidence for its impact on symptom severity and functional outcomes, and the availability of effective treatments for co-occurring PTSD and SMI, lack of detection of PTSD in routine treatment is a significant problem for the field. Zammit et al.'s (2018) review of clinical documentation of PTSD across a range of different clinical populations found that having a non-psychotic disorder, being a veteran, and screening for PTSD were the most significant predictors. As a result of failing to detect PTSD in persons with SMI, many individuals continue to experience high levels of distress, exacerbated symptoms, and impaired psychosocial functioning.

Despite evidence on the lack of documentation of PTSD, insufficient research has examined predictors of documentation in the SMI population. The present study was therefore conducted to examine the diagnostic and demographic factors associated with lack of documented PTSD among clients diagnosed with SMI in a large public sector setting who had previously screened positive for likely PTSD. Based on Zammit et al.'s (2018) review, we hypothesized that having a psychotic disorder would be associated with lower PTSD documentation. Additionally, intersectional factors, such as race and gender can influence how individuals are exposed to trauma and how they experience PTSD (Crenshaw, 1989; Collins, 2002), and because some people may experience a "double load" of discrimination (Borrell et al., 2006), we hypothesized that race (African American), gender (female), and the combination of the two would be related to greater trauma exposure.

2. Method

2.1. Participants

The study participants were clients with SMI receiving services from Rutgers University Behavioral Health Care (RUBHC), which, at the time of the study, served approximately 15,000 clients per year. RUBHC provided medication management, psychotherapy, partial care, outpatient services, case management services, residential programs, and had an inpatient unit as well as an emergency room. About 56% of the clients served by RUBHC were receiving Medicaid/

Medicare, while 20% of clients were uninsured or self-paying. To be eligible for services at RUBHC, clients had to meet New Jersey criteria for SMI. This required: (1) a DSM-IV diagnosis; (2) disability from the disorder leading to functional limitations in major life activities over the past 3–6 months; and (3) having two or more treatment episodes requiring a level of care higher than outpatient services within the past two years (e.g., inpatient or partial hospitalization care), or, (4) having a single illness episode that lasted at least three months and disrupted the living situation to the point that the client needed supportive services to

maintain their housing or law enforcement officials intervened.

The study sites were located in central and northern New Jersey and included six outpatient and partial hospitalization programs. Each site implemented a systemwide trauma exposure and PTSD symptom screening as part of a research study that evaluated two PTSD treatments for clients with SMI (Mueser et al., 2015). Clients who scored above 45 on the PTSD Checklist for DSM-IV (PCL-4) were identified as having probable PTSD (Blanchard et al., 1996; Lu et al., 2013). When a client was screened at the community mental health system, if they were potentially eligible for the study and provided consent to be contacted and have their screening results and PHI information released to the study team, their screening data and consents were forwarded to the medical records department. For participants who consented, the medical records released their clinical face sheet, which included admitting diagnosis and most current diagnosis as of the date of referral (discharge diagnosis), along with the screening results to the clinical team. Clients were not compensated for participation in the screening.

From 01/2007 to 11/2010, 2035 individuals were screened at the sites and 1107 participants (54.39%) had a PCL-4 score ≥ 45 (Minsky et al., 2015). Approximately 70% of clients who screened positive for PTSD consented to be contacted by the research team. This participant sample was representative of the ethnic and diagnostic characteristics of the clients served at RUBHC. The demographic breakdown of clients at study sites was 47% African American, 30% European American, 14% Hispanic, and 8% other.

2.2. Measures

Clinicians first administered to clients an abbreviated 16-item version of the Traumatic Life Events Questionnaire (TLEQ; Kubany et al., 2000) to screen lifetime trauma exposure history. For each event on the scale, the client indicated whether they had ever experienced the event over their lifetime in a binary (yes/no) format (e.g., "Has anyone threatened to kill you or seriously hurt you?"). The TLEQ asks about the experience of traumatic events using behaviorally-specific wording that corresponds to the DSM-IV Criterion A for PTSD. This version of the TLEQ has been previously used to screen for trauma exposure in studies of PTSD in persons with SMI (Mueser et al., 2008). Clients who endorsed at least one traumatic event on the abbreviated TLEQ then completed the PCL Civilian Version (Weathers et al., 1993) to screen for probable PTSD, based on the most distressing (index) event (two clients were unable to identify a most distressing event, and data were noted as "missing" for these participants). Using an optimal cut-point score [among 40 adults involved in severe automobile accidents or victims of sexual assault] of 44 on the PCL, 90% of patients with a CAPS diagnosis of PTSD would be accurately identified, with a sensitivity of 0.94, a specificity of 0.86, PPV of 0.85, and NPV of 0.95 (Blanchard et al., 1996). According to Grubaugh et al. (2007), with an optimal cut-point score of 45 among 44 community mental health patients, PCL possessed a sensitivity of 0.81 and a specificity of 0.44. PPV and NPV ratios were 0.68 and 0.62, respectively.

Clinicians were provided with a structured script to introduce the abbreviated TLEQ and PCL. Clinicians conducted routine screening of trauma history and PTSD with all their clients, either at the second intake session for new clients or at regular sessions for clients who were already receiving services at the agency. When clients were grossly psychotic or suicidal, the screening was deferred until a later time when the person was clinically stable (Lu et al., 2013).

Over a 49-month period, from January 2007 until February 2011, systematic screening of PTSD was implemented at the 6 study sites of RUBHC. In addition to providing TLEQ and PCL data to the research team from potentially eligible participants who provided consent, admitting psychiatric diagnoses and most current diagnoses at the time of the referral, ethnicity, education level, and age were obtained from participants' medical records. A total of 805 participants scored ≥ 45 on the PCL and provided consent to be contacted about the study. Twenty-

nine participants had missing data on diagnosis and were excluded, resulting in 776 participants for the final analysis. This study received approval from the Institutional Review Board from corresponding institutions.

2.3. Analyses

Data were analyzed using SPSS 27. We confirmed that PCL scores were normally distributed in the sample, despite the sample being restricted to persons with scores ≥ 45 . Descriptive statistics were calculated between trauma events and PTSD symptoms. Chi-square or *t*-test analyses were used to evaluate differences between men and women. ANOVAs were used to examine race-gender group differences. Logistic regression using listwise deletion for missing data was used to examine which combination of demographic and trauma variables most strongly predicted a PTSD diagnosis documented in the records. *A priori* Alpha level was set at 0.05. The most current diagnoses at the time of screening were used as the client's diagnoses. Missing data for the screening variables were the following: 102 out of 12,416 data points for the TLEQ (0.8%) and 58 out of 13,192 data points for the PCL (0.4%). Total TLEQ and total PCL score were only calculated when fewer than half of the items were missing.

3. Results

Table 1 summarizes the demographic and clinical characteristics of the study sample. The participants were predominantly female (65.2%), in their early 40's, and had completed high school (73.1%). Participants were racially and ethnically diverse, with most self-identifying as African-American (43.7%) or European-American (33.8%); 14.2% identified as Hispanic. The most common principal diagnoses in clients' charts were major depressive disorder (26.7%), bipolar disorder I (14.2%), other mood disorder (18.3%), and schizophrenia or schizoaffective disorder (15.7%). Of note, only 5.3% of the sample had PTSD listed as a primary diagnosis in their medical record, while another 8.4% had PTSD listed as a secondary diagnosis. Thus, only 13.7% of clients

Table 1
Demographics and clinical characteristics participants ($N = 776$).

Demographic/Clinical Characteristics		%
Gender		
Male	270	34.8
Female	506	65.2
Race/Ethnicity		
African American	339	43.7
White	262	33.8
Hispanic	110	14.2
American Indian	2	0.3
Asian	8	1.0
Other	55	7.1
Psychiatric Diagnoses (Primary)		
Schizophrenia/Schizoaffective	122	15.7
Major Depressive Disorder	207	26.7
Bipolar I Disorder	110	14.2
Bipolar NOS	33	4.3
Bipolar II Disorder	32	4.1
Other Mood Disorders	142	18.3
GAD/OCD/Anxiety NOS	18	2.3
PTSD	41	5.3
Substance Use	9	1.2
Psychotic Disorders	17	2.2
Panic Disorder	13	1.7
Personality Disorder	10	1.3
Other (e.g., Eating Disorder)	22	2.8
PTSD as Secondary Diagnosis	65	8.4
M SD		
Education	12.00	2.01
Age	40.69	11.32
PCL Total	62.32	10.41
TLEQ Total	7.49	3.42

with a positive PTSD screen on the PCL had a diagnosis of PTSD documented in their medical records.

Table 2 summarizes the trauma-related correlates (including trauma exposure, age when trauma occurred, time elapsed since index trauma, and PTSD symptom severity) of documentation of PTSD in the medical chart. Clients with documented PTSD reported experiencing significantly more traumatic events than those without documented PTSD, and had significantly higher overall PCL scores, and higher intrusion and hyperarousal subscale scores. With respect to the type of traumatic events participants were exposed to, the documented PTSD group were more likely to report experiencing robbery, witnessing stranger violence, witnessing or experiencing domestic violence, childhood sexual abuse by someone five or more years older, and being stalked.

Table 3 summarizes comparisons between the two groups on which traumatic event was identified on the abbreviated TLEQ as the most distressing (index) event. Participants with documented PTSD were more likely to have an index trauma of childhood sexual abuse by adult than undocumented cases, as well as an index trauma of adulthood sexual assault or being hit by a stranger. On the other hand, documented PTSD cases were significantly less likely to have an index trauma of sudden death of a loved one than undocumented PTSD cases (13.0% vs 24.7%). The two groups did not differ in the duration of time since the index traumatic event, which was almost 21 years prior to the screening.

We next examined whether documentation of PTSD differed by diagnosis, gender, or race/ethnicity (Tables 4a). The documentation rates of a formal PTSD diagnosis, either as a primary or a secondary diagnosis were the following: 4.1% for schizophrenia, 6.3% for bipolar disorder, and 18.8% for major depression (**Table 4a**). Females had higher rates of PTSD documentation compared than males 12.8% vs. 7.1%, $p = 0.05$). The documentation rate of a formal PTSD diagnosis in the chart was analyzed across race-gender groups for three diagnostic groups respectively (schizophrenia/schizoaffective disorders, bipolar disorder, and major depressive disorder), and we found that for those diagnosed with schizophrenia/schizoaffective disorders or bipolar disorders, the documentation rate did not differ across race-gender groups and was consistently low across gender and ethnic groups, with a total documentation rate of 4.1%. Similarly, the documentation rate remained consistently low for those diagnosed with bipolar disorders across race-gender groups, with an average documentation rate of 6.3%. For those diagnosed with major depressive disorders, however, the documentation rate of PTSD did differ across gender and ethnic groups. African American females with MDD had the highest overall documentation rate (29.1%), compared to 19.0% for African American males with MDD, 14.3% for Hispanic females with MDD, 8.3% for Hispanic males with MDD, 6.5% for European American females with MDD, and 9.5% for European American males with MDD.

Consistent with the intersectionality hypothesis, females scored higher than males on trauma exposure and PTSD symptoms (**Table 4b**; supplementary material). Trauma exposure and PTSD symptoms did differ across race-gender groups; however, Bonferroni post-hoc analysis only found that African American females scored higher on total types of trauma exposure compared to European American males (mean difference = 1.55, $P < 0.001$), suggesting that African American females had nearly two additional categories of trauma exposure compared to European American males. When compared among females only, African Americans, European Americans and Hispanics did not differ on trauma exposure, but differed on PCL. Bonferroni post-hoc analysis suggests that African American and Hispanic females scored higher than European American females on PCL. For males, African American, European American, and Hispanic males differed on trauma exposure (TLEQ), but not on PCL. Bonferroni post-hoc analysis found that African American males scored higher than white males on trauma exposure (mean difference = 0.98, $P = 0.001$), suggesting that they had, on average, one additional category of trauma exposure for African American males. No differences were found on trauma exposure in post-hoc analysis between Hispanic and European American males.

Table 2
Traumatic events reported on abbreviated TLEQ by PTSD chart diagnosis (N = 776).

	Total (n = 776)		Undocumented PTSD (n = 670)		Documented PTSD (n = 106)		χ^2	P
	N	%	n	%	n	%		
Car Accident	307	39.6	267	39.9	40	37.7	0.18	0.67
Other Accident	209	27.1	173	26	36	34	2.95	0.09
Warfare	47	6.1	38	5.7	9	8.5	1.21	0.27
Sudden Death	602	78.2	517	77.7	85	81	0.55	0.46
Robbery	333	43	276	41.3	57	53.8	5.85	0.02
Stranger Assault	378	49.2	318	48	60	57.1	3.06	0.08
Witness Stranger Violence	362	46.8	303	45.4	59	55.7	3.9	0.05
Being Threatened	492	64.1	419	63.3	73	69.5	1.53	0.22
CPA	381	49.5	322	48.6	59	55.7	1.84	0.18
Witnessing DV	492	63.8	411	61.8	81	76.4	8.45	<0.001
Experiencing DV CSA	488	63.3	413	61.9	75	72.1	4.03	0.05
by Adult	422	54.9	352	53.2	70	66	6.11	0.01
by Peer	325	42.4	272	41.2	53	50	2.89	0.09
ASA	286	37.3	241	36.3	45	43.7	2.05	0.15
Being Stalked	368	47.8	306	46	62	59	6.17	0.01
Other	321	42.1	271	41.2	50	47.6	1.54	0.22
	M	SD	M	SD	M	SD	t	P
Total Types of Events	7.51	3.43	7.31	3.4	8.62	3.3	-3.7	<0.001
PCL Total	62.41	10.38	61.73	10.22	66	10.86	-3.96	<0.001
Intrusion	18.44	4.37	18.09	4.34	20.18	4.2	-4.62	<0.001
Avoidance	25.17	5.09	25.01	5.1	26.01	5.21	-1.86	0.06
Hyperarousal	18.81	3.88	18.64	3.85	19.81	3.74	-2.91	<0.001

Table 3
Most distressing event identified among clients receiving community mental health services with PCL \geq 45.

	Total (n = 667)		Undocumented PTSD (n = 575)		Documented PTSD (n = 92)		χ^2	df	P
	N	%	N	%	N	%			
Childhood sexual abuse by older people	170	25.5	141	24.5	29	31.5	32.91	15	0.008 ¹
Sudden death	154	23.1	142	24.7	12	13			
Other	116	17.4	105	18.3	11	12			
Domestic violence	43	6.4	39	6.8	4	4.3			
Multiple trauma	30	4.5	25	4.3	5	5.4			
Hit by stranger	29	4.3	20	3.5	9	9.8			
Childhood physical abuse	24	3.6	21	3.7	3	3.3			
Adult sexual abuse	22	3.3	15	2.6	7	7.6			
Car accident	16	2.4	13	2.3	3	3.3			
Witness stranger violence	13	1.9	12	2.1	1	1.1			
Robbery	12	1.8	11	1.9	1	1.1			
Witness domestic violence as child	11	1.6	11	1.9	0	0			
Childhood sexual abuse by peer	8	1.2	7	1.2	1	1.1			
Being threatened	7	1	6	1	1	1.1			
Warfare	7	1	4	0.7	3	3.3			
Other accident	5	0.7	3	0.5	2	2.2			
	M	SD	M	SD	M	SD	T	df	P
Time Since Index Trauma*	21.41	14.53	21.68	14.71	20.29	13.86	0.81	549	0.42
Age at Index Trauma*	19.13	12.97	18.99	12.91	19.32	13.37	-0.21	550	0.83

¹ Note. Monte Carlo method was used instead of the standard asymptotic method to obtain the significance level because 40.6% of the cells had expected values less than n = 5 (therefore, the data did not meet the assumptions of the asymptotic method).

Finally, we used logistic regression to examine the predictors of PTSD documentation. The outcome variable was the presence or absence of a clinical diagnosis of PTSD, either in primary or secondary diagnoses. The independent variables consisted of female gender (yes/no), non-white race (yes/no), age 36+ (yes/no), high school education or more (yes/no), childhood sexual abuse as index trauma, time since index trauma happened (\geq 15 years or not), diagnosis of schizophrenia/schizoaffective disorders (yes/no), diagnosis of bipolar disorder (yes/no), total trauma exposure \geq 8 types (yes/no), and PCL total \geq 65, (yes/no; higher scores indicated higher PTSD symptomology). The overall equation was significant (Nagelkerke $R^2 = 0.17$, Chi-square=73.96, df=10, $p < 0.001$). Variables significantly associated with a decreased likelihood of a PTSD documentation were having a diagnosis of schizophrenia and having a diagnosis of bipolar disorder (Table 5). TLEQ total score greater than or equal to 8, female gender, and non-white minority race were all associated with an increased likelihood of

PTSD documentation. In the adjusted model, individuals diagnosed with schizophrenia or schizoaffective disorder were less likely to have PTSD diagnosed in their charts, compared to those without schizophrenia/schizoaffective disorders; individuals with bipolar disorders were less likely to have a documented PTSD diagnosis, compared to those without bipolar disorders. Individuals with TLEQ total score greater than or equal to 8 were 61% more likely than those with a score less than 8, females were 79% more likely than males, and non-White individuals were 161% more likely than White individuals to have a documentation of a PTSD diagnosis.

4. Discussion

This study examined the predictors of PTSD documentation in a large sample of clients diagnosed with SMI served by community mental health centers. Fifty-four percent of individuals receiving community

Table 4

a Race-gender analysis of documentation rate among clients with SMI and probable PTSD (PCL \geq 45).

	Total%	Female%	Male%	Chi-Sq.	P	White%	Female AA%	Hispanic%	White%	Male AA%	Hispanic%	Chi-Sq.	P
PTSD as Primary or Secondary Diagnosis													
Schizophrenia/Schizoaffective (n = 122)	4.1	3.3	4.9	0.21	0.65	0.0	2.7	20	0.0	10.7	0.0	7.74	0.14a
Bipolar (n = 175)	6.3	7	4.3	0.45	0.50	4.3	6.1	18.8	0.0	16.7	0.0	8.40	0.14b
MDD (n = 207)	18.8	21.9	11.5	3.07	0.08	6.5	29.1	14.3	9.5	19.0	8.3	11.12	0.05c
	Total (n = 504)	Female (n = 335)	Male (n = 169)			White Female (n = 94)	Female AA (n = 172)	Hispanic Female (n = 42)	White Male (n = 66)	Male AA (n = 61)	Hispanic Male (n = 23)	Chi-Sq.	P
SMI (Schizophrenia/Schizoaffective/Bipolar/MDD; n = 504)	10.9	12.8	7.1	3.80	0.05	4.3	16.9	16.7	3	14.8	4.3	17.43	0.01d
	Total (N = 776)	Female (n = 506)	Male (n = 270)	Chi-Sq.	P	Female White (n = 154)	Female AA (n = 246)	Hispanic (n = 69)	White (n = 108)	Male AA (n = 93)	Hispanic (n = 41)	Chi-Sq.	P
Total (including all diagnoses; n = 776)	13.7	16.4	8.5	9.28	0.00	9.1	21.5	17.4	1.9	16.1	14.6	28.32	0.00

Note. a, b, c, d used the Monte Carlo method; a. 7 cells (58.3%) had expected count less than 5; b. 7 cells (58.3%) had expected count less than 5; c. 4 cells (33.3%) had expected count less than 5; d. 2 cells (16.7%) had expected count less than 5.

Table 5

Predictors of documented PTSD diagnosis in medical chart among 776 clients receiving community mental health care.

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Female	0.58	0.27	4.82	1.00	0.03	1.79	1.07	3.02
Non-White Minority	0.96	0.30	10.53	1.00	0.00	2.61	1.46	4.65
Index trauma CSA	0.13	0.28	0.21	1.00	0.65	1.14	0.66	1.97
>=15 Yrs Since Index Trauma	0.01	0.26	0.00	1.00	0.98	1.01	0.61	1.67
Education 12 or More	-0.46	0.24	3.87	1.00	0.05	0.63	0.40	1.00
Age 36+	-0.25	0.24	1.11	1.00	0.29	0.78	0.49	1.24
Schizophrenia Diagnosis	-1.66	0.48	11.98	1.00	0.00	0.19	0.08	0.49
Bipolar Diagnosis	-1.22	0.34	12.71	1.00	0.00	0.30	0.15	0.58
PCL \geq 65	0.33	0.23	2.07	1.00	0.15	1.39	0.89	2.17
TLEQ \geq 8	0.48	0.23	4.19	1.00	0.04	1.61	1.02	2.55
Constant	-2.31	0.58	16.05	1.00	0.00	0.10		

Note. Nagelkerke R Square=0.17; Chi-square=73.96; P = 0.00; df=10; regression used list-wise deletion for missing data, resulting in 757 valid cases.

mental health care had positive PTSD screens (Minsky et al., 2015). Of the 776 clients who had positive PTSD screens (PCL \geq 45), only 13.7% had a diagnosis of PTSD documented in their charts (McDonald and Calhoun, 2010). These findings are consistent with other research showing low rates of documentation of PTSD in the medical records of people with SMI with co-occurring PTSD (Cusack et al., 2007a; Gelkopf et al., 2013; Gottlieb et al., 2018; Hatters and Loue, 2007; Lu et al., 2013; Mueser et al., 1998, 2001; Schwartz et al., 2005; Switzer et al., 1999; Zammit et al., 2018; Zanville et al., 2008). Diagnoses of schizophrenia/schizoaffective disorder or bipolar disorder were related to lower documentation of PTSD in the chart (ranging 4%–6%). Results are consistent with findings in the UK, that co-occurring and undetected PTSD is common among adults with mental disorders, with a documentation rate of less than 5% for schizophrenia spectrum and bipolar disorders and 16% for depressive disorders (Lewis et al., 2017). Our findings also agree with the review from Zammit et al. (2018) that having a psychotic/bipolar disorder is associated with lesser PTSD documentation.

These findings suggest that clinicians are especially prone to not documenting PTSD symptoms in persons with psychotic/bipolar disorders, potentially because the prominence of their psychotic or manic symptoms overshadows recognition of trauma-related symptoms. This may also be due to the perception of individuals with psychotic/bipolar disorders as being more fragile; therefore, clinicians may be more

reluctant to conduct a trauma history and PTSD assessment (e.g., Librera et al., 2020). Concurrently, these primary diagnoses may also be more likely to obscure and overshadow the examination of other diagnoses. Thus, routine PTSD screening could enhance detecting PTSD. It is possible that the low detection rate of these disorders may be associated with the lack of PTSD screening in these clinics (Cusack et al., 2004; Zammit et al., 2018).

We also found that people with a documented diagnosis of PTSD in the chart had more severe PTSD symptoms, especially intrusion and hyperarousal symptoms, but not avoidance symptoms. When diagnosing PTSD, clinicians may also recognize people with more salient symptoms of PTSD like nightmares, intrusive memories, hypervigilance, irritability/anger, and concentration difficulties, as they are more overtly distressing to clients and therefore more apparent to clinicians, but may overlook the avoidance symptoms of PTSD, which included active as well as “passive” avoidance such as detachment, and emotional numbing. Similarly, clinicians may conflate PTSD symptoms with those of the primary diagnosis, such as avoidance in PTSD being misattributed to isolation or social withdrawal due to anhedonia in depression.

The study also expands on previous findings by supporting that people of color, women, and those who had experienced more than 8 types of trauma predicted higher likelihood of having a chart diagnosis of PTSD. Our finding that females diagnosed with SMI and positive PTSD screening reported more types of trauma and more severe PTSD

symptom severity compared to their male counterparts is consistent with the literature. The intersectionality perspective maintains that we consider how social determinants, such as race and gender, influence exposure to trauma and how PTSD is experienced (Crenshaw, 1989; Collins, 2002). In line with the intersectional view, findings suggest that in a group of patients with positive PTSD screens, people of color with SMI had greater trauma exposure. In particular, African American females were exposed to nearly two additional types of trauma compared to European American males.

In terms of documentation rates, race-gender differences were found. African American females and Hispanic females had the highest PTSD documentation rates of 22% and 17% respectively. African American males had the highest documentation rate of 16%, followed by Hispanic males at 15%. White males and White females had the lowest documentation rates, at 2% and 9% respectively. European American males with schizophrenia or bipolar disorders had a 0% documentation rate of PTSD. Thus, in a group of individuals receiving public mental health services who had roughly equivalent trauma histories and recent PTSD symptoms, it is the minority and women clients who are most likely to have documented PTSD. Although we can only speculate about the mechanisms underlying these associations, it is plausible that they may be partly due to stigma surrounding disclosure of trauma that particularly affects some race-gender groups and/or due to the expectations clinicians may have of this population.

Several limitations of the present study should be noted. We used data from people with SMI receiving community mental health services. The findings, therefore, may not be generalizable to persons with SMI in other treatment settings, such as in private practice treatment settings or those not receiving treatment services at all. These findings also may not be generalizable to individuals with SMI experiencing acute suicidality and significant psychotic symptoms. In this study, we opted to not screen clients when they were in acute crisis such as when they were actively suicidal or having severe psychotic symptoms. These clients were screened at a later date when they were more clinically stable or at the intake when they transferred from one program to another (less intensive program) within the mental health system. Moreover, about 30% of the people eligible for the study declined to participate. There may be systematic differences between those who did and did not agree to participate, which could have affected the study's findings. Additionally, data were collected between 2007 and 2010, so it is possible that clinical practices may have changed since that time, although reviews such as Zammit et al. (2018) have shown that under-detection of PTSD among individuals with SMI has been an enduring issue in the public sector treatment setting. Examining predictors of undocumented PTSD in clinical settings may be a topic that continues to be relevant to current clinical practice. Furthermore, the findings are limited by the use of the PCL, a self-report measure of PTSD symptoms for DSM-IV. Not every case with a positive PTSD screen had PTSD. In a community mental health sample, the percentage of those who screened positive for PTSD using PCL (PCL \geq 45) who had the PTSD condition confirmed through CAPS-IV (true positive) was 68%. Likewise, the percentage of those with PCL \geq 45 who did not have PTSD condition (false positive) was 32% (PPV=0.68; Grubaugh et al., 2007). Replications using clinician rated symptoms of PTSD for DSM-5 criteria would be warranted. Additionally, PTSD or trauma symptoms could still be addressed during the client visit even if it may not be documented. Similarly, even though PTSD may be documented in a client's chart, it may not be sufficiently addressed by the provider. Overall, among this population, treatment plans often fail to properly address trauma (Posner et al., 2008; Read et al., 2016). Nevertheless, proper charting of PTSD is a step toward helping clients receive the appropriate evidence-based treatments that can benefit them.

Despite these limitations, this study shows that the field is in need of implementing consistent PTSD screening, improving documentation of PTSD in medical records, and providing treatment plans that address PTSD in public mental health care. This study documented that a

diagnosis of PTSD is often missed in psychiatric clients with SMI, thereby perpetuating the effects of untreated PTSD. This trend was especially pronounced for clients who were white, male, and/or carrying primary diagnoses of schizophrenia or bipolar disorder. At this point, the extent to which these discrepancies reflect clinician oversight, patient hesitancy to disclose trauma history or PTSD, an interaction of these issues and/or other factors remains in need of further study. PTSD screening is a feasible, non-labor intensive method of not only ensuring that there is adequate assessment of PTSD within community mental health centers, but also contributing to equitable assessment of PTSD among people of varying demographic and clinical profiles (e.g., schizophrenia-spectrum disorders and bipolar disorders relative to depressive disorders). PTSD screening could also address the gender divide in documentation of PTSD, which partly is due to the fact that men may be more reluctant to put forward details about their past traumas, particularly sexual trauma. Implementation of trauma screening and proper documentation of PTSD among individuals with SMI is an essential step to providing adequate care (i.e. using evidence-based treatments for PTSD). Our study offers a tangible way of assessing PTSD to facilitate the implementation of trauma-informed care at community mental health centers for a population in need. The low rates of diagnostic detection of trauma and PTSD in persons with SMI and the tendency of many systems of care to inadvertently retraumatize trauma survivors has led to calls to reform traditional mental health services to make them more sensitive to the effects of trauma. One particularly influential framework that has gained traction across multiple disciplines and settings serving special populations is trauma-informed care (Layne et al., 2011; Topitzes et al., 2019). Trauma-informed care offers hope by reducing retraumatization and fostering the development of more healing relationships for trauma survivors. It provides broad-based education and training to all staff members within a system of care about the nature and impact of trauma exposure in addition to de-escalation strategies for managing conflict and crisis situations.

When trauma history is recognized in SMI populations, professionals sometimes fail to follow up by evaluating PTSD or providing further treatment recommendations. Similarly, clinicians are often unequipped to respond to a disclosure about trauma and therefore fail to refer these clients to trauma-informed approaches (Sweeney and Taggart, 2018). Although studies have demonstrated that clinicians have improved in their assessment and reporting of trauma experiences, the majority of PTSD symptoms (65%) are still not assessed (Posner et al., 2008), and PTSD remains underdiagnosed and undertreated. This lack of documentation and adequate treatment planning occurs despite significant progress in the development of treatments to address trauma and PTSD in persons diagnosed with SMI (Jansen and Morris, 2017; Mihelicova et al., 2018; Mueser et al., 2015; Sin et al., 2017; Van den Berg and van der Gaag, 2012). These interventions aim to address trauma-related difficulties in individual or group therapy and are informed by the high stress-vulnerability in this population, in addition to other unique challenges they experience (e.g., housing instability, substance use, cognitive impairment, ongoing trauma exposure). Moreover, while PTSD interventions developed specifically for individuals with SMI demonstrate effectiveness (Mueser et al., 2008; 2015), EBTs for PTSD (i.e., prolonged exposure for PTSD and EMDR) have also been proven effective in this patient population (Grubaugh et al., 2021; Van Den Berg et al., 2015). Treatment outcome literature highlights the importance of treating this clinical population in community mental health, whether using interventions tailored for individuals with SMI (Mueser et al., 2008; 2015; Van Den Berg et al., 2015), frontline interventions used for the general population (Foa et al., 2007; Resick et al., 2016; Sloan et al., 2018), or interventions developed for veterans (Grubaugh et al., 2017). In community mental health, dissemination of evidence-based trauma treatment for SMI to frontline clinicians is a recommended step that has been shown to be feasible (Mueser et al., 2015).

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CRediT authorship contribution statement

Weili Lu: Conceptualization, Project administration, Writing – original draft. **Jegane Srijeyanthan:** Data curation, Formal analysis, Writing – original draft. **Kim T. Mueser:** Conceptualization, Funding acquisition, Investigation, Methodology, Writing – review & editing. **Philip T. Yanos:** Conceptualization, Investigation, Writing – original draft, Writing – review & editing. **J. Scott Parrott:** Data curation, Formal analysis. **Amanda Siriram:** Data curation, Writing – original draft. **Jennifer D. Gottlieb:** Investigation, Methodology, Project administration, Writing – review & editing. **Stephanie Marcello:** Investigation, Methodology, Project administration, Writing – review & editing. **Steve M. Silverstein:** Investigation, Methodology, Project administration, Writing – review & editing.

Declaration of Competing Interest

None.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:[10.1016/j.psychres.2022.114892](https://doi.org/10.1016/j.psychres.2022.114892).

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