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Trauma exposure, depression, suicidal ideation, and alcohol use in people with severe mental disorder in Ethiopia

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Abstract

Purpose To investigate exposure to traumatic and stressful events and their association with depression, suicidal ideation, and alcohol abuse in people with severe mental disorder (SMD) in Ethiopia.

Methods As part of the Programme for Improving Mental health carE, 300 people with SMD (84% primary psychosis, 11% bipolar disorder, and 16% depression with psychotic features) in a rural district were identified by psychiatric nurses. A cross-sectional assessment included clinical characteristics, experience of being restrained, exposure to stressful events as measured by an adapted version of the List of Threatening Experiences scale, traumatic events as measured by endorsement of 13 locally relevant potentially traumatic events that occurred since the onset of the participant's mental illness, depression symptoms measured by the Patient Health Questionnaire, the Suicidal Behavior Module of the Composite International Diagnostic Interview, and hazardous drinking which was calculated as a sum score of eight or higher on the Alcohol Use Disorders Identification Test.

Results Almost half of participants reported being restrained since becoming ill, which was associated with more suicidal ideation and less hazardous drinking. More than one-third experienced traumatic events since becoming ill, including being assaulted, beaten, or raped. Exposure to traumatic events was associated with hazardous drinking.

Conclusions In this rural Ethiopian setting, people with SMD experienced high levels of traumatic and stressful events which were associated with co-morbid conditions. Greater attention needs to be given to trauma prevention and integration of treatment for trauma sequelae in efforts to expand integrated mental health care.

Keywords Alcoholism · Depression · Psychotic disorders · Life change events · Post-traumatic

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Introduction

In high-income countries, people with severe mental disorder (SMD) report higher rates of traumatic events [1–3] than the general population [4], and one-quarter to one-half of people with SMD are estimated to have post-traumatic stress disorder (PTSD) [5, 6]. In people with SMD, having a trauma history is associated with worse symptoms [7–13], poorer medication adherence [14], and inferior treatment outcomes [10]. Moreover, people with SMD and comorbid PTSD have more depression [13, 15] and drug and alcohol abuse [14, 16] than people with SMD alone.

In most low- and middle-income countries (LMICs), SMD is the most common form of mental illness presenting at primary care clinics [17–19] and is among the top contributors to the overall burden of disease in Ethiopia [20]. Although the rates of trauma exposure among people with SMD are unknown in most LMICs, in Ethiopia, researchers

have documented that 25% of people with SMD die from unnatural causes [21], suggesting potentially high rates of trauma exposure. In addition, high rates of stigma, neglect, restraint, human rights abuses, and physical and sexual violence against people with SMD have also been documented in Ethiopia [22–33]. Exposure is likely exacerbated due to extremely limited access to mental health services available in LMICs, particularly in rural areas [34, 35].

Aims of the study

Despite the high likelihood of exposure to traumatic and stressful events in people with serious mental illness in low- and middle-income countries, little is known about how these factors might contribute to comorbid mental health concerns including depression, suicidal ideation, and alcohol abuse in this already vulnerable population. This study investigates rates of exposure to traumatic and stressful events in people with serious mental illness living in rural Ethiopia, and explores factors that predict exposure to these events including demographic and psychiatric variables, and the association between exposure to these events and depression, suicide and suicidal ideation, and alcohol abuse.

Materials and methods

Procedures

Study setting

This study uses secondary data [36] from the Ethiopia site of the PRogramme for Improving Mental health carE (PRIME) study that was collected between December 2014 and July 2015. PRIME is a large-scale, multi-country mental health services' research program investigating the implementation of evidence-based packages of care for priority mental, neurological, and substance use disorders, including SMD [31, 37, 38]. Data were collected in Sodo district in the Gurage zone of the Southern Nations, Nationalities, and Peoples' Regional state of Ethiopia. Approximately 160,000 people live in Sodo district, which is 90% rural [39]. Sodo has eight health centers which each serve between 25,000 and 40,000 people [39].

PRIME staff trained 65 health extension workers (community health workers) and 26 community members and leaders in Sodo District to detect and refer people with suspected SMD. A previous study in the region found that key informant detection was effective in identifying cases of people with SMD [40]. The half-day training was conducted by psychiatrists and supervised psychiatric nurses using case

vignettes of common presentations of SMD in the Ethiopian context.

People with suspected SMD who attended primary care were initially assessed by primary care workers (nurses and health officers) who had been trained in the World Health Organization's mental health Gap Action Programme (mhGAP) course [41, 42] and then underwent a confirmatory diagnostic assessment by psychiatric nurses using the Operational Criteria Checklist for Psychotic and Affective Illness (OPCRIT) [43]. Psychiatric nurses received 7 days of training in administering the OPCRIT by senior Ethiopian psychiatrists, which included the observed interviews and feedback [36].

Identified individuals received psychiatric medication and basic psychosocial care, support, and monitoring in the Sodo District primary care clinics [31]. They were then assessed for eligibility for recruitment into the study using the following criteria: a diagnosis of a psychotic disorder or bipolar disorder, ability to provide informed consent or guardian permission, planning to stay a resident in the area for at least 12 months, and ability to converse in Amharic, the official language of Ethiopia. No one was excluded because of language.

Measures

Psychiatric diagnoses were pulled from the OPCRIT assessments conducted by the psychiatric nurses. Diagnoses were grouped into psychotic disorders, bipolar disorder, and major depression with psychotic features. The following self-report measures were administered in an interview format by data collectors:

Sociodemographics Self-reported demographic indicators including sex and age.

Psychiatric variables Psychiatric symptoms including psychotic, depressive, and manic symptoms were assessed using the 24-item Brief Psychiatric Rating Scale Expanded Version 4.0 (BPRS-4.0) [44]. Items in the BPRS are scored 1 (absent) to 7 (extremely severe), and the scale score was the sum total. The internal consistency of the scale was good (Cronbach's alpha = 0.81). Participants also reported their duration of mental illness in years.

Traumatic Events Exposure to traumatic events was assessed by positive endorsement of 13 locally relevant potentially traumatic events (e.g., assault, rape, being hit by a car, and being maltreated in prison) that occurred since the onset of the participant's mental illness. The 13 trauma event items were developed by the researchers based on their understanding of the common trauma events that affect patients with SMD in rural Ethiopia. The scale score was the total sum score of the 13 items.

Restraint Experience of being restrained was assessed by two items, one that asked whether participants had

been restrained since the start of the illness, and a second that asked if participants had been restrained in the last 12 months.

Stressful events Stressful life events in the past six months were assessed using an adapted version of the List of Threatening Experiences scale (LTE) that assesses whether a participant has experienced 11 life events that have been rated as very stressful by community samples [45]. The 12th item, which asks whether "anything else seriously upset you", was not included in the adapted measures, so the scale score is the sum total of exposure to the 11 events.

Mental health outcomes Depression symptoms were assessed using the 9-item Patient Health Questionnaire (PHQ-9) [46], which has been culturally validated in rural Ethiopia [47]. The PHQ assesses the presence of depression symptoms from 0 (not at all) to 3 (nearly everyday) over the past 2 weeks. The scale score was the total sum score and the internal reliability was acceptable (Cronbach's alpha = 0.65). Suicidal ideation and suicide attempt in the last year were assessed by two single items from the Suicidal Behavior Module of the Composite International Diagnostic Interview (CIDI) [48] which asked "Have you thought of taking your life in the past 12 months?" and "Have you attempted to take your own life in the past 12 months?" Hazardous drinking was calculated as a sum score of eight or higher on the Alcohol Use Disorders Identification Test (AUDIT), which assesses drinking behavior over the past 3 months [49].

Data analysis

Descriptive statistics were calculated for all the sociodemographic and psychiatric variables. Univariate regression analyses were conducted to determine whether any of the sociodemographic or psychiatric variables were associated with exposure to restraint in the last 12 months, traumatic events, or stressful events. Chi-square analyses and t-tests were used to assess gender differences in exposure to restraint, traumatic events, or stressful events. Bivariate analyses assessing the association between sociodemographic and psychiatric variables and each of the four mental health outcomes were run to identify factors that should be included in the final multiple regressions. Sex, age, and psychiatric variables that were significantly associated with a mental health outcome (p value < 0.05) were included in the final regressions predicting those outcomes. Finally, four multiple regressions were conducted in which restraint, total traumatic events, and total stressful events were included as the predictors of the four mental health outcomes: depression symptoms, suicidal ideation, suicide attempt, and hazardous drinking, after accounting for covariates. Multiple regression using chained equations and 20 multiply imputed datasets was used to account for missing data in the four

multiple regressions. All analyses were conducted using Stata version 14 [50].

Results

Participants

Of the 300 participants who were diagnosed with SMD by the psychiatric nurses, 43% were women and the mean age was 36 years (SD = 13, range: 18–82 years) (Table 1). The great majority of participants had a psychotic disorder ($n = 246$, 84%), of which most ($n = 200$, 81%) had schizophrenia, 11% had bipolar disorder, and 16% had depression with psychotic features. The median number of years that participants reported that they had been living with mental illness was 9 (Interquartile Range (IQR): 4–18, range: 0–70 years). Most participants were jobless (31%), farmers (25%), or housewives (21%), while 7% were daily laborers, 5% owned a business, 3% were students, 1% were pensioners, 1% worked for a private firm or the government, and 5% were classified as "other" which include participants reporting that they were "patients." Of the 300 participants, 13 (4.33%) had some missing data for age (one participant), BPRS-E (six participants), and years living with mental illness (six participants).

Exposure to traumatic and stressful events

Almost half of participants (46%) reported that they had been restrained at some point since becoming ill, with one-quarter (25%) experiencing restraint in the last year. Men (30%) were more likely to be restrained in the last year than women (18%); older people and those who had been ill for longer were less likely to be restrained (Table 2).

More than one-third of participants (36%) reported that they had experienced at least 1 of the 13 traumatic events, since they became ill, with 21% experiencing at least two events. Men reported experiencing more traumatic events than women (Table 2). The most commonly reported traumatic events were being assaulted (24%) or beaten (20%). Being raped by a community member or friend was reported by 7% of the women and none of the men. Participants with higher scores on the BPRS (psychiatric symptoms) reported less exposure to traumatic events (Table 1).

Almost 70% of participants reported experiencing a stressful life event in the past six months, with the most common events being experiencing a serious illness or injury (27%) and joblessness (27%) (Table 2). There were no gender differences in whether participants experienced a stressful event or how many stressful events they experienced, but significantly more men (42%) than women (30%) reported having a financial crisis ($\chi^2 = 4.91$, $p = 0.03$) (Table 2).

Table 1 Demographics and association with trauma exposure and stressful life events

Demographic indicator	N or Mean	% or SD	Factors associated with traumatic and stressful events								
			Restraint last 12 mos			Traumatic events			Stressful life events		
			N	%	Test statistic	Mean	SD	Test statistic	Mean	SD	Test statistic
Sex											
Female	128	42.67	23	17.97	$X^2=5.39$ $p=0.02$	0.47	1.03	$t(298)=2.79$ $p=0.006$	1.69	1.69	$t(298)=1.19$ $p=0.24$
Male	172	57.33	51	29.65		0.83	1.17		1.95	2.00	
Age, M (SD)	35.51	13.32			$OR=0.97\ p=0.009$			$IRR=1.00,\ p=0.48$			$IRR=1.00,\ p=0.82$
Years mental illness, M(SD)	12.34	12.14			$OR=0.97$ $p=0.03$			$IRR=1.00,\ p=0.79$			$IRR=0.99,\ p=0.051$
Psychiatric symptoms (BPRS-E), M(SD)	48.40	15.60			$OR=1.01$ $p=0.51$			$IRR=0.98$ $p<0.001$			$IRR=1.00$ $p=0.54$

Mental health

Participants scored an average of 11.26 (SD = 5.11) on the PHQ, with 268 (89.33%) scoring at or above the clinical cut-off for depression [47], suggesting high levels of depression symptoms. Moreover, 37% of participants reported suicidal ideation and 14% reported suicide attempt in the past year. In addition, 45% of men and 12% of women (31% total) reported hazardous drinking in the past 3 months.

Traumatic and stressful events predicting mental health

After controlling for covariates, hazardous drinking in the past 3 months was positively associated with exposure to traumatic events since illness (OR = 1.45, $p = 0.009$) and negatively associated with being restrained during the last 12 months (OR = 0.36, $p = 0.003$) (Table 3). Increased depression symptoms in the past 2 weeks were positively associated with experiencing stressful events in the past 6 months ($b = 0.66$, $p < 0.001$). Suicidal ideation in the past 12 months was positively associated with being restrained in the past 12 months (OR = 2.02, $p = 0.017$) and the number of stressful events in the past 6 months (OR = 1.37, $p < 0.001$). There was a trend towards suicide attempts in the past 12 months being positively associated with the number of stressful events in the past 6 months (OR = 1.19, $p = 0.056$).

Discussion

People living with SMD in Ethiopia experience high levels of traumatic and stressful events in addition to coping with SMD. While the data are cross-sectional and directionality cannot be inferred, results indicate that traumatic and stressful events are associated with, and may be influencing, mental health and substance abuse in this population, and/or mental health and substance abuse may be influencing increased exposure to traumatic and stressful events.

Almost half of participants reported that they have been restrained at least once since becoming ill, including one in four who has been restrained in the past year. Men seem to be at particularly high risk of being restrained, with one in three men being restrained in the last year. Being restrained in the past year was associated with increased reports of suicidal ideation and decreased reports of hazardous drinking. It may be that restraint exacerbates suicidal ideation, or that participants who are suicidal are more likely to be restrained by their family members in an effort to keep them from harm. Similarly, restraint may reduce access to alcohol and, therefore, limit hazardous drinking. This hypothesis aligns with a qualitative study in Sodo District that found that the primary reason for

Table 2 Traumatic and stressful events by gender

Event	Total		Men		Women		Difference	
	N	%	n	%	n	%	χ^2	p
Restrained since illness	139	46.33	90	52.33	49	38.28	5.82	0.02
Restrained last 12 months	74	24.67	51	29.65	23	17.97	5.39	0.02
Traumatic events								
Beaten	52	19.55	41	26.62	11	9.82	11.64	0.001
Hit by car	11	3.67	10	5.81	1	0.78	5.26	0.02
Been in a fire	3	1.00	1	0.58	2	1.56	0.71	0.40
Attacked with a gun	1	0.33	0	0.00	1	0.78	1.35	0.25
Hit by bicycle/cart	6	2.00	5	2.91	1	0.78	1.69	0.19
Fell off cliff/into ditch or pit	10	3.33	8	4.65	2	1.56	2.17	0.14
Fell into water	4	1.33	3	1.74	1	0.78	0.52	0.47
Electrical accident	2	0.67	2	1.16	0	0.00	1.50	0.22
Raped[a]	8	3.09	0	0.00	8	7.14	10.83	0.001
Attacked by animal	24	8.03	16	9.36	8	6.25	0.96	0.33
Other accident	3	1.00	2	1.16	1	0.078	0.11	0.74
Assaulted	71	23.75	48	27.91	23	18.11	3.87	0.049
Maltreated in prison	8	2.67	7	4.07	1	0.78	3.06	0.08
Any traumatic event	107	35.67	75	43.60	32	25.00	11.07	0.001
Total number of traumatic events	M = 0.66	SD = 1.13	M = 0.83	SD = 1.17	M = 0.47	SD = 1.03	t(298) = 2.78	0.006
Stressful life events last 6 months								
Serious illness or injury, self	80	26.76	47	27.33	33	25.98	0.07	0.80
Serious illness or injury, close friend or family	35	11.95	22	13.02	13	10.48	0.44	0.51
Death of spouse, child, or parent	32	10.74	17	9.94	15	11.81	0.27	0.61
Death of other close relative or friend	50	16.72	27	15.70	23	18.11	0.31	0.58
Marital difficulties	32	10.70	17	9.88	15	11.81	0.28	0.59
Broke off steady relationship	48	16.05	28	16.28	20	15.75	0.02	0.90
Serious problem with friends or family	34	11.37	23	13.37	11	8.66	1.61	0.21
Joblessness	80	26.76	52	30.23	28	22.05	2.50	0.11
Financial crisis	111	37.12	73	42.44	38	29.92	4.91	0.03
Important thing stolen	26	8.70	16	9.30	10	7.87	0.19	0.67
Problems with police	23	7.69	13	7.56	10	7.87	0.01	0.92
Any stressful life event	207	69.00	118	68.60	89	69.53	0.03	0.86
Total number of stressful life events	M = 1.84	SD = 1.88	M = 1.95	SD = 2.00	M = 1.69	SD = 1.69	t(298) = 1.19	0.24

[a]Rape specifies rape by a community member or friend

Table 3 Mutivariable analyses of trauma experiences in relation to mental health characteristics

Predictor	Hazardous drinking			Depression symptoms			Suicidal ideation			Suicide attempt		
	OR	95% CI	p	b	95% CI	p	OR	95% CI	p	OR	95% CI	p
Restrained past 12 months	0.36	0.18, 0.73	0.005	− 0.83	− 2.10, 0.45	0.204	2.02	1.13, 3.617	0.017	0.95	0.43, 2.11	0.900
Traumatic Events since illness	1.45	1.10, 1.91	0.009	0.13	− 0.40, 0.67	0.619	1.05	0.83, 1.34	0.672	1.08	0.80, 1.45	0.62
Stressful events past 6 months	1.12	0.95, 1.32	0.171	0.66	0.35, 0.97	< 0.001	1.37	1.18, 1.59	< 0.001	1.19	1.00, 1.42	0.056

Sex and age were included in all the analyses. Psychiatric symptoms were also included in the regression predicting Depression Symptoms

restraint was to protect the individual with mental illness or to protect the community from the individual. This was particularly true when access to treatment was limited or nonexistent [51].

More than one-third of participants reported experiencing potentially traumatic events since becoming ill, including being assaulted, beaten, or raped by a community member or friend. While only women reported that they had been raped,

overall, men were more likely to report experiencing the traumatic events, and this gender difference was primarily driven by their higher exposure to being beaten, assaulted, or hit by cars. This gender discrepancy in exposure to traumatic events may be driven in part by men being exposed to the community more than women, and this interpretation may be supported by the increased rate of traumatic events among participants with less severe psychiatric symptoms. These participants may be more likely to be outside of the home and may, therefore, be more at risk of experiencing traumatic events. Exposure to traumatic events since illness was positively associated with increased risk of engaging in hazardous drinking in the last 3 months. Trauma exposure may increase propensity to engage in hazardous drinking. Conversely, people with SMD who engage in hazardous drinking may also be more likely to end up in potentially harmful situations.

Finally, most participants experienced a stressful life event in the past 6 months and stressful life events positively predicted depression symptoms and suicidal ideation, and there was a trend towards stressful life events positively predicting suicide attempts. Participants who experience stressful life events may have worsening depression and suicidal ideation [52], which may, in turn, increase the likelihood of experiencing a stressful life event such as joblessness, financial insecurity, or marital difficulties [53].

This study has some limitations. As noted above, the study is cross-sectional and so directionally of effects cannot be inferred. In addition, the study only includes participants with SMD in Ethiopia, and the identified relationships may not be generalizable to other populations. Moreover, all measures were self-report which may introduce bias into the measures. This study is a secondary data analysis, and data on PTSD symptoms or diagnoses were not collected in the original study. Therefore, we are unable to determine whether PTSD symptoms were associated with trauma exposure or whether PTSD symptoms mediated or moderated associations between trauma exposure and other mental health or hazardous drinking outcomes. Similarly, participants were not asked about their subjective experience of the reported potentially traumatic events, and so we do not know whether participants experienced these events as "traumatic." Finally, it is likely that caregivers may have answered some questions on behalf of patients that were deemed too ill to answer for themselves. Unfortunately, we are not able to identify the assessments in which this took place. Another limitation concerns the ambiguity of the stressful life event "serious illness or injury." The Amharic version of this item includes physical and mental illness and so could apply to all of the participants in this study. However, only 27% of participants endorsed this item. This response rate suggests that many participants may have interpreted this item

to mean primarily physical illness, and/or that participants did not endorse having a mental illness. Unfortunately we are unable to determine how participants may have interpreted this item. Finally, we had limited power to detect a significance difference in the prediction of suicide attempt. The trend towards significance suggests that the relationship between stressful events and suicide attempt may have achieved significance with a larger sample size.

Despite these limitations, this study is strengthened because the sample was comprised of all the people in one district in Ethiopia who were confirmed to be living with SMD, which increases the generalizability of the results. Moreover, despite the fact that people with SMD in LMICs are at high risk of stigma, neglect, restraint, human rights abuses, and violence [22–33], this is one of the first studies in an LMIC to look at trauma exposure and its association with mental health in people with SMD. Knowledge of factors that may precipitate or exacerbate mental health symptoms may assist with developing innovative interventions to improve the well-being and functioning of this vulnerable population. This may be particularly critical in LMICs and other low-resource settings with limited access to mental health services [34, 35].

Around the world people with SMD experience a disproportionate amount of traumatic and stressful events. These events may confer greater risk of comorbid conditions including depression, suicidal ideation, and alcohol use which may further compromise their functioning and increase their risk of experiencing future harmful events. Treatment for people with SMD is often limited to medication management, particularly in low-resource settings. However, as mental health systems develop, there may be opportunities to integrate trauma prevention and treatment into services for people with SMD, which may improve their mental health, even if other psychiatric symptoms are still present.

Compliance with ethical standards

Conflict of interest The authors declare that they have no competing interests.

Ethics approval The study was approved by the Institutional Review Board of the College of Health Sciences of Addis Ababa University. The secondary analyses presented here were reviewed by the Boston University Medical Campus Institutional Review Board and were determined to not be human subjects' research.

Informed consent All participants gave informed consent to participate.

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