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Prevalence of traumatic events and symptoms of PTSD among South Africans receiving an HIV test

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Abstract

We studied posttraumatic stress disorder (PTSD) among a community sample of 500 persons seeking an HIV test. The majority of participants (62.2%) indicated that they had experienced at least one index event that qualified for PTSD, even though a small proportion (5%) actually met the diagnostic criteria for the disorder. Of those who reported an index event, 25 (8.04%) met the diagnostic criteria for PTSD while 286 (91.96%) did not. On average about one third of participants who did not meet the criteria for PTSD endorsed PTSD symptoms whereas more than three quarters of those who met the full criteria did so. No demographic factors were associated with PTSD caseness, except number of traumatic events. These results are discussed in the context of the need to address traumatic events and PTSD among persons who undergo HIV testing.

Keywords

HIV testing Posttraumatic stress disorder Community

INTRODUCTION

While considerable research has been directed at mental disorders among persons living with HIV, similar data on individuals receiving an HIV test are sparse. In this paper we focus on posttraumatic stress disorder among persons undergoing an HIV test. There is a preponderance of evidence to suggest a close association between PTSD symptoms and HIV risk (1). Two sets of health behaviours may be affected by these general PTSD-related symptoms. For persons testing HIV negative, avoiding high risk activities such as unprotected sex and sex with multiple partners is imperative so that they may remain negative. For persons testing HIV positive, behaviours such as appropriate disclosure to others, accessing and maintaining adherence to antiretroviral therapy, and reducing the risk of infecting others by consistently using condoms and reducing the number of sex partners are necessary.

Symptoms of PTSD may play an important role in determining adherence to these behavioural guidelines. For example, among women prisoners in the United States, a lifetime occurrence of PTSD as assessed by the Structured Clinical Interview for the DSM (SCID), was significantly associated with engaging in anal sex and prostitution (2). Among a

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sample of Vietnamese transgendered individuals, the factors that were negatively associated with recent HIV testing included regular alcohol use and symptoms of post-traumatic stress, which was assessed by the four item Primary Care PTSD screen (PC-PTSD) (3). Also, among Tajik migrant labourers, HIV sexual risk behavior was associated with higher indirect trauma exposure as measured by the PC-PTSD (4). Among rural Native American women who met the criteria for PTSD as assessed by the 17 item PTSD Symptom Severity Interview, binge drinking was highly associated with unprotected sex and a greater number of sexual partners (5). The above studies used different methods of assessment, i.e. a structured clinical interview, a 4-item screen, and a 17-item checklist. To this extent, comparisons of prevalence rates among these studies are limited. Nonetheless, it appears therefore that untreated PTSD symptoms may place individuals at elevated risk for contracting HIV in the future. In addition to conferring possible risk of HIV, it is largely unknown whether PTSD precedes receipt of an HIV test result or occurs afterwards. This study sought to elucidate this matter.

Traumatic events and posttraumatic stress disorder among general community samples

Traumatic events and associated symptoms of traumatising are ubiquitous in many communities, not only those at risk of HIV. Even though many people may experience an event that precipitates symptoms of traumatising, actual rates of PTSD in many communities are lower than the prevalence of traumatic events. In the National Comorbidity Study the estimated lifetime prevalence of PTSD was 7.8% (6); the rate was 10.4% for females and 5.0% for men. More recently, among a German sample, 41% of participants reported experiencing a traumatic event, which led to full and partial PTSD among 1.7% and 8.8% of participants, respectively (7). Among a community sample of 614 Mexican American adults, 51.2% of males and 41.1% of females reported experiencing a traumatic event (8). However, of the sample 8% of males and 15% of females met the criteria for PTSD as assessed by a semi-structured interview. Among a community sample of adults in South London, the majority (78.2%) had experienced a traumatic event in their lifetime and more than a third (39.7 %) reported childhood trauma (9). Yet, the prevalence of PTSD was 5.5%, with a higher prevalence of women reporting PTSD (6.4 %) than men (3.6 %).

In addition to community samples, and of course persons involved in combat, war or disaster situations, PTSD is also common among medical patients, for example, stroke and transient ischemic attack survivors (10); cancer survivors (11); and bone marrow transplant patients (12). A substantial body of evidence indicates that posttraumatic stress disorder (PTSD) is associated with HIV. For example, the estimated prevalence of PTSD among an Australian sample of 61 HIV-positive gay and bisexual men was 30% (13). Similarly, among a sample of 67 African American HIV-infected women the estimated rate of PTSD was 35% (9) and among an American sample of 41 HIV-positive women it was 42% (15). Among an American sample of 75 HIV-positive men and women PTSD was estimated at 64% (16).

Among a South African sample of recently diagnosed HIV-positive individuals, an estimated PTSD prevalence rate of 14.8% and 26% was determined at baseline and follow-up, respectively, using the MINI International Neuropsychiatric Interview (17). In general, the prevalence of PTSD reported in these studies is higher than the lifetime prevalence of PTSD

of 2.3% found in the South African Stress and Health (SASH) Study among a nationally representative household survey of 4351 South African adults (18).

In much of the literature on PTSD and HIV, it is unclear whether PTSD precedes an HIV diagnosis due to previously experienced traumatic events, or whether it emerges following receipt of an HIV positive test result due to the stress of having a life-threatening illness. Among recently -diagnosed HIV-positive South Africans, for example, 14.8% met the criteria for PTSD of which 36.4% reported that the index trauma was being informed of their HIV-positive diagnosis (19). Other index traumas constituted being raped (22.7%), being robbed or assaulted (13.6%), being exposed to intimate partner violence (9.1%), having experienced a serious accident (9.1%) and the death of someone close to the individual (9.1%) (17; 19).

While a body of research exists on PTSD among people living with HIV, persons undergoing an HIV test are an understudied population. Such research may provide insights into the experiences of traumatisation among this group prior to their receiving an HIV test result. We reported previously that the prevalence of PTSD among a sample of 485 persons seeking HIV testing was 4.9% (20). In this paper, using the same sample but after recruiting additional participants, we report on the prevalence of traumatic events, PTSD caseness and symptoms, as well as predictors of PTSD.

METHODS

Participants

We recruited participants by means of convenience sampling at three HIV testing sites in the Western Cape province of South Africa. The sites are funded by the provincial Department of Health and are tasked with conducting outreach testing activities within the province. Testing site personnel set up temporary centres in public areas such as shopping centre parking lots and public transport centres. As members of the public passed by the testing centres on foot, they were invited by the outreach staff to receive a free on-the-spot HIV test. Thus participants were a convenience sample of community members who accepted an HIV test when it was offered to them.

Procedures

Once the individuals who agreed to an HIV test registered at the reception desk of the testing site, they were handed a flyer informing them of the study and inviting them to meet with a researcher in a private space such as a room, tent, or caravan at the testing centre. Those who agreed were informed about the study, invited to participate prior to undergoing HIV testing, and asked to complete an informed consent form. Eligibility criteria included not being floridly psychotic and being able to understand the interview questions. Participants were briefly assessed to ensure they met these criteria by study personnel who were graduate students in psychology and had been trained in study procedures and SCID administration. All but a few people who agreed to meet with the researcher were conversant in English, even though for many English was their second language. If it was apparent that a potential

participant was unable to understand English, he or she was not included in the study. This was the case with 40 potential participants.

Ethical considerations

The study was approved by the Stellenbosch University Health Ethics Committee. All participants were asked to sign an informed consent form. Those participants found to have clinically significant distress or to have a mental disorder were referred to a local mental health centre for psychological care. Persons who tested HIV positive were referred for clinical care by the testing site.

Measures

Demographic data—A demographic questionnaire was administered to all participants that included information related to age, gender, and personal background.

Posttraumatic Stress Disorder (PTSD)—PTSD was assessed using the Structured Clinical Interview for the DSM – Research Version (SCID-RV; 21). The SCID-RV questions correspond to the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revised (DSM-IV-TR). There have been important changes in the diagnostic criteria for PTSD between the DSM-IV-TR and the DSM-5. First, in the DSM5 the stressor criterion (Criterion A) is more explicit than the DSM-IV-TR insofar as how an individual experienced the index event that precipitated symptoms of traumatisation. Second, criterion A2, the person's subjective reaction to the traumatic event has been removed as a criterion. Third, the DSM-IV-TR specified three major symptom clusters, namely, re-experiencing, avoidance/numbing, and arousal while the DSM5 specifies four clusters. In the DSM5, the avoidance/numbing cluster has been divided into two distinct clusters: avoidance and persistent negative alterations in cognitions and mood. This category contains numbing symptoms but also includes persistent negative emotional states. Fourth, in the DSM5, the symptom cluster named "alterations in arousal and reactivity" contains most of the DSM-IV arousal symptoms and includes irritable or aggressive behaviour and reckless or self-destructive behaviour.

The DSM-5 was published in 2013 but the corresponding version of the SCID was still under development at the time when we conducted the study. We therefore, in consultation with one of the SCID developers, adapted the SCID questions where necessary so that they corresponded to the DSM-5 diagnostic criteria. The assessment of exposure to traumatic events was modified by asking several shorter questions addressing a broad range of traumatic events as adapted from the DSM-5 text. After asking the participant which index traumatic event affected him or her the most, the interviewers then assessed Acute Stress Disorder if the traumatic event occurred in the past month and PTSD if it occurred prior to the past month. In keeping with the DSM-5 criteria, twenty PTSD symptoms were assessed. Of these, 5 symptoms were related to intrusion (B criteria), 2 were related to avoidance (C criteria), 7 were related to altered cognition and mood (D criteria), and 6 were related to alterations in arousal and reactivity (E criteria).

Any mental disorder—The following mental disorders were also assessed using the SCID: Past major depressive disorder; Major depressive disorder; Persistent depressive disorder; Medication-induced depressive disorder; Alcohol-use disorder; Generalised anxiety disorder; and Adjustment disorder. Again, questions were adapted to conform to the DSM5 criteria.

Before commencing with the study, we conducted a pilot study to assess the comprehensibility and feasibility of the SCID in the population under study. The results indicated that the SCID could be appropriately used among South Africans receiving an HIV test. All data-collectors received extensive training in administering SCID-RV interviews. The SCID-RV interview questions were placed on a web-based platform so that interviewers could record participants' responses on a Lenovo tablet. The data were then automatically imported into an Excel file and stored.

Data Analysis—The data were entered into SPSS version 23. Missing data were imputed by means of the Markov Chain Monte Carlo method of estimation. We calculated the prevalence estimate for posttraumatic stress using a confidence interval of 95%. The results were calculated as frequencies, means, and standard deviations.

RESULTS

Table I presents the demographic characteristics of the participants. As can be seen, the sample consisted of slightly more women than men. Nearly three quarters identified themselves as “Coloured”. Slightly more than half indicated they were single and nearly one third stated they were married or living together. More than half had attended high school and a quarter had completed high school. About one fifth of participants were employed and nearly half stated they were unemployed. As reflected in their annual income, most participants were poor.

Prevalence of index traumatic events and PTSD

As can be seen in Table II, of the total sample of 500 participants who were recruited into the study, 311 (62.2%) reported being exposed to a traumatic event. These individuals thus experienced Criterion A for PTSD, which specifies exposure to actual or threatened death, serious injury, or sexual violence. Among these 311 persons, 189 (37.8%) reported that the event happened to them directly; 170 (34.0%) reported witnessing the event occurring to others; 220 (44.0%) reported that they learned that the event occurred to a close family member or close friend; and 52 (10.4%) experienced repeated or extreme exposure to aversive details of the event. In several cases participants endorsed more than one of these experiences and thus the combined percentages exceed 100%.

Table III presents the most commonly endorsed index event reported by the sample. These were: unnatural death of a family member or friend (15.0%); serious accident, fire or explosion (14.2%); non-sexual assault by a person known to the respondent (13.6%); sexual assault by a family member or someone known to the respondent (9.6%); murder of a family member or friend, and being close to death (6.4%).

Of the 500 participants, 25 (5%) met the full criteria for PTSD on the SCID-RV, which represents 8.04% of the 311 who experienced a traumatic event as specified by Criterion A. Thus, 286 (92%) of those who reported an index traumatic event did not develop PTSD. Table 4 presents the symptoms of PTSD as endorsed by participants in the sample regardless of whether they met the diagnostic criteria for PTSD. The most commonly endorsed symptom was hypervigilance (46%); followed by persistent negative emotional states (33.6%); persistent distorted cognitions about the consequences of the event (31.2%); persistent and exaggerated negative beliefs about oneself (29.0%); feelings of detachment or estrangement from others (27.0%); avoidance of memories, thoughts or feelings associated with the event (23.2%); intense prolonged psychological distress and exaggerated startle response (22.8%). As can be seen in Table IV the difference between the proportions of the participants who did and did not meet the criteria for PTSD was 44.23% and was highly significant ($p < 0.0001$). Finally, as can be seen in Table V, the number of traumatic events was significantly associated with current PTSD caseness. Of the 500 participants, 7 tested positive for HIV (1.4%), all of whom were PTSD non-cases.

DISCUSSION

Prevalence of a traumatic event

The majority of participants (62.2%) indicated that they had experienced at least one index event that qualified for Criterion A for posttraumatic stress disorder. For most of these individuals (44.0%), the trauma was learning that the event occurred to a close family member or friend. For one third of our sample (34%) a traumatic event was witnessed and for just over one third (37.8%) it was experienced directly. Similar results were found in an epidemiological study in the general South African population (22).

A minority of participants (10.4%) stated that they experienced exposure to aversive details of the event. This finding suggests that traumatic experiences are pervasive in the communities from which participants were recruited, especially learning about and witnessing such events. Thus most people either knew of or had heard of someone who had experienced such an event or had experienced such an event themselves.

It is undoubtedly the case that violent crime is an endemic social problem in South African society. For example, in 2015/6 18,673 murders and 18,127 attempted murders were recorded in the country as a whole, with the provincial murder rate in the Western Cape at 52.0/100,000 (23). Also in 2015/2016, 51,895 sexual offences and 42,596 rapes were recorded in the country. There were 164,958 common assaults recorded at a rate of 299.9/100,000 (18). In the same period there were 182,933 assaults with the intent to inflict grievous bodily harm, which translates to 332.5 per 100,000 people in the country.

In the context of the high crime rate, it is not surprising that a large proportion of our study participants reported an index event for PTSD, even though the majority of these was learning that the event occurred to a close family member or friend or witnessing the event. Experiences such as rape, attempted rape, sexual assault, as well as spousal violence where forced sex may occur all place individuals at direct risk for HIV infection, which makes

regular HIV testing of considerable importance. More than 15% of our sample reported sexual assault by either someone they knew or did not know.

Prevalence of PTSD

A small proportion (5%; CI=3.1% to 6.9%) of the sample met the diagnostic criteria for PTSD. This rate is more than double that of the 2.3% found in a community prevalence study of psychiatric disorders, the South African Stress and Health Study (24), and higher than that found in a review of 13 surveys conducted by the World Health Organisation (WHO), where the prevalence of PTSD was found to be 3.0% (25). A possible reason for these differences is that whereas the SASH and WHO studies recruited participants from the general South African population, in the present study we recruited participants who resided in townships characterised by endemic poverty and poor resources. Further, among the demographic risk factors for PTSD is low socio-economic status (26), which may account for the higher rate of PTSD in our sample compared to the general South African population.

Of the 311 who reported an index event for PTSD, 25 (8.04%) people met the criteria for the disorder. Thus, 286 (91.96%) of those who reported an index event did not receive a PTSD diagnosis. These findings are similar to those found among a national American sample where the prevalence of exposure to a traumatic event was 89.7%, while the lifetime, past-12-month, and past 6-month PTSD prevalence rates for PTSD were 8.3%, 4.7%, and 3.8% respectively (27).

Symptoms of posttraumatic stress

On average about one third of participants who did not meet the criteria for a PTSD diagnosis endorsed PTSD symptoms whereas more than three quarters of those who met the full criteria did so. That the difference in percentages of these two groups was significant is not surprising. The most frequently endorsed symptoms of both groups were: persistent distorted cognitions about the cause or consequences of the event, persistent negative emotional states, avoidance of reminders of the event, and avoidance of memories, thoughts, or feelings associated with the event. Three of these four symptoms were anchored to the event itself. However, there were several highly endorsed symptoms that were not anchored to an index event. These were psychological distress, negative beliefs about oneself, diminished interest in activities, detachment from others, inability to experience positive emotions, irritable behaviour, self-destructive behaviour, problems with concentration and sleep disturbance.

Predictors of PTSD

None of the demographic and other variables were associated with PTSD caseness except the number of traumatic events. This finding is in keeping with that of several other studies that have shown that multiple traumas are associated with a greater likelihood of PTSD. Among our sample of individuals accepting an HIV test, this finding also appears to be the case. We were surprised that comorbidity with other mental disorders was not a significant predictor of PTSD.

Given the low HIV prevalence of 1.4% among the sample, no relationship was detectable between HIV status and PTSD. We presume this low HIV prevalence rate was due to a combination of the geographical area where the study was conducted, i.e., the Western Cape province of South Africa, and the fact that this was a convenience sample, i.e. a sub-section of the general community who agreed to undergo an HIV test.

CONCLUSIONS

Untreated PTSD has a deleterious effect on quality of life and may lead to poor psychosocial functioning, dysfunctional social relationships, problems at work including absenteeism and loss of employment, and poor family functioning, including abusive and inadequate parenting (27; 28; 29). As we have argued, PTSD has been shown to be associated with behaviours that increase HIV risk (2, 3, 4). Further, among persons receiving HIV testing, PTSD may also impair adaptation to a positive test result, which in turn is a barrier to effective problem-solving, accessing antiretroviral treatment, and decision-making about appropriate disclosure to others (30, 31). Appropriate disclosure, especially to sexual partners, is an important concern (32) as further infections may be prevented if sero-discordant couples adopt appropriate risk reduction strategies such as the use of condoms and pre-exposure prophylactic medication.

Identifying PTSD symptoms also brings into focus the need to apply evidence-based psychological interventions to ameliorate symptoms associated with the condition and thus bring about psychological relief among individuals with PTSD (33). Yet, the existence of efficacious treatments however does not automatically translate into their availability to those in need of them. In the context of a resource-constrained public health system in which HIV testing takes place in South Africa, referrals for psychological and psychiatric treatment are often not available (34). Thus, screening for and case identification of PTSD will need to be considered in the context of the availability of treatment so that persons who screen positive for a mental disorder can be followed up with diagnosis and treatment.

PTSD as well as sub-threshold symptoms can be debilitating and may be associated with a range of adverse health outcomes including elevated HIV risk among persons testing HIV negative and poor treatment adherence among those testing HIV positive. PTSD symptoms are also associated with poor quality of life, including vulnerability to depression and suicide. Given the high prevalence of traumatic events and associated PTSD symptoms in resource-constrained communities, efforts at large scale community HIV testing should consider the likelihood that people who make themselves available for testing may have some of these experiences. Yet, as the prevalence of PTSD in our sample was relatively low, it would appear that targeted interventions may be more appropriate than wide scale interventions.

One of the limitations of the present study is that participants were not individuals who were actively seeking an HIV test. Instead, they were members of the general public who agreed to a test when they were offered one. To this extent, generalisability of our findings to persons actively seeking an HIV test may be limited. Yet, participants of their own volition had agreed to testing. A major strength of the study is the fact that a gold standard

method of psychological assessment was used, namely the SCID. While the SCID is a time-consuming and costly method of assessment, it provides greater accuracy of data regarding PTSD caseness and symptomatology in comparison with self-report measures, which is characteristic of much of the literature on HIV and PTSD.

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Table I

Demographic characteristics of the sample

Gender	Males	242	48.4
	Females	258	51.6
Race	African	131	26.2
	Coloured	363	72.6
	White	4	0.8
	Other	2	0.4
Marital status	Single	265	53.0
	Widowed	13	2.6
	Separated	28	5.6
	Divorced	35	7.0
	Married/living together	159	31.8
Education	No formal education	23	4.6
	Completed primary school	24	4.8
	Attended high school but did not complete matric	289	57.8
	Complete matric	125	25.0
	Attended university or college but did not graduate	22	4.4
	Graduated from university, college or technikon	17	3.4
Employment status	Employed full time	97	19.4
	Student	29	5.8
	Unemployed due to disability	7	1.4
	Retired	17	3.4
	Employed part-time	106	21.2
	Unemployed	233	46.6
	Homemaker	11	2.2
Annual Income	Less than R10 000	203	40.6
	R10000 to R40000	205	41.0
	R40000 to R80000	57	11.4
	R80000 to R110000	20	4.0
	R110000 to R170000	8	1.6
	R170000 to R240000	4	0.8
	R240000 and above	3	0.6
First Language	Afrikaans	345	69.0
	English	30	6.0
	Xhosa	98	19.6
	Other	27	5.4

Table II

Percentage of the sample who experienced traumatic events of varying intensity

	N	%
1.Exposure to actual death, serious injury, or sexual violence	311	62.2
1.a. The event happened to you directly	189	37.8
1.b. Witnessing the event as it occurred to others	170	34.0
1.c. Learning that the event occurred to a close family member or close friend	220	44.0
1.d. Experiencing repeated or extreme exposure to aversive details of the traumatic event	52	10.4

Table III

Percentages of traumatic events reported by the sample

	N	%
Non-sexual assault by someone you know (mugged, attacked, shot, stabbed)	68	13.6
Serious accident, fire, or explosion	71	14.2
Sexual assault by a family member or someone you know (rape or attempted rape)	48	9.6
Non-sexual assault by a stranger	30	6.0
Sexual assault by a stranger	18	3.6
Imprisonment	15	3.0
Lack of food or water	10	2.0
Ill health without medical care	3	0.6
Combat situation	3	0.6
Lack of shelter	5	1.0
Lost or kidnapped	3	0.6
Unnatural death of family or friend	75	15.0
Murder of family or friend	41	8.2
Being close to death	32	6.4
Forced isolation from others	4	0.8
Torture	5	1.0

Table IV

Comparison of PTSD cases and non-cases in terms of frequency of endorsement of individual symptoms (N=311)

Symptom	Non-cases N=286	%	Cases N=25	%
Recurrent intrusive distressing memories of the event	69	24.1	17	68.0
Recurrent distressing dreams related to the event	43	15.0	15	60.0
Dissociative reactions related to the event	55	19.2	19	76.0
Intense prolonged psychological distress	94	32.9	21	84.0
Marked physiological reactions to cues about the event	86	30.1	19	76.0
Avoidance of memories, thoughts, or feelings associated with the event	93	32.5	23	92.0
Avoidance of reminders of the event	103	36.0	24	96.0
Inability to remember an important aspect of the event	24	8.4	9	36.0
Persistent and exaggerated negative beliefs about oneself	124	43.4	21	84.0
Persistent distorted cognitions about the cause or consequences of the event	131	45.8	25	100.0
Persistent negative emotional states	143	50.0	25	100.0
Markedly diminished interest in significant activities	97	33.9	22	88.0
Feelings of detachment or estrangement from others	115	40.2	20	80.0
Persistent inability to experience positive emotions	73	25.5	18	72.0
Irritable behaviour and angry outbursts	109	38.1	21	84.0
Reckless and self-destructive behaviour	79	27.6	16	64.0
Hypervigilance	209	73.1	21	84.0
Exaggerated startle response	95	33.2	19	76.0
Problems with concentration	77	26.9	16	64.0
Sleep disturbance	90	31.5	17	68.0
Clinically significant distress	64	22.4	18	72.0
Duration of (Criteria B, C, D, and E) disturbance is more than one month	174	60.8	25	100.0
Average percentage endorsement of 20 PTSD items	95.45	33.37	19.4	77.6

Table V

Predictors of PTSD

Step 1 ^a	B	S.E.	Wald	df	Sig.	Exp(B)
Age	.014	.022	.387	1	.534	1.014
Gender	.868	.491	3.121	1	.077	2.382
Race	-.054	.570	.009	1	.925	.947
Marital status	-.160	.152	1.109	1	.292	.852
Living situation	.105	.208	.253	1	.615	1.110
Educational level	.067	.248	.073	1	.787	1.069
Employment status	.064	.131	.243	1	.622	1.067
Any mental disorder (combination of all except PTSD)	.000	.001	.175	1	.675	1.000
Direct or Indirect event	.640	.568	1.270	1	.260	1.896
Number traumatic events	.252	.095	7.013	1	.008	1.286
Constant	-5.651	1.966	8.266	1	.004	.004

^aVariable(s) entered on step 1: Age, Gender, Race, Marital status, Living situation, Educational level, Employment status, Any mental disorder (combination of all except PTSD), Direct or Indirect event, number_of_traumas.