Childhood trauma among individuals with co-morbid substance use and post traumatic stress disorder

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Abstract

Background—Little is known about the impact of childhood trauma (CT) on the clinical profile of individuals with co-occurring substance use disorder (SUD) and post traumatic stress disorder (PTSD).

Aims—To compare the clinical characteristics of individuals with SUD+PTSD who have a history of CT with SUD+PTSD individuals who have experienced trauma during adulthood only.

Method—Data were collected on 103 individuals as part of a randomised controlled trial examining the efficacy of an integrated psychosocial treatment for SUD+PTSD. Participants were recruited from substance use treatment services, community referrals and advertising. Data were collected on demographic characteristics, substance use and treatment histories, lifetime trauma exposure, and current physical and mental health functioning.

Results—The vast majority (77%) of the sample had experienced at least one trauma before the age of 16, with 55% of those endorsing childhood sexual abuse. As expected individuals with a CT history, as compared to without, evidenced significantly longer duration of PTSD. Those with a CT history also had more extensive lifetime trauma exposure, an earlier age of first intoxication, and reported more severe substance use (e.g., a greater number of drug classes used in their lifetime, higher severity of dependence scores and greater number of drug treatment episodes).

Conclusion—Individuals with co-morbid SUD+PTSD who have experienced CT present with a more severe and chronic clinical profile in relation to a number of trauma and substance use

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characteristics, when compared to individuals with adulthood only trauma histories. It is therefore important for SUD+PTSD treatment planning that CT be carefully assessed.

Keywords

post traumatic stress disorder; substance use disorder; co-morbidity; childhood trauma

Introduction

Numerous studies have documented an association between substance use and exposure to psychological trauma. General population surveys have documented that approximately 75% of individuals with a substance use disorder (SUD) have experienced trauma at some point in their lives (Mills, Teesson, Ross, & Peters, 2006). Rates are even higher among clinical samples of individuals seeking treatment for a SUD. Indeed, in such clinical samples a history of trauma exposure is almost universal with up to 95% of clients reporting exposure (Bastiaens & Kendrick, 2002; Farley, Golding, Young, Mulligan, & Minkoff, 2004; Ford, Hawke, Alessi, Ledgerwood, & Petry, 2007; Mills, Lynskey, Teesson, Ross, & Darke, 2005). A large proportion of individuals with SUD experience their first trauma in childhood (i.e., under the age of 16 years). For instance, Wu, Schairer, Dellor and Grella (2010) found that close to half of their large sample of in-patients in residential drug treatment programs in the US had experienced sexual abuse and/or physical abuse during their childhood.

It is not surprising, therefore, that the prevalence of PTSD is also elevated among individuals with SUD (Bonin, Norton, Asmundson, Dicurzio, & Pidlubney, 2000; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995; Mills et al., 2006). The co-occurrence of a current PTSD diagnosis among treatment seeking samples is estimated to be between 25–42% (Dragan & Lis-Turlejska, 2007; Gil-Rivas, Prause, & Grella, 2009; Mills et al., 2005; Read, Brown, & Kahler, 2004). These rates are considerably higher than those observed in general population surveys (1–9%; Breslau & Davis, 1992; Creamer, Burgess, & McFarlane, 2001).

The high frequency of PTSD among individuals with SUD is of concern as individuals with this co-morbidity have consistently been shown to present with a more severe clinical profile including more extensive polydrug use histories, poorer physical and mental health, and poorer social and occupational functioning, when compared to individuals with SUD alone (Dragan & Lis-Turlejska, 2007; Mills et al., 2005; Najavits et al., 1998; Najavits, Weiss, & Shaw, 1997; Ouimette, Goodwin, & Brown, 2006; Riggs, Rukstalis, Volpicelli, Kalmanson, & Foa, 2003). Given this profile, it is unsurprising that co-morbid SUD+PTSD has also been associated with poorer treatment outcomes including higher readmission rates (Brown, Stout, & Mueller, 1996; Kubiak, 2004; Mills, Teesson, Ross, & Darke, 2007).

Recently, there has been increasing interest in the development of evidence based treatment approaches to co-morbid SUD+PTSD (Back, Waldrop, & Brady, 2009; Donovan, Padin-Rivera, & Kowaliw, 2001; Mills, 2009; Triffleman, 2003). There is however, little research to guide clinicians in relation to factors that may be associated with improved or poorer treatment outcomes among individuals with this co-morbidity. Of particular clinical importance may be whether the person presents with a history of childhood trauma (CT) as this has been associated separately with PTSD and SUD. In the PTSD literature, a more pervasive course of illness has been documented among individuals who experience CT (van der Kolk et al., 2007) and previous SUD research demonstrated associations between CT and SUD, even after controlling for PTSD (Triffleman, Marmar, Delucchi, & Ronfeldt, 1995).

Previous studies among individuals with SUD report associations between CT and younger age of first intoxication (Hyman, Garcia, & Sinha, 2006; Medrano, Desmond, Zule, & Hatch, 1999; Messina et al., 2008; Schäfer et al., 2007; Waldrop, Santa Ana, Saladin, McRae, & Brady, 2007), earlier age of SUD onset (Dom, De Wilde, Hulstijn, & Sabbe, 2007), greater severity of substance abuse (Dom et al., 2007; Hyman et al., 2006; Messina et al., 2008), drug risk behaviour (Plotzker, Metzger, & Holmes, 2007), self mutilation (Evren & Evren, 2005) and attempted suicide (Jarvis & Copeland, 1997; Roy, 2003). It is therefore possible that substance users with PTSD who have experienced CT may present with a poorer clinical profile as compared to individuals with adult trauma alone. To our knowledge however, the clinical profile of individuals with SUD+PTSD who have experienced CT has not been compared to that of individuals who have experienced adult trauma alone.

The present study aims to extend prior research by examining, among individuals with co-morbid SUD+PTSD: (1) the prevalence of CT exposure; (2) the demographic, substance use, physical and mental health correlates of CT; and (3) the impact of CT on health service utilisation.

Methodology

Procedure

The data were collected between October 2007 and June 2009 as part of a randomised controlled trial (RCT) examining the efficacy of an integrated psychological treatment for SUD+PTSD (Mills, Back et al., 2007). Participants were recruited from substance use treatment services, media advertisements and referrals within the greater Sydney, Australia region.

Inclusion to the study required the participant to have used substances in the previous month and to have a past-month diagnosis of PTSD according to the DSM-IV-TR (American Psychiatric Association, 2000), or partial PTSD, where at least criterion B (re-experiencing) was met, along with either criterion C (avoidance) or D (arousal) (Blanchard, Hickling, Taylor, Loos, & Gerardi, 1994; Blanchard et al., 1995).

In addition, participants were required to be aged 18 or over and to be fluent in English. Individuals who were currently suicidal or self-harming, psychotic, or exhibiting cognitive impairment severe enough to impede treatment were excluded from the study.

Of the 334 people assessed for inclusion in the RCT, 124 (37%) were eligible to participate. The primary reasons for exclusion were not meeting criteria for a past-month diagnosis of PTSD or partial PTSD (53%) or not having used substances in the preceding month (39%). Approximately 7% exhibited current suicidality or self-harming behaviour, 1% exhibited cognitive impairment severe enough to impede treatment, and 1% were under 18 years of age.

The majority of those who were eligible agreed to participate (N = 103; 83%). All participants were volunteers and were paid A$30 for completing the baseline interview. Written consent was obtained from all participants and confidentiality was assured. Ethical approval was granted by the Human Ethics Review Committees of the University of New South Wales and the Northern Sydney Central Coast Area Health Service.

Structured interview

A structured face-to-face interview was administered to all participants. The interview included validated instruments and took approximately 90 to 120 minutes to complete. The

interview addressed demographics, mental health, substance use, PTSD, treatment history, health service utilisation, depression, anxiety and borderline personality disorder (BPD).

Age of first intoxication and past month use of heroin, other opiates, amphetamines, cocaine, hallucinogens, benzodiazepines, antidepressants, alcohol, cannabis, inhalants and tobacco in the month was established prior to the interview. Participants were asked to nominate their main drug of concern (MDC). The Composite International Diagnostic Interview (CIDI) version 3.0 (Kessler & Unstun, 2004) assessed DSM-IV criteria for dependence for participants' MDC. Past-month severity of dependence was measured using the Severity of Dependence Scale (SDS), which is a five-item measure of psychological aspects of dependence (Gossop et al., 1995).

Trauma history was measured using a modified version of the CIDI version 2.1 (World Health Organization, 1997) and assessed exposure to combat, life-threatening accidents, natural disasters, witnessed serious injury or death, rape, sexual molestation, serious physical assault, being threatened with a weapon, held captive or kidnapped, tortured or the victim of terrorists, any other extremely stressful or upsetting event, or a great shock because one of the aforementioned events happened to someone else. For all traumas endorsed, the age of first exposure was assessed. Past-month PTSD severity was assessed using the Clinician-Administered PTSD Scale (CAPS: Blake et al., 1995) in relation to the "index trauma," or the event considered to be most distressing by the participant. Finally, age of onset of PTSD symptoms as well as duration of symptoms was measured.

Diagnosis of current (past month) depression was determined using the Beck Depression Inventory-II (BDI-II: Blake et al., 1995), and anxiety was measured using the State-Trait Anxiety Inventory (STAI: Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983). The state anxiety norms for males and females are 35.7 (10.4) and 35.2 (10.61) respectively, and the trait anxiety norms for males and females are 34.9 (9.19) and 34.8 (9.22) respectively. History of suicide attempts was assessed as well as the time of the most recent attempt. Participants were also screened for BPD using the International Personality Disorder Examination Questionnaire (Loranger, Janca, & Sartorius, 1997). Health related quality of life was measured using the Short Form-12 (SF-12), which generates physical and mental health subscales, with lower scores indicating poorer health (Ware, Kosinski, & Keller, 1996).

Statistical Analyses

Descriptive analyses were undertaken on categorical variables broken down by groups, and based on frequency tables, cross tabulations, means with their standard deviations, and medians. T-tests were used for continuous data. Where distributions were highly skewed, medians are reported and Mann Whitney U tests were conducted. For dichotomous categorical variables, odds ratios (OR) with 95% confidence intervals (95% CI) are reported. All tests conducted were two-tailed using a predetermined alpha level of .05. All analyses were conducted using PASW Statistics 18. Descriptive analyses were first conducted on the whole sample. Analyses were then undertaken to compare individuals who had experienced trauma in their childhood (CT+ group) with individuals who experienced trauma in adulthood only (CT− group).

Results

Sample characteristics

The mean age was 33.7 years (S.D. = 7.9), 62% were female and 6% were Aboriginal or Torres Strait Islander. The sample had completed a median 10.0 years of education (range 7–12), 48% had completed a trade/technical course and 26% a university degree. Thirty-five

per cent of the sample had a prison history. The main sources of income in the past month were: social security allowances (78%), wage and salary (12%) and criminal activity (7%). There was no difference between the two groups on any of the reported demographic variables.

The mean number of trauma types experienced was 5.9 (S.D. = 1.7). As shown in Table 1, the most common trauma types endorsed were (a) being physically attacked or assaulted; (b) being threatened with a weapon, held captive or kidnapped; (c) witnessing someone being badly injured or killed; (d) rape; (e) sexual molestation; and (f) a life threatening accident. There were gender differences, with males being more likely to have been in a life threatening accident or natural disaster, whereas females were more likely to have been raped.

All participants met DSM-IV criteria for PTSD. The mean total CAPS score was 90.3 (S.D. = 16.0), criterion B (re-experiencing) was 23.2 (S.D. = 6.1), criterion C (avoidance) was 39.1 (S.D. = 8.3) and criterion D (arousal) was 28.0 (S.D. = 6.3). Median duration of PTSD symptoms was 10.0 years (range 1 month – 40 years). Twenty-four percent of the sample reported delayed onset PTSD symptoms (i.e., symptoms developed more than six months post-trauma). Thirty-five percent of participants had previously entered treatment for PTSD symptoms. The majority of participants had not sought treatment for their PTSD, with the median number of PTSD treatment episodes being 0 (range 0–21).

The median age of first intoxication (on any drug) was 13.0 years (range 6–29). Eighty percent of the sample had a history of injecting drug use and 19.4 years (S.D. = 5.1) was the mean age of first injection. The sample had used a median of 10.0 (range 5–11) drug classes in their lives, with a mean of 5.2 (S.D. = 1.5) drug classes having been used in the preceding month. The most commonly used drugs in the preceding month were tobacco (95%), benzodiazepines (73%), cannabis (67%), alcohol (67%), antidepressants (47%), heroin (45%), and amphetamines (42%). The most commonly nominated main drugs of concern (MDC) were heroin (21%), cannabis (19%), amphetamines (18%), benzodiazepines (16%), and alcohol (12%). All participants met DSM-IV criteria for dependence for the drug they nominated as their MDC. The median severity of dependence score for MDC was 13.0 (range 2–15).

Ninety-three percent of participants had previously received treatment for their drug use. The median age of first entering SUD treatment was 24.0 years (range 14–48). The median number of treatment episodes was 18.0 (range 0–161). The most commonly reported previous treatments were in-patient detoxification (81%), outpatient counselling (69%), residential rehabilitation (57%), methadone maintenance (49%), and outpatient detoxification (41%).

The mean SF-12 physical health component score was 45.1 (S.D. = 9.9). The mean SF-12 mental health score was 27.0 (S.D. = 7.4). Mean STAI state and trait anxiety scores were 53.0 (S.D. 12.8) and 61.1 (S.D. = 10.4) respectively. Eighty-nine percent of the sample met DSM-IV criteria for a current (past-month) diagnosis of major depression. Seventy-three percent of the sample screened positive for BPD. Suicide had been attempted by 53% of the sample, with 10% having made an attempt in the past 12 months.

Prevalence of childhood trauma

The median age for when the first trauma was experienced was 8.0 years (1–44 years). The vast majority (77%) of the sample had experienced at least one trauma before the age of 16 years; 55% had experienced childhood sexual abuse. The CT+ group experienced significantly more lifetime trauma types than the CT− group (6.2 vs. 5.2; $t_{101} = -2.48$, $p = .$

02). As can be seen in Table 2, the most common trauma types experienced before the age of 16 were sexual molestation, witnessing serious injury or death, rape and physical assault. Forty-three percent of the CT+ group reported childhood trauma as their most distressing event. There was a gender difference, with males being more likely to have experienced a life threatening accident in childhood.

Onset, duration, severity and treatment of PTSD

There was no difference between the CT+ group and CT− group on total CAPS scores (90.8 vs. 88.7; $t_{101} = -.56$, $p = .58$) or the three PTSD symptom clusters; criterion B (re-experiencing) (23.1 vs. 23.3; $t_{101} = .16$, $p = .87$), criterion C (avoidance) (39.2 vs. 38.7; $t_{101} = -.27$, $p = .78$) and criterion D (arousal) (28.5 vs. 26.7; $t_{101} = -1.22$, $p = .23$). The CT+ group had experienced PTSD symptoms for a significantly longer duration than the CT− group (144 vs. 42 months; $Z = 2.75$ $p = .01$), but there was no difference in the likelihood of delayed onset PTSD (28% vs. 13%; OR 2.70 95% CI: .73–9.97), receiving treatment for PTSD, (34% vs. 38%; OR 0.87 95% CI: .34 – 2.23) or in the number of PTSD treatment episodes (0 vs. 0; $Z = -.29$ $p = .78$).

Onset, severity and treatment of substance use

As presented in Table 3, the CT+ group had a significantly earlier age of first intoxication compared to the CT− group ($Z = -2.04$, $p = .04$), and had used significantly more drug classes in their lifetime ($Z = 3.02$; $p < .01$). There was no difference in the number of drug classes used in the past month between groups ($t_{101} = .121$, $p = .90$). The CT+ group reported a significantly higher SDS for their MDC ($Z = 2.61$, $p = .01$).

Individuals in the CT+ group were no more likely to have a history of injecting drug use than the CT− group (82% vs. 71%; OR 1.91 95% CI: 0.67–5.48) and there was no difference in the age of first injection (19.1 vs. 20.3; $t_{80} = .83$, $p = .41$).

While there was no difference between groups in the proportion who had previously sought treatment for their drug use (94% vs. 92%; OR 1.35 95% CI: 0.24–7.42), or in the age of first entering SUD treatment (23.5 vs. 26.5; $Z = -.67$, $p = .50$), the CT+ group reported double the number of drug treatment episodes (20 vs. 10, $Z = 2.74$, $p = .01$). INSERT TABLE 3 ABOUT HERE

Physical and mental health

There was no difference between groups in SF-12 physical (44.4 vs. 47.3; $t_{101} = 1.26$, $p = .21$) or mental health scores (27.3 vs. 26.2; $t_{101} = -.59$, $p = .55$) or in state (52.5 vs. 54.5; $t_{100} = .64$, $p = .53$) and trait anxiety scores (61.8 vs. 58.9; $t_{100} = -1.18$, $p = .24$). Participants in the CT+ and CT− groups were equally as likely to have attempted suicide in their lifetime (56% vs. 42%; OR 1.81 95% CI: 0.72–4.58) and in the past 12 months (10% vs. 8%; OR 1.24 95% CI: 0.25–6.27), to have a past-month diagnosis for major depression (87% vs. 96%; OR 0.30 95% CI: 0.04–2.47) and to screen positive for BPD (76% vs. 63%; OR 1.90 95% CI: 0.72–5.02).

Discussion

The present study is the first to compare the clinical profiles of SUD+PTSD individuals with a history of CT to those with a history of adulthood only trauma. In line with previous research in the substance use literature, participants reported alarmingly high rates of CT exposure (77%) and childhood sexual abuse (55%) (Karadag et al., 2005; Medrano et al., 1999; Plotzker et al., 2007; Wu et al., 2010). Nonetheless, it is possible that these are actually underestimates of the true prevalence as these data are based on retrospective recall.

Studies that have compared retrospective self-report against court records of abuse have shown that people often underreport histories of childhood sexual and physical abuse (Widom & Morris, 1997); (Widom & Shepard, 1996).

The median age of onset of trauma exposure was 8 years, highlighting the importance of screening for trauma exposure in children by health care providers. Early detection is necessary so that early interventions may be implemented that may prevent that development of subsequent trauma-related mental health problems.

The mental health of participants in the present study was poor. Consistent with previous studies of SUD+PTSD samples, there were high rates of depression (Brady, Killeen, Saladen, Dansky, & Becker, 1994; Tarrier & Sommerfield, 2003), anxiety (Najavits et al., 1998; Tarrier & Sommerfield, 2003) and BPD (Van Den Bosch, Verheul, Langeland, & Van Den Brink, 2003). Important differences were observed in relation to trauma, PTSD and substance use. The CT+ group experienced more trauma types in their lifetime compared to the CT− group. This finding is in accordance with a large body of literature that has found associations between CT, particularly CSA, and risk of re-traumatisation in adulthood (Arata, 2002; Desai, Arias, Thompson, & Basile, 2002; Jankowski, Leitenberg, Henning, & Coffey, 2002; Messman & Long, 1996). This is of clinical importance, as re-traumatisation has been associated with more complex PTSD symptom presentation (Briere, Kaltman, & Green, 2008; Cloitre et al., 2009; Gibson & Leitenberg, 2001), and other co-occurring anxiety disorders, such as generalised anxiety disorder, simple phobia and social phobia, as well as higher rates of suicide attempts and depression (Cloitre, Scarvalone, & Difede, 1997).

As expected, the CT+ group had also experienced PTSD symptoms for a longer period of time, highlighting the chronic and pervasive nature of PTSD associated with CT. Despite having suffered PTSD for an average of 10 years very few had accessed treatment, highlighting an area of unmet need.

Individuals with a history of CT presented with a more severe clinical profile in relation to a number of substance use characteristics when compared to those who experienced trauma confined to adulthood. The CT+ group had an earlier age of onset of substance use, had more extensive polydrug use histories, and a greater severity of dependence. These findings emphasise the long term effects and clinical implications associated with early trauma experiences and substance use. Given these findings it is not surprising that participants in the CT+ group also had higher rates of previous drug treatment episodes, which may indicate that current treatment programs are not addressing the needs of those who have a history of CT (Mills et al., 2005). The additional service utilisation among CT+ individuals translates into higher costs for the health care system, emphasising the need for appropriate treatment to be provisioned to this group (Hidalgo & Davidson, 2000). Further research is needed to determine how SUD+PTSD treatments may be tailored differently to better serve those with a history of CT.

In conclusion, individuals with SUD+PTSD are a vulnerable population with a high prevalence of CT. Compared to individuals who had experienced trauma during adulthood only, individuals with a history of CT presented with a more severe and chronic clinical profile in relation to a number of substance use and trauma characteristics. In order to prevent or at least delay the development of substance use and other problems, the current study's findings emphasise the importance of ongoing substance use screening and assessment among children and adolescent's identified as victims of CT. The results of this study also highlight the need for intervention programs that specifically target the treatment

of SUD+PTSD among those with a CT history, with a particular focus on ways to reduce severity of dependence and relapse among this population.

Acknowledgments

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Table 1

Lifetime prevalence of exposure to traumatic events.

Trauma type	Female (%) (n = 64)	Male (%) (n = 39)	Total (%) (N = 103)	OR	95% CI
Physical assault	94	92	93	1.25	0.26–5.92
Threatened, held captive or kidnapped	86	95	89	0.33	0.07–1.62
Witnessed serious injury or death	73	87	79	0.41	0.14–1.21
Rape **	83	44	68	6.25	2.52–15.38
Sexual molestation	72	56	66	1.98	0.86–4.55
Life-threatening accident *	52	77	61	0.32	0.13–0.78
Shock from someone else's trauma	50	62	54	0.63	0.28–1.40
Other stressful or upsetting event	36	26	32	1.63	0.67–3.92
Natural disaster *	16	39	24	0.30	0.12–0.75
Tortured or victim of terrorists	22	28	24	0.71	0.29–1.78
Experienced combat	0	5	2	-	-

*
p < .05;

**
p < .01

Table 2

Prevalence of exposure to traumatic events in childhood.

Trauma type	Female (%) (n = 64)	Male (%) (n = 39)	Total (%) (N = 103)	OR	95% CI
Sexual molestation	56	46	52	1.50	0.67–3.33
Witnessed serious injury or death	36	36	36	1.00	0.44–2.30
Rape	35	33	34	1.07	0.46–2.49
Physical assault	31	33	32	0.91	0.39–2.13
Life-threatening accident *	11	31	18	0.28	0.10–0.78
Shock from someone else's trauma	14	21	17	0.63	0.22–1.79
Threatened, held captive or kidnapped	8	18	12	0.38	0.11–1.28
Natural disaster	9	13	11	0.70	0.20–2.48
Tortured or victim of terrorists	5	8	6	0.59	0.11–3.08
Other stressful or upsetting event	8	3	6	3.22	0.36–28.57
Experienced combat	0	0	0	-	-
Any childhood trauma	78	74	77	1.23	0.49–3.13

*
p < .05

Table 3

Comparison between the CT+ and CT− groups in drug use and severity.

Outcome	CT+ (n = 79)	CT− (n = 24)	Total (N = 103)
Median age first intoxication (range) [*]	12 (7–27)	14 (6–29)	13 (6–29)
Median no. lifetime drug classes (range) [**]	10 (5–11)	9 (5–11)	10 (5–11)
Mean no. past month drug classes (SD)	5.2 (1.6)	5.2 (1.4)	5.2 (1.5)
Median SDS score for MDC (range) [*]	14 (2–15)	10 (5–15)	13 (2–15)

[*]
p < .05

[**]
p < .01