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Childhood trauma and health outcomes in adults with comorbid substance abuse and mental health disorders

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Abstract

This study describes the prevalence of childhood traumatic events (CTEs) among adults with comorbid substance use disorders (SUDs) and mental health problems (MHPs) and assesses the relation between cumulative CTEs and adult health outcomes. Adults with SUDs/MHPs ($N=402$) were recruited from residential treatment programs and interviewed at treatment admission. Exposures to 9 types of adverse childhood experiences were summed and categorized into 6 ordinal levels of exposure. Descriptive analyses were conducted to assess the prevalence and range of exposure to CTEs in comparison with a sample from primary health care. Logistic regression analyses were conducted to examine the association between the cumulative exposure to CTEs and adverse health outcomes. Most of the sample reported exposure to CTEs, with higher exposure rates among the study sample compared with the primary health care sample. Greater exposure to CTEs significantly increased the odds of several adverse adult outcomes, including PTSD, alcohol dependence, injection drug use, tobacco use, sex work, medical problems, and poor quality of life. Study findings support the importance of early prevention and intervention and provision of trauma treatment for individuals with SUDs/MHPs.

Keywords

adverse childhood events; mental health; substance abuse; physical health problems

1. Introduction

The Adverse Childhood Experiences (ACE) studies have established the strong association between childhood traumatic events (CTEs) and adverse health outcomes among adults who were sampled from a large health maintenance organization (HMO) (Chapman et al., 2004; Dube et al., 2003; Felitti et al., 1998). These studies have demonstrated that there is a strong

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link between cumulative exposure to childhood abuse and household dysfunction and a range of adult health problems and diminished health-related quality of life (Corso, Edwards, Fang, & Mercy, 2008; Edwards, Anda, Felitti, & Dube, 2003; Springer et al., 2003). Generally, these studies have found a graded relationship between the cumulative number of CTE exposures and adult health-risk behaviors and diseases (Anda et al., 2006).

In the current study, we describe the prevalence of CTEs among a treatment-based sample of adults with comorbid substance use disorders (SUDs) and mental health problems (MHPs) and examine the association between cumulative CTEs and adult health problems. We hypothesized that: (1) exposure to CTEs among a sample of adults with comorbid SUDs and MHPs would be higher than among adults in the HMO sample, and (2) greater exposure to CTEs in the study sample would increase the likelihood of adult mental, behavioral, and physical health problems.

2. Methods

2.1. Procedures

Participants were sampled from August 1999 to April 2002 from 11 residential drug abuse treatment programs that provided publicly funded treatment to adults within Los Angeles County. Characteristics of study programs have been described elsewhere (Gil-Rivas & Grella, 2005). Participants who were either concurrently seeking or receiving mental health services from outpatient mental health programs in the same geographic vicinity were recruited into the study within 30 days of treatment admission. Participants were compensated for the interview with non-cash vouchers worth \$40. All study procedures were reviewed and approved by the UCLA Institutional Review Board.

2.2. Participants

Participants were 402 men and women (aged 18 years or older). The average age was 36.4 years ($SD = 8.4$). Over half were male (52.8%). Thirty-five percent of the participants were African American, 44% Caucasian, 13% Latino, and 8% were of other ethnicities. Over half had never been married and one third had less than a high school degree. Eighty-two percent of the participants had a history of homelessness and 59% had been under legal supervision in the past.

Nearly two thirds of the sample ($n = 255$, 64%) had a diagnosis of mood disorder (i.e., major depression, dysthymia, bipolar disorder, mood disorder not otherwise specified [NOS]), and the remainder ($n = 143$, 36%) were diagnosed with a psychotic disorder (i.e., schizophrenia, schizoaffective disorder, psychosis NOS). Over half ($n = 208$, 52%) were diagnosed with PTSD (lifetime).

2.3. Measures

2.3.1. Childhood Traumatic Events—The *Life Stressor Checklist – Revised (LSC-R*; Wolfe & Kimerling, 1997) was used to obtain self-reports of adverse events and childhood trauma before the age of 16 years. The LSCR has been used in prior studies of individuals with co-occurring SUDs and MHP (McHugo, Caspi, et al., 2005; McHugo, Kammerer, et al., 2005). Variable definitions of CTE's are provided below.

Abuse and Neglect: *Emotional abuse or neglect* was defined as being “emotionally abused or neglected (e.g., being frequently shamed, embarrassed, ignored, or repeatedly told that you were no good).” *Physical neglect* was defined as “being physically neglected (e.g., not fed, not properly clothed, or left to take care of yourself when you were too young or ill).” *Physical abuse* was defined as being “abused or physically attacked (not sexually) by

someone you knew (e.g., a parent, boyfriend, or husband) who hit, slapped, choked, burned, or beat you up.” *Sexual abuse* encompassed being “touched or made to touch someone else in a sexual way because he/she forced you in some way or threatened to harm you if you didn’t” or “forced to have sex (oral, anal, genital) when you didn’t want to because someone forced you in some way or threatened to harm you if you didn’t.”

Household Dysfunction: *Family violence* was assessed by asking, “Did you ever see violence between family members (e.g., hitting, kicking, slapping, and punching)?” *Parental separation/divorce* was assessed by asking, “Did your parents ever separate or divorce while you were living with them?” *Incarcerated family member* was defined as “a close family member being sent to jail/prison.” *Out-of-home placement* was defined as “being in foster care or put up for adoption.” *Death of someone close* was assessed by asking, “Has someone close to you died, either suddenly and unexpectedly or not.”

2.3.2. Mental Health Status and Outcomes—Participants were assessed on the *Structured Clinical Interview for the DSM-IV Axis I Disorders – Patient Edition* (SCID-I/P, Version 2.0; First, Spitzer, Gibbon, & Williams, 1994) for mood and psychotic disorders, PTSD, and dependence on alcohol and other substances.

Psychological and Traumatic Distress: The *Brief Symptom Inventory* (BSI; Derogatis & Melisaratos, 1983) was used to assess current psychological distress. The BSI is a 53-item questionnaire; respondents rate how much each symptom distressed them during the previous week on a 5-point scale ranging from 0 = *not at all* to 4 = *extremely*. A total score was computed (*Global Severity Index*), with scores above the clinical cut-off used to indicate a high level of psychological distress.

The *Trauma Symptom Checklist-40* (TSC; Briere, 1996) is a 40-item self-report instrument. Each symptom item is rated according to its frequency of occurrence over the prior 2 months using a 4-point scale ranging from 0 = *never* to 3 = *often*. The total score is summed (*Traumatic Distress Index*); scores at or above the sample median were used as an indicator of “high” traumatic distress.

2.3.3. Health Outcomes

Substance Use: Participants were assessed for lifetime and current dependence on alcohol, amphetamines, opioids, sedatives, cocaine, and cannabis; history of injection drug use; and current tobacco use.

HIV-risk Behaviors: Three HIV-risk behaviors were assessed with reference to the 12 months prior to treatment admission: (1) having 3 or more sexual partners; (2) having exchanged sex for money or drugs; and (3) having any high-risk sexual partners, which included individuals who injected drugs, were HIV-positive, had exchanged sex for drugs or money, or was a man who had sex with men.

Infectious Diseases: Respondents were asked if they had ever been diagnosed with a sexually transmitted disease or TB, or had tested positive for HIV.

Medical Problems: Respondents were asked if they had ever been diagnosed with heart problems, respiratory problems, digestive or stomach problems, hepatitis or other liver or kidney problems, bone or muscle problems, or nervous system problems.

2.3.4. Psychosocial Functioning—The *Lehman Quality of Life Interview* (QOL; Lehman, 1988) was used to assess the respondent’s functioning and life satisfaction across

eight domains (i.e., living situation, daily life activities and functioning, family, social relations, finances, work and school, legal and safety issues, and medical outcomes). The sum of the ratings was used as a global indicator of quality of life.

Respondents were also asked if they had *ever been homeless*, which was defined as, “not having a regular place to stay, having to stay with others temporarily, or staying at a shelter or mission, for at least 48 hours.”

2.4. Statistical Analyses

Descriptive analyses (frequency distributions) were used to assess the prevalence and range of exposure to CTEs among the study sample. Cross-tabulations were used to assess the association between socio-demographics (i.e., gender, age, race/ethnicity, marital status, education) and CTEs.

Logistic regression analyses were conducted to assess whether cumulative exposure to CTEs was significantly related to (1) mental health and substance use disorders, (2) HIV risk behaviors, (3) infectious diseases, (4) health problems, or (5) psychosocial functioning. Each model controlled for gender, age, race/ethnicity, and education status. An ordinal variable for the total number of categories of CTEs endorsed was entered into each model (ranging from 1 – 6, with 0 – 1 coded as 1 and 6 or above coded as 6). Adjusted odds ratios and 95% confidence intervals are reported.

3. Results

3.1 Descriptive Analyses

Frequencies for the nine types of CTEs are shown in Table 1; they range from 15.2% of patients reporting out-of-home placement to 65.9% reporting emotional abuse and neglect. The total sample was distributed relatively evenly across the six exposure levels; 16.2% of patients reported exposure to no or one CTE, while 18.2% patients reported six or more CTEs. The study sample had consistently higher rates of CTE exposure as compared with the prevalence rates of CTEs from the ACE study conducted with adults sampled from an HMO.

No significant differences were found in prevalence of exposure to the six ordinal levels of CTEs by gender, marital status, and education. There was a somewhat smaller proportion of African Americans in the lowest exposure category; conversely, there was a greater proportion of Whites in the lower exposure categories.

3.2 Logistic Regression Analyses

Findings from the logistic regression models are shown in Table 2. Each increase in the degree of exposure to CTEs increased the risk of ever having PTSD by about 48% and of currently having PTSD by about 42%. Similarly, a greater exposure to CTEs resulted in higher odds of psychological and traumatic distress, with each unit increase in CTEs increasing the severity of these two measures by approximately 15%.

With regard to substance use, each unit increase in exposure to CTEs increased the risk of current tobacco use and lifetime alcohol dependence by 18% and 16%, respectively. There was no significant relationship with cannabis dependence.

Two out of the four HIV-risk behaviors were significantly associated with exposure to CTEs. For each unit increase in CTEs, the risk of having a history of sex work or injection drug use increased by 28% and 17%, respectively.

With regard to history of STDs, each unit increase in CTE exposure increased the risk by 24%. Moreover, five of the physical health outcomes examined had positive and significant associations with exposure to CTEs, with increases ranging from 18% for digestive/stomach problems to 29% for bone/muscle problems.

Greater exposure to CTEs was significantly associated with decreased psychosocial functioning. For every unit increase in CTEs, there was a reduction in the self-rated quality-of-life score of approximately 14%, while the risk of having been homeless increased by approximately 45%.

4. Discussion

As hypothesized, the prevalence of CTEs was higher among a clinical sample of adults with comorbid SUDs and MHPs when compared to adults sampled from a primary health care setting. Rates of CTEs found in this study were two to nine times higher than for those in the HMO study. Furthermore, nearly all (95%) of our sample, compared to about half (52%) in the HMO study, reported having experienced one or more CTEs. Like previous ACE studies, we found a strong association between CTEs and adult health problems and psychosocial functioning. There was a 1.2 to 1.5-fold increased risk for PTSD, current tobacco use, alcohol dependence, injection drug use, sex work, sexually transmitted diseases, homelessness, and myriad physical health problems, as well as reduced overall quality of life.

Our findings that CTEs are associated with increased somatic symptoms are consistent with findings from previous ACE studies (Anda et al., 2008; Dong et al., 2004), studies of victims of childhood sexual abuse (Heim et al., 2006; Lampe et al., 2003), and a study of adults with serious mood disorders (Lu, Mueser, Rosenberg, & Jankowski, 2008). Of note, high prevalence rates of physical health problems in all organ systems were found, even among those individuals in the lowest exposure category.

4.2. Limitations

Study findings may not generalize to adults with comorbid substance use disorders and mental health disorders who are treated in outpatient programs or who are not seeking treatment. Retrospective self-report data on exposure to CTEs and adverse health outcomes are subject to limitations from recall bias or lack of self-disclosure.

4.3. Conclusions

Individuals with comorbid SUDs and MHPs are a vulnerable population with a high prevalence of CTEs. CTEs are strongly associated with mental, behavioral, and physical health problems in adulthood. Early screening, prevention, and intervention programs that target comorbid health outcomes among this population offer the possibility of reducing subsequent morbidity and mortality.

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Table 1Prevalence of childhood traumatic events among study sample and HMO comparison ($N = 402$)

	%	Number	
Abuse and Neglect			
1. Emotional abuse and neglect	65.9	261	
2. Physical neglect	16.5	66	
3. Physical abuse	49.3	198	
4. Sexual abuse	48.0	193	
Household Dysfunction			
5. Family violence	56.0	225	
6. Parental separation/divorce	55.2	222	
7. Incarcerated family member	29.4	118	
8. Out-of-home placement	15.2	61	
9. Death of someone close	26.9	108	
Childhood Traumatic Events			<u>HMO Sample</u>
0	5.5	22	36.4
1	10.7	43	26.2
2	16.9	68	15.8
3	14.2	57	9.5
4	18.4	74	6.0
5	16.2	65	3.5
6	18.1	73	2.5

Table 2

Summary of results of logistic regression models of adult health, sex-risk, and psychosocial outcomes (N=402)

Dependent Variables ^a	Number of Childhood Traumatic Events (1–6) ^b	
	Odds Ratio	95% Conf. Intervals
<u>Mental Health</u>		
Psychotic disorder (lifetime) ^{de}	1.13	0.99, 1.28
PTSD (lifetime) ^{cd}	1.48 ***	1.30, 1.69
PTSD (current) ^{cd}	1.42 ***	1.24, 1.62
Global Severity Index (63)	1.16 *	1.03, 1.31
Traumatic Stress Index (56)	1.15 *	1.02, 1.29
<u>Substance Use</u>		
Smoker (current) ^{de}	1.18 *	1.01, 1.39
Alcohol dependence (lifetime) ^d	1.16 *	1.02, 1.33
Cannabis dependence (lifetime) ^{cd}	1.06	0.94, 1.20
<u>HIV-Risk Behaviors</u>		
High-risk sex partners ^d	1.09	0.96, 1.24
Paid with money or drugs for sex ^d	1.28 **	1.10, 1.49
Number of sex partners 3	1.10	0.98, 1.24
Injection drug use (lifetime) ^{cd}	1.17 *	1.03, 1.33
<u>Infectious Diseases</u>		
STD ^{de}	1.24 **	1.08, 1.41
<u>Health Problems</u>		
Respiratory problems	1.26 ***	1.12, 1.43
Digestive/stomach problems ^c	1.18 *	1.03, 1.34
Hepatitis/other liver/kidney problems ^{cd}	1.25 **	1.08, 1.45
Bone/muscle problems ^{cdef}	1.29 ***	1.12, 1.50
Nervous system problems ^{cd}	1.26 ***	1.10, 1.44
<u>Psychosocial Functioning</u>		
Quality of Life Scale Score (56) ^c	0.86 *	0.76, 0.97
Ever homeless ^c	1.45 ***	1.23, 1.71

*
P .05

**
P .01

P .001

^aTime frame is current (at admission to drug treatment) unless indicated

^bThe number of childhood traumatic events is entered as an ordinal variable ranging from 1 – 6 (*df*=1)

^cAge was significant in these models at *P* .05

^dGender was significant in these models at $P .05$

^eRace/ethnicity was significant in these models at $P .05$

^fEducation level (high school degree = 1) was significant in these models at $P .05$