

Correlates of Adverse Childhood Events Among Adults With Schizophrenia Spectrum Disorders

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Objective: Multiple studies have found that childhood adversity is related to a range of poor mental health, substance abuse, poor physical health, and poor social functioning outcomes in the general population of adults. However, despite the high rates of childhood adversity in schizophrenia, the clinical correlates of these events have not been systematically evaluated. This study evaluated the relationship between adverse experiences in childhood and functional, clinical, and health outcomes among adults with schizophrenia. **Methods:** The authors surveyed 569 adults with schizophrenia regarding adverse childhood events (including physical abuse, sexual abuse, parental mental illness, loss of a parent, parental separation or divorce, witnessing domestic violence, and foster or kinship care). The relationships between cumulative exposure to these events and psychiatric, physical, and functional outcomes were evaluated. **Results:** Increased exposure to adverse childhood events was strongly related to psychiatric problems (suicidal thinking, hospitalizations, distress, and posttraumatic stress disorder), substance abuse, physical health problems (HIV infection), medical service utilization (physician visits), and poor social functioning (homelessness or criminal justice involvement). **Conclusions:** The findings extend the results of research in the general population by suggesting that childhood adversity contributes to worse mental health, substance abuse, worse physical health, and poor functional outcomes in schizophrenia. (*Psychiatric Services* 58:245–253, 2007)

In this article, we examine the correlates of adverse childhood events in a large, multisite sample of public-sector mental health clients with a diagnosis of schizophrenia. The long-term health implications of adverse childhood events are becoming better understood in

the general population. However, no published studies have reported on this relationship among people with schizophrenia. At the same time, the few available studies suggest that people with severe mental illness often experience adverse childhood events, including childhood sexual

and physical abuse, neglect, witnessing domestic violence, and out-of-home placement (1–3). In addition, people with schizophrenia spectrum disorders may be more vulnerable to the impact of such events (1,3,4), and they are often characterized as having worse physical health and mental health functioning than the general population (5).

National surveys report that adverse events in childhood are common. Adverse events represent a broader category than trauma per se, which is defined by criteria specified in *DSM-IV* (6) and must involve actual or threatened death or serious injury or a threat to physical integrity. Adverse events also may include non-traumatic stressors, such as parental divorce or placement outside of the home. Using the more inclusive category of adverse events, the National Comorbidity Survey (NCS) (7) found that 50% of respondents reported experiencing two or more such events, including physical, sexual, or emotional abuse; neglect; parental substance abuse or mental illness; witnessing domestic violence; or the loss of a parent. The Adverse Childhood Experiences (ACE) study (8), which was conducted in a primary care setting, found that more than half of the sample had experienced at least one kind of adverse event in childhood and that 25% reported more than two types of events. Results from these studies also suggest that childhood abuse, neglect, and household

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dysfunction often occur together. For example, in the ACE study, 80% of individuals who were sexually abused in childhood reported at least one other type of adverse childhood experience, and 55% reported two or more types of other adverse experiences (8). Childhood adversity is associated with a broad range of negative health and mental health outcomes, both in childhood and among adult survivors.

There is emerging evidence that childhood sexual abuse and physical abuse are related to more severe symptoms among people with schizophrenia and other severe mental illnesses (9–12). However, little research has examined the relationship between the broad spectrum of adverse experiences in childhood and clinical, functional, and health outcomes of adults with schizophrenia. Studies to date have been limited by small samples (5) and have not examined the impact of cumulative exposure to adverse events in this population. With this study we aimed to examine the cumulative effects of these associations in a large, multi-site sample.

Correlates of adverse childhood events among children

Several studies have reported associations between specific types of childhood adversity and physical and mental health outcomes in childhood. Children who have experienced the death of close family members appear to be at increased risk of depression, somatization, and obsessive-compulsive disorder (13). Children raised by nonparent kin or in foster care are at risk of increased health problems, developmental delays, and mental health problems compared with children raised by parents (14–18). Children who have witnessed domestic violence have high rates of internalizing and externalizing disorders, such as depression, aggression, and alcohol or drug use (19,20). Studies also have found that having a parent who is mentally ill is associated with increased family dysfunction and disorganization, exposure to violence, parent-child separation (21–23), and increased rates of mood disorders, anxiety disorders,

and addictive disorders beyond what can be accounted for by genetic vulnerability (24–26).

Correlates of adverse childhood events among adults

Childhood abuse has been linked to increased medical problems in adulthood, including chronic fatigue syndrome, lung disease, autoimmune disorders, diabetes, migraines, gastrointestinal disorders, and ulcers (27–30). Findings from a number of studies indicate correlations between childhood abuse and increased rates of adult psychiatric disorders, including posttraumatic stress disorder (PTSD), depression, substance use disorders, borderline

sociations between specific types of childhood adversity and physical and mental health functioning, there is evidence that the total cumulative exposure to adverse childhood events is related to several negative outcomes. For example, the ACE study found a strong and graded relationship between the amount of exposure to adverse childhood events and rates of substance use disorders, suicide attempts, and multiple sexual partners in adulthood. In addition, cumulative exposure to adverse childhood events predicted adult health problems, such as sexually transmitted diseases, heart disease, and cancer (8). These findings are consistent with those reported in the NCS study, which reported that total adverse childhood event exposure was correlated with increased rates of mood, anxiety, and addictive disorders in adulthood (7).

On the basis of major research in the general population (46), we hypothesized that greater exposure to adverse experiences in childhood would be related to worse functioning across several domains among people with schizophrenia, including psychiatric problems, substance abuse, physical health problems, and social functioning.

Methods

Participants

Participants included 624 adults with schizophrenia or schizoaffective disorder drawn from a larger investigation (N=1,152) of risky behavior and sexually transmitted diseases among women and men with severe mental illness (47). Participants entered the study between June 1997 and December 1998. The larger sample also included persons with affective disorders, chronic PTSD, and other diagnoses and who met state criteria for severe mental illness. However, the analyses presented in this article included only those with primary schizophrenia spectrum diagnoses. All participants were receiving treatment through the public mental health systems of Connecticut, Maryland, New Hampshire, or North Carolina, and study procedures were approved by all relevant institutional review boards. The settings from which they were recruited were di-

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personality disorder, psychotic disorders, bipolar disorder, eating disorder, panic disorder, and antisocial personality disorder (2,31–36).

The experience of prolonged foster care (five or more years) is associated with poorer social functioning among adults (37) and with elevated rates of various psychiatric symptoms and diagnoses. These include increased self-destructive and high-risk behaviors, substance use, depression and other mood disorders, and anxiety disorders (38–43). Bereavement in childhood also has been reported to be related to depression in adulthood (44,45).

In addition to research showing as-

Table 1

Demographic and clinical characteristics of 569 adults with schizophrenia who were surveyed about adverse childhood experiences

Characteristic	Men (N=386)		Women (N=183)		Total (N=569)		p ^b
	N	% ^a	N	% ^a	N	% ^a	
Age (M±SD) ^c	42±9		42±10		42±9		.30
Race ^d							.10
European American	139	36	76	42	215	38	
African American	208	54	98	54	306	54	
Hispanic	12	3	5	3	17	3	
Other	27	7	4	2	31	5	
Marital status ^d							<.001
Never married	260	68	85	46	345	61	
Divorced, widowed, or separated	100	26	74	40	174	31	
Married	24	6	24	13	48	9	
Education ^d							.57
No high school diploma	163	42	69	38	232	41	
High school diploma or GED	107	28	53	29	160	28	
Beyond high school	114	30	60	33	176	31	
Psychiatric diagnosis ^e							
Schizophrenia	288	75	111	61	399	70	.001
Schizoaffective disorder	98	25	72	39	170	30	.001
Comorbid alcohol use disorder	168	44	39	21	207	36	<.001
Comorbid drug use disorder	172	45	55	30	227	40	<.001
Comorbid substance use disorder	230	60	73	40	303	53	<.001
Age at first hospitalization (M±SD) ^c	23±7		25±9		24±8		.01
Lifetime number of hospitalizations (M±SD) ^c	4±2		4±2		4±2		.03
Psychiatric hospitalization in the past year ^e	195	51	67	37	262	47	<.001
Criminal justice involvement ^e	306	79	89	49	395	69	<.001
Currently working ^e	64	17	34	19	98	17	.55
Has at least one child ^e	158	41	127	70	285	51	<.001

^a Valid percentage^b All tests examined gender differences.^c Statistical test: one-way analysis of variance^d Statistical test: chi square of categories with three or more subcategories^e Statistical test: chi square of categories with two mutually exclusive subcategories

verse in that the mental health centers were located in rural, urban, and small metropolitan areas. Among the 624 persons with schizophrenia or schizoaffective disorders, 569 had complete data on adverse childhood events, which could be assessed and were included in the analyses. Characteristics of the sample are described in Table 1.

Measures

This study assessed psychiatric diagnosis, adverse childhood events, psychiatric problems, substance abuse, physical health, and social functioning through chart review, structured expert ratings, and standardized self-reports.

Psychiatric diagnosis. Diagnoses were ascertained with the Structured Clinical Interview for DSM-IV (SCID) (46) for 219 participants (19% of the sample), and chart diag-

noses for the rest of the sample. Good agreement was found between SCID and chart diagnoses for those clients assessed by SCID ($\kappa=.72$), which supports the general reliability of chart diagnoses for the broad purposes of the study.

Adverse childhood events. Standardized, self-report measures were administered to participants in an interview format to assess childhood abuse, household dysfunction, and loss that occurred during the first 16 years of life.

Childhood sexual abuse was assessed with the Sexual Abuse Exposure Questionnaire (48). This self-report scale identifies ten categories of increasingly invasive sexual experiences. This scale has been shown to have good test-retest reliability for both women and men with serious mental illness (49). Participants were considered to have experienced

childhood sexual abuse if they responded affirmatively to any of the six items involving physical sexual contact.

Childhood physical abuse was assessed by the three most severe items from the violence subscale of the Conflict Tactics Scales (50,51), a widely used measure of domestic violence. An affirmative response on any of the three questions was used to indicate child physical abuse (being hit, being knocked down or thrown, and being burned or scalded on purpose).

Parental separation or divorce was defined by a response of yes to the question, "When you were growing up, did your parents/caretakers get a divorce or separation?"

Parental mental illness was defined by an affirmative response to the question, "When you were growing up, did your parent(s)/caretaker(s) ever see a counselor, psychologist, or

psychiatrist, or go to a mental hospital, or take medication for an emotional problem?"

Domestic violence was determined by the following item: "When you were growing up, did you see or hear your parents/caretakers arguing or fighting a lot?"

Foster care and kinship care were assessed by two questions that asked the respondent whether she or he was placed in an orphanage, foster home, boys' home, reformatory, detention home, or jail or similar placement, or sent to live with relatives, family friends, or other people.

Parental death was based on client self-report of whether the client's father or mother died before the person turned 16.

Psychiatric problems

Health-related quality of life was assessed with the 12-item Short-Form Health Survey (SF-12) (52). The SF-12 consists of items assessing physical and mental health and yields two summary scores: the mental component summary (MCS) and physical component summary (PCS). Scoring is normatively based, with a mean \pm SD of 50 ± 10 ; higher scores indicate better health. The SF-12 is reliable and valid in general and medical populations (52), as well as for people with severe mental illness (53).

PTSD was assessed with the PTSD Checklist (PCL) (54), a self-report screening measure for PTSD. The PCL includes 17 questions, one for each *DSM-IV* PTSD symptom, requiring the respondent to rate the severity of each symptom over the past month on a 5-point Likert scale, with higher scores indicating more severe symptoms. PTSD diagnoses are made if at least one criterion B (intrusive) symptom, three criterion C (avoidant) symptoms, and two criterion D (hyperarousal) symptoms are rated at 3 or above on the Likert scale. The PCL has strong test-retest reliability and convergent validity for people with severe mental illness (55).

Psychiatric symptoms were assessed with a subset of items from the Brief Psychiatric Rating Scale (BPRS) (56). The BPRS is a widely used interview for assessing psychi-

atric symptoms among persons with severe mental illness. The instrument includes 24 items, of which ten items are based on observation of the client alone. Because of interview length and concerns about client burden, only the observational items on the BPRS were included in this study, and these included items from three of the four factors reported by Thomas and colleagues (57): thought disturbance, animation, and apathy.

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Hospitalization history was measured by the age at first hospitalization, the lifetime number of psychiatric hospitalizations, and the number of hospitalizations in the prior year.

Substance abuse

Current alcohol and drug use disorders were identified through a combination of the Dartmouth Assessment of Lifestyle Instrument (DALI) (58) and chart or SCID diagnosis. The DALI is an 18-item screening tool for substance use disorders (abuse or dependence) that was specifically developed and validated for persons with severe mental illness. It has high classification accuracy for *DSM-IV* sub-

stance use disorders of alcohol, cannabis, and cocaine. Cutoff scores have been developed with an empirically derived algorithm. Clients were categorized as having a substance use disorder if either the DALI or diagnosis (via chart or SCID) was positive for a substance use disorder.

Physical health outcomes

Physical health was assessed with items from the Piedmont Health Survey (59). Questions were asked about the following chronic medical problems: asthma, diabetes, heart trouble, hypertension, arthritis, cancer, lung disease, ulcers, stroke, epilepsy, head injury, and infectious diseases (such as sexually transmitted diseases and hepatitis). The problems endorsed were summed to form an overall measure of health problems. Participants also were asked to report for the past six months the number of times they had received care for a physical health problem and the number of days hospitalized for physical health problems. Health-related limitations were assessed by the PCS of the SF-12 (52). Scoring is normatively based, with a mean of 50 ± 10 ; higher scores indicate better health.

Social functioning

Homelessness was defined as having no regular residence or as living in a shelter or on the street over the past six months.

Poverty status was based on past-year income and was determined by using the 1999 guidelines of the Department of Health and Human Services. These guidelines take into account income, marital status, and number of children.

Criminal justice involvement was defined as having ever been arrested for an alcohol offense, a drug offense, or a driving offense; for writing bad checks, shoplifting, loitering, trespassing, or being a public nuisance; physical or sexual assault against someone; or other miscellaneous offenses.

Work functioning was defined by whether the client was working at the time of the survey and whether the client had worked in the past year.

Overall functioning was assessed

Table 2

Prevalence of adverse childhood experiences by gender and race among 569 persons with schizophrenia

Adversity	Male (N=386)		Female (N=183)			European American (N=215)		African American (N=306)			Total (N=569)		U.S. population (ACE) (%) ^{a,b}	U.S. population (NCS) (%) ^{a,c}
	N	% ^a	N	% ^a	p	N	% ^a	N	% ^a	p	N	% ^a		
Physical abuse	226	59	95	52	.14	131	61	164	54	.1	321	56	11 ^d	3 ^e
Domestic violence	186	48	94	51	.48	121	56	133	44	.001	280	49	13 ^f	—
Foster or kinship care	158	41	77	42	.8	92	43	124	41	.61	235	41	— ^g	— ^g
Parental separation or divorce	135	35	69	38	.53	81	38	103	34	.35	204	36	—	18
Sexual abuse	113	29	78	43	.002	93	43	83	27	<.001	191	34	22	10
Parental mental illness	81	21	41	22	.70	53	25	59	19	.14	122	21	19 ^h	23 ⁱ
Parental death	51	13	25	14	.88	20	9	47	15	.04	76	13	—	9
Number of adverse events ^j														
0	52	14	25	14	.84	23	11	47	15	.25	77	14	36	26
1	71	18	33	18		35	16	60	20		104	18	26	23
2	88	23	36	20		49	23	66	22		124	22	16	16
3 or more	175	45	89	49		108	50	133	44		264	46	22	35

^a Valid percentage^b From the Adverse Childhood Experiences study (8)^c From the National Comorbidity Survey (7)^d Being pushed, grabbed, shoved, or slapped or injured^e Seriously physically attacked^f Mother being treated violently^g National rates of lifetime kinship or foster care were unavailable; prevalence of children in either kinship care or foster care in 1997 was 3.6% (40).^h A household member was depressed, mentally ill, or committed suicide.ⁱ Mother has a depressive disorder.^j Total number of adverse childhood events examined in each study; some events may not overlap.

with the Global Assessment Scale (60). Scores on this scale range from 0 to 100 points. The measure assesses overall functional and symptomatic adjustment, with higher scores reflecting better functioning. Scores under 41, which represent “impairment in reality testing or communication” or “major impair-

ment in several areas,” were considered indicative of poor functioning.

Parental status was defined as having at least one child.

Procedure

After giving informed consent, respondents participated in struc-

tured interviews lasting 60 to 90 minutes, received pretest counseling for HIV-AIDS, and provided blood specimens as part of a screening for HIV and other sexually transmitted diseases. All participants were paid \$35 and were provided with test results, posttest

Table 3

Co-occurrence of specific adverse childhood events among 569 persons with schizophrenia

Reference category ^a	Percentage reporting additional categories of adverse childhood events																
	N	% ^b	Physical abuse		Domestic violence		Foster or kinship care		Parental separation or divorce		Sexual abuse		Parental mental illness		Parental death		Co-occurring events (M±SD)
Physical abuse	321	56			202	63 ^c	155	48	137	43	149	46	89	28	39	12	2.40±1.50
Domestic violence	280	49	202	72 ^c			142	51	127	45	128	46	79	28	41	15	2.57±1.44
Foster or kinship care	235	41	155	66 ^c	142	60			119	51	112	48	79	34	37	16	2.74±1.45
Parental separation or divorce	204	36	137	67 ^c	127	62	119	58			89	44	74	36	20	10	2.77±1.53
Sexual abuse	191	34	149	78 ^c	128	67	112	59	89	47			67	35	23	12	2.97±1.39
Parental mental illness	122	21	89	73 ^c	79	65	79	65	74	61	67	55			15	12	3.30±1.41
Parental death	76	13	39	51	41	54 ^c	37	49	20	26	23	30	15	20			2.30±1.67

^a Listed from the highest percentage of exposure to the lowest^b Valid percentage^c Value represents the additional category of adverse event with the highest percentage of occurrence.

Table 4

Logistic regression analyses of adverse childhood events predicting functional mental health and physical health among 569 persons with schizophrenia^a

Variable	N	% ^b	β	SE	Wald χ^2	p	OR	95% CI
Mental health								
SF-12 mental score of 51 or higher ^c	166	30	-.32	.06	27.52	<.001	.72**	.64-.82
BPRS item mean score of 2 or higher ^d	180	32	-.07	.06	1.63	.20	.93	.84-1.04
Suicidal thoughts in the past six months	136	24	.17	.06	8.34	.004	1.19*	1.06-1.34
Self-injurious behavior in the past six months	47	8	.01	.09	.02	.89	1.01	.84-1.21
Suicide attempt in the past six months	41	7	-.09	.10	.79	.38	.92	.75-1.11
Age at first hospitalization was 22 years or older	285	56	-.16	.06	7.13	.01	.86*	.76-.96
Five or more lifetime psychiatric hospitalizations	366	66	.24	.06	17.85	<.001	1.27**	1.14-1.42
One or more past-year psychiatric hospitalizations	262	47	.06	.05	1.56	.21	1.07	.96-1.18
Posttraumatic stress disorder	194	34	.43	.06	51.16	<.001	1.53**	1.36-1.72
Multiple sexual partners	108	20	.19	.06	8.20	.003	1.20*	1.06-1.37
Substance abuse								
Alcohol abuse	207	36	.19	.06	11.98	.001	1.21**	1.09-1.35
Drug abuse	227	40	.18	.05	11.40	.001	1.20**	1.08-1.34
Any substance abuse	303	53	.22	.06	15.74	<.001	1.24**	1.12-1.39
Physical health								
SF-12 physical score of 51 or higher ^c	280	50	-.19	.05	12.88	<.001	.83**	.74-.92
One or more past-year nonpsychiatric hospitalizations	45	8	.07	.09	.57	.45	1.07	.89-1.29
Two or more physician visits in the past six months	188	33	.17	.06	9.12	.003	1.18*	1.06-1.32
Two or more health problems	271	49	.44	.06	52.78	<.001	1.55**	1.38-1.74
HIV	17	3	.48	.15	1.24	<.001	1.62**	1.21-2.18
Hepatitis B	94	22	-.12	.08	2.41	.12	.89	.77-1.03
Hepatitis C	81	19	.08	.08	1.05	.31	1.08	.93-1.26
Sexually transmitted disease	143	33	.01	.01	.84	.36	1.01	.99-1.03
Social functioning								
Homeless in the past six months	79	14	.18	.07	6.32	.01	1.20*	1.04-1.38
Poverty	289	54	.00	.05	.00	.98	1.00	.90-1.12
Criminal justice involvement	395	69	.29	.06	21.42	<.001	1.34**	1.18-1.51
Currently working	98	17	-.02	.07	.06	.80	.98	.86-1.12
Worked in the past year	201	35	.08	.05	2.20	.14	1.08	.97-1.21
Global Assessment Scale score above 41 ^e	293	52	-.07	.05	1.59	.21	.94	.84-1.04
Has at least one child	276	50	.10	.06	3.12	.08	1.11	.99-1.24

^a Analyses controlled for age, race, education, and gender.

^b Valid percentage

^c The mean \pm SD scores for the 12-item Short Form mental components score and physical components score were 42.04 \pm 12.46 and 48.20 \pm 9.74, respectively. Possible scores range from 0 to 100, with higher scores indicating better mental or physical health. The normative population score is 50.

^d The mean \pm SD score for the Brief Psychiatric Rating Scale (observational items only) was 1.77 \pm .58. Possible scores range from 1 to 7, with higher scores indicating more severe psychiatric symptoms.

^e The mean \pm SD score for the Global Assessment Scale was 44.88 \pm 11.74. Possible scores range from 1 to 100, with higher scores indicating better functioning.

*p=.01

**p=.001

counseling, and referrals for follow-up testing and treatment, as needed. Permission also was obtained for chart review and obtaining information from treatment providers.

Statistical analyses

Prevalence rates of adverse events in childhood were computed first, followed by examination of the associa-

tion between different types of adverse events. The association between cumulative number of adverse events and functional outcomes was then examined by performing logistic regression analyses, which controlled for demographic characteristics (gender, age, and race). Because of the large number of tests, we report significance only when $p < .01$.

Results

Prevalence of childhood adversities

Among the 569 adults with schizophrenia in this study, only 14% reported that they had experienced no adverse childhood events, whereas 18% reported one event and 46% had experienced three or more events. In the ACE and NCS studies, by com-

parison, about one-fifth and one-third of respondents, respectively, had experienced more than two adverse events, compared with about half the persons in our study. These results are summarized in Table 2.

Table 3 summarizes the co-occurrence of different adverse events in childhood. The most common form of adverse childhood event was child physical abuse, followed by witnessing domestic violence, foster or kinship care, parental separation or divorce, child sexual abuse, parental mental illness, and finally, parental death. Most clients who had experienced one adverse event had also experienced between two and three other events. For example, for those who had mentally ill parents, more than half also experienced parental divorce, foster care, and childhood physical and sexual abuse. For those who had experienced sexual abuse as children, more than half also experienced childhood physical abuse, witnessed domestic abuse, and were placed in foster care.

Adverse childhood events and functional outcomes

The results of the logistic regression analyses evaluating the associations between cumulative exposure to adverse childhood events and hypothesized outcomes are summarized in Table 4. As shown, adverse childhood events were significantly related to six of the ten measures of psychiatric disorder, the exceptions being BPRS score, recent psychiatric hospitalization, and recent self-injurious or suicidal behavior. All measures of substance abuse were significantly related to cumulative number of adverse childhood events. Adverse childhood events were significantly related to four of eight health functioning outcomes, including physician visits, health problems, and most strongly, HIV infection. Finally, with respect to social functioning, adverse events in childhood were related to homelessness and criminal justice system involvement but not to work, poverty, parental status, or overall functioning.

Discussion

There are several limitations to this study. This was a retrospective study;

thus underreporting of adverse childhood events may have occurred. Longitudinal follow-up of adults whose childhood abuse was documented has shown that their retrospective reports of childhood abuse are likely to underestimate the actual occurrence (61,62). In addition, although a large, multisite sample was used, it was nonetheless a convenience sample and may not be representative of all clients of the public mental health system in this country. For example, the sample underrepresents the Hispanic population. Finally, the measures used in this study also were not identical to those used in the NCS and ACE studies, so comparisons are somewhat approximate.

The prevalence of adverse childhood events reported in this sample was high, suggesting greater exposure to adverse childhood events among clients with schizophrenia in comparison with community samples (7,8). These findings are consistent with previous research indicating that adverse events in childhood are related to subsequent development of a range of mental illnesses, including schizophrenia (1,3,63). However, this study goes beyond prior research in this area by documenting relationships between cumulative exposure to adverse childhood events and different functional outcomes.

Our results suggest that adverse childhood events represent risk factors for psychiatric, substance abuse, health, and social functioning problems among adults with schizophrenia, as they do in the population as a whole. Because the primary disorder of schizophrenia is associated with high levels of morbidity and dysfunction in all of these domains, it may be harder to demonstrate the added impact of adverse childhood events on some of the variables assessed, such as poverty and unemployment. Adverse childhood events cumulatively predicted most of the mental health indices (such as presence of PTSD, alcohol or drug use disorders, days of hospitalization, suicidal thoughts, and self-rated mental health). These results are consistent with other studies showing relationships between childhood sexual and physical abuse and psychiatric symptoms in

severe mental illness (2,5,9–12,64). Childhood adversity was also a powerful predictor of physical health outcomes, such as number of physician visits, self-rated physical problems, total number of self-reported physical illnesses, and presence of HIV. These findings extend prior research on the health correlates in adulthood of childhood adversity in the general population (27–30) to persons with schizophrenia.

Finally, adversity in childhood was a less strong predictor of functional outcomes in this study, predicting criminal justice involvement and homelessness but not poverty, employment status, or global functioning. Homelessness, criminal justice system involvement, and substance use disorders have all been linked to each other and to childhood adversity in the general population. All together, the findings suggest that even among people with an established severe mental illness (schizophrenia), those with higher levels of childhood adversity have significantly worse psychiatric, health, and social functioning than similar individuals with less exposure to such events.

Conclusions

Important implications of this study are that most clients with diagnoses of schizophrenia in the public mental health system are likely to have been exposed to serious adverse events in childhood and that the social and psychological consequences of this exposure include worse health, mental health, and functional outcomes. Exposure to adverse childhood events is associated with elevated rates of comorbid conditions such as alcohol abuse, drug abuse, and PTSD, even though these diagnoses are already elevated in this population. These comorbid disorders have a deleterious effect on the course of illness and may add considerable complexity to treatment management. Tailored interventions to address the adult consequences related to adverse childhood events may be necessary to improve outcomes for many clients with schizophrenia spectrum disorders.

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