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Childhood Adversity and Psychosocial Adjustment in Old Age

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Abstract

Objective—The objective of this study was to test the hypothesis that higher level of childhood adversity is associated with lower level of psychosocial adjustment in old age.

Method—Participants are 253 older persons (mean age: 79.8, standard deviation: 2.1; 73.9% women) from the Rush Memory and Aging Project, a clinicopathologic study of common chronic conditions of old age. Childhood adversity was assessed with a 16-item measure based on portions of the Childhood Trauma Questionnaire and other inventories. Psychosocial adjustment was assessed with multiple measures of neuroticism (i.e., proneness to negative emotions) and social engagement.

Results—Based in part on a factor analysis, composite measures of total adversity, emotional neglect, parental intimidation, parental violence, family turmoil, and financial need were developed. In a series of linear regression models adjusted for age, sex, own education, and parental education, the composite measure of childhood adversity was associated with all facets of neuroticism and accounted for more than 13% of the variance in the composite neuroticism measure. Emotional neglect and parental intimidation had the strongest associations with neuroticism. Childhood adversity was not related to frequency of participation in social activities, but more adversity was associated with having a smaller network (accounting for 3% of the variance) and feeling more emotionally isolated (accounting for 7% of the variance).

Conclusion—Childhood adversity is associated with less adaptive psychosocial functioning in old age.

Keywords

Childhood Adversity; aging; neuroticism; social engagement

Maltreatment, neglect, and other adverse experiences commonly occur during childhood.^{1–3} Among adults, a history of adverse childhood experience has been shown to be associated with diverse psychologic problems, including interpersonal difficulties,^{4,5} personality disorders,^{6,7} depression,^{8,9} alcohol and substance abuse,^{7,8} and suicidal behavior,^{10,11} as well as poor physical health.^{12,13} By contrast, knowledge about the relation of traumatic experiences during childhood to mental health in old age is limited. Most research has focused on parental emotional support, with lower levels of support associated with more physical and emotional problems in older persons.^{14–16} In addition, loss of a parent in childhood has been related to

impaired physical health, but not disability, in old age.¹⁷ Thus, the extent to which the deleterious effects of childhood adversity persist into old age is not well understood.

In the present study, we examined the relation of childhood adversity to psychosocial adjustment in older persons. Participants are from the Rush Memory and Aging Project, a clinicopathologic study of chronic conditions of old age. We developed from existing questionnaires a self-report measure of adverse childhood experiences, including emotional neglect and parental violence and intimidation. Psychosocial adjustment was assessed with multiple measures of tendencies to experience negative emotional states and to be socially engaged. We hypothesized that level of childhood adversity would be inversely related to level of psychosocial adjustment in old age.

METHODS

Participants

All persons in the study are participants in the Rush Memory and Aging Project, a longitudinal clinicopathologic study of neurobiologic factors linking experiential and genetic risk factors to common chronic health problems in old age.^{18–20} They were primarily recruited from continuous care retirement communities and subsidized housing facilities in and around Chicago. Persons were also recruited from Section 8 and Section 202 housing subsidized by the Department of Housing and Urban Development, retirement homes, and local churches and other social service agencies. The project was approved by the Institutional Review Board of Rush University Medical Center.

The recruitment process began with discussions with administrators and staff at potential facilities and in some cases included a meeting with resident councils. These meetings were typically followed by a 60- to 90-minute presentation to interested residents. The presentation covered general information about aging and the need for prospective clinical–pathologic research. Persons attending the presentation were provided with a packet of information about the study and encouraged to discuss it with family members and friends. Attendees were asked to complete a form indicating their level of interest in learning more about the study. Those expressing interest were contacted later by study personnel, and after further discussion, informed consent was obtained and the Anatomical Gift Act was signed.

Only persons without dementia were eligible for analyses. As part of the project, each participant had a uniform structured clinical evaluation that included a medical history, neuropsychologic testing, and a complete neurologic examination. On the basis of this evaluation, an experienced physician diagnosed dementia according to the National Institute of Neurological and Communicative Disorders and Stroke and the Alzheimer's Disease and Related Disorders Association criteria, which require a history of cognitive decline and evidence of impairment in two or more domains of cognitive function.²¹ Of 297 people who completed the questionnaire on adverse childhood experiences, 44 met criteria for dementia and were excluded. Analyses are based on the remaining 253 people. They had a mean age of 79.8 (standard deviation [SD]: 6.4) and a mean Mini-Mental State Examination score of 28.0 (SD: 2.1); 73.9% were women and 94.9% were white and non-Hispanic. They had completed a mean of 14.6 years of education (SD: 3.0) and reported a mean of 9.8 years of education (SD: 3.8) for their parents.

Assessment of Adverse Childhood Experiences

We constructed a 16-item questionnaire, based mainly on material from the Childhood Trauma Questionnaire²² and other structured questionnaires,^{9,23} focusing on emotional and physical trauma. We excluded the topic of sexual abuse to enhance the acceptability of the inventory

with older participants and simplified item wording to reduce response burden. All questions addressed experiences during the first 18 years of life. Five items were rated on a four-point scale; nine items were rated on a five-point scale. Scores on the remaining two items were based on a count of family problems (i.e., depression, suicide, alcoholism, frightening experience) and family separations (i.e., divorce, separated from mother, hospitalization, prison).

Assessment of Psychosocial Adjustment

We assessed two key components of psychosocial adjustment in old age: the tendency to experience negative emotions and the extent of social engagement.

Negative Emotions—The personality trait of neuroticism is a stable indicator of proneness to experience a range of negative affect. We assessed neuroticism with the 48-item Neuroticism scale from the NEO PI-R.²⁴ In addition to its sound and well-documented psychometric properties, a particular advantage of this scale is that it yields scores on six different components of neuroticism (each based on eight items): anxiety, angry hostility, depression, self-consciousness, impulsiveness, and vulnerability. Persons rated their level of agreement with each item on a five-point scale (0–4), with higher scores indicating a higher level of the trait. Item scores were summed to yield a total neuroticism score (range: 0–192) and scores for each of the six components (range: 0–32).

Social Engagement—We collected three indicators of social engagement: social network size, frequency of social activity, and level of emotional isolation. To quantify social networks, we asked standard questions²⁵ about the number of children, family, and friends each person had and about how frequently they interacted with them. The social network score was the total number of such persons seen at least once a month.

Persons were asked to rate how often they participated in six common social activities (e.g., visiting a relative or friend, attending religious services) on a five-point scale, with five indicating every day or about every day and one indicating once a year or less.²⁶ Item scores were averaged to yield a composite measure of social activity frequency ranging from one to five with higher scores indicating more frequent social activity. Cronbach alpha coefficient was 0.63, indicating a relatively low level of internal consistency.

Emotional isolation was assessed with a five-item scale.²⁷ Persons rated level of agreement with each item (e.g., “I miss having people around”) on a five-point scale. Item scores were averaged to yield an emotional isolation score ranging from one to five, with higher scores indicating more isolation. Cronbach's coefficient alpha was 0.78 indicating a moderate level of internal consistency.

Data Analysis

We used a factor analysis to determine the best number of factors in the childhood adversity scale. We first used principal-components analysis to fit an orthogonal set of factors: five factors had eigenvalues of one or more, representing the most significant determinants of variance. We then conducted a factor analysis with varimax rotation, specifying five factors. Summary measures representing each factor were then computed by adding the raw scores of items with loadings of 0.50 or more on a given factor, resulting in five summary measures. We tested the association of the childhood experience measures with facets of neuroticism and with social engagement measures in a series of linear regression models that controlled for the potentially confounding effects of age, sex, the person's own education, and the mean educational attainment of the participant's mother and father. In these analyses, all variables were simultaneously entered. Because of the sizable number of regression analyses, we set the

alpha level at 0.01. Models were validated graphically and analytically. Programming was done in SAS.²⁸

RESULTS

Development of Summary Measures of Childhood Adversity

As shown in Table 1, adverse childhood experiences were not uncommon in this cohort, with 4% (adults exchanged blows, wore dirty clothes) to 40% (adults argued) obtaining scores of two or more on each item, indicative of at least some adversity. To develop summary measures from the scale, we submitted the 16 items to a principal-components analysis to determine the number of factors. This yielded five factors with eigenvalues greater than one which accounted for 66.3% of the variance in the scale. We then performed a factor analysis with varimax rotation on the five factors (Table 1). We labeled the rotated factors as emotional neglect (six items), parental intimidation (four items), parental violence (two items), family turmoil (two items), and financial need (two items). We grouped items into the domains suggested by the factor analysis and added the raw item scores to create summary measures of specific experiences (Table 2). Because the summary measures were moderately intercorrelated (median $r=0.25$), we also created a composite measure of adverse experience based on all 16 items (Table 2). Less than 5% of the cohort had a score of zero on the composite measure of adverse experience, indicating that most people had experienced at least some adversity in childhood. As shown in Table 2, the composite measure had a roughly symmetric distribution, and its moderate level of internal consistency, as shown by a coefficient alpha of 0.84, supports the idea that the diverse experiences could be adequately summarized in a composite measure. The specific measures with more than two items also had adequate levels of internal consistency (Table 2). Overall, neither the composite nor specific measures of adversity were strongly related to age, and there was some evidence of more adversity in men and those with less education.

To evaluate the temporal stability of the scale, we readministered it to a subset of 50 participants after a mean of 23.8 weeks (SD: 16.9; range: 1.1–66.4). They had a mean age of 81.5 (SD: 7.2), a mean of 14.2 years of education (SD: 2.7), and a mean Mini-Mental State Examination score of 28.4 (SD: 1.9); 80.0% were women and 94.0% were white and non-Hispanic. The test–retest correlation was 0.92 ($t[48]=16.3$, $p<0.001$) for the composite measure of childhood adversity, indicating excellent temporal stability. The subscores, which had missing data for one or two persons, had lower test–retest correlations, reflecting the brevity of the scales: $r=0.93$ for emotional neglect ($t[46]=17.1$, $p<0.001$), $r=0.79$ for parental intimidation ($t[47]=8.9$, $p<0.001$), $r=0.77$ for parental violence ($t[46]=8.2$, $p<0.001$), $r=0.84$ for family turmoil ($t[46]=10.6$, $p<0.001$), and $r=0.65$ for financial need ($t[47]=6.0$, $p<0.001$).

Adverse Childhood Experience and Negative Emotions in Late Life

We tested the relation of adverse childhood experience to neuroticism in a series of linear regression models that controlled for the potentially confounding effects of age, sex, education, and education of the parents (Table 3). In the initial analysis, we used the composite measures of neuroticism (mean: 70.8, SD: 19.0, range: 1–132) and adverse childhood experience to make use of all available data. After adjustment for the covariates, the composite measure of adverse experience accounted for an additional 13.4% of the variance in neuroticism (estimated slope: 1.05, standard error [SE]: 0.17, $t[245]=6.47$, $p<0.001$). With each one-point increase on the adverse childhood experiences scale, neuroticism score increased by 1.05 points. When the analysis was repeated for each facet of neuroticism, the composite measure of adverse experiences accounted for between 4% (anxiety) and 10% (angry hostility, depression) of the variance in the facets (all $p<0.001$).

To examine the relation of specific forms of childhood adversity to neuroticism, we repeated the initial analysis separately for each domain of adverse experience and each measure of neuroticism (Table 3). Each domain of adversity except financial need was positively related to total neuroticism. Parental intimidation was positively correlated with all six facets of neuroticism; emotional neglect was positively related to five facets and parental violence was related to three. Family turmoil was related to anxiety and depression, and financial need was not associated with any facets of neuroticism.

To evaluate the independent associations of the domains of adversity with neuroticism, we regressed each neuroticism measure on the five adversity measures simultaneously. Emotional neglect and parental intimidation were both related to total neuroticism and angry hostility. Emotional neglect was also related to self-consciousness and vulnerability. Parental intimidation was associated with anxiety, depression, and impulsiveness.

Adverse Childhood Experience and Late-Life Social Engagement

In a similar series of linear regression analyses adjusted for age, sex, own education, and parental education, we examined the relation of adverse childhood experience to three indices of social engagement: frequency of social activity (mean: 2.4, SD: 0.5, range: 1–4), size of social network (mean: 6.2, SD: 5.9, range: 0–49), and level of emotional isolation (mean: 2.2, SD: 0.6, range: 1–4). As shown in Table 4, the composite measure of adverse childhood experience was not associated with frequency of participation in social activities, but more adverse experience was related to having a smaller social network, with approximately 3% shared variance, and feeling more emotionally isolated, with approximately 7% shared variance. Thus, with each one-point increase in the composite measure of adversity, social network size decreased by 0.17 unit and emotional isolation increased by 0.02 unit. These associations remained when each analysis was repeated with a term added for total neuroticism, indicating the association of childhood adversity with late-life social engagement is at least partially independent of neuroticism.

In subsequent analyses, emotional neglect and family turmoil but not other experiential measures were related to social network size, whereas all experiential measures except financial need were related to emotional isolation (Table 4). In additional models that included all five measures of childhood adversity, the only effect significant at an alpha level of 0.01 was an inverse association between emotional neglect and social network size.

DISCUSSION

In this group of approximately 250 persons with a mean age of approximately 80, we examined the relation of adverse childhood experiences to psychosocial functioning. Most persons reported at least some adverse experiences, and higher level of such experiences was associated with higher level of a wide range of negative emotions, smaller social networks, and a stronger sense of emotional isolation. The results suggest that traumatic experiences in childhood may adversely affect critical components of psychosocial adjustment in old age.

Prior research has shown that adults often report having had psychologically traumatic experiences as children,^{1–3} consistent with the present results. A positive association between childhood trauma and neuroticism has been previously reported in community-dwelling adults²⁹ and substance abuse patients.³⁰ The present analyses suggest that this association persists into old age and that it pertains to all dimensions of neuroticism. Childhood adversity has been associated with interpersonal difficulties in adolescence, suggesting that early life trauma interferes with the development of social skills.^{4,5} Consistent with this hypothesis, adverse childhood experiences were associated with having fewer close relationships and feeling more emotionally isolated in this cohort of older persons.

In old age, a higher level of neuroticism and lower level of social engagement have been associated with loss of cognitive function^{31–34} and increased risk of disability^{26,35} and death.^{36–38} The present results suggest that individual differences in these critical dimensions of psychosocial functioning in old age may be in part the result of traumatic experiences decades earlier in life. Prospective studies are needed to investigate the impact of childhood trauma on morbidity and mortality in old age.

This study has several strengths. On the basis of a uniform clinical evaluation and the application of accepted criteria, persons with dementia were identified and excluded from analyses. Because a relatively large group of participants was studied, there was adequate power to detect the associations of interest even after controlling for potentially confounding demographic variables. Results were relatively consistent with multiple measures of childhood trauma and psychosocial adjustment.

The principal limitations are the selected nature of the cohort and the cross-sectional design of the study. Prospective studies of childhood adversity effects in defined samples of older persons are needed. A related limitation is that information on childhood adversity was based on recall of events that occurred 50 or more years earlier, possibly biasing results, although most research does not suggest substantial bias in such recall.^{39,40} Also, the social activity measure had a relatively low level of internal consistency and three of the childhood adversity subscales had only two items apiece. These psychometric shortcomings may have led us to underestimate the association of childhood adversity with social engagement.

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TABLE 1
Psychometric Information on the Modified Childhood Trauma Questionnaire

	Distribution of Item Scores*						Rotated Factor Loadings [†]				
	0	1	>2	1	2	3	4	5			
Abbreviated item											
Helped you feel important	43	28	27	0.78	-0.10	0.22	0.10	-0.02			
Felt loved	57	25	19	0.83	0.18	0.09	0.15	0.08			
Family felt close	43	36	22	0.81	0.14	0.18	0.05	0.12			
Family supportive	53	28	19	0.84	0.23	0.10	0.12	0.06			
Care/protect you	74	17	9	0.79	0.17	-0.02	0.21	0.10			
Take you to doctor	73	11	16	0.63	0.27	-0.17	-0.07	0.27			
Said hurtful things	58	23	19	0.23	0.71	0.02	0.23	0.10			
Made you afraid	85	9	7	0.19	0.75	0.06	0.14	-0.08			
Pushed/grabbed you	77	16	7	0.14	0.75	0.33	-0.03	0.13			
Adults argued	19	41	40	0.04	0.52	0.48	0.01	-0.05			
Punished you with a belt	63	23	13	0.14	0.18	0.65	0.13	0.27			
Adults exchanged blows	91	5	4	0.12	0.11	0.75	0.05	-0.06			
Family problems	69	21	9	0.10	0.28	0.11	0.79	-0.03			
Family separation	60	30	10	0.27	0.00	0.05	0.80	0.12			
Not enough to eat	69	12	19	-0.07	0.03	-0.04	-0.02	0.79			
Wore dirty clothes	79	17	4	0.13	0.02	0.15	0.11	0.77			
Variance explained [‡]				24.6	14.0	9.4	9.2	9.1			

* Percent obtaining each item score with higher scores denoting more adversity.

[†] From a principal-components factor analysis; loadings of 0.50 or greater are in bold.

[‡] The communality for each rotated factor divided by the number of items on the entire questionnaire.

TABLE 2

Summary Measures of Adverse Childhood Experience

Characteristic	Emotional Neglect	Parental Intimidation	Parental Violence	Family Turmoil	Financial Need	Composite Adversity
Number of items	6	4	2	2	2	6
Range	0–18	0–12	0–7	0–6	0–6	0–31
Mean (SD)	3.9 (4.2)	2.5 (2.3)	0.7 (1.0)	1.0 (1.3)	0.9 (1.5)	9.0 (6.8)
Skewness	1.1	1.4	2.2	1.7	1.5	1.1
Coefficient alpha	0.89	0.74	–	–	–	0.84
Correlations [*]						
Age	–0.10	–0.08	–0.07	–0.13	0.01	–0.12
Education	–0.19	0.00	–0.20	–0.04	–0.04	–0.16
Sex differences						
t	0.10	–0.68	–2.05	–2.00	–2.27	–1.51
df	251	140	90.8	251	251	147
p	0.920	0.496	0.043	0.047	0.024	0.133

SD: standard deviation.

* p < 0.05 for correlations with an absolute value of .13 or more based on *t*-tests with 251 degrees of freedom.

TABLE 3

Relation of Adverse Childhood Experience to Late-Life Neuroticism*

Outcome	Adversity Measure	Estimated Slope (SE)	t (df)	p Value
Neuroticism	Emotional neglect	1.35 (0.29)	4.73 (245)	<0.001
	Parental intimidation	3.03 (0.51)	5.91 (245)	<0.001
	Parental violence	4.44 (1.30)	3.41 (245)	<0.001
	Financial need	1.13 (0.82)	1.37 (245)	0.172
	Family turmoil	2.73 (.095)	2.87 (245)	0.004
Anxiety	Emotional neglect	0.15 (0.07)	2.05 (245)	0.041
	Parental intimidation	0.65 (0.13)	4.94 (245)	<0.001
	Parental violence	0.57 (0.33)	1.71 (245)	0.088
	Financial need	−0.04 (0.21)	−0.21 (245)	0.832
	Family turmoil	0.79 (0.24)	3.32 (245)	0.001
Angry hostility	Emotional neglect	0.29 (0.06)	4.66 (245)	<0.001
	Parental intimidation	0.62 (0.11)	5.60 (245)	<0.001
	Parental violence	0.89 (0.28)	3.16 (245)	0.002
	Financial need	0.03 (0.18)	0.17 (245)	0.861
	Family turmoil	0.32 (0.21)	1.55 (245)	0.124
Depression	Emotional neglect	0.24 (0.06)	3.77 (245)	<0.001
	Parental intimidation	0.55 (0.12)	4.77 (245)	<0.001
	Parental violence	0.86 (0.29)	2.98 (245)	0.003
	Financial need	0.31 (0.18)	1.69 (245)	0.092
Self-consciousness	Emotional neglect	0.26 (0.06)	4.07 (245)	<0.001
	Parental intimidation	0.37 (0.12)	3.19 (245)	0.002
	Parental violence	0.77 (0.29)	2.29 (245)	0.008
	Financial need	0.40 (0.18)	2.23 (245)	0.026
	Family turmoil	0.24 (0.21)	1.15 (245)	0.250
Impulsiveness	Emotional neglect	0.19 (0.07)	2.82 (245)	0.005
	Parental intimidation	0.54 (0.12)	4.31 (245)	<0.001
	Parental violence	0.74 (0.31)	2.40 (245)	0.017
	Financial need	0.21 (0.19)	1.05 (245)	0.294
	Family turmoil	0.38 (0.23)	1.68 (245)	0.095
Vulnerability	Emotional neglect	0.22 (0.06)	3.84 (245)	<0.001
	Parental intimidation	0.29 (0.11)	2.78 (245)	0.006
	Parental violence	0.60 (0.26)	2.31 (245)	0.022
	Financial need	0.24 (0.16)	1.48 (245)	0.141
	Family turmoil	0.33 (0.19)	1.79 (245)	0.075

SE: standard error.

* Estimated from separate linear regression models that controlled for age, sex, own education, and parental education.

TABLE 4

Relation of Adverse Childhood Experience to Late-Life Social Engagement*

Outcome	Adversity Measure	Estimated Slope (SE)	t (df)	p Value
Social activity	Emotional neglect	−0.01 (0.01)	−1.33 (245)	0.184
	Parental intimidation	0.01 (0.02)	0.36 (245)	0.717
	Parental violence	0.04 (0.04)	0.99 (245)	0.325
	Financial need	−0.01 (0.03)	−0.53 (245)	0.594
	Family turmoil	−0.02 (0.03)	−0.50 (245)	0.619
	Total adversity	−0.01 (0.01)	−0.78 (245)	0.436
Social network	Emotional neglect	−0.35 (0.09)	−3.90 (245)	<0.001
	Parental intimidation	−0.16 (0.17)	−0.92 (245)	0.360
	Parental violence	−0.49 (0.42)	−1.18 (245)	0.239
	Financial need	0.41 (0.26)	1.59 (245)	0.114
	Family turmoil	−0.89 (0.30)	−2.99 (245)	0.003
	Total adversity	−0.17 (0.06)	−3.09 (245)	0.002
Emotional isolation	Emotional neglect	0.03 (0.01)	3.84 (244)	<0.001
	Parental intimidation	0.06 (0.02)	3.45 (244)	<0.001
	Parental violence	0.11 (0.04)	2.61 (244)	0.010
	Financial need	−0.00 (0.03)	−0.01 (244)	0.991
	Family turmoil	0.09 (0.03)	2.92 (244)	0.004
	Total adversity	0.02 (0.01)	4.53 (244)	<0.001

SE: standard error.

* Estimated from separate linear regression models that controlled for age, sex, own education, and parental education.