

The Relationship Between Childhood Trauma And Cognitive Functioning in Older Adult

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Abstract

Childhood trauma influences the course of an individual's life and has numerous long-term implications, including issues in mental and cognitive health. The goal of the current study was to examine the relationship between childhood trauma and cognitive functioning in older adults. The current study is a secondary data analysis of the second Midlife in the United States Study (MIDUS 2), a national longitudinal study of health and well-being (2004-2006). This study has implications for professionals who work with individuals that have experienced trauma to address the life-long impact of traumatic childhood events on cognitive functioning.

Introduction

Significance of Study:

- The National Institute on Aging (2019) reports that Alzheimer's disease is the sixth leading cause of death in the United States, which affects 5.5 million people aged 65 years and older.
- 10.6% of victims experienced emotional abuse during childhood, 28.3% experienced physical abuse, 20.7% experienced sexual abuse, 14.8% experienced emotional neglect, and 9.9% experienced physical neglect (Centers for Disease Control and Prevention, 2019).
- Exposure to traumatic life events early in life are detrimental stressors that affect the life course, leading to risky behavior, chronic physical and mental health conditions, decreased life potential, and early death (Centers for Disease Control and Prevention, 2019).

Purpose of Study:

The purpose of the current study is to create knowledge related to older adults with cognitive impairment. The present study will aim to understand the relationship between traumatic childhood events such as emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect, and cognitive functioning in older adults.

Research Question:

What is the relationship between childhood trauma and cognitive functioning in older adults?

Hypothesis:

The hypothesis for this study is that individuals who have experienced traumatic events during childhood are more likely to have poorer cognitive functioning later in life.

Literature Review

Conceptual Framework: The life course theory is utilized to understand how biological, psychological, and social elements independently and collaboratively influence processes and outcomes in an individual's life.

Childhood Trauma and the Life Course: Individuals who experienced an adverse or traumatic event during childhood are more likely to suffer from a chronic disease (Danese et al., 2009; Gilbert et al., 2015; Kelly-Irving, Mabile, Grosclaude, Lang, & Delpierre, 2013), develop a psychopathology (Bale et al., 2010; Danese et al., 2009), and are at a greater risk of premature death during adulthood (Brown et al., 2009).

Child Abuse and Cognitive Functioning: Child abuse has been linked to more inferior overall executive function (Dannehl, Rief, & Euteneuer, 2017; DePrincea, Weinzierl, & Combs, 2009; Mark, Polavski, Petros, & King, 2019) and decreased cognitive flexibility (Spann et al., 2012).

Neuropsychological Changes in Victims of Childhood Trauma: Experiences of childhood trauma impact the structure and function of the hippocampus, amygdala, and frontal lobe (McCrorry, De Brito, Viding, 2011).

Gaps in Research

- The quantity and type of assessment tools varied from study to study.
- Many of the studies focused on a people with a mental health diagnosis or children and adolescents

Pearson's Correlation Coefficient

Statistically significant and positive relationships were found (with weak correlations) between:

- Childhood sexual abuse and total adult cognitive functioning
- Childhood sexual abuse and executive functioning
- Childhood physical abuse and episodic memory
- Childhood sexual abuse and total adult cognitive functioning

Multiple Linear Regression

Multiple linear regressions were used to predict a study participant's total cognitive functioning based on their age, gender, marital status, education, and childhood abuse.

- Older male study participants who were sexually abused scored lower on cognitive functioning than other study participants; college graduates also had significantly better cognitive functioning than non-college graduates
- Marital status, physical neglect, emotional neglect, physical abuse, and emotional abuse were not significant predictors of cognitive functioning ($p > .05$).

Methods

Research Design: The current study is a secondary analysis of the Midlife in the United States (MIDUS) 2 national longitudinal study of health and wellbeing, 2004-2006. In the original study, adults between the ages of 35 and 86 were interviewed over the phone and responded to an extensive self-administered questionnaire regarding behavioral, psychological, and social factors.

Sampling Method: A total of 496 participants, aged 55 to 88 years old, were included in the current study. Participants who did not answer all of the measures relating to their demographic variables, cognitive function, and childhood adversity were excluded from the current study.

Measures: The survey for the original study of MIDUS 2 was a questionnaire that was conducted over the telephone. The current study utilizes specific questions from MIDUS 2, including the cognitive assessment and the biomarker project.

Childhood Trauma: defined as a negative event that caused adverse psychological or physical harm to an individual and impacted them throughout their life.
Cognitive Functioning: Cognitive functioning was operationalized into three categories: (1) episodic memory, (2) executive functioning, and (3) composite scores of Brief Test of Adult Cognition by Telephone (BTACT).

Results

Pearson Correlations for Childhood Trauma and Cognitive Functioning

| | BTACT Composite Score | Episodic Memory | Executive Functioning |
|-------------------|-----------------------|-----------------|-----------------------|
| Emotional Abuse | .019 | .004 | .023 |
| Physical Abuse | -.059 | -.083* | -.028 |
| Sexual Abuse | -.110** | -.011 | -.118** |
| Emotional Neglect | -.022 | -.029 | -.028 |
| Physical Neglect | -.077* | -.052 | -.068 |

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

Regression Model for Adult Cognitive Functioning

| Predictor | B (SE) |
|-------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Constant | 2.274 (.312)*** | 2.333 (.305)*** | 2.360 (.299)*** | 2.291 (.312)*** | 2.296 (.302)*** |
| Age | -.040 (.004)*** | -.041 (.004)*** | -.041 (.004)*** | -.041 (.004)*** | -.040 (.004)*** |
| Gender | -.225 (.070)** | -.210 (.070)** | -.250 (.069)*** | -.221 (.070)** | -.218 (.070)** |
| Marital Status | .087 (.077) | .088 (.076) | .067 (.076) | .085 (.077) | .081 (.076) |
| College Graduate | .582 (.068)*** | .572 (.068)*** | .572 (.067)*** | .579 (.068)*** | .575 (.068)*** |
| Emotional Abuse | -.004 (.010) | | | | |
| Physical Abuse | | -.022 (.014) | | | |
| Sexual Abuse | | | -.031 (.010)** | | |
| Emotional Neglect | | | | -.004 (.008) | |
| Physical Neglect | | | | | -.016 (.013) |

Reference groups: Female; Not Married; Not a College Graduate. ***p < .001; **p < .01; *p < .05

Conclusion

- Higher levels of childhood sexual abuse were associated with lower levels of total adult cognitive functioning and lower levels of executive functioning.
- Higher levels of childhood physical abuse were associated with lower levels of episodic memory.
- Higher levels of childhood physical neglect were associated with lower levels of total adult cognitive functioning.
- By recognizing the impact of early traumatic experiences on brain function, future interventions can target specific modalities of the brain that are impacted by various kinds of adverse childhood experiences, thus rendering the opportunity to avoid or limit impairment.
- Social workers that work with children can reduce or eliminate the detrimental effects of childhood trauma on cognitive functioning later in life. Social workers working with older adults with cognitive issues can benefit from understanding the impact of early traumatic experiences on brain function and structure



References

- Centers for Disease Control and Prevention. (2019). *About adverse childhood experiences*. Retrieved from <https://www.cdc.gov/violenceprevention/childabuseandneglect/acetstudy/aboutace.html>
- Danese, A., Moffitt, T.E., Harrington, H., Milne, B. J., Polanczyk, G., Pariante, . . . Caspi, A. (2009). Adverse childhood experiences and adult risk factors for age-related disease: Depression, inflammation, and clustering of metabolic risk markers. *Archives of Pediatrics and Adolescent Medicine*, 163(12), 1135-1143. doi:10.1001/archpediatrics.2009.214
- Dannehl, K., Rief, W., & Euteneuer, F. (2017). Childhood adversity and cognitive functioning in patients with major depression. *Child Abuse and Neglect*, 70, 247-254. doi:10.1016/j.chiabu.2017.06.013
- DePrincea, A. P., Weinzierl, K. M., & Combs, M. D. (2009). Executive function performance and trauma exposure in a community sample of children. *Child Abuse and Neglect*, 33, 353-361. doi:10.1016/j.chiabu.2008.08.002
- Gilbert, L. K., Breiding, M. J., Merrick, M. T., Thompson, W. W., Ford, D. C., Dhingra, S. S., & Parks, S. E. (2015). Childhood adversity and adult chronic disease: An update from 10 states and the District of Columbia, 2010. *American Journal of Preventative Medicine*, 48(3), 345-349. doi:10.1016/j.amepre.2014.09.006
- Kelly-Irving, M., Mabile, L., Grosclaude, P., Lang, T., & Delpierre, C. (2013). The embodiment of adverse childhood experiences and cancer development: Potential biological mechanisms and pathways across the life course. *International Journal of Public Health*, 58(1), 3-11. doi:10.1007/s00038-012-0370-0
- Mark, C. A., Poltavski, D. V., Petros, T., & King, A. (2019). Differential executive functioning in young adulthood as a function of experienced child abuse. *International Journal of Psychophysiology*, 135, 126-135. doi:10.1016/j.ijpsycho.2018.12.004
- McCrorry, E., De Brito, S.A., & Viding, E. (2011). The impact of childhood maltreatment: A review of neurobiological and genetic factors. *Frontiers in Psychiatry*, 2(48), 1-14. doi:10.3389/fpsy.2011.00048
- National Institute of Aging. (2019). *Alzheimer's disease fact sheet*. Retrieved from <https://www.nia.nih.gov/health/alzheimers-disease-fact-sheet>
- Spann, M. N., Mayes, L. C., Kalmr, J. H., Guiney, J., Womer, F. Y., Pittman, B., . . . Blumberg, H. P. (2012). Childhood abuse and neglect and cognitive flexibility in adolescents. *Child Neuropsychology*, 18(2), 182-189. doi:10.1080/09297049.2011.595400