



The Mediating role of Social Networks on the Development of Psychopathology among U.S. Military Veterans Following Adverse Childhood Experiences (ACEs)

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Introduction

- Adverse childhood experiences (ACEs) can have a very detrimental impact on mental health and wellbeing across the lifespan (Dube et al., 2003).
- Unfortunately ACEs are common and often co-occur (Dong et al., 2004). A dose-response relationship has been found between the number of childhood adversities experienced and mental health problems (Edwards et al., 2003).
- Childhood adversities are particularly common among military personnel, and may impact on their psychological health, in addition to conflict related traumas.
- Social networks can be protective, buffering a person against the negative impact of childhood adversities, and other traumatic experiences.
- Studies have found that the size, or diversity of social networks is particularly important for military veterans (Platt et al., 2014), but others have found that it is the quality, rather than the quantity, of social networks that is important for mental health (Vandervoort, 1999).
- Childhood adversities can prevent a person from developing close relationships with others. If the adversities were related to issues within the family, it may result in poor family relationships.
- These experiences may also impact on the formation and maintenance of relationships with friends and the wider community, therefore childhood adversities may also have an indirect impact on psychopathology.

Results

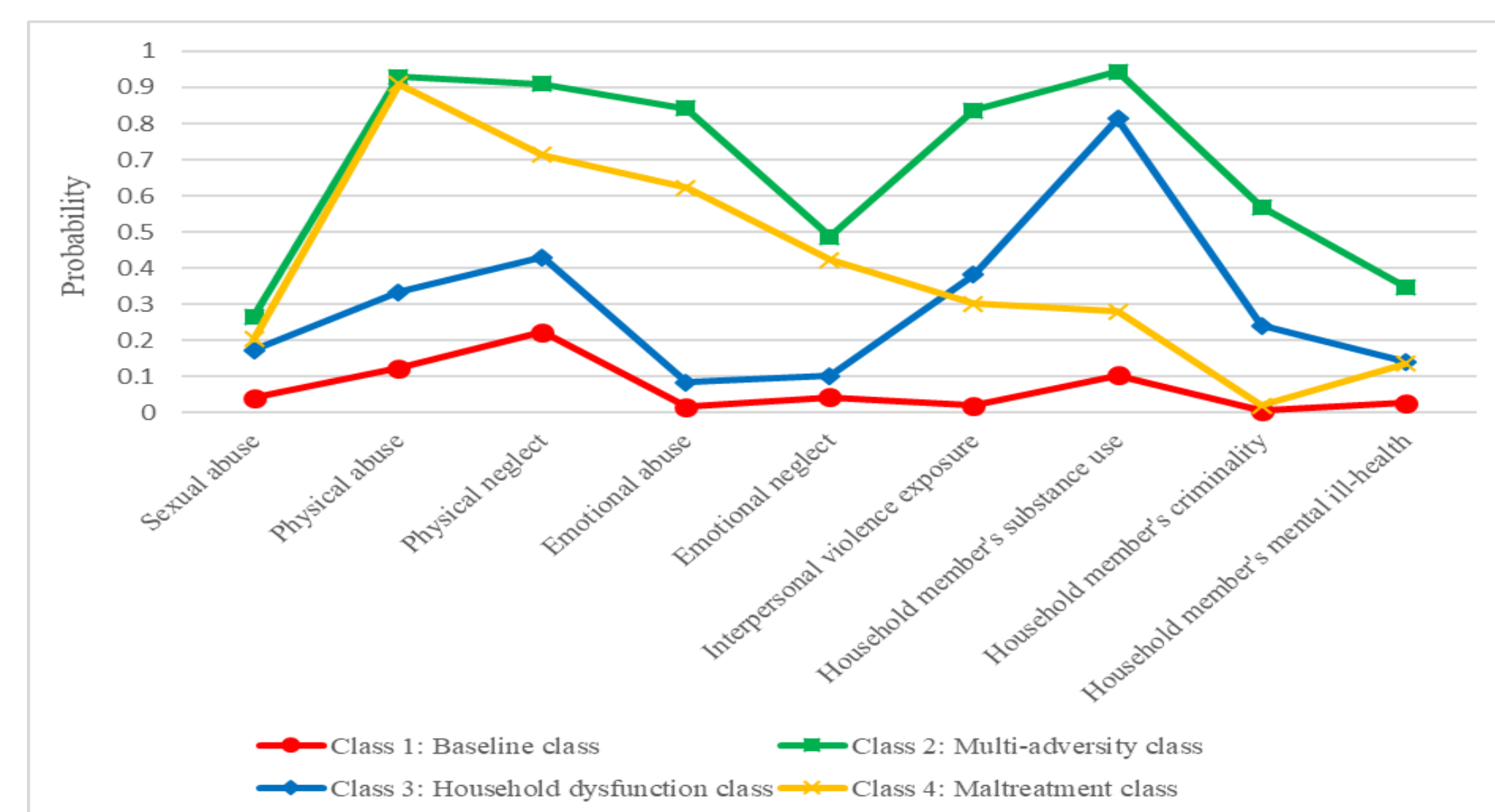


Figure 2. Latent classes of childhood adversities

- Four ACE classes were revealed using Latent Class Analysis and were labelled **Baseline**, **Household Dysfunction**, **Maltreatment**, and **Multi-adversity** classes.
- Veterans who experienced childhood adversities were more likely to have psychological problems, particularly individuals in the multi-adversity class.
- Veterans who experiences ACEs were less likely to have social networks.
- When social networks were available, they were protective, reducing the impact of ACEs.
- Quantity of social networks did not play a mediating role but **quality** of social networks played a very important role, reducing the likelihood of psychopathology.

Table 1. Odds ratios and confidence intervals for direct effects of childhood adversities on psychopathology via social network mediators

Variable	Direct Effects GAD			Direct Effects MDD			Direct Effects PTSD		
	Model 1 OR (95% CI)	Model 2 OR (95% CI)	Model 3 OR (95% CI)	Model 1 OR (95% CI)	Model 2 OR (95% CI)	Model 3 OR (95% CI)	Model 1 OR (95% CI)	Model 2 OR (95% CI)	Model 3 OR (95% CI)
Adversities									
Multi-adversity Class	3.479*** (1.008-12.02)	2.809*** (0.814-9.86)	2.448** (1.194-4.64)	5.338*** (3.007-9.05)	4.419*** (2.624-7.46)	4.111*** (2.716-6.26)	8.278*** (3.251-21.73)	6.742*** (3.258-13.63)	6.153*** (3.751-10.10)
Household Dysfunction Class	1.896* (1.18-3.08)	1.619 (0.982-2.716)	1.539 (0.992-2.368)	1.906*** (1.319-2.732)	1.694** (1.082-2.616)	1.652* (1.082-2.444)	2.663*** (1.784-4.023)	2.272*** (1.453-3.55)	2.196*** (1.423-3.35)
Maltreatment Class	3.625*** (2.34-5.61)	3.157*** (2.142-4.716)	2.890*** (1.914-4.31)	1.699*** (1.264-2.248)	1.474* (1.142-2.002)	1.404 (0.981-1.976)	3.665*** (2.283-5.86)	2.951*** (2.028-4.308)	2.793*** (1.874-4.08)
Baseline Class	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Gender									
Male	0.509** (0.305-0.808)	0.492** (0.309-0.783)	0.492** (0.309-0.783)	0.735 (0.483-1.091)	0.727 (0.471-1.084)	0.727 (0.471-1.084)	0.640** (0.448-0.915)	0.627* (0.428-0.903)	0.627* (0.428-0.903)
Female	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Age (continuous)									
	0.979*** (0.965-0.995)	0.976*** (0.965-0.987)	0.976*** (0.965-0.987)	0.977*** (0.971-0.983)	0.976*** (0.969-0.982)	0.976*** (0.969-0.982)	0.975*** (0.967-0.982)	0.973*** (0.965-0.981)	0.973*** (0.965-0.981)
Income (continuous)									
	0.985 (0.923-1.048)	0.985 (0.923-1.048)	1.001 (0.949-1.057)	0.951** (0.921-0.982)	0.959* (0.923-0.991)	0.959* (0.923-0.991)	0.944** (0.912-0.976)	0.955* (0.919-0.992)	0.955* (0.919-0.992)
Race/ethnicity									
Black	0.987 (0.578-1.696)	0.987 (0.584-1.688)	0.987 (0.584-1.688)	0.726 (0.501-1.051)	0.722 (0.501-1.041)	0.722 (0.501-1.041)	1.458* (1.074-1.983)	1.452* (1.074-1.983)	1.452* (1.074-1.983)
Am. Indian, Alaskan	1.037 (0.389-2.726)	0.962 (0.339-2.681)	0.962 (0.339-2.681)	1.237 (0.628-2.447)	1.211 (0.601-2.443)	1.211 (0.601-2.443)	3.369*** (1.738-6.538)	3.314*** (1.738-6.198)	3.314*** (1.738-6.198)
Asian/Pacific	0.069** (0.008-0.521)	0.060** (0.008-0.476)	0.060** (0.008-0.476)	0.638 (0.279-1.015)	0.616 (0.258-1.476)	0.616 (0.258-1.476)	1.069 (0.454-2.518)	1.025 (0.437-2.448)	1.025 (0.437-2.448)
Hispanic	0.985 (0.881-1.042)	0.928 (0.846-1.017)	0.928 (0.846-1.017)	0.810 (0.616-1.071)	0.788 (0.601-1.028)	0.788 (0.601-1.028)	0.864 (0.551-1.365)	0.830 (0.521-1.308)	0.830 (0.521-1.308)
White	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Social Networks Quality									
Quantity		0.952*** (0.938-0.971)	0.952*** (0.938-0.971)		0.974* (0.954-0.994)	0.974* (0.954-0.994)		0.965** (0.941-0.989)	0.965** (0.941-0.989)

Note: OR = odds ratio; CI = confidence interval; β = beta coefficient; SE = standard error, ***p < .001; **p < .01; *p < .05

Significant indirect effects were revealed from the multi-adversity and maltreatment classes and income for MDD, GAD and PTSD via quality of social networks. Significant indirect effects were also found from age for GAD and PTSD via quality of social networks.

Objectives

The current study aimed to identify classes of adverse childhood experiences (ACEs) in a sample of U.S. military veterans, and explored associations between the ACE classes and a range of mental health problems (PTSD, mood and anxiety disorders). The mediating role of both quantity and quality of social networks were subsequently examined. Furthermore, the study aimed to determine if ACEs impacted on the development of social networks.

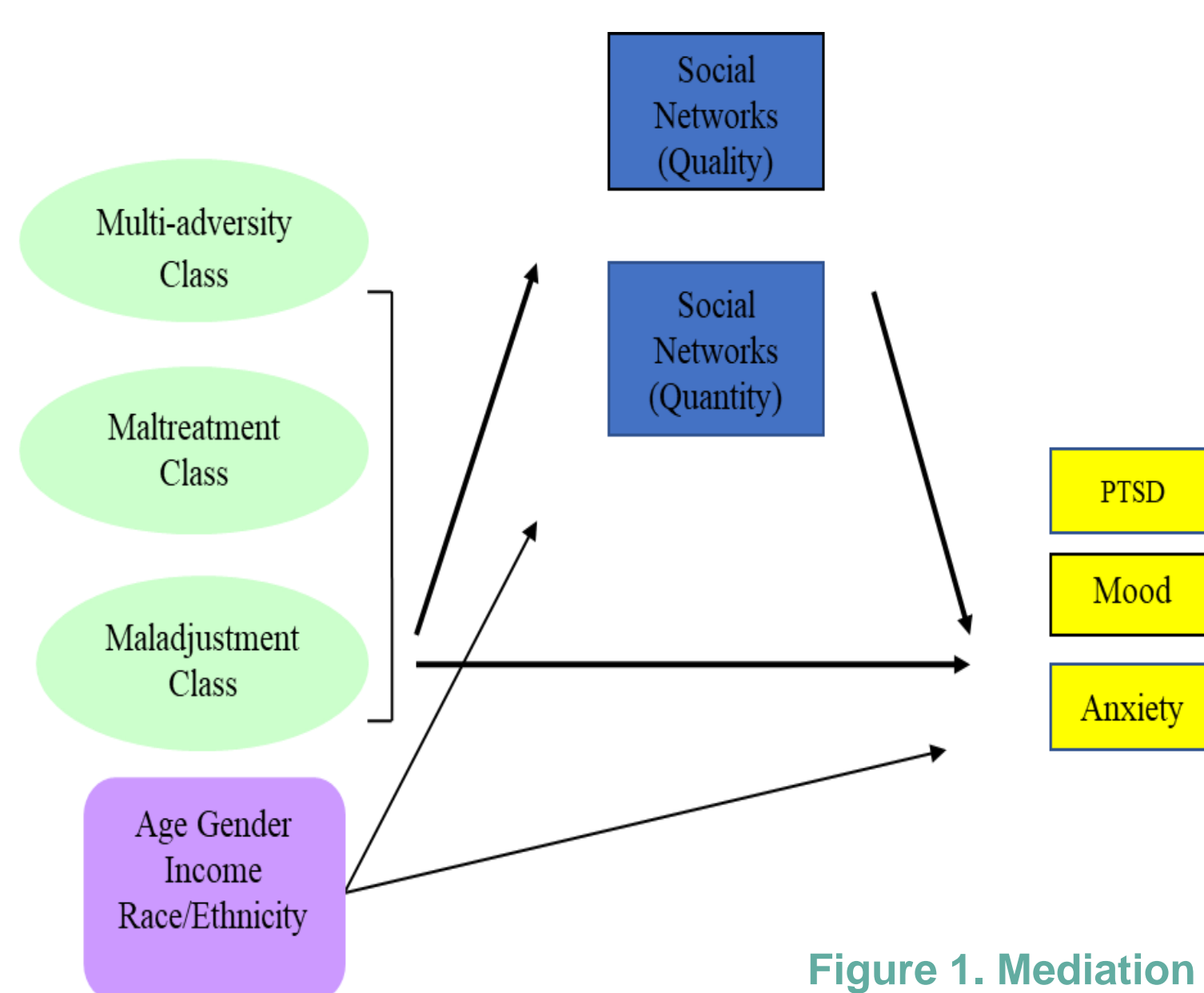


Figure 1. Mediation models

Methods

The study utilised data from the National Epidemiological Survey on Alcohol and Related Conditions-III (NESARC-III), conducted between April 2012 and June 2013. Overall, 3,119 participants identified as U.S. military veterans. Diagnoses in NESARC-III are made in accordance with the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5), measured using the AUDADIS-5, a fully structured diagnostic interview. PTSD, MDD and GAD were examined in this study. The study explored the co-occurrence of nine different types of ACEs, which occurred prior to the age of 18, using a subset of questions from the Childhood Trauma Questionnaire (Bernstein et al., 1994), and the Conflict Tactics Scale (Straus, 1979). The Social Network Index (SNI) was used to measure quantity of social networks (Cohen et al., 1997). The Interpersonal Support Evaluation list (ISEL-12) was used to measure quality of social support (Cohen et al., 1985). MPlus (7.31) was utilised to analyse data. Weights, stratification and cluster units were applied in all analyses.

Conclusions

- Childhood adversities can have a very negative impact on mental health across the lifespan.
- However, the current study shows that ACEs not only have a direct impact on psychopathology, but they also have an indirect impact, as these experiences are related to reduced social networks, which can be protective.
- ACEs may prevent victims from engaging with others, and building social networks.
- Quality social networks are particularly important mediators.
- It is essential therefore to intervene early, helping those affected by ACEs and other traumas to gain the skills to develop and maintain healthy social networks.
- It is particularly important that veterans have the opportunity to engage in interpersonal skills training, and other programmes, which may help them to integrate back into the community following their military career.