

# EXPLORING THE RELATIONSHIP BETWEEN ADVERSE CHILDHOOD EXPERIENCES AND MORAL INJURY IN UK TREATMENT-SEEKING VETERANS.



Dr Marina Beckwith  
Clinical Psychologist  
University of Leeds  
Leeds and York Partnership NHS Foundation Trust



## INTRODUCTION

- In comparison to the general population, research indicates that within military and veteran populations there is:
  - A higher prevalence of exposure to Adverse Childhood Experiences (ACEs; Blossnich et al., 2014; Katon et al., 2015).
  - An increased prevalence of Common Mental health Difficulties (CMD), problematic alcohol use, and Post Traumatic Stress Disorder (PTSD; Rhead et al., 2022)
  - A stronger relationship between ACEs and poorer mental health outcomes (Montgomery et al., 2013)
- ACEs literature consistently indicates a powerful association between ACEs and poorer mental and physical health outcomes.
- More recent research is delineating types of ACEs, identifying two broad categories; Personal Abuse ACEs and Family Disruption ACEs.
- Negriff (2020) proposes an increased risk of poorer mental health outcomes in relation to exposure to Personal Abuse ACEs.
- Litz et al., (2009) builds on Shay's (1994) early observations of distress in veterans following a "betrayal of what's right" (p.3) to describe Moral Injury (MI). MI can be understood as the strong emotional response to "perpetrating, failing to prevent, bearing witness to, or learning about acts that transgress deeply held moral beliefs and expectations" (p.700)
- Military personnel are exposed to unique occupational stressors and as such, are at higher risk of being exposed to Potentially Morally Injurious Events (PMIE).
- Research seeking to understand the underlying mechanisms by which exposure to ACEs influences adult mental health has indicated a role for MI (Bonsion et al., 2023; Roth et al., 2022).
- Williamson et al. (2020) have identified exposure to ACEs as a possible risk factor for the later development of MI in veterans following exposure to PMIE.
- More specifically, an increased prevalence of ACEs within the Personal Abuse domain was significantly correlated with symptoms of MI following exposure to a PMIE (Battaglia et al., 2019). It is therefore questioned whether Personal Abuse ACEs may increase the risk of developing MI following a PMIE.

## AIM

To explore the relationship between ACEs and MI in a sample of UK treatment-seeking veterans.

## METHOD

Secondary analysis of cross-sectional survey data.

Data initially collected by Combat Stress in 2020 as part of a patient experience survey (see Williamson et al., 2023 for further details and full survey).

989 treatment-seeking UK veterans who accessed veterans' mental health charity Combat Stress between 2019-2020 were randomly invited to participate.

428 completed survey responses received.

Symptoms associated with MI were the primary outcome of interest.

Exposure to ACEs was explored for possible associations with MI.

CMD, PTSD/C-PTSD, alcohol use and perceived social support were explored as factors with possible associations within the relationship between ACEs and MI.

### Measures

AREA OF INTEREST	MEASURE
MI	Moral Injury Outcome Scale (MIOS; Litz et al., 2022)
ACEs	Adverse Childhood Experiences Questionnaire (ACE-Q; Felitti et al., 1998)
CMD	General Health Questionnaire (GHQ-12; Goldberg & Williams, 1988)
PTSD/C-PTSD	International Trauma Questionnaire (ITQ; Cloitre et al., 2018; Murphy et al., 2020)
Alcohol Use	Alcohol Use Disorder Identification Test (AUDIT; Babor et al., 2001; Saunders et al., 1993)
Perceived Social Support	Oslo Social Support Scale (OSSS-3; Dalgard, 1996)

### Analysis

- Three stage analysis;
  - Descriptive Statistics were calculated.
  - The relationship between ACEs and MI was explored using linear regression analysis.
  - Further correlational analysis explored other possible associations within this relationship.

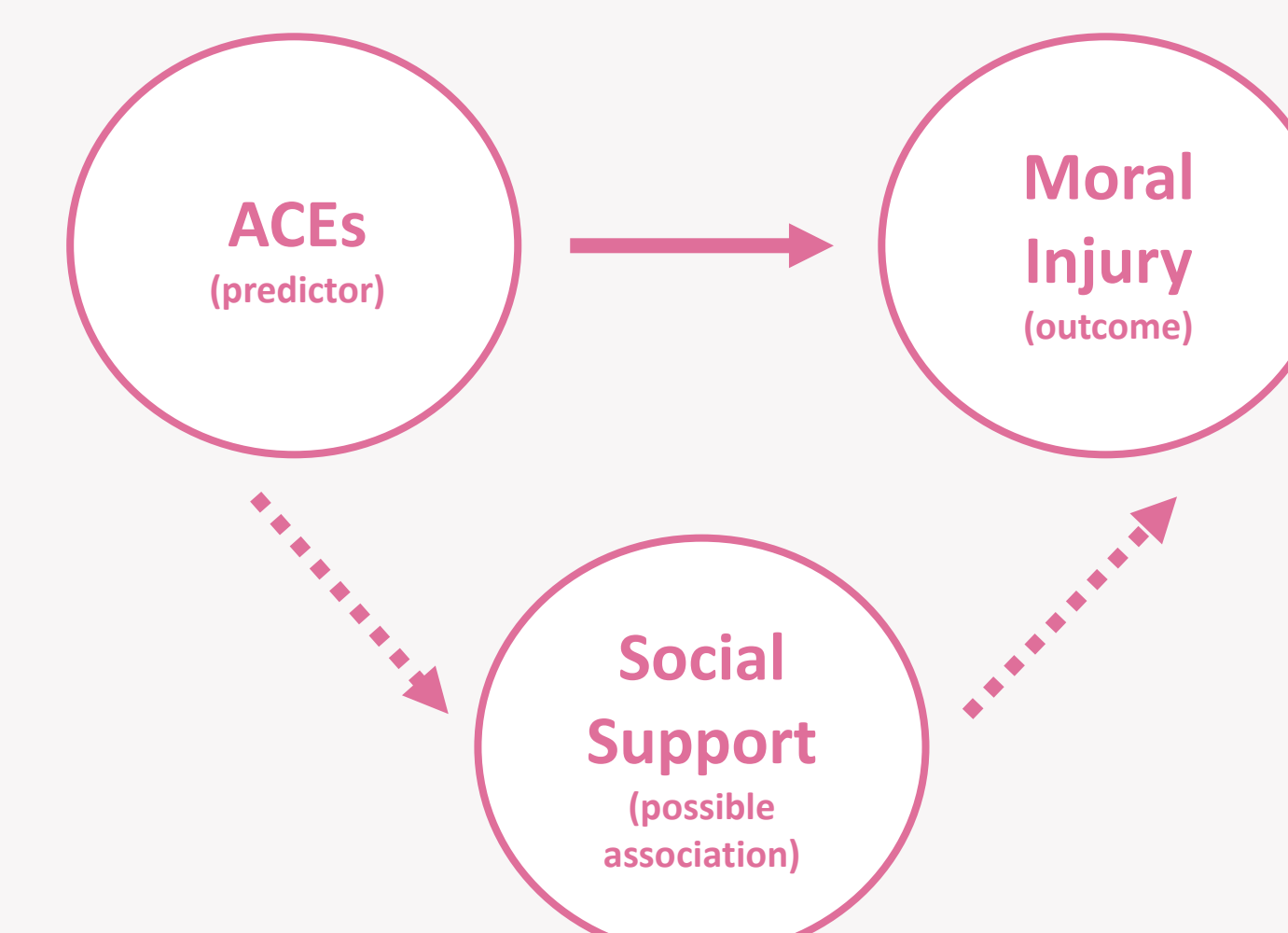
## RESULTS

- A significant majority of survey respondents were male (97.4%).
- 82.5% had served in the British Army (82.5%), 11% in the Navy and 6.5% in the Royal Air Force.
- 54.9% left the military voluntarily, with the remainder (45.1%) indicating reason for leaving as non-voluntary/medical.
- 94.1% had combat or combat support roles during military service.
- The majority of respondents experienced ACEs (74.6%), with 35% of the sample reporting high exposure to ACEs, i.e. four or more.
- Of those reporting exposure to ACEs, 62.1% reported Family Disruption and 57.8% Personal Abuse ACEs.
- Over half (57.1%) reported exposure to a PMIE.
- High rates of CMD (80.7%), PTSD (68.7%), and problematic alcohol use (81.1%) were reported within the sample, with 72.2% of respondents reporting low social support.
- ACEs were found to be associated with MI ( $r[239] = .207, p < .001$ ), with Personal Abuse ACEs explaining 4.4% of the variance in MI scores ( $F(1,239) = 11.086, p = .001, 95\% CI [29.30, 33.35]$ ).
- Strong positive correlations were found between;
  - total ACE scores and total MI scores ( $r[239] = .207, p < .001$ )
  - ACE scores and both Trust and Shame subscales of MI ( $r[239] = .186, p = .002; r[239] = .189, p = .002$ ).
  - Personal Abuse ACEs and total MI ( $r[239] = .211, p < .001$ )
  - Personal Abuse ACEs and both the Trust subset of MI ( $r[239] = .20, p < .001$ ) and the Shame subset of MI ( $r[239] = .181, p = .002$ ).
- Linear regression analysis indicated the following small but significant explanatory values within the sample:
  - Exposure to ACEs was able to explain 4.3% of the variance to MIOS Score (Model 1).
  - Personal Abuse ACEs accounted for 4.4% of the variance to MI Symptoms (Model 2).
  - Personal Abuse ACEs accounted for 2.8% of the variance on the Trust subscale of MIOS scores (Model 3).
  - Personal Abuse ACEs accounted for 3.4% of the variance on the Shame subscale of MIOS scores (Model 4).
- Social support negatively correlated with both ACEs and MI symptoms.

	Model 1	Model 2	Model 3	Model 4
<b>F</b>	10.669**	11.086**	7.134*	8.679*
<b>Regression df</b>	1	1	1	1
<b>Residual df</b>	239	239	249	248
<b>P Value</b>	p = .001**	p = .001**	p = .008*	p = .004*
<b>R<sup>2</sup></b>	.043	.044	.028	.034
<b>Adjusted R<sup>2</sup></b>	.039	.040	.024	.030
<b>Standard Error of Estimate</b>	9.960	9.952	5.295	6.163
<b>Unstandardised Coefficient B</b>	.838**	1.323**	.557* (.209)	.714*
<b>Standard Error</b>	.257	.397	.209	.242

\*\* Significant at the 0.001 level.

\* Significant at the 0.01 level.



## DISCUSSION

- Findings indicate that following exposure to a PMIE, ACEs hold an explanatory power in the later development of MI, with evidence of a stronger association for MI symptoms related to a sense of shame.
- Evidence suggests that as exposure to Personal Abuse ACEs increases, the risk of experiencing Shame-related symptoms of MI may be increased.
- In line with previous research by Battaglia et al., (2019) and Williamson et al., (2020), this denotes a possible childhood risk factor in the development of MI in later life amongst military personnel, which may have important implications for future research and clinical practice.
- Additional analysis found perceived social support significantly correlated with both ACEs and MI, supporting previous research proposing a protective role for social support amongst military populations, potentially reducing the risk of developing symptoms of MI following exposure to a PMIE (Hollis et al., 2023; Williamson et al., 2020).

### Strengths & Limitations

- A strength of this research was the use of large-scale data from nationally representative sample of UK veterans.
- However, there were limitations to this data such as the under representation of female veterans.
- Additionally, analysis could not control for all possible variables in the regression models and adjusting for some demographic factors such as age, gender, relationship status and time since leaving the military may have yielded differing results.

### Future Research

- Considerations for further research could include;
  - Continued exploration of the relationship between PMIE and MI, considering any role of the nature of PMIE in the subsequent risk of developing symptoms of MI.
  - Further investigation of any possible mediators in the relationship between ACEs and MI.

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