



## The impact of childhood adversities on the development of Posttraumatic Stress Disorder (PTSD) in the Northern Ireland population.

Mc Lafferty, M., O'Neill, S., Armour, C., Murphy, S. D., Ferry, F. R., & Bunting, B. (2019). The impact of childhood adversities on the development of Posttraumatic Stress Disorder (PTSD) in the Northern Ireland population. *European Journal of Trauma and Dissociation*, 3(2), 135-141. <https://doi.org/10.1016/j.ejtd.2018.05.001>

[Link to publication record in Ulster University Research Portal](#)

**Published in:**  
European Journal of Trauma and Dissociation

**Publication Status:**  
Published (in print/issue): 31/05/2019

**DOI:**  
[10.1016/j.ejtd.2018.05.001](https://doi.org/10.1016/j.ejtd.2018.05.001)

**Document Version**  
Author Accepted version

### General rights

The copyright and moral rights to the output are retained by the output author(s), unless otherwise stated by the document licence.

Unless otherwise stated, users are permitted to download a copy of the output for personal study or non-commercial research and are permitted to freely distribute the URL of the output. They are not permitted to alter, reproduce, distribute or make any commercial use of the output without obtaining the permission of the author(s).

If the document is licenced under Creative Commons, the rights of users of the documents can be found at <https://creativecommons.org/share-your-work/licenses/>.

### Take down policy

The Research Portal is Ulster University's institutional repository that provides access to Ulster's research outputs. Every effort has been made to ensure that content in the Research Portal does not infringe any person's rights, or applicable UK laws. If you discover content in the Research Portal that you believe breaches copyright or violates any law, please contact [pure-support@ulster.ac.uk](mailto:pure-support@ulster.ac.uk)

**The impact of childhood adversities on the development of Posttraumatic  
Stress Disorder (PTSD) in the Northern Ireland population.**

**Margaret McLafferty<sup>1</sup>**

**Professor Siobhan O'Neill<sup>1</sup>**

**Professor Cherie Armour<sup>2</sup>**

**Dr Sam Murphy<sup>1</sup>**

**Dr Finola Ferry<sup>1</sup>**

**Professor Brendan Bunting<sup>1</sup>**

**1 School of Psychology, Ulster University, Magee Campus, Northland Road, Derry, N. Ireland**

**2 School of Psychology, Ulster University, Coleraine Campus, Cromore Road, Coleraine, N. Ireland**

**Corresponding Author:** Margaret McLafferty, [m.mclafferty@ulster.ac.uk](mailto:m.mclafferty@ulster.ac.uk)

Tel: 00353 86 1551293

## Abstract

**Background:** Research suggests that childhood adversities are key etiological factors in the onset and persistence of many psychological disorders. Intra-familial adversities in particular have been found to increase the propensity to develop PTSD.

**Objective:** The main aims of this study were to examine the prevalence of childhood adversities in Northern Ireland (NI) and the influence various childhood adversities may have on the development of PTSD, while also considering demographic variables and the impact of the protracted period of civil conflict in NI, known as the Troubles.

**Method:** The study examined data obtained from the Northern Ireland Study of Health and Stress (NISHS), a collaborative epidemiological study with a response rate of 68.4%. The NISHS used the WMH-CIDI to survey a nationally representative sample of 4,340 participants. Part 2, of the survey was utilised in the current study (n=1,986).

**Results:** Childhood adversities involving parental maladjustment, maltreatment and economic adversity were significantly associated with PTSD in the NI population, with the number of adversities experienced having a considerable impact. Females and those exposed to the Troubles also had an increased risk of lifetime PTSD.

**Conclusion:** The study allows for comparisons with other countries participating in the World Mental Health Survey Initiative and provides important information for policy makers and practice. Identifying areas for prevention and intervention may help reduce the detrimental impact of childhood adversities on psychopathology.

**Keywords:** Childhood Adversities; PTSD; Conflict; Northern Ireland

## 1.1 Introduction

Adverse childhood experiences can have a detrimental effect on mental health and wellbeing across the lifespan (Kessler et al., 2010; Lee et al., 2011). According to Green et al. (2010) childhood adversities related to maladaptive family functioning, such as parental maladjustment and maltreatment are particularly harmful, especially on the propensity for individuals to develop anxiety disorders (Oladeji, Makanjuola & Gureje, 2010).

Dysfunctional and abusive family relationships have been found to predict the onset and persistence of a number of mental health problems including depression, anxiety and PTSD (Weich, Patterson, Shaw & Stewart-Brown 2009; Fryers & Bruga, 2013).

Some studies have suggested however, that certain disorders are associated with specific adversities. Fujiwara and Kawakami, (2011) found significant relationships between mood disorders and parental mental health and with physical abuse, while examining adverse childhood experiences in the Japanese population. Of note, no specific adversity was linked to anxiety disorders. Similarly, Oladeji et al. (2010) found no significant associations between specific adversities and anxiety disorders in the Nigerian population. They did however find that those who had experienced three or more adverse childhood experiences were 12 times more likely to have an anxiety disorder later in life.

In the context of Northern Ireland (NI), strong associations have been found between childhood adversities and the development of mood, anxiety, and substance disorders (McLafferty, Armour, McKenna, O'Neill, Murphy & Bunting, 2015), as well as suicidal behaviour (McLafferty, Armour, O'Neill, Murphy, Ferry & Bunting, 2016). Economic adversity was significantly associated with elevated rates of anxiety and substance disorders. However, those who experienced a range of adverse childhood experiences, especially those related to dysfunction within the family had a much greater risk of psychopathology.

However, these studies did not include PTSD. To date, there has been a paucity of research investigating the impact of childhood adversities on the development of PTSD in the NI population, which also endured a protracted period of conflict.

It is well established that PTSD develops after exposure to a wide range of traumatic experiences, including those of childhood abuse. Indeed, Cloitre et al. (2009) reported that childhood traumas predicted increased PTSD symptom complexity over and above traumas experienced in adulthood. Other studies have also found significant associations between a range of childhood adversities and PTSD (Breslau, 2002; Copeland, Keeler, Angold, & Costello, 2007). Again, some types of adversities have a greater detrimental impact. Breslau and Anthony (2007) found strong links between both physical and sexual abuse and PTSD. Parental psychopathology, particularly maternal mental health, may also lead to increased PTSD levels (Anderson & Bang, 2012). Brewin, Andrews and Valentine, (2000) reported that child abuse and mental health problems in the family predict PTSD across populations.

Carlson and Dalenberg (2000) suggested that the developmental stage of the individual can determine their response to traumatic experiences. Masten (2011) proposed that childhood and adolescence are critical times for developing skills which can help a person deal with future stressors, therefore adversities during this period have the potential to impact greatly on how they cope with subsequent trauma. According to the stress sensitisation hypothesis, exposure to severe stress early in life can increase vulnerability to stress across the lifespan (Breslau & Anthony, 2007). Harkness, Bruce and Lumley (2006) found that neglect and abuse sensitizes individuals to other stressors. McLaughlin, Conron, Koenen and Gilman (2010) also reported that the experience of three or more childhood adversities resulted in increased stress sensitisation.

Numerous studies have focused on the development of PTSD following exposure to conflict related traumatic experiences. However, non-conflict related traumatic events may exacerbate the experience of conflict (Miller & Rasmussen, 2010). For example, Sareen, Henricksen, Bolton, Affi, Stein and Asmundson (2012) reported that a history of childhood adversities can lead to higher levels of deployment stress in military personnel. Dohrenwend, Yager, Wall and Adams (2013) also found that pre-war vulnerabilities predicted both the onset and the persistence of PTSD. A recent study reported that NI has one of the highest rates of PTSD in the world (Bunting, Ferry, Murphy, O'Neill & Bolton, 2013), with lifetime and 12 month prevalence rates of 8.8 % and 5.1% respectively. This may be due to the longevity of the conflict in NI and the high proportions of the population exposed to violence and associated traumas. However, other conflict zones have lower PTSD levels (Karam et al., 2008) suggesting that additional issues, such as adversities during childhood, may also have a bearing on prevalence rates in NI.

Kessler, Sonnega, Bromet, Hughes, and Nelson (1995) reported gender differences in risk factors for PTSD, with rape and sexual assault being the strongest predictors for women, and combat exposure being the strongest predictor for men. However, a meta-analysis revealed that the types of trauma experienced, such as sexual abuse, only partly explain gender differences in PTSD risk factors (Tolin & Foa, 2006), therefore further research may be warranted. Higher prevalence rates of PTSD have also been found in those who have never married or were previously married (Creamer, Burgess, & McFarlane, 2001). Close relationships may buffer the impact of trauma. However, adverse childhood experiences may impact on the formation and maintenance of relationships throughout life. It is important therefore to assess the impact of childhood adversities on the development PTSD following traumatic events in NI, while also considering demographic variable such as gender and marital status.

## **1.2 Aims and hypotheses**

The main aims of the current study were to examine the nature and frequency of childhood adversities reported in NI. Previous studies have shown the detrimental effect the conflict had on psychopathology in NI (Bunting et al., 2013). This study aimed to further add to the knowledge base by also assessing associations between childhood adversities and types of traumas experienced (conflict/non-conflict related events) and exploring the influence various adverse childhood experiences may have on the development of PTSD, over and above the experience of conflict. In addition, the study examined the impact of conflict related events, gender, marital status, and the number of childhood adversities experienced.

## **2.1 Method**

### **2.1.1 Sample**

The study examines data obtained from the Northern Ireland Study of Health and Stress (NISHS), an epidemiological survey conducted between 2004 and 2008 as part of the WHO World Mental Health (WMH) Survey Initiative. A three stage area design was used to identify an equal probability sample of households based on 2001 census figures. Electoral Wards were selected from each Local Government District in NI. Within each of these Wards two Census Output Areas were selected. Within each of these Census Output Areas, 10 houses were chosen and one person per household was selected for interview. All WMH surveys use the same sampling methodology and are designed to be representative of the general population. The response rate for the NISHS was 68.4%. Overall, 4,340 participants completed part 1 of the survey and part 2 was completed by 1,986 of the original participants. All participants were residents of NI and were 18 years old or over. Ethical approval was obtained from the University of Ulster Research Ethics Committee and consent was obtained from all participants.

### **2.1.2 Diagnostic assessment**

All WHO World Mental Health (WMH) Surveys used the WMH Composite International Diagnostic Interview (CIDI) to allow for accurate comparisons among participating countries. This fully structured, standardised instrument consists of two parts, which retrospectively assess mental health disorders in accordance with ICD-10 and DSM-IV criteria and definitions (Kessler & Üstün, 2008). Good concordance has been found between diagnosis based on the CIDI and reappraisal clinical interviews (Haro et al., 2006). All participants complete part 1 which includes demographic information and core screening assessments. Part 2 contains a range of diagnostic sections, including PTSD, along with risk



factors such as childhood adversities. Part 2 was completed by all participants who responded positively to the core screening questions, plus 50% of sub-threshold cases and 25% of other participants who didn't meet the criterion, in order for weights to be calculated.

### **2.1.3 PTSD Assessment**

PTSD is assessed in part 2 of the survey as a non-core disorder. As PTSD is often co-morbid with the core disorders examined in part 1, it is unlikely that information is lost by assessing it in part 2 (Kessler & Üstün, 2004). For PTSD to be diagnosed, symptoms must be preceded by a traumatic event. Questions consist of 28 types of traumatic events, including experiencing life threatening illnesses, accidents, man-made or natural disasters, kidnapping, combat exposure etc. Participants who responded positively to experiencing traumatic events were asked the age of exposure to each event and those who met DSM-IV criteria (APA, 1994) for lifetime PTSD were questioned about symptom frequency in the previous 12 months. Further questions included the severity and duration of symptoms. The age-of-onset reported was confirmed by further sequential questioning to reduce bias.

### **2.1.4 Trauma assessment**

In accordance with previous studies which examined conflict and psychopathology (Karam et al., 2008), a number of events were assessed as being conflict related if the event was experienced after 1968 when the conflict in NI began (Bunting et al., 2013). Conflict related events included experiencing combat, being a civilian in an area of ongoing terror, witnessing atrocities etc. The three outcomes (no lifetime trauma, non-conflict related traumas only and conflict related traumas) are mutually exclusive and exhaustive. For the purpose of examining the impact of conflict related traumas on the development of PTSD the comparator group includes both those who experienced non-conflict related trauma and those who did not experience any trauma.

### **2.1.5 Childhood Adversities Assessment**

The PTSD section of the WHM-CIDI includes questions about childhood trauma in its checklist (Kessler & Üstün, 2004). Other questions are included in the section on childhood experiences. This study utilised 12 dichotomously assessed childhood adversities identified in previous WMH surveys (Green et al., 2010), to allow for comparisons with participating countries. The childhood adversities experienced before the age of 18 include four categories; interpersonal loss (parental death, divorce and other parental loss), other childhood adversities (serious physical illness and economic adversity) and adversities related to those termed maladaptive family functioning; parental maladjustment (parental mental illness, substance disorder, criminality and family violence) and maltreatment (physical abuse, sexual abuse and neglect), as predictor variables.

### **2.1.6 Demographic variables**

Demographic variables included in this study were gender (950 males, 1036 females) and marital status (1174 married/cohabiting, 342 previously married, 470 never married).

### **2.1.7 Analysis methods**

The data were cleaned, with cases deleted to allow for accurate analyses using hot deck imputation. Case-specific weights were calculated which included details associated with sample selection, non-responses and post-stratification factors, in order to reduce bias (Bunting et al., 2013). Weights for the demographic variables were based on 2001 census figures. Weights for part 2 of the survey were computed to correct for differential selection into this part of the survey. Part 2 weights were utilised in the current study. Analyses were implemented using SPSS version 22.

The frequencies of various adverse childhood experiences were examined. A new variable comprising the total number of childhood adversities experienced was computed. In order to satisfy statistical assumptions due some cases having small numbers, childhood adversities were collapsed into the categories, Interpersonal Loss, Parental Maladjustment and Maltreatment for further analyses, while physical illness and childhood economic adversity were considered separately. Associations between various adverse childhood events and types of trauma were examined. Binary Logistic Regression Analysis was the statistical method used to examine associations between retrospectively reported childhood adversities, gender, marital status and conflict related traumas with lifetime PTSD, with both bivariate and multivariate models explored. The first multivariate model included separate variables for gender, marital status, various childhood adversities and conflict related traumas. The second multivariate model included gender, marital status, conflict traumas and dummy variables for the number of childhood adversities experienced.

### 3.1 Results

#### 3.1.1 Prevalence of childhood adversities

Table 1 presents the prevalence of 12 retrospectively reported childhood adversities in the NI population and compares them with rates found in other WMH surveys globally (Kessler et al., 2010), although it should be noted that statistical tests to explore the significance of these were not conducted, as the researchers had access to NI data only. NI is classified as a high income country. Reported rates of adversities ranged from 1.9% (neglect and parental criminal behaviour) to 10.1% (parental death). Economic adversity during childhood at 8.6% was particularly high.

**Table 1**

*Prevalence of Childhood Adversities reported in Northern Ireland compared with other countries participating in the WMH Survey Initiative*

	Northern Ireland	Other countries <sup>a</sup>		
	(n = 1,986) %	High income (n = 20,652) %	High-middle (n = 15,240) %	Low/lower middle (n = 16,053) %
<b>Interpersonal loss</b>				
Parental death	10.1	11.0	11.9	14.8
Parental divorce	5.2	10.1	5.2	3.5
Other parental loss	2.6	4.0	4.0	7.4
<b>Parental maladjustment</b>				
Parental mental illness	6.1	5.3	6.7	6.7
Parental substance disorder	2.2	4.5	5.0	2.5
Parental criminal behaviour	1.9	3.4	3.1	2.2
Family violence	5.4	7.8	7.1	4.2
<b>Maltreatment</b>				
Physical Abuse	3.7	5.3	10.8	9.0
Sexual Abuse	2.3	2.4	0.6	1.5
Neglect	1.9	4.4	5.2	3.6
<b>Other Childhood Adversities</b>				
Physical Illness	2.8	3.9	2.4	2.6
Economic adversity	8.6	5.2	2.9	1.4

<sup>a</sup> Prevalence of childhood adversities reported in Kessler et al. (2010).

Overall, 32% of participants reported experiencing at least one adversity during childhood (Table 2). Co-morbidity of adversities also was reported.

**Table 2**

***Total number of Childhood Adversities experienced in Northern Ireland compared with other countries participating in the WMH Survey Initiative***

	Northern Ireland	Other countries <sup>a</sup>		
	(n = 1,986) %	High income (n = 20,652) %	High-middle (n = 15,240) %	Low/lower middle (n = 16,053) %
Any	32.0	38.4	38.9	38.8
One/any <sup>b</sup>	62.5	59.3	59.6	66.2
Two/any	22.8	22.5	24.6	21.8
Three/any	7.5	9.0	9.0	7.5
Four/any	3.8	5.0	4.1	3.1
Five or more/any	3.4	4.2	2.7	1.4

<sup>a</sup> Total number of childhood adversities experienced in other countries as reported by Kessler et al. (2010). <sup>b</sup> Prevalence estimates in the last five rows represent the proportion of all respondents with any childhood adversity who have exactly one, two, three, four, five or more. These five proportions sum to 100% in each column.

### **3.1.2 Childhood adversities and types of trauma**

Chi-square tests for independence found significant associations between childhood adversities and the experience of various types of traumas. Table 3 shows that those who endured all types of adversities during childhood were more likely to also experience conflict related traumas. Approximately two-thirds of those who experienced parental maladjustment or maltreatment and nearly half of those who suffered interpersonal loss or physical illness also experienced conflict related traumas. Strong associations were also found between childhood economic adversity and conflict. People who suffered interpersonal loss were least likely to experience any type of trauma,  $\chi^2(2, n = 1,986) = 26.151, p = .001, Cramers V = .155$ .

**Table 3*****Associations between Childhood Adversities and Traumas***

	No Trauma		Non-conflict Trauma		Conflict Trauma		$\chi^2$
	%	n	%	n	%	n	
Interpersonal loss	27.0	90	24.6	82	48.3	161	26.151**
Parental Maladjustment	7.8	18	23.9	55	68.3	157	124.034**
Parental Maltreatment	2.5	3	32.5	39	65.0	78	73.248**
Physical Illness	18.2	10	32.7	18	49.1	27	11.116*
Economic Adversity	20.6	35	22.4	38	57.1	97	32.312**

Note: \* $p < .05$ , \*\*  $p < .001$

**3.1.3 Risk factors for lifetime PTSD**

Bivariate and multivariate models explored risk factors for PTSD (Table 4). The bivariate model, which considered one variable at a time, indicated that people who experienced maladjustment, maltreatment or economic adversity in childhood were significantly more likely to meet the criteria for lifetime PTSD ( $p < .001$ ), with those experiencing maltreatment being more than 8 times more likely to develop PTSD than those who did not. Females and people who experienced conflict related traumas were also significantly more likely to develop PTSD ( $p < .001$ ). Being married or cohabiting was protective ( $p = .017$ ) whereas those who were previously married had an increased risk of the disorder ( $p = .003$ ).

In the multivariate model, a test of the full model containing all childhood adversity and demographic variables along with conflict related traumas, against a constant only model was statistically significant,  $\chi^2(9, N=1,986) = 208.296, p < .0001$ , indicating that the model was able to distinguish between people who had lifetime PTSD and those who did not. Table 4 also shows odds ratios and 95% confidence intervals for each of the predictor variables in the multivariate model. There was a significant increased risk of developing PTSD if a

person experienced economic adversity, parental maladjustment and maltreatment in childhood. The strongest predictor of lifetime PTSD was maltreatment with an odds ratio of 4.861, ( $p < .001$ ). Experiencing conflict related traumas was the second strongest predictor with an odds ratio of 4.583 ( $p < .001$ ).

The multivariate model, which considered the number of childhood adversities rather than the type of adversity, shows that as the number of adversities increased, the risk of lifetime PTSD became significantly stronger, with the odds ratios rising from 2.259 for one adversity to 6.454 for four or more adversities.

**Table 4**

***Bivariate and Multivariate associations (odds-ratios) between demographic variables, Conflict, Childhood Adversities and lifetime PTSD (n = 1,986)***

	Bivariate		Multivariate (Types)		Multivariate (Numbers)	
	OR	95% CI	OR	95% CI	OR	95% CI
<b>Gender (female)</b>	<b>1.794**</b>	(1.298-2.480)	<b>2.698**</b>	(1.857-3.898)	<b>2.723**</b>	(1.904-3.893)
<b>Marital Status</b>						
Never Married	1.064	(0.753-1.503)	a		a	
Married/Co-habiting	<b>0.684*</b>	(0.501-0.934)	<b>0.603*</b>	(0.404-0.899)	<b>0.636**</b>	(0.430-0.941)
Previously married	<b>1.814*</b>	(1.226-2.684)	1.107	(0.667-1.839)	1.139	(0.694-1.871)
<b>Conflict traumas</b>	<b>4.559**</b>	(3.236-6.423)	<b>4.583**</b>	(3.138-6.693)	<b>4.838**</b>	(3.341-7.005)
<b>Childhood Adversities</b>						
Interpersonal Loss	1.235	(0.834-1.829)	0.678	(0.430-1.071)		
Maladjustment	<b>4.906**</b>	(3.450-6.974)	<b>2.078*</b>	(1.348-3.204)		
Maltreatment	<b>8.012**</b>	(5.316-12.076)	<b>4.861**</b>	(2.951-8.007)		
Physical Illness	0.987	(0.383-2.544)	0.777	(0.271-2.225)		
Economic Adversity	<b>2.719**</b>	(1.786-4.138)	<b>2.159*</b>	(1.324-3.519)		
<b>Number of Adversities</b>						
1					<b>2.259**</b>	(1.515-3.369)
2					<b>2.802**</b>	(1.679-4.678)
3					<b>5.290**</b>	(2.584-10.833)
4 or more					<b>6.454**</b>	(3.269-12.740)

Note: \* $p < .05$ , \*\*  $P < .001$ , OR = Odds ratio, CI = confidence interval, <sup>a</sup> Residual: never married

## 4.1 Discussion

While previous studies have found that those who experienced conflict related traumas were more likely to meet the criteria for lifetime PTSD in NI (Bunting et al., 2013), the current study revealed that childhood adversities, particularly those termed maladaptive family functioning, also play a significant role. Childhood maltreatment, parental maladjustment, and economic adversity were found to be very significant risk factors for PTSD in the NI population.

Some studies concluded that that no specific childhood adversity was associated with anxiety disorders but that there was a strong association with the number of adversities experienced (Fujiwara & Kawakami, 2011). However, the current study found associations between both the type and number of adverse childhood experiences and lifetime PTSD. As the number of adversities increased, the probability of lifetime PTSD rose significantly. The study clearly demonstrates however, that experiencing even one adversity impacts significantly on the development PTSD.

When examining the variables separately, significant associations were found between lifetime PTSD and gender, marital status, conflict-related traumas and some childhood adversities. However, adverse childhood experiences often co-occur (Armour, Elklit & Christoffersen, 2014; Murphy, Shevlin, Armour, Elklit, & Christoffersen, 2014) and Green et al. (2010) caution that bivariate models may over-inflate the effect of individual adversities. Multivariate models however adjust for co-occurrence and overlap (Oladeji et al., 2010). While the association between childhood adversities and PTSD were slightly lower when other factors were considered, adversities related to maladaptive family functioning and economic adversity remained significant. The study also found that while the conflict played a significant role, maltreatment in childhood had a slightly greater impact.



Such findings provide support for the theory that adversities early in life can affect the ability to cope, increasing sensitivity to stress, with childhood adversities impacting on the onset and persistence of PTSD following other traumatic events.

The elevated rate of economic adversity and the strong association with PTSD is of particular interest. The current study also established that those who experienced all types of childhood adversities were more likely to also experience conflict related traumas. This may be due to the fact that both elevated rates of adverse childhood experiences and conflict have been linked to areas of deprivation. Previous studies based in NI reported that, in addition to the impact of the conflict, increased rates of psychopathology were associated with social deprivation (McConnell, Bebbington, McClelland, Gillespie & Houghton, 2002). Moreover, other studies have confirmed that those with low socioeconomic status are more likely to develop PTSD (Galea, Nandi, & Vlahov, 2005; Muldoon & Downes, 2007).

Hobfoll's Resource Conservation Model (1989) helps to explain how conflict and associated economic hardship can lead to the development of PTSD. According to Hobfoll's theory, individuals gather resources which can help them in times of stress. These resources may include such things as self-esteem, social support or money. In the case of NI, the longevity on the Troubles impacted greatly on such resources. Indeed, the current study clearly shows that the conflict impacted directly the development of PTSD. However, the conflict may have also had an indirect impact since it may have led to the depletion of valuable resources which can be helpful when individuals encounter stressors.

Childhood adversities involving maladaptive family functioning were generally low in NI. Parenting quality may genuinely be good, or this may be due to a reluctance to divulge experiencing certain events. Hardt, Sidor, Bracko and Egle (2006), found that sensitive issues were more likely to be under-reported, resulting in an under-estimation of adversities,

such as those involving abuse or intra-family issues, which may have been the case in this study. However, while prevalence rates were low it should be noted that nearly a third of participants experienced childhood adversities.

Given religious beliefs in NI it is not unexpected that the divorce rate is low. It has been suggested that while divorce can have a detrimental effect on children, it can result in less conflict in the home which may reduce stress. Following divorce or the death of a parent, support from caregivers can lessen the impact on the child. Family dynamics in NI may therefore be protective. The study also found that being married or co-habiting was protective of lifetime PTSD. These findings help corroborate the theory that social support and strong relationships may buffer the impact of traumatic events.

#### **4.2 Limitations and future research**

A limitation of the current study was that due to the small number of cases recorded for a number of childhood adversities it was necessary to collapse some of the variables and therefore it was not possible to fully examine the association between all individual adversities and PTSD. Another limitation of the study was that a number of people were omitted, including those with learning disabilities, immigrants, homeless people, and those in institutions, in accordance with the criteria for WMH surveys. These groups may have high levels of mental health problems therefore the survey may not capture the full extent of psychopathology in the NI population. Furthermore, people with mental health problems may be less likely to agree to take part in the survey due to stigma. Moreover, Bunting et al. (2013) acknowledge that the conflict variables are only assumed to be related to the Troubles if they occurred after 1968, and that misclassification could have occurred.

While the study may have some limitations, it adds to previous literature on adverse childhood experiences. It provides valuable epidemiological information on a range of

adversities and the detrimental impact they have on the development of PTSD. It informs policy makers and practice, highlighting the need to target children at risk of adversities, particularly those involving intra-family dysfunction. The study emphasises the importance of stable relationships and provides support for initiatives to improve parenting skills. As those who develop PTSD have an elevated risk of developing other mental health problems (Breslau, 2002) early intervention and treatments are important. The study shows that when planning interventions, the co-occurrence of adversities should be considered. It may also be useful for clinicians to explore the incidence of both conflict related traumas and adverse childhood experiences with clients.

Conversely, Brewin et al. (2000) suggest that there are a number of risk factors for PTSD over and above pre-trauma events such as those experienced in childhood, including peri-trauma and post-trauma factors. Ozer, Best, Lipsey and Weiss (2003) reported that peri-traumatic emotional responses and dissociation were the strongest predictors of PTSD. Post-traumatic factors, including further life stress incurred after the event (Galea et al., 2008), along with perceived lack of social support (Bisson, 2007), can add to the impact of trauma. Further research which takes account of peri-trauma and post-trauma factors along with childhood adversities may be beneficial.

The prevalence and impact of economic adversity on PTSD was found to be particularly high in NI. However, while McLaughlin et al. (2011) found that economic adversity in childhood predicted the onset of a range of mental health problems, it did not significantly predict the persistence or severity of disorders. Given the elevated rates of economic adversity reported in NI, further research examining the long term impact of economic adversity on psychopathology may be beneficial.

It should be noted however that while many people experience childhood and other traumatic events, only a minority develop PTSD. External protective factors, including social support and a strong bond with a primary caregiver (Werner, 2012) may help build resilience to further stressors. Johnson and Thompson (2008) reported that family support and religious beliefs protect people from developing PTSD following conflict. A strong national identity and community solidarity were further found to be protective against PTSD in NI (Muldoon & Downes, 2007). This may suggest that the rates of PTSD could possibly be higher if these factors were not common in NI. Hoge, Austin, and Pollack (2007) suggested that while many studies focus on risk factors for the development of PTSD, there should be more focus on resilience following traumatic experiences. Seery, Holman, and Silver (2010) reported that those who had a history of moderate levels of adverse childhood experiences had higher rates of resilience when faced with subsequent trauma than those who had never encountered adversities. Future studies which examine participants who report childhood adversities but who do not subsequently develop PTSD may be particularly enlightening.

### **4.3 Conclusions**

While low rates of many childhood adversities were reported in NI, people who experienced a range of adversities were more susceptible to lifetime PTSD, especially those involving parental maladjustment and maltreatment and economic adversity. Females and those who experienced conflict also had a heightened risk, while being in a steady relationship was protective. The findings suggest that while the conflict in NI impacted on psychopathology in the population, childhood adversities also played a very significant role.

## **Role of Funding Source**

The survey was carried out in conjunction with the World Health Organization WMH Survey Initiative, which is supported by the National Institute of Mental Health (NIMH; R01 MH070884), the John D. and Catherine T. MacArthur Foundation, the Pfizer Foundation, the US Public Health Service (R13-MH066849, R01-MH069864, and R01 DA016558), the Fogarty International Center (FIRCA R03-TW006481), the Pan American Health Organization, Eli Lilly and Company, Ortho-McNeil Pharmaceutical, GlaxoSmithKline, and Bristol-Myers Squibb. The NISHS was supported by a grant from the Research and Development (R&D) Division in NI. The authors have no relationships with the R&D Division in NI that might have an interest in the submitted work. None of the funders had any role in the design, analysis, or interpretation of results or preparation of this paper.

**Conflict of interest**      None.

## References

- Anderson, J.M., & Bang, E.J. (2012). Assessing PTSD and resilience for females who during childhood were exposed to domestic violence. *Child and Family Social Work, 17*, 55-65. doi:10.1111/j.1365-2206.2011.00772.x
- APA (1994). *Diagnostic and Statistical Manual of Mental Health Disorders* (4<sup>th</sup> ed.). Washington DC: American Psychiatric Association.
- Armour, C., Elklit, A., & Christoffersen, M. N. (2014). A Latent Class Analysis of Childhood Maltreatment: Identifying Abuse Typologies. *Journal of Loss and Trauma, 19*, 22-39. doi:10.3402/ejpt.v5.24620
- Bisson, J. I. (2007). In-Depth Review, Post Traumatic Stress Disorder. *Occupational Medicine, 57*, 399-403. doi:10.1093/occmed/kqm069
- Breslau, N. (2002). Epidemiologic studies of trauma, posttraumatic stress disorder, and other psychiatric disorders. *Canadian Journal of Psychiatry, 47*, 923-929. doi:10.1177/070674370204701003
- Breslau, N., & Anthony, J.C. (2007). Gender differences in the sensitivity to Posttraumatic Stress Disorder: An Epidemiological Study of Urban Young Adults. *Journal of Abnormal Psychology, 116*(3), 607-611. doi:10.1037/0021-843X.116.3.607
- Brewin, C.R., Andrews, B., & Valentine, J.D. (2000). Meta-analysis of risk factors for posttraumatic stress disorder in trauma-exposed adults. *Journal of Consulting and Clinical Psychology, 68*, 748-766. doi:10.1037/0022-006X.68.5.748

- Bunting, B.P., Ferry, F.R., Murphy, S.D., O'Neill, S.M., & Bolton, D. (2013). Trauma Associated with Civil Conflict and Posttraumatic Stress Disorder: Evidence from the Northern Ireland Study of Health and Stress. *Journal of Traumatic Stress, 26*, 134-141. doi:10.1002/jts.21766
- Carlson, E.B., & Dalenberg, C.J. (2000). A conceptual framework for the impact of traumatic experiences. *Trauma, Violence & Abuse, 1*, 4-28. doi:10.1177/1524838000001001002
- Cloitre, M., Stolbach, B.C., Herman, J.L., van der Kolk, B., Pynoos, R., Wang, J., Petkova, E. (2009). A developmental approach to complex PTSD: Childhood and adult cumulative trauma as predictors of symptom complexity. *Journal of Traumatic Stress, 22(5)*, 399–408. doi:10.1002/jts.20444
- Copeland, W.E., Keeler, G., Angold, A., & Costello, E.J. (2007). Traumatic events and posttraumatic stress in childhood. *Archives of General Psychiatry, 64*, 577-584. doi:10.1001.archpsyc.64.5.577
- Creamer, M., Burgess, P., & McFarlane, A.C. (2001). Post-traumatic stress disorder: findings from the Australian National Survey of Mental Health and Well-being. *Psychological Medicine, 31*, 1237-1247.
- Dohrenwend, B.P., Yager, T.J., Wall, M.M., & Adams, B.G. (2013). The roles of combat exposure, personal vulnerability, and involvement in harm to civilians or prisoners in Vietnam war-related Posttraumatic Stress Disorder. *Clinical Psychological Science, 1-16*. doi:10/1177/2167702612469355
- Fryers, T., & Brugha, T. (2013). Childhood Determinants of Adult Psychiatric Disorder. *Clinical Practice & Epidemiology in Mental Health, 9*, 1-50. doi:10.2174/1745017901309010001

- Fujiwara, T., & Kawakami, N. (2011). Association of childhood adversities with the first onset of mental disorders in Japan: Results from the World Mental Health Japan, 2002-2004. *Journal of Psychiatric Research, 45*, 481-487.  
doi:10.1016/j.jpsychires.2010.08.002
- Galea, S., Ahern, J., Tracy, M., Hubbard, A., Cerda, M., Goldmann, E., & Vlahov, D. (2008). Longitudinal determinants of posttraumatic stress in a population based cohort study. *Epidemiology, 19*, 47-54.
- Galea, S., Nandi, A., & Vlahov, D. (2005). The epidemiology of Post-traumatic Stress Disorders after Disasters. *Epidemiologic Reviews, 27*, 78-91.  
doi:10.1093/epirev/mxi003
- Green, J.G., McLaughlin, K.A., Berglund, P.A., Gruber, M.J., Sampson, N.A., Zaslavsky, A.M., & Kessler, R.C. (2010). Childhood adversities and adult psychiatric disorders in the national comorbidity survey replication 1: associations with first onset of DSM-IV disorders. *Archives of General Psychiatry, 67*(2), 113-123.  
doi:10.1001/archgenpsychiatry.2009.186.
- Hardt, J., Sidor, A., Bracko, M., & Egle, U.T. (2006). Reliability of retrospective assessments of childhood experiences in Germany. *The Journal of Nervous and Mental Disease, 194*(9), 676-683.
- Harkness, K.L., Bruce, A.E., & Lumley, M.N. (2006). The role of childhood abuse and neglect in the sensitization to stressful life events in adolescent depression. *Journal of Abnormal Psychology, 115*(40), 730-741.



- Haro, J.M., Arbabzadeh-Bouchez, S., Brugha, T.S., de Girolamo, G., Guyer, M.E., Jin, R., ... Kessler, R.C. (2006). Concordance of the Composite International Diagnostic Interview Version 3.0 (CIDI 3.0) with standardized clinical assessments in the WHO World Mental Health Surveys, *International Journal of Methods in Psychiatric Research*, 15(4), 167-180.
- Hobfoll, S.E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist*, 44(3), 513-524.
- Hoge, E.A., Austin, E.D., & Pollack, M.H. (2007). Resilience: Research evidence and conceptual considerations for posttraumatic stress disorder. *Depression and Anxiety*, 24, 139-152. doi:10.1002/da.20175
- Johnson, H., & Thompson, A. (2008). The development and maintenance of post-traumatic stress disorder (PTSD) in civilian adult survivors of war trauma and torture: A review. *Clinical Psychology Review*, 28, 36-47. doi:10.1016/j.cpr.2007.01.017
- Karam, E.G., Mneimneh, Z.N., Karam, A.N., Fayyand, J.A., Nasser, S.C., Dimassi, H., .....Salamoun, M. (2008). Mental disorders and war in Lebanon. In R.C. Kessler & T.B. Üstün (Eds.). *The WHO world mental health surveys: global perspectives on the epidemiology of mental disorders* (pp. 511-521). New York: Cambridge University Press.
- Kessler, R. C., McLaughlin, K.A., Green, J.G., Gruber, M.J., Sampson, N.A., Zaslavsky, A.M., ... Williams, D.R. (2010). Childhood adversities and adult psychopathology in the WHO World Mental health Surveys. *British Journal of Psychiatry*, 197, 378-385. doi:10.1192/bjp.bp.110.080499

- Kessler, R.C., Sonnega, A., Bromet, E., Hughes, M., & Nelson, C.B. (1995). Posttraumatic stress disorder in the National Comorbidity Survey. *Archives of General Psychiatry*, 52, 1048-1060.
- Kessler, R.C., & Üstün, T.B. (2004). The World Mental Health (WMH) Survey Initiative Version of the World Health Organisation (WHO) Composite International Diagnostic Interview (CIDI). *International Journal of Methods in Psychiatric Research*, 13(2), 93-121.
- Kessler, R.C., & Üstün, T.B. (2008). *The WHO world mental health surveys: global perspectives on the epidemiology of mental disorders*. New York: Cambridge University Press.
- Lee, S., Guo, W.J., Tsang, A., He, Y.L., Huang, Y.Q., Zhang, M.Y., ... & Kessler, R.C. (2011). The prevalence of family childhood adversities and their association with first onset of DSM-IV disorders in metropolitan China. *Psychological Medicine*, 41, 85-96. doi:10.1017/S0033291710000450
- Masten, A.S. (2011). Resilience in children threatened by extreme adversity: Framework for research, practice and translational synergy, *Development and Psychopathology*, 23, 493-506. doi:10.1017/S0954579411000198
- McConnell, P., Bebbington, P., McClelland, R., Gillespie, K., & Houghton, S. (2002). Prevalence of psychiatric disorder and the need for psychiatric care in Northern Ireland. *British Journal of Psychiatry*, 181, 214-219.
- McLafferty, M., Armour, C., McKenna, A., O'Neill, S., Murphy, S., & Bunting, B. (2015). Childhood adversity profiles and adult psychopathology in a representative Northern

Ireland study. *Journal of Anxiety Disorders*, 35, 42-48.

doi:<http://dx.doi.org/10.1016/j.janxdis.2015.07.004>

McLafferty, M., Armour, C., O'Neill, S., Murphy, S., Ferry, F., & Bunting, B. (2016).

Suicidality and profiles of childhood adversities, conflict related trauma and psychopathology in the Northern Ireland population. *Journal of Affective Disorders*, 200, 97-102. doi:<http://dx.doi.org/10.1016/j.jad.2016.04.031>

McLaughlin, K.A., Breslau, J., Green, J.G., Lakoma, M.D., Sampson, N.A., Zaslavsky, A.M.,

& Kessler, R.C. (2011). Childhood socio-economic status and the onset, persistence, and severity of DSM-IV mental disorders in a US national sample. *Social Science and Medicine*, 73, 1088-1096. doi: 10.1016/j.socscimed.2011.06.011.

McLaughlin, K.A., Conron, K.L., Koenen, K.C., & Gilman, S.E. (2010). Childhood

adversity, adult stressful life events, and risk of past-year psychiatric disorder: a test of the stress sensitization hypothesis in a population-based sample of adults. *Psychological Medicine*, 40, 1647-1658. doi:10.1017/S0033291709992121.

Miller, K.E., & Rasmussen, A. (2010). Mental Health and armed conflict: The importance

of distinguishing between war exposure and other sources of adversity: A response to Neuner. *Social Science and Medicine*, 71, 1395-1389.

doi:10.1016/j.socscimen.2010.07.020

Muldoon, O.T., & Downes, C. (2007). Social identification and post-traumatic stress

symptoms in post-conflict Northern Ireland. *British Journal of Psychiatry*, 191, 146-149.

doi:10.1192/bjp.bp.106.022038

- Murphy, S., Shevlin, M., Armour, C., Elklit, A., & Christoffersen, M. (2014). Childhood adversity and PTSD experiences: testing a multiple mediation model. *Traumatology*, 20, 225-231. doi:<http://dx.doi.org/10.1037/h0099838>
- Oladeji, B.D., Makanjuola, V.A., & Gureje, O. (2010). Family-related adverse childhood experiences as risk factors for psychiatric disorders in Nigeria. *British Journal of Psychiatry*, 186-191. doi:10.1192/bjp.bp.109.063677
- Ozer, E.J., Best, S.R., Lipsey, T.L., & Weiss, D.S. (2003). Predictors of posttraumatic stress disorder and symptoms in adults: a meta-analysis. *Psychological Bulletin*, 129, 52-73.
- Sareen, J., Henriksen, C.A., Bolton, S.L., Affi, T.O., Stein, M.B., Asmundson, G.J.G. (2012). Childhood adversities increased vulnerability to deployment stress. *Psychological Medicine*, 1-12. doi:<http://dx.doi.org/10.1017/S003329171200120X>
- Seery, M.D., Holman, E.A., & Silver, R.C. (2010). Whatever does not kill us: cumulative lifetime adversity, vulnerability and resilience. *Journal of Personality and Social Psychology*, 99, 1025-1041. doi:10.1037/a0021344
- Tolin, D.F., & Foa, E.B. (2006). Sex differences in trauma and Posttraumatic Stress Disorder: A quantitative review of 25 years of research. *Psychological Bulletin*, 132(6), 959-992. doi:10.1037/0033-2909.132.6.959
- Weich, S., Patterson, J., Shaw, R., & Stewart-Brown, S. (2009). Family relationships in childhood and common psychiatric disorders in later life: systematic review of prospective studies. *The British Journal of Psychiatry*, 194, 392-398. doi:10.1192/bjp.bp.107.042515
- Werner, E.E. (2012). Children and war: risk, resilience, and recovery. *Developmental Psychopathology*, 24, 553-558. doi:10.1017/S0954579412000156.