Research paper

Suicidality and profiles of childhood adversities, conflict related trauma and psychopathology in the Northern Ireland population

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A B S T R A C T

Background: Over 30 years of conflict in Northern Ireland (NI) has impacted on the population's mental health. However, childhood adversities may add to the psychological impact of conflict. The aims of the study were to assess co-occurrence across childhood adversities, conflict related traumas, and psychological health, then explore demographic variations between identified classes, and examine the impact of class membership on suicidal ideation and behaviour.

Method: Data was obtained from the Northern Ireland Study of Health and Stress, a representative epidemiological study which used the CIDI to assess psychopathology and related risk factors in the NI population (N=4340, part 2 n=1986; response rate 64%).

Results: Latent Class Analysis uncovered 4 discrete profiles; a conflict class (n=191; 9.6%), a multi-risk class endorsing elevated levels of childhood adversities, conflict related traumas and psychopathology (n=85; 4.3%), a psychopathology class (n=290; 14.6%), and a low risk class (n=1420; 71.5%). Multinomial logistic regression analysis revealed that individuals who grew up during the worst years of the Troubles were more likely to have experienced multiple traumas and psychopathology. Individuals in the multi-risk class were more than fifteen times more likely to endorse suicidal ideation and behaviour.

Limitations: The main limitations are that the study may not be fully representative of the NI population due to the exclusion criteria applied and also the possible misclassification of conflict related events.

Conclusions: The findings indicate that treatment providers should be cognisant that those with wide ranging adversity profiles are those also likely to be reporting psychological distress and suicidality.

1. Introduction

The Northern Ireland (NI) population experienced over 30 years of conflict, colloquially referred to as the Troubles. Numerous studies have found that the Troubles had a profound impact on the population's mental health and wellbeing (O'Reilly and Stevenson, 2003; Gallagher et al., 2012). Bunting et al. (2013) reported that PTSD rates in NI were one of the highest in the world as a result of conflict related experiences (lifetime prevalence 8.8%), with many in the population still impacted by the legacy of the Troubles (Ferry et al., 2014). Elevated levels of depression and anxiety disorders were also found in those with direct experience of the prolonged conflict (Muldoon et al., 2005). In addition, strong associations have been found between conflict exposure and self harm (O'Connor et al., 2014) and suicidal behaviour in NI (Tomlinson, 2012; O'Neill et al., 2014).

Associations between conflict related traumas and psychopathology are well established (de Jong et al., 2003; Priebe et al., 2010). However, reported rates of mental health problems in other conflict zones appear lower in comparison to those reported in NI. It has been suggested that the elevated rates found in NI may be related to the nature of the political violence and longevity of the Troubles. However, other factors may be interacting with conflict exposure to impact negatively on the psychological health of the population. Muldoon (2004) suggested that the poverty and deprivation that accompanied the Troubles had a profound impact on mental health. Deprivation in turn is linked to maladaptive parenting practices which subsequently impacts on the mental health and wellbeing of future generations (Fryers and Brugha, 2013). High rates of family conflict have been linked to sectarian violence in NI (Cummings et al., 2010). Conflict has been found to exacerbate stressors which in turn impacts on family relationships and parenting practices (Miller and Rasmussen, 2010). This may
lead to increased levels of childhood adversities and subsequently increased levels of psychopathology in the population.

Studies have found that military personnel who experienced adversity during childhood have a heightened risk of developing mental health problems when exposed to conflict (Cabrera et al., 2007; Sareen et al., 2012). Civilian studies have also reported that psychological problems in post conflict settings were related to adversities in childhood such as parental loss and neglect (Betancourt et al., 2013). Recently, Olama et al. (2014) reported that childhood maltreatment had a greater detrimental impact on mental health than exposure to war. However, often the experience of conflict related events in the civilian population occurs during childhood and it can be difficult to determine if childhood adversities occurred prior to the conflict related event, following the event or simultaneously.

Epidemiological studies corroborate that childhood adversities can have a huge detrimental impact on both the onset and persistence of psychopathology. Kessler et al. (2010) reported that adversity during childhood accounted for 29.8% of mental health disorders globally, particularly those involving parental maltreatment and maladjustment (Green et al., 2010; McLaughlin et al., 2010). Other studies confirm that dysfunctional family environments are related to the onset and persistence of psychological problems (Benjet et al., 2010; Oladeji et al., 2010; Lee et al., 2011). Indeed, strong associations have been found between childhood adversities and a range of mental health problems including depression (Fujiwara and Kawalkami, 2011), anxiety disorders (Oladeji et al., 2010) and substance disorders (Slopen et al., 2010).

Other studies have reported a strong relationship between childhood trauma and suicidal behaviour, particularly adversities related to dysfunction and abuse within the family. For example, Enns et al. (2006), in a longitudinal community based study of over 7000 people, reported that there was a “dose-response” relationship between physical and emotional abuse and neglect during childhood with both suicide ideation and attempt. Additionally, after controlling for the effects of psychological disorders, the results remained significant. Examining international findings from the WHO-World Mental Health (WMH) surveys (n=55,299), Bruffaerts et al. (2010) found that physical and sexual abuse were the strongest predictors of both the onset and persistence of suicidality. Buiw et al. (2014) also reported that parental divorce was a significant risk factor in South Africa and that over a third of those who reported suicidal behaviour had experienced at least one adversity during childhood. Dube et al. (2001) reported a strong association between the number of childhood adversities and suicide attempts across the lifespan.

In the context of Northern Ireland, McLafferty et al. (2015) reported that individuals who experienced childhood adversities were more likely to have anxiety, mood, and substance disorders as well as suicidal ideation and behaviour. However, a recent study conducted in Lebanon suggested that many traumatic experiences co-occur during childhood and that these traumas, including conflict related traumas should be examined concurrently (Itani et al., 2014). In this paper we are considering the profile of the NI population to identify subpopulations and their relative risk of suicidal behaviour. Some studies have found a strong association between mental health disorders and suicidality (Kessler et al., 1999; Nock et al., 2008), however O’Neill et al (2014) found that exposure to conflict in NI increased the risk of suicidal behaviours in addition to that conferred by mental disorders. We have therefore included psychopathology in the current analyses.

Early studies focused on the impact of single adversities or traumas but recent research highlights the importance of accounting for co-occurrence of traumatic events, using techniques such as Latent Class Analysis (LCA) to identify profiles of adversity (Armour et al., 2014). Studies have found that childhood adversities often co-occur and can be predictive of further adversity (Copeland et al., 2007; Dong et al., 2004). Troubles related events are also unlikely to have occurred in isolation and as noted previously these may impact negatively on family life, increasing adversity during childhood. Indeed, the Troubles may have played both direct and indirect roles in the development of psychopathology in NI. However, it should also be remembered that research has found that those who experienced childhood adversities prior to conflict related events are also more likely to have psychological problems than those who did not experience adversity during childhood (Sareen et al., 2012). Given the various associations found between conflict, childhood adversities, and psychopathology there is a growing need for epidemiological research into how these may co-occur and impact on the population, particularly in view of increasing suicide rates in recent years.

The aims of the current study were; (1) to assess co-occurrence across childhood adversities, conflict related traumas and psychopathology in the Northern Ireland population by identifying subpopulations of risk, (2) to explore demographic variations between the identified classes and (3) to examine the association between the classes and suicidal ideation and behaviour.

2. Method

2.1. The Northern Ireland study of health and stress

The Northern Ireland Study of Health and Stress (NISHS) was conducted as part of the WHO World Mental Health (WMH) Survey Initiative (Kessler and Ustun, 2008), following ethical approval from the Ulster University Research Ethics Committee. WMH surveys aim to gather information about the prevalence and correlates of mental health problems, treatment adequacy and unmet treatment need along with the societal burden of mental health problems (Kessler and Ustun, 2008). The comprehensive face-to-face household interviews were conducted by trained lay interviewers between 2004 and 2008. WMH surveys use the same sampling methodology, to allow for accurate comparisons between participating countries and are designed to be representative of the general population (Bunting et al., 2013).

2.2. Sample

The NISHS had a response rate of 68.4%. Part 1 of the survey was completed by 4340 participants (2441 females, 1899 males) and Part 2 was completed by a sub-sample of 1, 986 of the original participants (1036 females, 950 males) with an age range of 18–93. All participants were residents of NI, over the age of 18. People living in institutions or shared accommodation, including prisons or military barracks, people with learning disabilities and non-English speakers were excluded from the survey. The NISHS used a multi stage area design to identify an equal probability sample of households based on 2001 census figures. Electoral Wards were selected from each Local Government District in NI and two Census Output Areas were selected from each ward. Within each of these Census Output Areas 10 houses were selected and one person in each household was chosen for interview purposes. Full details of sampling methodology for the NISHS can be found in Bunting et al. (2013).

2.3. Diagnostic assessment

The WHO World Mental Health (WMH) Survey Initiative uses the WMH Composite International Diagnostic Interview (CIDI) version 3.0 (Kessler and Ustun, 2008), to retrospectively assess the prevalence, incidence and correlates of mental health problems in accordance with DSM-IV and ICD-10 definitions and criteria. The CIDI consists of two parts, with all participants completing part 1, which includes a screening section, core diagnostic assessments and demographic variables. Part 2 includes a wide range of diagnostic sections, risk factors, including childhood adversities, consequences and treatment. Part 2 was completed by participants who answered positively to any core mental health disorder screening question. To allow for the calculation of sampling weights 50% of sub-threshold cases and 25% of other participants who failed to meet either criterion were also included. In the current study the following disorders are examined; any mood (dysthymia, bipolar and major mood depressive disorders), any anxiety (GAD, social and specific phobias, PTSD, separation disorder, OCD, panic disorder and agoraphobia without panic), any substance (alcohol dependence and abuse, drug dependence and abuse) and any suicide (ideation and behaviour, including gestures, plans and attempts).
2.4. Childhood adversities assessment

Questions about childhood adversities are included in the section on childhood experiences and in the PTSD section in Part 2 of the WHM-CIDI (Kessler and Ustün, 2004). The current study uses 12 dichotomously assessed childhood adversities, as identified in other WHM surveys (Green et al., 2010). The 12 retrospectively reported adversities experienced before the age of 18 were: parental death, parental divorce and other parental loss, interpersonal trauma, parental mental illness, substance disorder, criminality and family violence (parental maladjustment) and physical abuse, sexual abuse and neglect (parental maltreatment), along with economic adversity and serious physical illness during childhood.

2.5. Trauma assessment

Examining data from the NISHS, Bunting et al. (2013) conducted an assessment of traumatic events in NI distinguishing between conflict and non-conflict related traumas. Certain events were classified as conflict related if they occurred after the Troubles commenced in 1968, using questions identified by Karam et al. (2008). The 12 conflict related events included the following experiences: witnessed atrocities, manmade disasters, was beaten by someone other than a partner or parent, was mugged or threatened with a weapon, witnessed death or serious injury, purposely caused death or serious injury, was kidnapped, experienced combat, was a refugee, a relief worker in a war zone, a civilian in a war zone, or a parent, was mugged or threatened with a weapon, witnessed death or serious injury, purposely caused death or serious injury, was kidnapped, experienced combat, was a refugee, a relief worker in a war zone, a civilian in a war zone, or a parent.

2.6. Data analysis

2.6.1. Data preparation

WMH surveys utilise strict guidelines for cleaning and coding data and for dealing with missing values. To ensure data quality, preliminary files were reviewed, with hot deck imputations performed on missing values for demographic variables (Kessler and Ustün, 2008). This involves replacing missing values with observed values from a respondent with similar key characteristics (Andridge and Little, 2010). Statisticians computed case-specific weights to account for sample selection, non-respondents and post-stratification factors (Bunting et al., 2013), with 2001 census figures for NI used to calculate weights for the demographic variables. To correct for differential selection into part 2 of the survey additional weights were computed. Stratification units and cluster units and part 2 weights were utilised in this study, with analyses conducted using SPSS version 21 and Mplus version 7.

The prevalence rates of 12 conflict related experiences (Bunting et al., 2013) and 12 childhood adversities were examined (McLafferty et al., 2015). As the prevalence rate for one of the conflict traumas was very low (purposely causing death or serious injury, n=7) it was removed from the LCA, leaving 11 conflict related events.

2.6.2. Latent Class Analysis (LCA)

LCA identifies underlying homogenous, mutually exclusive classes within a heterogeneous population (Hagenaars and McCuehan, 2002), with cases clustered into latent classes depending on how they responded to observed categorical variables (Wang and Wang, 2012). This study used an exploratory process to identify underlying latent classes. Based on responses to 12 childhood adversities, 11 conflict related trauma questions, and anxiety, mood and substance disorders indicators (All variables; yes (1)−present and no (0)−absent), the posterior probabilities of class membership were estimated for models comprising of between 2 and 6 latent classes, using the robust maximum likelihood (MLR) estimator. To determine the optimal number of latent classes, a range of model fit indices were evaluated, including AIC (Akaike Information Criterion), BIC (Bayesian Information Criterion), and SSABIC (sample size adjusted BIC). Some statisticians recommend the use of AIC or BIC (Lanza et al., 2007), while others suggest that SSABIC should be the index of choice (Yang, 2006; Nylund et al., 2007). Lower scores in the AIC, BIC or SSABIC are indicative of the optimal model. In the LRT (Lo-Mendel-Rubin likelihood ratio test) a significant value indicates preference for the model with one less class (Wang and Wang, 2012). In the current study boot-strapped LRTs were not available since weights, stratification and cluster units were included in the estimation in order to account for the complex sampling design. Higher entropy values (closer to 1) indicate more accurate classification of membership. Muthén (2003) also recommends the use of theoretical perspectives and practical value, with optimal model selection determined by a combination of model fit indices, parsimony and meaning.

2.6.3. Multinominal logistic regression

Multinominal logistic regression models were estimated using Mplus version 7. The latent classes were utilised as the dependent variables and age, gender and any suicide (suicidal ideation and suicidal behaviour) were utilised as independent variables. The conflict, multi-risk and psychopathology classes were compared to a low risk or baseline class which consisted of those who reported few childhood adversities, conflict related traumas or psychopathology (Fig. 1; class 4).

3. Results

3.1. Latent Class Analysis (LCA)

Latent Class Analysis (LCA) was used to assess the co-occurrence of traumas across CAs and conflict related events. A series of models ranging from 1 to 6 classes were specified and estimated using Mplus version 7 and the fit indices were examined in order to determine the optimal number of classes. Table 1 shows fit indices for the LCA. The four class solution was deemed optimal based on lower AIC, BIC and SSABIC values for the four- compared to the one-, two- or three-class models and also on the basis of parsimony and substantive meaning of the classes. Improvements on the fit indices between the four- and the five-class models were minimal, suggesting that the addition of an extra class added little to the overall model fit. Additionally, the values of the BIC rose between the four- and five-class models. Entropy for the four- class model was .818, indicating clear classification.

The latent class profile plot for the four class model is shown in Fig. 1. Class 4 was labelled the low risk class as it was characterised by low probabilities of experiencing childhood adversities, conflict related traumas and mental health disorders. It was considered the baseline or normative class, accounting for 71.5% of the sample. Class 1 comprised of 9.6% of the sample. It had high levels of conflict related traumas, some childhood adversities and moderate levels of mental health disorders. It was considered the baseline or normative class, accounting for 71.5% of the sample. Class 3 was labelled the psychopathology class, accounting for 14.6% of the sample.
Individuals in the conflict class were significantly more likely to be male (OR=4.022, p<.001). No significant gender variations were revealed in the multi-risk class. However, males were significantly more likely to be members of the psychopathology class (OR=0.445, p<.001).

3.2.2. Age variations between classes

Individuals in the age group 35–49 had the highest odds of being members of conflict class (OR=5.041, p<.001) and the multi-risk class (OR=7.399, p<.001). However, those aged 18–34 had the highest odds of being members of the psychopathology class (OR=2.235, p<.001).

3.2.3. Suicidality

When compared to the baseline or low risk class those in the trauma and psychopathology classes were significantly much more likely to endorse suicide ideation and behavior. Individuals in the conflict class were more than 5 times more likely (OR=3.823), those in the psychopathology class nearly nine times more likely (OR=8.965, p<.001), with those in the multi-risk class more than fifteen times more likely (OR=15.375, p<.001).

4. Discussion

Using a person centered approach to uncover patterns of adversity in the NI population, the current study revealed four profiles of adversity, a low risk, a conflict, a multi-risk and a psychopathology class. In addition, the study established that there were gender and age variations between the classes. Males were more likely to be members of the conflict class, whereas females were more likely to be members of the psychopathology class. The study also revealed that those who grew up during the worst years of the troubles were more likely to be members of the conflict and multi-risk classes. Of particular interest, individuals in the trauma and psychopathology classes had much greater odds of suicide ideation and behavior, including gestures, plans and attempts, with those in the multi-risk class being particularly susceptible.

Using data obtained from the NISHS, Bunting et al. (2013) reported that 39% of the NI population experienced conflict related traumas and McLafferty et al. (2015) found that 32% of participants experienced adversity during childhood, with parental death and economic adversity having the highest prevalence rates. Since it has been proposed that both experiences of conflict and childhood adversities are key risk factors for the onset and persistence of mental health problems, LCA was used to examine co-occurrence of childhood and conflict related events along with a range of mental health problems. Four discrete classes were identified. A low risk class was revealed, representing 71.5% of the population. A class which endorsed elevated rates of a number of conflict related traumas along with some childhood adversities and mental health problems was also identified, accounting for 9.6% of the population. A multi-risk class was also revealed. While being the smallest class (4.3%), the multi-risk class endorsed elevated levels of a wide range of childhood adversities, especially those related to parental maltreatment and maladjustment along with conflict related events and mental health problems. In comparison to the other classes, individuals in this class displayed the highest rates of substance disorders. The findings confirm that adversity co-occurs across both childhood and conflict related events within this homogeneous subgroup in NI and is impacting on their mental health.

A psychopathology class was also revealed, representing 14.6% of the population. Individuals in this class displayed high rates of mental health problems, particularly anxiety and mood disorders. However, they experienced few adverse childhood experiences or conflict related events suggesting that their mental health issues may be related to other issues which may warrant further investigation. Previous research reported that females are more likely to have mental health problems than males, particularly mood and anxiety problems (Affif, 2007). In the current study females were significantly more likely to be members of the psychopathology class, endorsing increased levels of mood and anxiety disorders. In the current study males were significantly more likely to be members of the conflict class. This is in accordance with the findings of the current study.
with prior research which has reported that males are more likely to experience traumatic events, including combat or war (Tolin and Foa, 2006).

The study corroborates that childhood adversities increased during the worst years of the Troubles, with those who were children or young adults during this period more likely to be members of the multi-risk class, experiencing both conflict and childhood adversities. This would suggest that parenting practices may have been impacted by the Troubles. McLafferty et al. (2015) reported high rates of parental mental illnesses in NI as well as elevated rates of economic adversity, which may be linked to the Troubles. Adversities such as these may have impacted negatively on family units. The study also confirms previous findings which reported that childhood adversities are associated with psychopathology, particularly those related to maladaptive family functioning such as physical or sexual abuse and family violence (Fujiwara and Kawalkami, 2011; Oladeji et al., 2010; Slopen et al., 2010).

The NI conflict has previously been linked to suicidal behaviour (Tomlinson, 2012; O’Neill et al., 2014). The current study found that the risk of suicide ideation and behaviour was significantly increased in those who experienced conflict but that those who experienced conflict related events childhood adversities and psychopathology, the multi-risk class, had the greatest risk, suggesting an interaction of conflict and adversities during childhood. This supports the view that exposure to severe stress early in life increases sensitivity to stress across the lifespan (Breslau and Anthony, 2007). Indeed, many studies have found that individuals who experience childhood adversities are more likely to have mental health problems following exposure to conflict than those who do not (Sareen et al., 2012; Olena et al., 2014).

Increased levels of mental health problems were found in the classes which experienced early trauma in the current study. Additionally, when compared to the low risk class, the psychopathology class, with little reported traumas, were nearly nine times more likely to have suicide ideation and behaviour. This is in accordance with previous research which reports a strong association between mental health problems and suicidality (Nock et al., 2008). However, it should be noted that many people who die by suicide do not have a prior history of mental health disorders. Indeed, O’Neill et al. (2014) reported that conflict related traumas were associated with suicidal behaviour that is additional to that of mental illness. Enns et al. (2006) also reported a strong association between childhood adversities and suicidality after controlling for psychological problems.

4.1. Limitations and future research

While all WMH surveys used similar sampling designs, a limitation of the study could be that it may not be fully representative of the NI population due to the exclusion criteria. A number of groups were excluded, such as those with learning disabilities, non-English speakers, homeless people or those leaving in institutions, prisons or hospitals as well as military personnel. As many of these people may have mental health problems this may lead to an underestimation of psychopathology in the population (WHO, 2012). Since many of these people may also have experienced high rates of conflict related trauma, this may also lead to an underestimation. Additionally, as outlined by O’Neill et al. (2014), when considering these findings it should be remembered that the study does not account for those who have completed suicide prior to data collection, which may include individuals who experienced high levels of stressors in the form of Troubles related traumas and adverse childhood experiences. Additionally, the study may include some people who were not residing in NI during the Troubles, which could impact on the findings.

While calculating conflict related events Bunting et al. (2013) acknowledged that the traumas were only presumed to be conflict related and that misclassification may have occurred due to recall bias. However, most research into childhood adversities rely on retrospective reports which cannot determine causality and can be problematic due to recall bias, resulting in a considerable percentage of false negatives (Hardt and Rutter, 2004). Following traumatic events a person may blank the trauma out or be unable to accurately remember the event. In addition, the mental health status of the respondent can have an impact on recall.

5. Conclusions

While the study has some limitations, it nevertheless provides important information for policy makers and practice. The study shows that conflict has impacted on mental health and suicidality in Northern Ireland. However, in addition to the detrimental effect of the Troubles on the psychological health of the population, the study demonstrates that childhood adversities play a major role. The study provides support for initiatives to address the inter-generational transmission of trauma and highlights the need to target interventions and services towards those who have been exposed to multiple traumas. Further research which examines the interaction of the NI conflict and childhood adversities would be particularly beneficial given the increasing rates of psychopathology and suicidality in the population.

References


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