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Direct and indirect effects of maltreatment typologies on suicidality in a representative Northern Irish sample: Psychopathology only partially mediates the relationship

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ABSTRACT

There has been a rise in suicide rates among men who grew up during the 1970's in Northern Ireland (NI). Conflict exposures (CEs) have been linked with suicide ideation but not attempts. Civil conflict has also been linked with aggressive parenting which is associated with the development of aggressive drives, psychopathology and suicidality. This study investigated (1) cohort specific associations between latent classes (LCs) of maltreatment and (2) associations between LCs, CEs, psychopathology and suicidality. Data were from NI Study of Health and Stress ($N = 1986$). Maltreatment and suicidality were queried using validated measures. Psychiatric assessments were based on DSM-IV criteria. Logistic regression, latent class analysis, chi square tests and mediation analyses were conducted. Two at risk LCs were identified, entitled "family violence exposure" (FVE, 10.4%; Male, 55.4%) and "family violence and sexual abuse exposure" (FVSAE, 1.2%; Female, 90.5%). Both were more likely to have experienced CEs (FVE = 71%; FVSAE = 77.5%) than the low risk class. The FVE were more likely to be male; aged 35–49 and to suffer from a mental disorder. The FVSAE class all endorsed rape, were more likely to be separated and to suffer from a mental disorder. CEs uniquely predicted ideation but not enactment. Psychopathology partially mediated the relationship between LCs and suicidality. FVE and FVSAE directly increased the odds of enactment. These findings are original and highly pertinent and they should be used to inform any strategy for addressing the cohort specific and trauma related rise in suicide rates in NI.

The transition to peace in NI has been linked with a strong upward trend in suicide rates among men who grew up during the 1970s; these marked the worst years of the violence (Tomlinson, 2012). Psychological traumas, resulting from conflict exposures, coupled with a growth in social isolation are speculated to be implicated in this increasing trend (Tomlinson, 2012). Indeed, psychological disorders and thwarted belongingness are both significant risk factors for contributing to suicidality (Joiner, 2005; Nock et al., 2008). Pertinently, however, O'Neill and colleagues reported that conflict exposures, although predictive of psychiatric morbidity and suicidal ideation (SI), were not predictive of suicide attempts. This finding was dissonant with evidence linking such exposures to an increased capacity to enact suicidal behaviours (SBs) (Van Orden et al., 2010). Indeed, O' Neill and colleagues (2014) interpreted these findings as suggesting that there may be a higher rate of single, fatal suicide attempts in the conflict exposed population.

However, O' Neill and colleagues (2014) used a variable centred approach to investigate this issue. It is argued here that such an approach is limited because it is based on the assumption that the conflict exposed population is homogenous. Indeed, it has long been established that the impact of the conflict has been variable (Cairns, 1996). For example, the prevalence rate for conflict exposures is around 40% (Bunting et al., 2013; Muldoon and Downes, 2007), while the reported prevalence for conflict associated psychopathology is around 12% (Muldoon and Downes, 2007). These findings suggest that other biological, genetic and environmental factors may have moderated the impact of conflict exposures on risk for developing psychiatric morbidity and suicidality (Joiner, 2005; Mann, 2002; O'Connor, 2011; Roy et al., 2007).

Joiner (2005) argues that an individual will not die by suicide unless s/he possesses both the desire and the ability to do so. The

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desire for suicide is postulated to emerge from low belongingness and perceived burdensomeness. Both of these experiences characterise the phenomenology of many people who suffer from mental disorders. The capability to enact suicide, however, is postulated to result from repeated exposures and subsequent habituation to fear and pain inducing injuries. Joiner (2005) suggests that acquired capability exists on a continuum, and it encompasses an evolving capacity to overpower self preservation motives. Indeed, recent studies reported that although numerous trauma exposures were associated with SI, only exposures to sexual, interpersonal and witnessing violence significantly predicted suicide attempts (Sorsdahl et al., 2011; Stein et al., 2010).

Strikingly, there is a paucity of research examining the role of childhood maltreatment in the etiology of suicidality in NI. Such investigations are crucial for providing a more comprehensive understanding of the profiles of those who have acquired the capability to enact SBs. In fact, copious studies suggest that civil conflicts negatively impact on family dynamics, and increase levels of hostility within family environments (Bar-On et al., 1998; Cummings et al., 2011; Harkness, 1993; Ruscio et al., 2002; Sailea et al., 2014). Indeed, exposures to harsh abusive childrearing environments are directly implicated in the development of psychopathology, aggression and suicidality (Bruffaerts et al., 2010; Dube et al., 2001; Enns et al., 2006; Green et al., 2010; Hardt et al. 2008; Kessler et al., 2010). Moreover, there is reliable evidence of a robust relationship between childhood maltreatment and suicide (Bruffaerts et al., 2010; Dube et al., 2001; Enns et al., 2006; Molnar et al., 2001; Yates et al., 2008). The majority of studies report a stronger correlation between exposures to sexual, rather than physical abuse (McHolm et al., 2003; Molnar et al., 2001; Ogata et al., 1990). However, Joiner and colleagues (2007) reported that whereas all forms of childhood maltreatment create risk for future psychopathology and suicidality; childhood physical and violent sexual abuse produce the greatest risk for future suicide attempts. Moreover, Anderson and colleagues (2002) reported greater risk for suicide attempts among those reporting exposures to more than one subtype of maltreatment.

Additionally, biological evidence clearly indicates that genetic sensitivities to maltreatment exposures apply only to minority subgroups of the overall population (Langstrom et al., 2015; Rutter and Pickles, 1991; Rutter and Silberg, 2002). Furthermore, there is evidence that genetic liability is also associated more generally with risk for exposures to fear and pain inducing experiences. Specifically, Kendler and Karkowski-Shuman (1997) found that genetic liability for depression significantly increased risk for assault in adults. Latent class analysis (LCA) is a useful statistical approach for detecting the presence of latent maltreatment subgroups based upon patterns of subtype co-occurrence.

Thus, the aims of this study were threefold. First, the specific and cumulative impacts of maltreatment on both psychiatric morbidity and suicidality were investigated. Second, we investigated if there was evidence of conflict related cohort effects for exposures to the maltreatment subtypes. Finally, we applied LCA to elucidate the maltreatment subgroups. We then utilized the optimal LCA solution within a mediation analysis. This analysis was used to test 3 interconnected hypotheses: (1) both the maltreatment latent classes and conflict exposures would independently predict clinical disorders and SI, (2) only the maltreatment subgroups would significantly predict SBs and (3) these associations would only be partially mediated by clinical disorders. A partial mediation would suggest that membership of the maltreatment subgroups increased the risk for SBs because co-occurring exposures to fear and pain inducing injuries (a) actuated a probabilistic path of epigenesis marked by increased risk for psychopathology across the life course (Cicchetti, 2013) and (b) habituated the victims to the fear and pain associated with such injuries, which probabilistically actuated the capability to enact SBs (Joiner, 2005).

1. Materials and methods

The survey was conducted in accordance with the latest version of the Declaration of Helsinki and the study design was approved by the ethical committee at Ulster University. Informed consent of the survey participants was obtained after the nature of the procedures had been fully outlined.

1.1. Participants and procedures

Data from part II of the NI Study of Health and Stress (NISHS) were analyzed (n = 1986; 950 males, 1036 females; age range 18–93 years). This epidemiological study was undertaken as part of the World Mental Health (WMH) Survey Initiative (Kessler and Üstün, 2008) conducted between 2005 and 2008. The NISHS is a representative survey of English-speaking household residents aged 18 years and older in NI. The sample was selected under a multi-stage area sample design based on a probability proportional to size (PPS) selection strategy. A more detailed description of the methods, sampling strategy, survey instrument and weighting procedures are outlined elsewhere (Bunting et al., 2012).

1.2. Measures

Socio-Demographic characteristics included sex, age-at-interview, marital status (married/cohabitating, separated/divorced/widowed, and never married) and years in education.

Child Maltreatment categories included during the analyses were: harsh physical punishment; physical abuse; sexual molestation; rape; neglect and exposures to domestic violence. These were selected based upon their similarity to the maltreatment indicators included in the ACE questionnaire (Dong et al., 2004; Dube et al., 2003). Physical abuse, sexual abuse and neglect were assessed using measures developed for the National Comorbidity Survey Replication (NCS-R; Kessler & Merikangas, 2004). A modified version of the Conflict Tactics Scale (Straus et al., 1998) was used to query exposures to harsh physical punishment and domestic violence. **Harsh physical punishment** was queried using the following: “How often did your parents/the people who raised you do any of these things, (pushed, grabbed or shoved, threw something, slapped or hit) to you, while you were growing up?”. Responses were based on a 4-point Likert scale (often, sometimes, rarely and never). Often and sometimes were coded as exposure. **Physical abuse** (dichotomous) was defined as being beaten up by a caregiver. **Sexual molestation** (dichotomous) and was defined as inappropriate or unwanted touching. **Rape** (dichotomous) was defined as someone either having sexual intercourse with the respondent or penetrating their body with a finger or object when they did not want them to, either by threatening them or using force, or when they were so young that they didn't know what was happening. The various dimensions of **neglect** were assessed using the following questions: (a) “How often were you made to do chores that were too difficult or dangerous for someone your age?”; (b) “How often were you left alone or unsupervised when you were too young to be alone?”; (c) “How often did you go without things you need like clothes, shoes, or school supplies because your parents or caregivers spent the money on themselves?”; (d) “How often did your parents or caregivers make you go hungry or not prepare regular meals?” and (e) “How often did your parents or caregivers ignore or fail to get you medical treatment when you were sick or hurt?”. In line with the procedure followed for all WMH surveys, Harvard statisticians used an algorithm to compute