Childhood adversity profiles and adult psychopathology in a representative Northern Ireland study

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ABSTRACT

Childhood adversities are key aetiological factors in the onset and persistence of psychopathology. The aims of this study were to identify childhood adversity profiles, and investigate the relationship between the adversity classes and psychopathology in Northern Ireland. The study utilized data from the Northern Ireland Study of Health and Stress, an epidemiological survey (N ~ 1986), which used the CIDI to examine mental health disorders and associated risk factors. Latent Class Analysis revealed 3 distinct typologies; a low risk class (n = 1709; 86%), a poly-adversity class (n = 122; 6.1%), and an economic adversity class (n = 155; 7.8%). Logistic Regression models revealed that individuals in the economic adversity class had a heightened risk of anxiety and substance disorders, with individuals in the poly-adversity class more likely to have a range of mental health problems and suicidality. The findings indicate the importance of considering the impact of co-occurring childhood adversities when planning treatment, prevention, and intervention programmes.

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1. Introduction

Epidemiological studies have found that childhood adversities (CAs) can have a detrimental impact on psychological wellbeing. Unfortunately, CAs are highly prevalent with more than two-thirds of children experiencing at least one trauma before the age of 16 (Copeland, Keeler, Angold, & Costello, 2007). Using data from the WHO World Mental Health (WMH) Survey Initiative, Kessler et al. (2010) reported that CAs accounted for 29.8% of psychiatric morbidities worldwide and that CAs were inter-correlated, had a cumulative effect, and predicted further adversities; mirroring findings from previous studies (Copeland et al., 2007; Dong et al., 2004).

Adversities associated with maladaptive family functioning (MFF) have, in particular, been strongly linked to the onset (Green et al., 2010) and persistence of mental health problems (McLaughlin et al., 2010), especially anxiety disorders. McLaughlin et al. (2010) proposed that the detrimental impact may be due to the frequency or duration of these types of adversities which are likely to be enduring. Other studies have also found that trauma caused by an attachment figure impacts greatly on psychopathology (Carlson & Dalenberg, 2000). Fryers and Brugha (2013) proposed that parenting style and quality, neglect, parental divorce, parental separation, and exposure to inter-parental violence during childhood, all play a role in adult psychiatric disorders. A recent systematic review of adverse childhood experiences suggested that child abuse and family violence have the greatest impact on future mental health (DeVenter, Demyttenaere, & Bruffaerts, 2013).

Weich, Patterson, Shaw, and Stewart-Brown (2009) reported that abusive and dysfunctional family relationships predicted a range of disorders, including anxiety, PTSD and depression. CAs have also been linked to substance use and externalizing disorders (Slopen et al., 2010). Additionally, a strong association has been found between CAs and suicidal behaviour (Bruffaerts et al., 2010).

While much of the epidemiological research into the association between CAs and psychopathology is American based, WMH surveys conducted in other countries have reported similar findings. The Health 2000 project in Finland found that those who had experienced CAs were almost twice as likely to have mental health problems (Pirkola et al., 2005). The Mexican National Comorbidity Survey found that family dysfunction and abuse were associated with psychopathology across the lifespan (Benjet, Borges, & Medina-Mora, 2010). The Nigerian Survey of Mental Health and Well-being (NSMHW) reported that adversities involving parental...
maladjustment, impacted significantly on mental health in adulthood (Oladeji, Makanjua, & Gureje, 2010).

Some surveys however have suggested that there may be cross-national variations. The South Africa Stress and Health Study reported that Africans were more likely to have higher prevalence rates of CAs than Whites, with CAs impacting particularly on anxiety disorders (Slopen et al., 2010). While American based studies have suggested that CAs predict psychopathology in general (Green et al., 2010; McLaughlin et al., 2011), a Japanese epidemiological study reported that certain disorders were associated with specific adversities (Fujiwara & Kawalkami, 2011). Mood disorder, for example, was significantly related to parental mental health and physical abuse; however, no specific childhood adversity was significantly associated with the onset of anxiety disorders. While Oladeji et al. (2010), in the NSMHW, found no significant relationship with any specific adversity, they concluded that those who experienced three or more MFF adversities were 12 times more likely to develop anxiety disorders.

Traditionally, research assessing the link between CA and psychopathology has focused on one particular adversity. Contemporary knowledge now indicates that CAs often co-occur (Armour, Elklit, & Christoffersen, 2014; Dunn et al., 2011; Rosenman & Rodgers, 2004). Accounting for co-occurrence rather than focusing on the impact of single adversities is of paramount importance, given it is probable that different combinations of adversities may account for varying mental health outcomes. In addition, separating out the impact of a single adversity is problematic. Indeed, Shevlin and Elklit (2008) suggested that research should focus on individuals with similar adversity profiles.

Recent research has employed Latent Class Analysis (LCA) to identify the co-occurrence of CAs; also referred to as polyvictimisation. Studies examining high risk individuals, such as those in the juvenile justice system (Ford, Grasso, Hawke, & Chapman, 2013) or those involved in mental health and social services (Hazen, Connelly, Roesch, Hough, & Landsverk, 2009) reported that individuals with childhood maltreatment profiles have more psychological problems, with poly-victimised subgroups being particularly vulnerable (Ford et al., 2013). A number of studies have utilized the latent profiles to examine associations with mental health outcomes. Indeed, Dunn et al. (2011) found that different adversity profiles were associated with a range of specific mental health problems.

The aims of the current study were (1) to examine the nature and frequency of CAs reported in NI, (2) to assess polyvictimization across 12 independent childhood adversities and (3) to assess the associations between childhood adversity classes and subsequent mental health and suicidal outcomes in the NI population. Based on previous literature, it was predicted that those categorized into groups endorsing multiple childhood adversities would have an increased likelihood of reporting psychiatric morbidity and suicidal ideation and behaviour.

2. Method

2.1. Sample

As part of the WHO World Mental Health (WMH) Survey Initiative (Kessler & Üstün, 2008), face-to-face household interviews were conducted by certified lay interviewers in NI between February 2004 and August 2008. This study utilizes data obtained from this epidemiological survey, known as the NI Study of Health and Stress (NISH). Full details on sampling methodology used in the NISH can be found in Bunting, Ferry, Murphy, O’Neill, and Bolton (2013). The response rate for the NISH was 68.4%. A total of 4340 participants (1899 males, 2441 females) completed part 1 of the survey. Part 2 was then completed by a sub-sample of 1986 of the original participants (950 males, 1036 females). All participants were 18 years of age or older and were English speakers, residing in NI. Non-English speakers, people residing in institutions, those living in shared accommodation, including military barracks and prisons, and those with learning disabilities were excluded. The investigation was carried out in accordance with the latest version of the Declaration of Helsinki. Ethical approval was obtained from the University of Ulster Research Ethics Committee and informed consent was obtained from all participants after the study had been fully explained.

2.2. Diagnostic assessment

The WHO World Mental Health (WMH) Survey Initiative is a collaborative, epidemiological, systematic study which assesses the incidence, prevalence, and correlates of mental health problems using the WMH Composite International Diagnostic Interview (CIDI) version 3.0 (Kessler & Üstün, 2004). This standardized instrument retrospectively assesses mental health disorders in accordance with ICD-10 and DSM-IV criteria and definitions, with diagnostic hierarchy rules (Kessler et al., 2010). The current study examines any mood disorders (major depressive, dysthymic, bipolar I and II and sub-threshold bipolar disorders), any anxiety disorders (GAD, PTSD, panic, agoraphobia without panic disorder, social phobia, specific phobia, and separation anxiety disorders), any substance disorders (drug and alcohol abuse, drug and alcohol dependence with abuse) and any suicide ideation and behaviour (gestures, plans, and attempts). In the NISH all participants completed part 1 of the fully structured interview, which includes a screening section, demographic variables and core diagnostic assessment. Part 2, which is analysed in this study, contains a range of diagnostic sections, along with risk factors such as childhood adversities, consequences, and treatment, was completed by all participants who responded positively to core mental health disorder screening questions, plus 50% of those who were sub-threshold cases and 25% of other participants who did not meet either criterion; this allowed for the calculation of sampling weights.

2.3. Childhood adversities assessment

CA questions are included in the childhood and PTSD sections of the survey. This study utilized 12 CAs identified in previous WMH surveys (cf. Kessler et al., 2010). The retrospectively reported CAs, experienced before the age of 18 are presented in Table 1.

2.4. Demographic variables

Demographic information, based on Part 2 of the survey is presented in Table 3.

2.5. Data analysis

2.5.1. Data preparation

All WMH surveys use strict guidelines for cleaning and coding data and preliminary files were reviewed to ensure data quality. Imputations were performed on missing values for demographic variables using hot-deck methods (Kessler & Üstün, 2008). Regression methods were used if the rates of missing data were high and cases were deleted if the interview was not completed. There was no missing data on the 12 CAs or on the covariates used in this analysis. Statisticians working on the NISH computed case-specific weights (cf. Bunting et al., 2013). Part 2 weights, stratification units and cluster units were utilized in the current study. Analyses were implemented using SPSS version 21 and Mplus version 7.
Table 1

Prevalence of childhood adversities in Northern Ireland.

<table>
<thead>
<tr>
<th>Type of childhood adversity</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parental death</td>
<td>190</td>
<td>10.1</td>
</tr>
<tr>
<td>Parental divorce</td>
<td>105</td>
<td>5.2</td>
</tr>
<tr>
<td>Other parental loss</td>
<td>58</td>
<td>2.6</td>
</tr>
<tr>
<td>Parental mental illness</td>
<td>159</td>
<td>6.1</td>
</tr>
<tr>
<td>Parental substance disorder</td>
<td>61</td>
<td>2.2</td>
</tr>
<tr>
<td>Parental criminal behaviour</td>
<td>48</td>
<td>1.9</td>
</tr>
<tr>
<td>Family violence</td>
<td>124</td>
<td>5.4</td>
</tr>
<tr>
<td>Physical abuse</td>
<td>84</td>
<td>3.7</td>
</tr>
<tr>
<td>Sexual abuse</td>
<td>61</td>
<td>2.3</td>
</tr>
<tr>
<td>Neglect</td>
<td>48</td>
<td>1.9</td>
</tr>
<tr>
<td>Physical illness</td>
<td>74</td>
<td>2.8</td>
</tr>
<tr>
<td>Economic adversity</td>
<td>190</td>
<td>8.6</td>
</tr>
</tbody>
</table>

Total number of childhood adversities

- Experienced any childhood adversity: 723 (32.0%)
- One/any: 456 (62.5%)
- Two/any: 154 (22.8%)
- Three/any: 53 (7.5%)
- Four/any: 35 (3.8%)
- Five or more/any: 25 (3.4%)

Note: n = raw un-weighted values, % part 2 weights used. Total sample N = 1986.
* Maximum number of childhood adversities experienced = 9.

2.5.2. Examining type and prevalence of childhood adversities

The type and frequency of 12 dichotomously assessed CAs experienced in Northern Ireland were examined. Prevalence estimates were calculated, using weights, to represent the proportion of all respondents who experienced any childhood adversity.

2.5.3. Latent Class Analysis (LCA)

LCA categorises underlying homogenous, mutually exclusive classes within a heterogeneous population (Hagenaars & McCuecheon, 2002). It is a person centred approach that identifies unobserved subpopulations by clustering cases into latent classes based on how they respond to observed categorical variables (Wang & Wang, 2012). LCA is an exploratory process in which a series of models ranging in number of classes are estimated. Models of 2-5 latent classes, using the 12 CAs’s as indicators were estimated, implementing weight, stratification, and cluster variables, using the robust maximum likelihood (MLR) estimator. Models were evaluated using a series of model fit indices; the AIC (Akaike Information Criterion), BIC (Bayesian Information Criterion), and the SSABIC (sample size adjusted BIC). Lanza, Collins, Lemmon, and Schafer (2007) propose the use of the AIC or BIC. However, Nylund, Bellmore, Nishina, and Graham (2007) propose that the adjusted BIC should be the fit indice of choice. Other tests include the LRT (Lo-Mendel-Rubin likelihood ratio test). Lower AIC, BIC and SSABIC scores are indicative of the optimal model. If the LRT value is significant this indicates preference for the model with one less class (Wang & Wang, 2012). Entropy values which range from 0 to 1 are also examined, with higher values indicating more accurate classification of latent class membership.

It is important to also consider theoretical perspectives when determining the final number of latent classes. Additionally, if classes are too small they may not be interpreted reliably. Therefore, the researcher should consider the interpretation of the classes in terms of practical value and conceptual criteria (Wang & Wang, 2012). Thus model selection was based on a balance of fit indices, parsimony, and substantive meaning.

2.5.4. Logistic regression

Logistic regression models were estimated in Mplus 7. Mental health disorders and suicidality were utilized as the dependent variables (DVs) and a series of demographic, conflict traumas, and childhood adversity profiles were utilized as independent variables (IVs). The IV's examined in this study are detailed in Table 4.

3. Results

3.1. Examining type and prevalence of childhood adversities

Table 1 presents the prevalence of childhood adversities (CAs) reported in NI, with rates ranging from 1.5% for neglect and parental criminal behaviour, to 10.1% for parental death. The total number of CAs experienced in NI are also presented in Table 1, with 32% of participants reporting adversities during childhood. Co-morbidity of adversities was reported; however, of those who reported experiencing an adversity, 62.5% suffered only one adversity.

3.2. Latent Class Analysis (LCA)

LCA fit indices are presented in Table 2. Following a thorough examination of the fit indices and the substantive meaning of the latent classes, the three class solution was deemed optimal. This was based on lower AIC, BIC and SSABIC values for the three- compared to the one- or two- class models. Improvements between the three- and the four-class models on these fit indices were minimal, suggesting that the addition of a fourth class added little to the overall fit of the model. Moreover, the values of the BIC rose between the three and four- class models. The entropy value for the three- class model was .936, indicating clear classification.

Fig. 1 shows the latent class profile plot for the three-class model. Class 3, the largest class, comprised 86% of the sample and was characterized by low probabilities of experiencing childhood adversities; this was considered the normative or baseline group and labelled the low risk class. Class 1 was characterized by a low risk of experiencing most adversities with the exception of parental death or divorce but had a very high probability of endorsing childhood economic adversity. This class was labelled the economic adversity class, accounting for 7.8% of the sample. Class 2 accounted for 6.1% of the sample. This group was characterized by endorsing the highest probability of experiencing a wide range of adversities in childhood, particularly those concerning parental maltreatment and maladjustment and was labelled the poly-adversity class.

Table 3 shows the descriptive statistics for socio-demographics and the prevalence of mental health, suicidal ideation and

Table 2

<table>
<thead>
<tr>
<th>Model</th>
<th>Log-likelihood</th>
<th>AIC</th>
<th>BIC</th>
<th>SSABIC</th>
<th>Entropy</th>
<th>LRT (p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>−4122.050</td>
<td>8268.099</td>
<td>8335.226</td>
<td>8297.101</td>
<td>0.860</td>
<td>639.242 (.0154)</td>
</tr>
<tr>
<td>2</td>
<td>−3799.191</td>
<td>7648.382</td>
<td>7788.229</td>
<td>7708.803</td>
<td>0.936</td>
<td>109.209 (.0741)</td>
</tr>
<tr>
<td>3</td>
<td>−3744.034</td>
<td>7564.067</td>
<td>7776.635</td>
<td>7655.907</td>
<td>0.930</td>
<td>75.240 (.3427)</td>
</tr>
<tr>
<td>4</td>
<td>−3706.032</td>
<td>7514.065</td>
<td>7799.353</td>
<td>7637.323</td>
<td>0.930</td>
<td>75.240 (.3427)</td>
</tr>
<tr>
<td>5</td>
<td>−3706.032</td>
<td>7514.065</td>
<td>7799.353</td>
<td>7637.323</td>
<td>0.930</td>
<td>75.240 (.3427)</td>
</tr>
</tbody>
</table>

Note: AIC = Akaike information criterion, BIC = Bayesian information criterion, SSABIC = sample size adjusted BIC, LRT = Lo-Mendel-Rubin adjusted likelihood ratio test. The log-likelihood for the 5 class model was not replicated. Optimal model is highlighted in bold.
behaviour and conflict related trauma variables across the three classes.

3.3. Logistic regression analyses

3.3.1. Trauma profiles

Table 4 shows that when compared with the low risk class, individuals from typologies characterized by a greater degree of adversity during childhood were more likely to have a range of mental health problems. Odds ratios and 95% confidence intervals for all the variables of interest are presented in Table 4. In contrast to the low risk class, the economic adversity class were more likely to suffer from an anxiety disorder (OR = 1.974, p < .01) or a substance disorder (OR = 1.768, p < .001). Members of this class also had the highest risk of suffering from an anxiety disorder (OR = 5.250, p < .001), any mood disorder (OR = 3.216, p < .001) or any substance disorder (OR = 4.759, p < .001). The experience of conflict traumas related to the Troubles in Northern Ireland was significantly associated with a range of mental health problems and suicidality, particularly anxiety disorders (OR = 3.122, p < .001).

3.3.2. Demographic associations

Males were significantly less likely to develop anxiety or mood disorders but more likely to develop substance disorders (OR = 3.972, p < .001). Those who were previously married were significantly more likely to develop a range of mental health problems in comparison to people who were married/co-habiting, while...
those who never married were more likely to have substance disorders (OR = 1.655, p < .05). Age was significantly associated with having a range of mental health problems, with older respondents displaying a decreased likelihood of having anxiety disorders (OR = 0.989, p < .01), mood disorders (OR = 0.980, p < .001), substance disorders (OR = 0.970, p < .0001) and suicidal ideation and behaviour (OR = 0.986, p < .01).

4. Discussion

The current study examined the prevalence of childhood adversities (CAs) in NI and used a person-centred approach to uncover patterns of adversity during childhood. In addition to a low risk class, a class which had a high probability of experiencing economic adversity and a poly-adversity class were revealed. Subsequently, associations between these adversity typologies and socio-demographic factors and DSM mental health and suicidal outcomes were assessed. In accordance with previous reports (Hazen et al., 2009; Ford et al., 2013) individuals with childhood adversity profiles were found to have elevated levels of psychopathology.

Previous studies have reported high rates of CAs globally, however, this study found that the prevalence of CAs reported in NI were generally lower than rates found in other countries (Kessler et al., 2010), with the exception of economic adversity and parental mental illness. While NI is classed as a high income country it has many areas of deprivation which may partially account for these results. In comparison with other WMH surveys (Kessler et al., 2010), people in NI were less likely to report CAs associated with parental maltreatment and maltreatment. For example, reported levels of neglect, at 1.9%, were much lower than the rates found in other countries. It should be noted nonetheless that nearly a third of participants experienced adversities during childhood which is a great cause for concern.

Other studies have reported that CAs do not happen in isolation, with co-occurrence common (Armour et al., 2014). Using LCA to examine the co-occurrence of CAs and identify patterns of adversity, three childhood adversity typologies were revealed in the NI population. Class 3, the largest group representing 86% of the population, had a low probability of experiencing CAs. Class 1, also had a low probability of experiencing many adversities in childhood, however, economic adversity was very high. This group also had elevated levels of parental loss through death or divorce suggesting that these are linked to economic adversity. Class 2, the poly-adversity class, had a high probability of endorsing a wide range of childhood adversities, particularly those involving parental maltreatment and maladjustment.

The findings are consistent with previous studies which found that many CAs co-occur especially those termed maladaptive family functioning (Green et al., 2010; McLaughlin et al., 2010). However, the identification of a class endorsing high rates of economic adversity indicates the magnitude of childhood economic adversity in NI, which may be related to the respondents growing up during the Troubles (Gallagher, Hamber, & Joy, 2012). According to recent reports persistent child poverty remains high in comparison with other areas in the UK (Kelly et al., 2012). This could suggest that the Troubles and the deprivation that went with it are still impacting indirectly on children in NI today.

With the low risk group acting as the reference group, LR models indicated that individuals who experienced adversities during childhood were more likely to have a range of mental health problems. A significant association was found between the class which endorsed high levels of economic adversity and anxiety and substance disorders. This is in accordance with previous findings which suggest that poverty increases sensitivity to stress, leaving a person more susceptible to the development of mental health disorders (McLaughlin et al., 2011). However, members of the poly-adversity class displayed the greatest risk of suffering from an anxiety disorder and also had an elevated risk of a developing a DSM mood
disorder, substance disorder or suicidal ideation and behaviour. This is consistent with previous studies that reported that child abuse and family violence had the greatest impact on mental health (DeVenter et al., 2013).

Cross national variations have been found in other WMH surveys examining the impact of CAs on psychological wellbeing. Some studies reported that no specific adversity in childhood predicted anxiety disorders but that people who experienced a number of CAs were at a heightened risk of developing the disorder (Oladeji et al., 2010). This study corroborates these findings, with those who experienced multiple adversities being five times more likely to have an anxiety disorder. In accordance with other studies which reported significant associations between CAs and suicidal behaviour (Bruffaerts et al., 2010), this study also found that those who endured a range of adversities in childhood, the poly-adversity class, were over four and a half times more likely to display suicidal ideation and behaviour. In addition, members of this group were also more than four and a half times more likely to have a DSM substance disorder, and more than three times more likely to have a DSM mood disorder, corroborating the findings of other WMH surveys (Fujiwara & Kawkami, 2011; Slopen et al., 2010).

Additionally, significant associations were found between the demographic variables and psychopathology. In accordance with previous studies, females were more likely to develop mood and anxiety disorders and males were more likely to have substance disorders (Eaton et al., 2012). Younger respondents were much more likely to have mental health problems and suicidal ideation and behaviour. In addition, people who experienced conflict related traumas were significantly more likely to have negative mental health outcomes as per previous findings (Priebe et al., 2010).

4.1. Limitations

One of the main limitations of the study was that the sample may not be fully representative of the population as a number of people were omitted, including those with learning disabilities, immigrants, homeless people, and those in institutions. As these groups often have higher levels of mental health problems, their omission may impact on the findings. However this omission is common practice in WMH surveys and this study followed the standardized format of the WMH-CIDI. Another limitation of the study could be the use of retrospective studies which cannot determine causality and can be problematic due to recall bias. The rates of some childhood adversities were lower than would be expected, particularly those related to abuse, which could suggest under reporting in the Northern Ireland population. This may be due to recall bias or a reluctance to share personal information. Additionally, in line with previous WMH papers, harsh physical punishment was excluded from the current study (Kessler et al., 2010). Further research examining the impact of this adversity would be beneficial. In addition, the findings in the current study may not be generalizable to other samples.

4.2. Implications and future research

While the study has some limitations, it nevertheless adds to previous literature on CAs. The study provides valuable epidemiological information on a range of adversities and the detrimental impact they have on psychopathology in NI. It informs policy makers and practice, highlighting the need to target children at risk of multiple adversities. The study emphasizes the importance of stable intra-family relationships and provides support for initiatives to improve parenting skills. In addition it shows that when planning interventions it is important to consider co-occurrence of adversities. 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 reported in NI, further research examining the long term impact of economic adversity on psychopathology may be particularly beneficial. Additionally, as it has been reported that the Troubles have had a very detrimental impact on mental health it would be useful to explore patterns of adversities in childhood in conjunction with experiences of the Troubles in the NI population.

4.3. Conclusions

The prevalence and impact of economic adversity on mental health was found to be particularly high in NI. Previous studies based in NI also reported that increased rates of psychopathology were associated with social deprivation (McConnell, Bebbington, McClelland, Gillespie, & Houghton, 2002). Associations between mental disorders and economic adversity need to be considered in terms of social and economic policies. Changes in the welfare benefits for people with mental disorders will have a significant impact on this population in NI and may impact further upon their mental health. Overall the study found that individuals from typologies characterized by a greater degree of adversity during childhood were more likely to report negative mental health and suicidal outcomes, compared to typologies reporting fewer adversities. In particular individuals who experienced a range of CAs were more than 5 times more likely to have an anxiety disorder. The findings highlight the importance of considering the impact of co-occurring CAs when planning treatment, prevention, and intervention programmes.

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Conflict of interest

None.

Contributors

Margaret McLaugherty contributed to the development of the theoretical rationale of the study, conducted literature searches, carried out analyses, interpreted the results and wrote the first draft of this manuscript. Dr Cherie Armour supervised the study, contributed to the development of the theoretical rationale, conducted analyses and assisted in the editing of the paper. Dr Aine McKenna contributed to the development of the theoretical rationale of the study, conducted analyses and assisted in the editing of the final paper. Professor Siobhan O’Neil, Dr Sam Murphy and Professor Brendan Bunting coordinated the NISHS and were involved in
the design, supervision and editing of the final paper. All the aforementioned authors contributed to the paper and approved the final manuscript.

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References


