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## **Experiences of Childhood Adversity across Generations – Continuity or Change? A Study from the Northern Ireland Youth Wellbeing Survey**

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Experiences of Childhood Adversity across Generations – Continuity or Change? A Study  
from the Northern Ireland Youth Wellbeing Survey.

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## Abstract

**Background:** Although a wealth of international literature consistently links cumulative experiences of adverse childhood experiences (ACEs) with physical, mental and emotional problems in later life, only a few studies have focused on intergenerational ACE exposure and research using nationally representative populations is lacking.

**Objective:** This paper examines intergenerational associations between parent and child ACE scores in a large nationally representative sample of parent-child dyads.

**Participants and Setting:** Participants comprise 1042 pairs of parents and young people (11-19 year olds) who both completed questions relating to their exposure to ACEs (N=1042) as part of the Northern Ireland Youth Wellbeing Survey (NIYWS) - a stratified random probability household survey of the prevalence of mental health disorders among 2 to 19 year olds in Northern Ireland (N=3074).

**Methods:** Hierarchical regression was used to identify the relationship between parent and young people ACE scores and the extent to which this is mediated by child, parent, family, community and socio-economic variables.

**Results:** In the final model, young person ACE scores were associated with older child age ( $\beta = .082, p=.016$ ), younger parental age ( $\beta = -.083, p=.022$ ), fewer children in the household ( $\beta = -.120, p < .001$ ), poor child health ( $\beta = .160, p < .001$ ), low family support ( $\beta = .118, p=0.001$ ) and the household being in receipt of benefits ( $\beta = .223, p < .001$ ).

**Conclusions:** This study shows that the relationship between parent and young person ACE exposure is attenuated through other variables, namely child health, parent mental health and social support.

*Keywords: Adverse childhood experiences; child maltreatment; intergenerational transmission; prevalence survey; mental health.*

## **Experiences of Childhood Adversity across Generations – Transmission or Change? A Study from the Northern Ireland Youth Wellbeing Survey.**

### **1. Introduction**

A wealth of national and international literature consistently links the number of adverse childhood experiences (ACEs) experienced within the family household while growing up with physical, mental and emotional problems in later life (Dube et al., 2003; Felitti, Anda, Nordenberg, Williamson, Spitz, Edwards & Marks, 1998; Felitti & Anda, 2010; Sabates & Dex, 2012). This risk is cumulative, with the US Adverse Childhood Experiences (ACE) study (Felitti et al., 1998) reporting, out of a simple count of ten possible adverse childhood experiences, a strong ‘dose response’ relationship between an individual’s ACE score and substantially increased risk of negative outcomes in adulthood. Since Felitti et al.’s (1998) seminal work, ACEs have played an increasingly prominent role in highlighting the long-term consequences of child maltreatment internationally, with the World Health Organisation adopting and adapting the ACE screening tool for use in population health surveys across European countries. More recently, in the United Kingdom, population surveys of adults in England (Bellis, Lowey, Leckenby, Hughes & Harrison, 2014) and Wales (Bellis, Ashton, Hughes, Ford, Bishop & Paranjothy, 2015) have demonstrated the same association with ACE score and numerous health related outcome with 9% of the English population and 12% of the Welsh population having experienced 4 or more adversities.

The original ACE study has profoundly changed the focus of the child maltreatment field by shifting the focus from the effect of individual types of childhood victimization to the cumulative effect of ACEs on child and adult well-being. There has been considerable interest within US and UK national governments in developing ACE informed policies and

practices (Spratt, Devaney & Frederick, 2019), with trauma informed care (TIC) emerging as a direct response to ACE related research. Subsequently, various TIC approaches have been developed and adapted across different health, justice, child welfare and social care contexts in the US, the UK, Europe, Australia and New Zealand (Author, 2019). While a central tenet of TIC is recognising the impact of trauma on service users, national frameworks for preventing or mitigating the effects of ACEs in children make limited reference to the role of parents' own early life adversity and its' potential influence on the transmission of ACEs across generations (Narayan, Lieberman, & Masten, 2021). The health outcomes most strongly associated with multiple ACE exposure, e.g. problematic substance use and mental illness, themselves potentially represent ACEs for the next generation (Hughes, Bellis, Hardcastle, Sethi, Butchart & Mikton, 2017) and it has been argued that, for primary prevention of ACEs in children to be effective, consideration needs to be given to parental ACE history, associated mental health problems and traumatic symptomology.

### *1.1 Intergenerational Adverse Childhood Experiences*

While researchers are just beginning to investigate the impact of parental experiences of adversity on children, there is emerging evidence of intergenerational associations. Recent studies indicate that parent exposure affects not just parent mental health but emotional, behavioural and physical health outcomes for their children as well (Schickedanz, Halfon, Sastry, & Chung, 2018; Esteves, Jones, Wade, Callerame, Smith, Theall & Drury, 2020; Lê Scherban, Wang, Boyle-Steed & Pachter, 2018). Various studies suggest that maternal mental health may be a mechanism by which maternal early life adversity is transmitted to children and that maternal depressive symptoms mediate the relationship between maternal ACE scores and children's mental health symptoms (Letourneau, Dewey, Kaplan, Ntanda, Novick, Thomas. & APrON Study Team, 2019; Denis, Clohessy, Stone, Darnall & Wilson, 2019; Doi, Fujiwara & Isumi, 2021).

In the maltreatment literature, the study of the intergenerational transmission of maltreatment has received considerable attention and there is broad consensus that such an association exists, although rates tend to be modest with more maltreated parents not maltreating their own children than the other way round (Narayan, 2015). However, beyond child maltreatment, only a small number of studies have focused on the extent to which parent ACE exposure is associated with child ACE exposure and research using nationally representative populations is still lacking. Narayan (2015) investigated the intergenerational continuity of ACEs in mothers and young children aged 4 to 6 years living in emergency homeless shelters, identifying a rate of intergenerational continuity of any ACE exposure of 79.1%, and a rate of discontinuity of 20.1%. Further research using cumulative ACE scores, as well as the ACE categories of exposure to maltreatment versus family dysfunction, demonstrated that higher parental ACEs predicted higher child ACEs, with higher numbers of parental ACEs in either category (maltreatment or family dysfunction) predicting higher levels of child ACEs in both categories (Narayan, Kalstabakken, Labella, Nerenberg, Monn & Masten, 2017). However, when they examined the impact on child socioemotional problems in school, child exposure to maltreatment, but not family dysfunction, significantly predicted elevations in children's socioemotional problems.

Additionally, research with a rural sample of American parents and children, (Schofield, Donnellan, Merrick, Ports, Klevens & Leeb, 2018) found that the number of ACEs experienced by parents was positively associated with the number of ACEs experienced by their children with no differences in the pattern of results between mothers and fathers, nor between male and female children. The study included a wide range of neighbourhood environment measures including poverty, social cohesion, access to services and alcohol vendor density. Although neighbourhood measures were all significantly correlated with child ACE exposure, most were not significant predictors when parent ACE

exposure was included in regression analyses, with the exception of perceived community social cohesion and area level alcohol vendor density. While higher levels of perceived social cohesion reduced intergenerational continuity the relationship with alcohol vendor density was less straightforward with results showing that either high parent ACE or high alcohol vendor density was sufficient to put children at risk for exposure to ACEs.

## 1.2 *Criticisms of ACEs*

While the task of disentangling the relationship between parent ACEs, child ACEs and subsequent outcomes remains on-going, ACE research continues to have a significant effect on health and social care policy in the both the USA and UK (Author, 2019, Spratt et al., 2019). However, these developments are not without criticism and social work professionals and academics, particularly within the context of UK child and family social work practice, have voiced various concerns (Spratt et al., 2019). A key criticism centres on the use of population level epidemiological studies to ‘diagnose’ individual children or parents in ways which are deterministic, and which further label, pathologize and disempower already marginalised groups (White, Edwards, Gillies, & Wastell, 2019; Edwards, Gillies & White, 2019). Of particular concern is the embrace of ACEs ‘rhetoric’ by UK policy makers, often supported by evidence from neuroscience and developmental psychology, which then fuels an increasingly surveillance based early intervention agenda and interventionist child protection system (Featherstone et al., 2018; White et al., 2019).

Another key criticism of ACE research, and its subsequent translation into policy and practice, is that its biomedical focus leads to socioeconomic conditions being overlooked, pathologizing individuals and families without due consideration of wider structural inequalities (Taylor-Robinson, Straatmann & Whitehead, 2018; Edwards et al., 2019; Kelly-Irving & Delpierre, 2019; Walsh, McCartney, Smith & Armour, 2019). While socio-



economic measures are routinely used in ACE research, these are more commonly treated as outcomes of adversity, with few studies investigating their role as predictive or causal factors (Walsh et al., 2019). Nonetheless, a clear relationship between economic conditions in childhood and risk of experiencing ACEs and maltreatment that appears robust across countries and measures of socio-economic status and adversity, has been established (Walsh et al., 2019). Similarly, recent longitudinal analysis of a prospective prenatal cohort in the UK has shown poverty to be strongly related to both individual adversities and adversity clusters identified through latent class analysis (Lacey, Howe, Kelly-Irving, Bartley & Kelly, 2020).

### *1.3 Present Study*

To date, investigation of intergenerational exposure to ACEs has been limited, particularly with regard to nationally representative samples. This paper examines intergenerational associations between parents' and young people's cumulative exposure to adverse childhood experiences in a large nationally representative sample of 1042 parent-child dyads using an ecological approach. Firstly, it aims to estimate the strength of the association between self-reported parent ACE scores and child ACE scores; it was predicted that there would be a positive and statistically significant correlation. Second, it aims to determine how this association is influenced by a range of child, parent, family and economic factors; it was predicted that the association between parent-child ACE scores would be attenuated when these additional factors were included in a multivariate analysis, in particular parental mental health. Thirdly, it aims to consider these findings in the context of criticisms of ACEs research, highlighting the extent to which parent ACE scores are 'predictive' of child ACEs scores, the contextual factors which play a role in the development of child ACEs, and the circumstances in which consideration of parent ACE exposure may be salient to professional assessment.

in policy and practice, as well as the lack of consideration of wider socio-economic issues

assessing their implications for practice and the role assessment of parental ACEs and socio-economic conditions

## **2. Method**

### *2.1 Sampling and Data Collection*

The data for this study were from the Northern Ireland Youth Wellbeing Survey (NIYWS), a stratified random probability household survey undertaken by a consortium comprised of researchers from (author university), (author university) and (author organisation). The primary aims of the survey were to collect robust data on the prevalence of mental health disorders among 2 to 19 year olds in Northern Ireland, and to estimate the associations between demographic, social, familial, and stress-related risk factors and mental health disorders and psychological problems. Children and young people were eligible to take part if they were aged 2 to 19 and lived in Northern Ireland.

Addresses of potential participants from private residences were selected from a postcode register of all households in Northern Ireland. The 762, 264 eligible addresses were linked to Northern Ireland's Multiple Deprivation Measures data (NIMDM; Northern Ireland Statistics and Research Agency, 2017) and stratified by deprivation decile and county to ensure even geographical distribution and representation of both affluent and less affluent neighbourhoods. A total of 30,000 addresses were then randomly selected and issued to the data collection team in six instalments from June 2019 to February 2020, and then clustered according to Electoral Ward to allow for a more efficient fieldwork process. The end of the fieldwork coincided with the onset of the COVID-19 global pandemic and ensuing national

lockdown, at which point 21,730 main sample addresses had been issued and 3,074 interviews completed, a response rate of 67%. The final sample closely matched the NI population in terms of geographical location and deprivation.

## Participants

Participants were a representative sample of the 2-19 year old population of NI. For this study, data were obtained from the overall sample where complete pairs of responses for the ACE questions were available for both parents and young people aged 11-19 years. In total 1042 complete pairs were extracted.

## 2.2 Measures

### 2.2.1 Childhood adversity

Childhood adversities for both adults and children were assessed using questions taken from the Adverse Childhood Experiences Scale (ACE, Felitti et al., 1998). The ACE Scale is a 10-item, self-report questionnaire which measures parental separation, physical abuse, domestic violence, sexual abuse, neglect, emotional abuse, emotional neglect, incarceration of a household member, substance abuse by a household member and a household member suffering from serious mental health problems. The ACE questions addressed to parents were prefaced with “While you were growing up, during your first 18 years of life ....” and answers were scored in a binary fashion (No=0, Yes = 1), with possible cumulative ACEs scores varying from 0-10. Previous research has demonstrated this scale has good internal reliability and validity (Kazeem, 2015), and this was also acceptable within the current study (ACE,  $\alpha=.79$ ).

For the assessment of the young peoples’ cumulative ACE scores, the ACE questions were asked alongside questions from the Child and Adolescent Trauma Screener (CATS; Sachser, Berliner, Holt, Jensen, Jungbluth, Risch, ... & Goldbeck, 2017) which was adapted to include

additional questions in relation to adverse childhood experiences. These questions were prefaced with “Stressful or scary experiences happen to many people. Below is a list of stressful or scary situations that sometimes happen to young people. Tick the box if the event happened to you.” The CATS questions in relation to “being hit or hurt badly in your family”, and “being pressured or forced into sexual acts” were used as the measures for exposure to physical and sexual abuse. Other ACE questions representing emotional neglect, physical neglect, domestic violence, parental incarceration and parent substance abuse were included within the CATS questionnaire. Parental separation and parental mental health ACEs were based on parent report and were measured elsewhere in the survey (see discussion below).

### *2.2.2 Parental mental health*

The mental health of parents was assessed using the question “Have you ever experienced any form of mental health problem?” with response options ‘Currently’, ‘In the past’, or ‘Neither’. The first two options were coded as Yes (1) and the last as No (0) to represent an ‘any parental mental health diagnosis’ variable. Parents were also asked “On a scale of 0-5 how much did (or does) your mental health condition impact on your parenting? with 0 being ‘not at all’ and 5 being ‘extremely’. As ACE measures of parental mental health are commonly based on serious mental health problems, parents who indicated the presence of both a past or present mental health diagnosis, and a score of 3 or more when reporting the impact on their parenting, were coded as yes in relation to the young person’s exposure to a ‘Parental Mental Health ACE’ and included as part of the young person’s cumulative ACE score.

### *2.2.3 Experiences of Paramilitaries:*

Given the high levels of trauma experienced during “the Troubles” (Bunting, Ferry, Murphy, O’Neill & Bolton, 2013), a period of civil and political conflict in Northern Ireland that lasted

from the late 1960s until the late 1990s, participants were asked a number of questions relating to their experience of the Troubles and paramilitary activity in their area. Parents were asked to respond to two statements, “Paramilitaries cause fear, intimidation and/or crime in local area?” and ‘Paramilitary groups contribute to crime, drug-dealing and anti-social behaviour in this area’, using a 5-point Likert scale (Strongly agree, Agree, Neither agree nor disagree, Disagree, Strongly disagree). Agreement with either statement was recoded into a binary variable to measure perceptions of paramilitary activity within the community (No (0)= Disagree/Strongly Disagree/No opinion, Yes (1)=Agree/Strongly Agree).

#### *2.2.4 Special Education Needs of young person:*

Parents were asked if their child had a diagnosed or suspected special educational need (SEN). In Northern Ireland, this is a legal definition and refers to children with learning problems or disabilities that make it harder for them to learn than most children of the same age. Parents could select one or more of four options: difficulties with speech, language and/or communication; learning difficulties; social, emotional or mental health difficulties; and sensory difficulties and /or physical health problems. Each item was scored (Yes=1, No = 0) and the categories aggregated to identify those children with any diagnosed or suspected educational need (Yes=1, No = 0).

#### *2.2.5 Age and Gender*

For 11-15 year olds age and gender (male, female, other) was reported by parents or carers. For 16-19 year olds age and gender (male, female, other) was self-reported.

#### *2.2.6 Child Health*

Child health was reported by parents and self-reported by youth. Parents or carers were asked, “How is your child's health in general? Would you say it was...”, Participants aged 11-

19 were asked “How is your health in general? Would you say it is...”. Possible responses were (1) Very Good, (2) Good, (3) Fair, (4) Bad, and (5) Very Bad. These scores were recoded to be dichotomized and represent poor/good physical health (1= Bad or Very Bad, 0 = Very Good, Good, or Fair).

### *2.2.7 Parental Separation*

If parents answered ‘Yes’ to , “Are you living in this household with a partner” and answered ‘Parent’ to “What is your relationship to nominated child” then youth participants were deemed to be living with both biological parents.

### *2.2.8 Family Benefits*

Parents or carers were asked the question, “Is your household receiving any of these state benefits?”, and they were provided with a list of benefits and directed to tick the benefits they were in receipt of. The list of benefits were; Universal Credit/ Housing Benefit / Working Tax Credit/ Child Tax Credit/ Income support /Jobseeker’s Allowance /Employment and Support Allowance /Carer’s Allowance/ Disability Living Allowance /Personal Independence Payment or No benefits. If any benefits were selected then the family was considered to be in receipt of benefits (1 = Yes, 0 = No).

### *2.2.9 Area Level Deprivation*

Level of deprivation was assessed by using the NI Multiple Deprivation Measure (Northern Ireland Statistics and Research Agency (2017)). This is an area-based measure that assesses seven different domains of deprivation; health; income; employment; education skills and training; proximity to services; living environment; and crime and disorder. Weighted scores are derived by calculating the number of people experiencing each type of deprivation in specific a geographical area. The key geography for the NIMDM is Super Output Area (SOA) - Northern Ireland is divided into 890 SOAs with an average population size of around

2,100 people. NIMDM scores are ranked from 1-890, with 1 being the most deprived and 890 the least deprived. The SOA for each residence was recorded and then linked to Northern Ireland's 2017 NIMDM data.

### 2.3 *Analysis*

The data were analysed using SPSS V27. Descriptive statistics were produced for all study variables and cross tabulation tables used to identify intergenerational continuity and discontinuity with regard to ACE exposure. Pearson's correlations were used to test association between continuous predictor variables and young person ACE scores, and independent sample t-tests were used to test associations between dichotomous predictor variables and young person ACE scores. All variables significant at the bivariate level were subsequently entered into a multiple regression model to identify which variables were significant predictors of young person ACE scores while statistically controlling for the other variables.

As research has indicated that parent mental health mediates the relationship between parent ACEs and child outcomes, parent mental health was treated as a predictor and the young person ACE score was based on a count of 9 ACEs, with the 'Parental Mental Health ACE' variable excluded. The 'any parental mental health diagnosis' variable was used as a predictor variable to reflect a more unbiased assessment of parent's mental health experiences without any evaluation of how they thought this had influenced their parenting. Similarly, measures related to socio-economic status (household receipt of benefits and area level deprivation) were treated as predictors rather than as additional adversities, as recommended by various authors (Institute of Health Equity, 2020; Metzler et al., 2017; Walsh et al., 2019). A hierarchical regression model was used to identify which variables mediated the relationship between parent ACE scores and young person ACE scores. Parent ACE scores

were entered first as this was the key variable of interest, and the remaining variables were added in the following blocks:

- Child demographic variables: age (years) and gender (Male=0, Female=1)
- Parent/family demographic variables: Parent age (years), gender (Male=0, Female=1), number of children in the household (0 to 2 children = 0, 3 or more = 1) and Parental education level (GSCE or lower = 0, A-Level/Diploma/Certificate and above = 1).
- Child well-being variables: child health (Good Health=0, Fair/Poor Health=1)
- Parent well-being variables: parent mental health (No=0, Yes=1), family support (Good Support=0, Poor Support = 1).
- Socio-economic/community variable: household receipt of benefits (No=0, Yes=1) and area level deprivation (decile 1-10 with lower scores indicating higher levels of deprivation).

### **3. Results**

#### *3.1 Descriptive Statistics*

Table 1 presents descriptive statistics for each of the predictor variables (excluding parent ACEs). Just over half of the young people were male (51.8%) and almost two thirds were aged 11 to 15 years, while most of the parent participants were female (78.3%) and the majority were aged 41 years or over (80.6%). More than half of parent (56.7%) reported they had been educated to A-Level or above and most had one or two children (79.6%). The majority of parents reported their child's health as 'Good' or 'Very good' (87.9%), with only 14.8% indicating their child had an assessed or suspected special educational need. Almost a fifth of the parents reported the receipt of benefits (38.2%) and half (50.6%) agreeing that paramilitaries cause fear, intimidation and/or crime in their local area.



Continuous scores for child age ( $M=46.8$ ,  $SD=7.4$ ), parent age ( $M=13.5$ ,  $SD=2.4$ ), number of children in household ( $M=1.9$ ,  $SD=.93$ ) and area level deprivation (deciles;  $M=5.8$ ,  $SD=2.9$ ) were used in subsequent analyses.

Table 1 about here

Table 2 presents descriptive statistics for each of the individual childhood adversities parents and young people reported having experienced, as well as ACE score groupings. Parental separation (25.0%) and parental mental health problems (18.3%) were the most common individual ACEs reported by parents, followed by parental substance misuse (14.8%) and domestic violence (12.9%). More than half of parents (53.4%) reported 0 ACEs, 18.2% 1 ACE, 10.0% 2 ACEs, 6.0% 3, and 12.3% 4+ ACEs.

Parental separation (35.8%), parental mental health problems (10.7%), emotional neglect (5.7%), domestic violence (4.4%) and parental alcohol or substance use problems (4.3%) were the most common ACEs reported by young people. 52.2% reported 0 ACEs, 33.2% 1 ACE, 8.6% 2 ACEs and 5.7% 3+ ACEs.

Results indicated that of the parents with 0 ACEs, 60.4% had a child with 0 ACEs and 39.6% had a child with 1+ ACEs (Table 3). The percentage of parents with a child with one or more ACEs rose to 56.3% for parents who had 1+ ACEs, 60.8% for parents with 2+ ACEs, 64.6% for parents with 3+ ACEs and 66.4% for parents with 4+ ACEs. Overall, the rate of intergenerational continuity/discontinuity of any ACEs in the current sample was approximately 56%/44%.

Table 2 about here

Table 3 about here

### 3.2 *Bivariate Analysis*

Pearson correlation tests showed that all continuous predictor variables were significantly correlated with young people's ACE scores (Table 4). Parent ACE scores had the highest correlation, although it was relatively weak ( $r = .134, p < .01$ ).

Independent sample t-tests also showed significant variation in young person ACE scores, with the exceptions of parent perception of paramilitaries causing fear/crime in their local area and child special educational need status (Table 4).

### 3.3 *Multiple Linear Regression*

All variables significant at the bivariate level were entered into a hierarchical regression model in blocks to identify which variables significantly predicted young person ACE scores. Parent ACE scores were entered first (Model 1), then child demographic variables (Model 2), followed by parent/family demographic variables (Model 3), then child health (Model 4), followed by parent well-being variables (Model 5), and finally socio-economic/community variables (Model 6). The results from the hierarchical multiple regression are presented in Table 5. The addition of each block of variables significantly improved the model with the final model, Model 6, explaining 14.6% of the overall model. There was independence of residuals, as assessed by a Durbin-Watson statistic of 2.01. An examination of the correlations (Table 4) revealed none of the independent variables were highly correlated.

Parent ACE score was a significant predictor of young person ACE scores when entered by itself (Model 1;  $\beta = .115$ ,  $p < .001$ ) and remained a significant predictor after adding child demographics and parent/family demographic factors, although the association reduced with the addition of each block of variables. Parent ACE score became marginally significant ( $p \leq 0.1$ ) with the addition of child health, became non-significant when parent mental health and family support factors were added, and remained non-significant when household and area socio-economic factors were added.

In the final model, Model 6, young person ACE scores were associated with older child age ( $\beta = .082$ ,  $p = .016$ ), younger parental age ( $\beta = -.083$ ,  $p = .022$ ), fewer children in the household ( $\beta = -.120$ ,  $p < .001$ ), poor child health ( $\beta = .160$ ,  $p < .001$ ), low family support ( $\beta = .118$ ,  $p = 0.001$ ) and the household being in receipt of benefits ( $\beta = .223$ ,  $p < .001$ ). Of the 6 significant predictors in Model 6, household benefits had the strongest influence, followed by child health, number of children in the household and family support.

#### **4. Discussion**

This study extends the existing literature on the association between parents' cumulative ACE exposure and the level of exposure experienced by their own children. In a nationally representative sample, involving 1042 parent-child dyads, close to half of parents and young people were both exposed to at least one ACE during childhood. However, higher ACEs scores were much more prevalent among parents than their children with only 2.9% of 11-19 year olds experiencing four or more adversities, compared to 13.2% of parents. As hypothesised, there was a positive and statistically significant correlation between parents' and young people's cumulative ACE exposure, although the strength of association was weak, pointing to both continuity and discontinuity between generations. Overall,

intergenerational continuity/discontinuity rates were 60/40% for no ACEs and 56/44% for any ACE exposure, a much lower figure than previously identified in the literature (Narayan, 2015), and likely related to the representative nature of the sample used in the current analysis.

Using an ecological approach based on available child, parent, family, community and socio-economic factors, regression analysis showed that the relationship between parent and child ACE exposure was indeed attenuated through other variables, namely child health, parent mental health and social support. The inclusion of child health reduced the influence of parental ACE scores to marginal significance, while the relationship become non-significant when parental mental health and social support variables were added. Social support had a stronger influence than parental mental health and, in the final regression model, social support remained a significant independent predictor of young people's ACE scores, with parental mental health becoming non-significant when socio-economic factors were added. These findings are in keeping with the emerging intergenerational ACEs literature, which suggests that maternal mental health is a key mechanism through which parental adversity influences child outcomes (Letourneau et al., 2019; Denis et al., 2019, Doi et al., 2020). Likewise, there is an established relationship between parental mental health and poverty (Elliott, 2016) and, in the maltreatment literature (Stith, Liu, Davies, Boykin, Alder, Harris, ... & Dees, 2009; Mulder, Kuiper, van der Put., Stams & Assink, 2018), both socio-economic status and social support are well-evidenced risk factors for both physical abuse and neglect.

Overall, the findings indicate that, where parents don't have mental health problems, have good levels of support, perceive their child's health as good and where the household does not receive benefits, young people's ACE exposure is low, regardless of parent ACE scores. Where all four conditions are present, young people's level of ACEs is significantly

higher. While parent cumulative ACE exposure can be an important influencing factor, primarily it appears through poor parent mental health and poor social support, poor child health, poor social support and being in receipt of welfare benefits are, by themselves, sufficient to increase young people's ACE risk. Household benefits had the strongest influence, underscoring the importance of considering socio-economic factors as potential "causes" of ACEs as advocated by various researchers and academics (Lacey et al., Walsh et al., 2019). While the cross-sectional nature of the data is a significant limitation to attributing causality in this study, as is the lack of measurement of early life exposure to poverty, Walsh et al.'s (2019) systematic review presents evidence of a clear relationship between socio-economic factors and ACEs/maltreatment, including longitudinal findings which support a causal association.

Following household receipt of benefits, child health was the second most influential independent predictor of young people's ACE scores, although, interestingly, having a special educational need showed no association. Although the prevalence of abuse and neglect has been documented as higher, among children with disabilities when compared to those without disabilities (Corr and Santos, 2017), our findings suggest that parental assessment of their child's general health was more important to young people's ACE risk than the presence of more specific disabilities or chronic conditions captured by their special educational need status. While research has demonstrated an association between each additional parent ACE and higher rates of parent reported child health problems (Le-Scherban et al., 2018), the causal pathway is unclear. In this analysis, child health was treated as a predictor variable, but it may be also be the case that child health is an outcome of child ACE exposure. Equally, given that parenting stress and perceptions of a child as 'problematic' is a well-supported risk factor in the child maltreatment literature (Stith et al., 2009; Mulder et al., 2018), the extent to which the association relates more to a parent's

subjective view of their child, as opposed to an objective assessment of their health, is difficult, to say.

In addition to the factors discussed above, older child age, younger parental age, and fewer children in the household were also independently associated with young people's ACE scores. While the relationship between child age and higher levels of ACEs is likely an artefact of the cumulative nature of the ACE measure (older children will have had a longer time period to accumulate multiple ACEs than younger children), various meta-analyses of the wider child maltreatment literature consistently identify parent age and family size (Stith et al., 2009; Mulder et al., 2018) as risk factors for both physical abuse and neglect. However, the finding that smaller family size was associated with higher young people ACE scores runs counter to the frequently cited finding that larger numbers of children in a household increase the risk of abuse and/or neglect. This may be because, in addition to child maltreatment, ACEs measure a wider range of experiences such as family conflict, divorce and incarceration, which may act to reduce family size through fractured relationships and separation.

#### *4.1 Limitations*

Although the data are unique and the data collection process of high quality, there remain several limitations to this study. As with any research design, there are also potential sources of bias and, while the NIYWS achieved a relatively high response rate, there is still the possibility that the sample who did participate are not precisely representative of those who decided not to participate and of the wider population. The standardised measures used, although well tested, also have their limitations and measurement of different types of childhood adversity was primarily based on responses to single items reported retrospectively by parents and young people. Importantly, as noted above, the cross sectional nature of the

data make causal inferences difficult and the lack of a clear temporal line means that decisions to treat certain variables as predictors, although supported by the literature, should be viewed with caution. Equally, while the NIYWS was designed to collect data which would enable as comprehensive and multi-factorial exploration of the mental health and wellbeing of children as possible, inevitably, there are many more characteristics of children, families, and environments that could possibly affect a child's likelihood of ACE exposure than those included in the present analysis – as the resulting low  $R^2$  (14.6%) highlights. While the focus of this analysis is on cumulative ACE exposure

## 5. Conclusion

In considering these findings in the context of criticisms of ACEs research and their implications for professional practice, it is first worth noting that the application of epidemiological research using ACE questionnaires to 'diagnose' individuals and predict outcomes has never been recommended. While the ACE questionnaire is used in research to identify groups at elevated risk of adverse outcomes, it is not predictive at the individual level. The task of deciding the extent to which ACE exposure is salient at the individual or family level remains a matter of professional judgement grounded in comprehensive assessment of individual, family, environmental and social factors.

Similarly, these findings indicate that avoiding a deterministic approach to the application of ACEs research in an intergenerational context is not only good professional practice, but to do otherwise is unwarranted by the evidence. Using cumulative measures of ACE exposure, this study has shown that the risk of intergenerational continuity is low where parents do not receive benefits, and perceive their child's health and their levels of family support as good. However, where these factors are present, by themselves they are sufficient to increase young people's cumulative ACE risk regardless of parental ACE exposure. The

finding that benefit receipt was the most important independent predictor of young people's cumulative ACE risk underscores the importance of considering socio-economic factors as part of professional assessments as potential "causes" of ACEs as advocated by various researchers and academics (Lacey et al., Walsh et al., 2019).

The finding that parental ACE exposure is attenuated primarily through parental mental health and social support points also points to specific contexts in which an understanding of a parent's social history and trauma experiences may be particularly relevant to assessment. While the cross-sectional nature of the data make causal inferences difficult, in many ways, this mirrors the uncertainty faced by child welfare practitioners who are tasked with assessing families with complex histories and presenting difficulties, with a view to evaluating likely causal pathways and developing an appropriate intervention. A parent with no exposure to adversity may be experiencing stress through caring for a sick or disabled child with scarce resources and limited family support, and this may directly contribute to their child's risk of ACEs. Equally, a parent with high adversity exposure may have mental health problems related to their experiences of childhood adversity, which in turn may be exacerbated by poor family support and lack of material resources, indirectly contributing to their children's risk of ACEs.. While practical and financial support are needed in both cases, assessing the potential role that parental childhood ACE exposure may play is important in deciding what the best professional response should be and the extent to which a more therapeutic intervention may be warranted.



**Table 1: Frequencies of Child, Parent/Family and Community Characteristics**

<b>Child Characteristics</b>	<b>N</b>	<b>%</b>
<b>Gender</b>		
Male	540	51.8
Female	502	48.2
<b>Age Group</b>		
11-15 years	670	64.3
16-19 years	372	35.7
<b>Child Health</b>		
Good	874	87.9
Fair/Poor	120	12.1
<b>Special Education Needs</b>		
Yes	148	14.8
No	849	85.2
<b>Parent/Family Characteristics</b>		
<b>Gender</b>		
Mother	815	78.3
Father	226	21.7
<b>Age Group</b>		
17-30 years	10	1.0
31-40 years	191	18.4
41-50 years	511	49.1
51+ years	328	31.5
<b>No. of Children in Household</b>		
1-2	788	79.6
3+	202	20.4
<b>Parent Education</b>		
A-Level or above	574	56.7
GSCE or lower	439	43.3
<b>Perceived Family Support</b>		
Good support	899	86.9
Poor Support	135	10.4

<b>Socio-Economic/Community Characteristics</b>	N	%
<b>Household in Receipt of Benefits</b>		
Yes	398	38.2
No	644	61.8
<b>Area Level Deprivation Quintile</b>		
1 most deprived	196	18.8
2	174	16.7
2	201	19.3
4	233	22.4
5 least deprived	238	22.8
<b>Paramilitaries cause fear, intimidation and/or crime in local area</b>		
Agree/Strongly Agree	480	50.6
Disagree/Strongly Disagree/No opinion	468	49.4

**Table 2: Frequencies of Parent and Young People Exposure to ACEs**

	<b>Parent</b> (N=1020-1042)	<b>Child</b> (N=1040-1042)
<b>ACEs</b>	<b>N (%)</b>	<b>N (%)</b>
Physical Abuse	186 (18.2)	36 (3.5)
Sexual Abuse	71 (6.9)	27 (2.6)
Physical Neglect	36 (3.5)	9 (.8)
Emotional Neglect	119 (11.6)	65 (6.2)
Emotional Abuse	171 (16.7)	40 (3.8)
Parent Separation	224 (21.6)	375 (36.1)
Parent Mental Illness	188 (18.2)	112 (10.7)
Parent Substance Use	168 (16.3)	55 (4.2)
Parent Domestic Abuse	146 (14.1)	38 (3.6)
Parent Incarceration	57 (5.5)	15 (1.4)
<b>Cumulative ACE Score</b>	<b>N (%)</b>	<b>N (%)</b>
0	542 (52.0)	545 (52.4)
1	185 (17.8)	345 (33.2)
2	106 (10.2)	90 (8.7)
3	71 (6.8)	30 (2.9)
4+	138 (13.2)	30 (2.9)

**Table 3: Intergenerational ACE Continuity and Discontinuity between Parent and Child ACEs**

Parent ACEs	Young Person ACEs (%)	
	0 ACEs	1+ ACEs
0	60.4	39.6
1+	43.7	56.3
2+	39.2	60.8
3+	35.6	64.6
4+	33.6	66.4

**Table 4: Means (SD) and Correlations for Parent ACE Scores and Young Person ACE Scores.**

	N	M	SD	1.	2.	3.	4.	5.
1. Young people ACE scores	1040	0.73	1.05					
2. Parent age	1040	46.80	7.35	-.087**				
3. Deprivation decile	1042	5.80	2.90	-.108**	.197**			
4. Number of children in household	990	1.87	.92	-.106**	-.281**	-.002		
5. Parent ACE Score	1042	1.31	1.93	.134**	-.125**	-.129**	-.011	
6. Child age	1042	13.51	2.43	.097**	.324**	.011	-.238**	.072*

Note. Correlation is significant at .05\* and .01\*\* (2-tailed).

**Table 5: Means (SD) and Independent Samples t-test Statistics for Young Person ACE Scores.**

	Young Person Mean (SD) ACE Scores		
Parent Gender	Male (n=226)	Female (n=813)	
	.57 (.96)	.77 (1.08)	t(1037.00)= 2.52, p < .05
Child Gender <sup>a</sup>	Male (n=539)	Female (n=501)	
	.65 (.94)	.82 (1.16)	t(959.42)=2.71, p<.05
Parent Education	A-Level or above (n=573)	GSCE or lower (n=438)	
	.64 (1.02)	.86 (1.10)	t(1009.00)=3.25, p < .01
Parent Support <sup>a</sup>	Poor (n=135)	Good (n=897)	
	1.27(1.34)	.65 (.98)	t(156.47)=5.25, p < .001
Child Health <sup>a</sup>	Poor (n=119)	Good (n=873)	
	1.41 (1.62)	.65 (.94)	t(129.09)= 5.02, p < .001
Child Special Education Needs	Yes (n=148)	No (n=847)	
	.88 (1.16)	.72 (1.06)	t(993.00)=1.77, p=.077
Household benefits <sup>a</sup>	Yes (n=396)	No (n=644)	
	1.10 (1.45)	.51 (.93)	t(709.96)= 8.61, p < .001
Paramilitaries cause fear/crime	Agree (n=478)	Disagree (n=468)	
	.78 (1.08)	.67 (.98)	t(944.00)=1.56, p=.117

Note: <sup>a</sup> equal variances not assumed

**Table 6. Results from Multiple Regression with Child Cumulative ACE Score child Predicted by Parent, Family and Economic Factor**

Block		Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
		Beta	Beta	Beta	Beta	Beta	Beta
1	(Constant)						
	Parent ACE Score	.115***	.108***	.081**	.058*	-.018	-.021
2	Child gender (female)		.046	.042	.037	.041	.042
	Child age		.091***	.111**	.071**	.079**	.082**
3	Parent gender (female)			.046	.044	.020	.012
	Parent age			-.139***	-.122***	-.124***	-.083**
	Number of children in household			-.131***	-.123***	-.122***	-.120***
	Parent education A-Level +			-.063	-.054	-.051	.011
4	Child Health				.186***	.173***	.160***
5	Parent mental health					.091**	.049
	Parent support					.129***	.118***
6	Household Receiving Benefits						.223***
	Deprivation Decile						-.014
Model statistics		F(1, 907) = 12.12 p < .01	F(13, 905) = 7.35 p < .001	(F7, 901) = 8.09 p < .001	F(8, 900) = 11.30 p < .001	F(10, 898) = 11.63 p < .001	F(12, 896) = 13.89 p < .001
Adj. R <sup>2</sup>		.012	.021	.052	.083	.105	.146

Note. Significant at .1\*, .05\*\* and .01\*\*\*

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