

Childhood Abuse and Neglect, Exposure to Domestic Violence and Sibling Violence: Profiles and Associations With Sociodemographic Variables and Mental Health Indicators

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Abstract

Research indicates substantial overlap between child abuse and neglect (CAN), exposure to domestic violence and sibling abuse, with multiple victimisation experiences conferring greater risk for adverse mental health outcomes than does exposure to a single subtype. The application of latent class analysis (LCA) to child maltreatment has gained momentum, but it remains the case that few studies have incorporated a comprehensive range of subtypes, meaning that real-life patterns in victimisation experiences cannot be accurately modelled. Based on self-report data from an ethnically diverse

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sample ($N = 2813$) of 10–17 year olds in the United Kingdom, the current study used LCA to model constellations among nine types of maltreatment in the home (physical, emotional and sexual abuse; physical and emotional neglect; exposure to physical and verbal domestic violence, or a drug-related threat; and sibling violence). A four-class solution comprising of a low victimisation class (59.3% of participants), an emotional abuse and neglect class (19.0%), a high verbal domestic violence class (10.5%) and a maltreatment and domestic violence class (11.2%) provided the best fit for the data. Associations with sociodemographic variables were examined, revealing differences in the composition of the classes. Compared to the low victimisation class, participants in the verbal domestic violence class, emotional abuse and neglect class and especially the maltreatment and domestic violence class, reported higher symptoms of anxiety and depression and an increased likelihood of non-suicidal self-injury, suicide ideation and suicide attempt. The findings carry important implications for understanding patterns of child maltreatment, and the implications for preventative strategies and support services are discussed.

Keywords

childhood maltreatment, child abuse and neglect, exposure to domestic violence, sibling violence, anxiety, depression, latent class analysis

Introduction

The [World Health Organisation \(2020\)](#) defines child maltreatment as ‘the abuse and neglect that occurs to children under 18 years of age [...] which results in actual or potential harm to the child’. This is commonly interpreted to comprise physical, sexual and emotional abuse and neglect ([Felitti et al., 1998](#)), but researchers have increasingly elected to include exposure to domestic abuse ([Gardner et al., 2019](#)) in the definition of child maltreatment. Child abuse and neglect (CAN) and domestic abuse often co-occur within families ([Radford et al., 2011](#)), and children who are subjected to direct abuse in addition to witnessing violence between their parents have been described as ‘doubly victimised’ ([Hamby et al., 2010](#)). Despite sibling abuse occurring more frequently than abuse by a parent ([Button & Gealt, 2010](#)), it is rarely incorporated into definitions of maltreatment and remains severely under-researched ([Van Berkel et al., 2018](#)). Maltreatment and other forms of family violence are considered to be amongst the most intense sources of stress that a child can suffer in their early years ([WHO, 2018](#)), rendering these phenomena a significant public health concern.

Considering that child maltreatment often goes unidentified, unreported or unrecorded in the United Kingdom (Bentley et al., 2020), national victimisation surveys are capable of providing more accurate estimates of the true extent of the problem. The Crime Survey for England and Wales (CSEW) estimates that 8.5 million people (equivalent to one-fifth of the adult population) aged 18–74 are subject to at least one type of maltreatment before the age of 16 (Office for National Statistics, 2020). However, the CSEW has not adopted the international definition of a child, meaning that offences against persons aged 16–17 are not represented in these figures. Focussing on maltreatment before the age of 18, an international systematic review of self-reported lifetime victimisation revealed variable estimates of physical abuse (3.6–32.6%), sexual abuse (0.7–27.8%), emotional abuse (4.0–66.7%) and neglect (5.6–77.8%) depending on sample characteristics and definitions of CAN (Moody et al., 2018). Statistics on other forms of maltreatment are more scarce in comparison, but a survey of over 4000 children and their parents/guardians in the United Kingdom estimated that 12% of under 11s and 17.5% of 11–17 year olds witness domestic violence at some point during their childhood (Radford et al., 2011). Another study of 12-year olds in the United Kingdom ($n = 6838$) revealed that 26.2% of children surveyed had experienced sibling bullying in the past six months (Dantchev & Wolke, 2019).

Notwithstanding the importance of estimates pertaining to specific forms of maltreatment, it should not be assumed that these victimisation experiences occur in isolation. Indeed, the large body of literature on Adverse Child Experiences (ACEs) evidences substantial overlap between abuse, neglect, exposure to domestic violence and sibling abuse, alongside other harmful non-victimisation experiences such as parental divorce, mental health problems or incarceration (Bellis et al., 2015; Lacey et al., 2020). Children who experience one type of maltreatment are much more likely to report another, with a retrospective survey of 8887 American adults reporting that 34.6% of those who were maltreated as a child experienced at least two forms of abuse (Edwards et al., 2003). Moreover, in the United Kingdom, Radford et al. (2011) found that in comparison to non-maltreated children, those aged <11 and 11–17 years old who had been subject to severe maltreatment by a parent/guardian were 2.8 and 2.9 times more likely to witness domestic violence, respectively. In addition, a survey of school pupils in the United States ($n = 8122$), revealed that child maltreatment and exposure to domestic violence are associated with a significant increase in the odds of experiencing sibling abuse (OR = 4.00 and 2.06, respectively; Button & Gealt, 2010).

Child maltreatment has been implicated in the development of serious mental health problems, with a recent global meta-analysis comprising of 106 studies demonstrating that individuals subjected to any type of maltreatment (physical, sexual and emotional abuse, neglect and exposure to intimate

partner violence) were 2.48 more likely to experience a depressive disorder and 1.68 times more likely to develop an anxiety disorder (Gardner et al., 2019). A second meta-analysis of 15 studies from the international literature found that all types of CAN (physical, sexual and emotional abuse, and physical and emotional neglect) were associated with significantly increased odds of suicide attempt (Liu et al., 2017). However, at least half of the studies included in these reviews were based on retrospective recall from adults, meaning that there is a general paucity of information on the short-term consequences of maltreatment among the current generation of children and adolescents – a necessary precursor to informing the delivery of services to this group (Radford et al., 2011). Crucially, there is mounting evidence that exposure to multiple adversities or victimisation experiences accumulates to produce more deleterious consequences than does exposure to a single type (Bellis et al., 2015; Finkelhor et al., 2007; Petruccelli et al., 2019). For instance, a meta-analysis of 23 studies from Australia found that exposure to three types of CAN almost doubled the risk of depressive and anxiety disorders compared to exposure to one subtype (Moore et al., 2015). Moreover, a longitudinal study in the United States ($n = 457$) revealed that witnessing domestic violence in addition to being the direct victim of child abuse is associated with more severe internalising and externalising problems than experiencing either of these phenomena separately (Moylan et al., 2010).

Although the practice of computing a simple additive count is a common approach to examining the consequences of multiple victimisation, it assumes that the constituent forms of maltreatment are equally traumatic (Petruccelli et al., 2019). This approach also assumes that each type of maltreatment confers an equal risk for all other types of maltreatment, ignoring any naturally occurring patterns in victimisation experiences (Debowska et al., 2017). In contrast, the application of person-centred techniques, such as latent class analysis, enables real-life constellations in maltreatment to be identified (Lanza & Rhoades, 2013). Participants are assigned to a group (or ‘class’) based on their pattern endorsement of items pertaining to victimisation experiences, enabling the association between class membership and other external variables to be investigated. Two global systematic reviews of studies that have applied person-centred approaches to the study of child maltreatment are available from Debowska et al. (2017) and Rivera et al. (2018). Having adopted a comparable definition of maltreatment that incorporates physical, sexual and emotional abuse, neglect and exposure to domestic violence, a consensus was reached that two to four classes is usually sufficient to represent naturally occurring profiles of maltreatment. According to Debowska et al. (2017), 12 out of the 16 studies reviewed identified a class characterised by little to no experience of maltreatment. This class accounted for the largest proportion of participants in nine of the studies, representing approximately 80–85% of participants in samples of the general population.

Where a poly-victimisation class was revealed, this accounted for the smallest proportion of participants (approximately 2–10% of participants in samples of the general population), but the likelihood of experiencing adverse mental health outcomes, including symptoms of anxiety, depression and post-traumatic stress, was significantly higher for this group (Debowska et al., 2017). Remaining victimisation classes were much more heterogeneous in nature and varied according to the particular types of maltreatment included in the analyses. Indeed, Rivera et al. (2018) identified substantial variation in the indicators used to model classes of maltreatment across the 14 studies included in their review. Not one study included all five indicators of maltreatment, four omitted indicators of neglect, five omitted indicators of emotional abuse, and only two included indicators of exposure to domestic violence. The omission of important indicators severely limits the extent to which real-life constellations in maltreatment experiences can be accurately modelled, potentially over-looking significant associations with mental health outcomes.

Considering the seriousness of the impact of child maltreatment on mental health, preventing the occurrence of such harmful experiences is a global priority (WHO, 2020). Examining the association between individual and family characteristics and child maltreatment can inform the development of preventative strategies by supporting the identification of ‘high-risk’ individuals, as well as developing an understanding of the mechanisms that contribute to child maltreatment (Gilbert et al., 2012). With the exception of physical abuse (males - 7.7%; females - 7.5%), females are disproportionately represented among victims of all other types of maltreatment captured by the CSEW, including emotional abuse (males - 6.8%; females - 11.8%), sexual abuse (males - 3.5%; females - 11.5%) and exposure to domestic violence (males - 7.6%; females - 11.9%; ONS, 2020). Other factors associated with experiencing child maltreatment include economic disadvantage, low educational attainment, non-White ethnicity, belonging to a one-parent household, a larger number of children in the household and parental mental health and substance misuse problems (Black et al., 2001; Doidge et al., 2017; Sidebotham & Golding, 2001). Research examining the association between child/family variables and multiple victimisation experiences tends to adopt broader definitions that also incorporate non-maltreatment victimisation and/or other non-victimisation adversities, creating an equivocal picture due to the inclusion of a heterogeneous assortment of items. For instance, a global meta-analysis of 96 studies revealed that female gender was the only variable to predict multiple ACEs (Petruccelli et al., 2019). Meanwhile, a survey of children and their caregivers in the United States (n = 2030) revealed that poly-victims were more likely to be boys, older children, city-dwellers, residents of one-parent households and children of Black ethnic origin and low socioeconomic status (Finkelhor et al., 2007). As noted previously,

simply summing the number of victimisation experiences overlooks heterogeneity maltreatment experiences, negating the possibility that certain family/child characteristic might be associated with qualitatively different victimisation experiences. However, at present there is a scarcity of person-centred analyses that have examined the association between maltreatment profiles and individual/family characteristics (Rivera et al., 2018).

Child maltreatment is a global problem and is certainly not unique to the UK (Moody et al., 2018). However, the UK recently ranked 27th out of 41 of the 'richest' countries in the world on indicators of child wellbeing (UNICEF, 2020). Ranking in the bottom third for overall mental health, and with only two countries reporting lower levels of life satisfaction, this suggests that the UK is a long way from meeting the targets set in the 2030 Agenda for Sustainable Development (United Nations, 2015). There is a need to rapidly address the factors that contribute to poor mental health, and child maltreatment within the family is understood to be one of the most damaging experiences a child can have due to the betrayal of supposed close relationships and trust (Malloy et al., 2016). Therefore, the objective of the current study was to support the development of preventative strategies and victim support services by examining the association between profiles of maltreatment and sociodemographic variables and indicators of mental wellbeing. Considering the limitations of previous research, the current study utilised self-report data collected from 10-17 year olds (as opposed to retrospective recall from adults) and applied LCA to identify naturally occurring profiles among nine indicators of maltreatment within the home (physical, sexual and emotional abuse; physical and emotional neglect; exposure of physical and verbal domestic violence, or a drug-related threat; and sibling abuse). We anticipated that a large proportion of participants would belong to a class characterised by minimal maltreatment experiences, and a small proportion to a poly-victimisation class, but no further predictions were made about the number, nature or associations of the classes.

Method

Participants

This paper draws on cross-sectional survey data ($N = 2813$) collected from four primary schools, five secondary schools and two tertiary colleges in 2019. Seven of these schools/colleges were located in the North of England, with the remaining four in the South of the country. Participants were aged 10–17 ($M = 14.58$; $SD = 2.12$) and a little over half were female ($n = 1499$; 53.3%). The sample was ethnically diverse, with participants identifying as White ($n = 1074$; 38.3%), Mixed Heritage ($n = 916$; 32.7%), Asian/Asian British ($n = 655$; 23.4%) and Black/African/Caribbean/Black British ($n = 133$; 4.7%). Just

over two thirds of participants reported living in an urban area ($n = 1766$; 63.3%) and slightly more indicated that they were living with both parents ($n = 1913$; 68.4%). Just over one quarter of participants reported having three or more siblings ($n = 796$; 28.5%).

Procedure

Questionnaires were completed in classrooms, mostly via the online survey tool Qualtrics ($n = 2393$; 85.1%), but a small number were completed in a paper and pencil format ($n = 420$; 14.9%). Ethical approval was granted by the lead University's ethics panel, and permissions were also obtained from participating schools and colleges. Researchers were present throughout to answer any questions that the children and young people had. Informed consent was obtained from both students and their parents, and participation was voluntary without any compensation or reward. Participants were assured that their answers would remain confidential and were reminded of their right to withdraw at any time. Students were provided with details of helplines and counselling services where they could seek support if they had experienced maltreatment and/or if participation in the study caused any distress.

Measures

The sociodemographic questionnaire captured participants sex (male; female), age, ethnic group (White; Mixed Heritage; Asian/Asian British; Black/African/Caribbean/Black British), location (urban; rural), household situation (living with both biological parents; one biological parent; one biological and one step-parent; neither parent) and number of siblings.

The Child Victimization Experiences Questionnaire (Choo et al., 2011) captured lifetime experiences of maltreatment perpetrated by parents, guardians or other adults living in the home. Seven items inquired into experiences of physical abuse (e.g. slapping, beating with objects, kicking and choking), eight sexual abuse (e.g. inappropriate touching, sex, being shown sexual scenes, made to pose nude) and six emotional abuse (e.g. being insulted, embarrassed or made to feel like a bad person). Physical neglect was captured by three items (e.g. made to wear dirty clothes) and emotional neglect by five items (e.g. not offered encouragement or made to feel unloved). A specific type of maltreatment was regarded as present if a child or young person endorsed at least one item belonging to that category.

Exposure to domestic violence was captured by one item pertaining to verbal violence ('Have you seen adults in your home shouting and screaming in a way that frightened you?'), two items pertaining to physical violence ('Have you seen adults in your home hurt each other physically, e.g. hitting, kicking, slapping?') and 'Have you seen adults in your home use knives, guns,

sticks or other objects to hurt or scare someone else inside your home?'), and one item concerning a drug-related threat ('Has anyone in your home taken alcohol or drugs and then behaved in a way that frightened you'). Items were scored dichotomously as 'yes' or 'no', and a child was regarded as having experienced physical violence if they endorsed at least one item.

Sibling violence was measured by the item 'Have you been mistreated or bullied by your brother(s) or sister(s), step-brother/step-sister or cousin(s) at home?'. Participants answered 'yes' or 'no'.

The PROMIS Depression Short Form (PROMIS Health Organization and PROMIS Cooperative Group, 2012a) captures thoughts and feelings over the past seven days (e.g. feeling unhappy, stressed and not caring about anything). The 14 items are answered on a scale ranging from 1 (never) to 5 (almost always), yielding a possible range of scores from 14 to 70. Higher scores represent more severe symptoms of anxiety (Cronbach's alpha was 0.97).

The PROMIS Anxiety Short Form (PROMIS Health Organization and PROMIS Cooperative Group, 2012b) captures thoughts and feelings over the past seven days (e.g. feeling nervous, worried, getting scared easily and being unable to relax). The 13 items are answered on a scale ranging from 1 (never) to 5 (almost always), yielding a possible range of scores from 13 to 65. Higher scores represent more severe symptoms of depression (Cronbach's alpha was 0.94).

Suicidal phenomena were measured using three items. The item 'Have you ever harmed yourself on purpose in a way that was not to take your life?' captured lifetime history of non-suicidal self-injury. Meanwhile, suicide ideation was measured by asking 'Have you ever felt so unhappy that you have thought about killing yourself?' and suicide attempt was measured by asking 'Have you ever tried to commit suicide or tried to do something that meant you could die?'. Participants answered 'yes' or 'no'.

Statistical Analysis

Latent class analysis (LCA) was performed to identify homogenous groups (or classes) of children and young people based on their experiences of nine types of maltreatment (physical abuse, sexual abuse, emotional abuse, physical neglect, emotional neglect, exposure to verbal domestic violence, exposure to physical domestic violence, witnessing a drug-related threat and sibling abuse). Using MPlus Version 7, models with an increasing number of classes were specified in an iterative manner. The Lo–Mendell–Rubin likelihood ratio test (LMR-LRT; Lo et al., 2001) assesses improvement in fit between competing models and is used to elucidate the most appropriate number of classes. A non-significant value ($p > .05$) suggests that the model with one fewer class provides a more parsimonious fit to the data. At this point, there is little empirical support for the inclusion of an additional latent class and the

specification of further models ceases. The success of the models was assessed using a range of statistical indicators pertaining to goodness of fit, including the Akaike Information Criterion (AIC; Akaike, 1987); Bayesian Information criterion (BIC; Schwartz, 1978) and sample size adjusted BIC ($_{SSA}BIC$; Schwartz, 1978), where lower values indicate better fitting models. Participants were assigned to a single class according to posterior probabilities, with the entropy statistic (Ramaswamy et al., 1993) evaluating the quality of the classification of participants by the model. Values range from 0 to 1, with 0.75 considered acceptable and 0.80 considered high (Wang & Wang, 2012). Selection of the best-fitting model was also influenced by the inspection of latent profile plots to ascertain whether the classes represented distinct and conceptually meaningful constellations in maltreatment experiences.

Following identification of the most appropriate latent class solution, multinomial logistic regression was performed to examine the composition of the classes based on sociodemographic variables. Age (continuous), sex (0 = female; 1 = male), ethnicity (0 = White; 1 = non-White), location (0 = urban; 1 = rural), household situation (0 = living with both parents; 1 = not living with both parents) and number of siblings (0 = 3 or more siblings; 1 = 0-2 siblings) were entered as predictors in the analysis, and class membership was the categorical outcome variable.

Associations between class membership and indicators of mental health were also investigated, using binary logistic regression for the categorical dependent variables (NSSI, suicide ideation and suicide attempt) and linear regression for the continuous dependent variables (anxiety and depression). Class membership was dummy coded and entered as a categorical independent variable. Age (continuous), sex (male/female), ethnicity (White/non-White), location (urban/rural), household situation (living with both parents/not living with both parents) and number of siblings (0-2 siblings/3+ siblings) were also entered as covariates.

Results

Latent Class Enumeration

LCA was used to determine the optimal number of classes based on experiences of maltreatment. Beginning with a two-class solution, a series of models with an increasing number of classes were specified and tested (Table 1). The LMR-LRT for the five- and six-class solutions were non-significant, suggesting that they did not provide a better fit for the data than the solution with one fewer classes. The LRM-LRT was statistically significant for the four-class solution and this achieved a lower AIC and $_{SA}BIC$ than the two- and three-class solutions. Moreover, the four-class solution achieved the lowest BIC of all models tested, and this has been identified as a particularly reliable

indicator of the most appropriate number of latent classes (Nylund et al., 2007). The entropy statistic for the four-class model was 0.79, suggesting that the data was adequately captured by this solution.

Inspection of the latent profile plot (Figure 1) confirmed that the four-class solution provided conceptually meaningful typologies of maltreatment. Importantly, the classes could be distinguished by differences in the constellation of maltreatment experiences, rather than simply reflecting increases in the likelihood of experiencing certain forms of maltreatment (Lanza & Rhoades, 2013).

Average item response probabilities indicate the likelihood of endorsing a particular item conditional on latent class membership (Table 2). Latent class 1 ($n = 253$; 10.5% of participants) comprised of individuals with a very high

Table 1. Fit indices for the latent class analysis.

Model	AIC	BIC	$_{SSA}BIC$	LRT	p	Entropy
2 classes	18,144.31	18,257.21	18,196.84	3419.93	<0.001	0.83
3 classes	17,724.31	17,896.63	17,804.48	434.53	<0.001	0.84
4 classes	17,410.69	17,642.42	17,518.51	329.47	<0.001	0.79
5 classes	17,372.49	17,663.65	17,507.96	57.48	0.06	0.79
6 classes	17,344.05	17,694.62	17,507.16	47.84	0.22	0.79

Note. AIC = Akaike information criterion, BIC = Bayesian information criterion, $_{SSA}BIC$ = sample size adjusted BIC, LRT = Lo-Mendell-Rubin's adjusted likelihood ratio test.

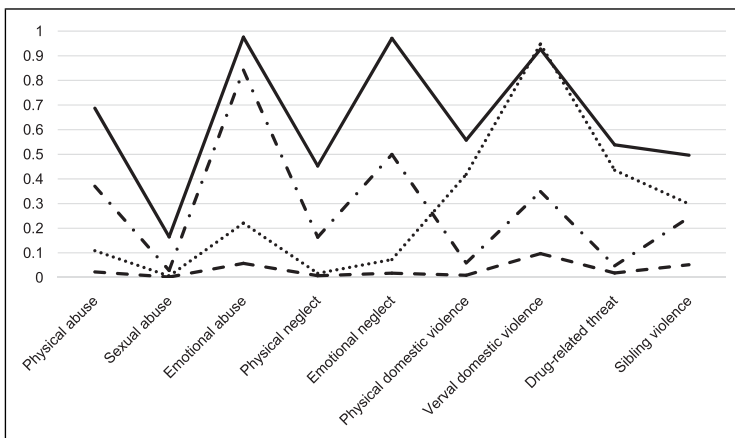


Figure 1. Latent profile plot of childhood maltreatment and exposure to violence. Class 1 (dotted line) = 10.5% participants; Class 2 (dashed line) = 59.3% participants; Class 3 (dash-dot line) = 19.0% participants; Class 4 (solid line) = 11.2% participants.

Table 2. Average item response probabilities for the four-class solution.

	Class 1	Class 2	Class 3	Class 4
Physical abuse	0.12	0.03	0.37	0.69
Sexual abuse	0.01	0.00	0.03	0.17
Emotional abuse	0.22	0.06	0.84	0.98
Physical neglect	0.02	0.01	0.16	0.45
Emotional neglect	0.07	0.02	0.50	0.97
Physical domestic violence	0.42	0.01	0.06	0.56
Verbal domestic violence	0.95	0.10	0.35	0.93
Drug-related threat	0.44	0.02	0.05	0.54
Sibling violence	0.30	0.05	0.24	0.50

Note. Class 1 = high verbal domestic violence; class 2 = low victimisation; class 3 = emotional abuse and neglect; class 4 = maltreatment and domestic violence.

probability of endorsing verbal domestic violence (0.95); moderate probabilities of endorsing a drug-related threat (0.44) and physical domestic violence (0.42); and low or very low probabilities of endorsing items relating to abuse, neglect and sibling violence (ranging from 0.01 to 0.30). This class was labelled the ‘high verbal domestic violence class’. Class 2 ($n = 1757$; 59.3% of participants) was characterised by very low item response probabilities for all items (not exceeding 0.1%) and so was labelled the ‘low victimisation class’. Class 3 ($n = 496$; 19.0%) comprised of individuals with a high probability of endorsing emotional abuse (0.84); a moderate probability of endorsing emotional neglect (0.50); and low or very low probabilities of endorsing items relating to all other forms of abuse and domestic violence exposure (ranging from 0.03 to 0.34). In considering the characteristics of this class, it was labelled the ‘emotional abuse and neglect class’. Class 4 ($n = 307$; 11.2% of participants) was characterised by very high item response probabilities for emotional abuse (0.98), emotional neglect (0.97) and verbal domestic violence (0.93); a moderate-high item response probability for physical abuse (0.69); moderate item response probabilities for physical domestic violence (0.56), drug-related threat (0.54), sibling violence (0.50) and physical neglect (0.45); and a low item-response probability for sexual abuse (0.17). Consequently, this final class was labelled the ‘maltreatment and domestic violence class’.

Association with Sociodemographic Variables and Indicators of Mental Health

Next, we examined the composition of the latent classes using sociodemographic characteristics (see [Table 3](#) for prevalence and descriptive statistics).

Table 3. Frequency (%) or Mean (SD) for sociodemographic and psychological variables across the four latent classes.

	Class 1	Class 2	Class 3	Class 4
Age	14.9 (2.1)	14.7 (2.1)	14.1 (2.1)	14.2 (2.2)
Sex (female)	159 (62.8%)	882 (50.2%)	259 (52.2%)	199 (64.8%)
Ethnicity (White)	57 (22.6%)	535 (30.7%)	290 (60.2%)	192 (63.4%)
Location (urban)	168 (66.9%)	1134 (65.0%)	287 (58.5%)	177 (58.4%)
Living with both parents	141 (55.7%)	1330 (75.7%)	307 (61.9%)	137 (44.6%)
Number of siblings (3+)	72 (28.7%)	450 (25.7%)	149 (30.2%)	125 (41.3%)
Depression	25.8 (11.6)	19.3 (7.8)	28.4 (13.0)	39.9 (14.8)
Anxiety	21.6 (8.1)	17.0 (5.7)	23.3 (8.8)	31.1 (11.1)
NSSI	90 (36.0%)	202 (11.7%)	145 (30.0%)	177 (59.0%)
Suicide ideation	112 (44.8%)	233 (13.6%)	189 (39.0%)	202 (68.0%)
Suicide attempt	35 (14.0%)	47 (2.7%)	59 (12.2%)	83 (28.1%)

Note. Class 1 = high verbal domestic violence; class 2 = low victimisation; class 3 = emotional abuse and neglect; class 4 = maltreatment and domestic violence.

Multinomial logistic regression was performed with Class 2 (low victimisation class) used as the reference category. Compared to Class 2, being female significantly increased the odds of belonging to Class 1 (high verbal domestic violence class; OR = 1.71; 95% CI = 1.29/2.28; $p < .001$) and Class 4 (maltreatment and domestic violence class; OR = 1.94; 95% CI = 1.46/2.56; $p < .001$) but did not predict membership to Class 3 (emotional abuse and neglect class; OR = 1.08; 95% CI = .87/1.33; $p = .492$). Being of White ethnic origin significantly increased the odds of belonging to Class 3 (OR = 3.10; 95% CI = 2.43/3.96; $p < .001$) and Class 4 (OR = 3.31; 95% CI = 2.44/4.48; $p < .001$), but it was inversely related to membership to Class 1 (OR = .55; 95% CI = .38/.79; $p = .001$). Living with both parents significantly decreased the odds of membership to all abuse classes, including Class 1 (OR = .40; 95% CI = .30/.54; $p < .001$), Class 3 (OR = .62; 95% CI = .49/.78; $p < .001$) and Class 4 (OR = .33; 95% CI = .25/.44; $p < .001$). Meanwhile, living with three or more siblings predicted membership to Class 3 (OR = 1.27; 95% CI = 1.00/1.61; $p = .047$) and Class 4 (OR = 1.72; 95% CI = 1.30/2.27; $p < .001$), but had no significant bearing on membership to Class 1 (OR = 1.07; 95% CI = .79/1.45; $p = .674$). Age and location (urban/rural) did not increase the odds of belonging to any of the abuse classes ($p > .05$).

We also examined the association between class membership and indicators of mental health (see Table 3 for prevalence and descriptive statistics). Binary logistic regression was employed for the categorical dependent variables (NSSI, suicide ideation and suicide attempt) and linear regression for the continuous dependent variables (anxiety and depression), with Class 2

(low victimisation class) used as the reference category throughout. Compared to Class 2, participants in Class 1 (high verbal domestic violence class) reported higher symptoms of depression ($B = 5.83$; 95% CI = 4.45/7.20; $p < .001$) and anxiety ($B = 4.30$; 95% CI = 3.29/5.32; $p < .001$), and an increased odds of NSSI (OR = 3.88; 95% CI = 2.83/5.31; $p < .001$), suicide ideation (OR = 4.63; 95% CI = 3.43/6.25; $p < .001$) and suicide attempt (OR = 5.01; 95% CI = 3.09/8.12; $p < .001$). Participants in Class 3 (emotional abuse and neglect class) reported even higher symptoms of depression ($B = 8.54$; 95% CI = 7.46/9.62; $p < .001$) and anxiety ($B = 5.74$; 95% CI = 4.96/6.52; $p < .001$), and also an increased odds of NSSI (OR = 3.50; 95% CI = 2.69/4.57; $p < .001$), suicide ideation (OR = 4.29; 95% CI = 3.34/5.51; $p < .001$) and suicide attempt (OR = 4.50; 95% CI = 2.91/6.94; $p < .001$). For participants in Class 4 (maltreatment and domestic violence class), symptoms of depression ($B = 19.08$; 95% CI = 17.74/20.41; $p < .001$) and anxiety ($B = 13.07$; 95% CI = 12.08/14.05; $p < .001$) were higher still and there was an even greater odds of experiencing NSSI (OR = 11.38; 95% CI = 8.37/15.47; $p < .001$), suicide ideation (OR = 14.37; 95% CI = 10.52/19.62; $p < .001$) and suicide attempt (OR = 12.36; 95% CI = 8.03/19.04; $p < .001$).

Discussion

Child maltreatment is a multi-faceted problem and children subject to one type of maltreatment are at increased risk of experiencing other types (Button & Gealt, 2010; Edwards et al., 2003; Hamby et al., 2010; Radford et al., 2011). Moreover, there is mounting evidence that exposure to multiple adversities and victimisation experiences has a cumulative impact on mental health, resulting in more deleterious consequences than does exposure to a single type of victimisation (Bellis et al., 2015; Moore et al., 2015; Moylan et al., 2010; Finkelhor et al., 2007). There is also interest in linking victimisation experiences to child and family characteristics (Petruccioli et al., 2019) in order to facilitate the development of strategies designed to protect children from harm (Gilbert et al., 2012). Although research in the field of poly-victimisation has commonly adopted a simple additive approach to calculating the number of maltreatment experiences, recognition that this does not adequately capture heterogeneity in victimisation experiences has contributed to a gradual increase in the application of person-centred analyses (Debowska et al., 2017). This approach allows the identification of naturally occurring patterns in victimisation experiences, but to date, many studies have adopted a narrow definition of maltreatment that does not allow wide-ranging victimisation experiences to be captured in their entirety (Rivera et al., 2018). Therefore, the objective of the current study was to utilise latent class analysis to identify profiles among nine types of maltreatment in the home (physical, sexual and emotional abuse; physical and emotional neglect; exposure to verbal or physical domestic violence, or a drug-related threat; and sibling abuse), and to

inspect the association between profile of maltreatment and indicators of mental health and sociodemographic variables.

Commensurate with previous research (Debowska et al., 2017; Rivera et al., 2018), a solution comprising of four latent classes was found to provide the most parsimonious and conceptually meaningful approach to modelling patterns in maltreatment experiences. The low victimisation class was characterised by little to no endorsement of all maltreatment indicators. Although this still accounted for the largest proportion of participants (59.3%), this class was less numerous than in most studies of the general population (where it typically accounts for around 80–85% of participants; Debowska et al., 2017). This is most likely attributable to the inclusion of a wider range of maltreatment indicators, increasing the chances that children's victimisation experiences were captured by the questionnaire. This finding emphasises the importance of including a comprehensive range of subtypes in future research, since failure to do so carries the risk of underestimating the proportion of children who are subject to maltreatment.

We also recovered an emotional abuse and neglect class, which accounted for 19.0% of children in the sample. This class was characterised by a high likelihood of experiencing emotional abuse, a moderate likelihood of experiencing emotional neglect, and low-very low likelihoods of experiencing all other types of maltreatment. In contrast to the Crime Survey for England and Wales, which reveals that females are disproportionately represented among victims of emotional abuse (ONS, 2020), this class comprised of a similar proportion of boys and girls (48.8% and 52.2%, respectively). Again, the inclusion of a wider range of items pertaining to both emotional abuse and neglect most likely enabled boys' and girls' experiences to be more accurately captured. Compared to the low victimisation class, members of this class reported significantly higher symptoms of anxiety and depression, and a higher likelihood of non-suicidal self-injury, suicide ideation and suicide attempt. Emotional abuse and neglect are the least frequently measured subtypes in child abuse research (Moody et al., 2018), but given the seriousness of these associations, it is imperative that they are included in future research so that the true impact of child maltreatment on mental health can be properly ascertained.

The next most numerous class, accounting for 11.2% of participants, was a maltreatment and domestic violence class. This class was characterised by moderate to very high probabilities of experiencing physical and emotional abuse and neglect; sibling abuse; and exposure to physical and verbal domestic violence, and a drug-related threat. Although the likelihood of experiencing sexual abuse was low, this group was more likely than any other to report experiencing this type of victimisation. This suggests that when sexual abuse occurs within the home, it is most often experienced in conjunction with several other types of maltreatment, rather than in isolation. In this particularly

complex class, violence occurs within several dyads in the family, including between parents/adults, from parents/adults towards children, and between children/siblings. We did not collect information on the parent/adult responsible for perpetrating domestic abuse and child abuse, but in the event that this is the same person, it might be attributable to a lack of non-violent conflict resolution strategies for dealing with disputes and the challenges associated with parenting, or the internalisation of social norms (e.g. patriarchal attitudes) than condone violence against certain family members (Buffarini et al., 2021). This raises the possibility that perpetrator programmes designed to address deficits in interpersonal skills and attitudes that normalise violence, have the potential to reduce violence against multiple family members, including children. Another explanation for the co-occurrence of violence within families is the contagion effect, whereby negative styles of interaction are transmitted from one dyad to another (Van Berkel et al., 2018). For instance, parents/adults subjected to domestic abuse might be traumatised by their own victimisation experiences, leading to difficulties meeting the basic needs of children within the household. Stemming from a social learning theory perspective (Bandura, 1977), scholars contend that children who witness violence or neglect in the home begin to imitate these behaviours in their own relationships, resulting in aggression or a lack of supportive and empathic behaviours towards siblings (Button & Gealt, 2010). Further, violence between siblings contributes to parental stress, increasing the potential for harsh and dysfunctional parenting strategies (Van Berkel et al., 2018). The co-occurrence of multiple forms of violence among several family members calls for an integrated response to the problem involving several agencies/services and a systemic approach to intervention.

Members of the maltreatment and domestic violence class demonstrated the poorest psychological wellbeing, as evidenced by the highest symptoms of anxiety and depression, and the greatest proportion of children reporting a history of non-suicidal self-injury, self-harm and suicide attempt. In cases where violence is perpetrated by more than one family member, this might mean that several people in the home are associated with traumatic memories, reducing the availability of support mechanisms, and placing an even greater demand on children's personal coping strategies. Further, self-blame is often a significant component of victimisation trauma, and children who are subject to violence from multiple sources might find it more difficult to resist this negative self-attribution (Finkelhor et al., 2007). These findings highlight the importance of identifying the breath of children's maltreatment experiences – simply knowing that a child has been maltreated does not necessarily illuminate the degree of suffering and the potential seriousness of the impact on mental health.

Lastly, we recovered a high verbal domestic violence class, characterised by a very high probability of endorsing verbal domestic violence, moderate

probabilities of endorsing exposure to physical domestic violence and a drug-related threat and low or very low probabilities of endorsing all forms of direct maltreatment from parents/adults and siblings. Compared to the low-victimisation class, children belonging to this class reported higher symptoms of depression and anxiety, and an increased likelihood of non-suicidal self-injury, suicide ideation and suicide attempt. Despite the lower likelihood of direct maltreatment, it would appear that children might be indirectly affected by the emotional pain inflicted on parents/adults within the home, and professionals should be aware that this could be manifest in a range of different symptomology. This class accounted for 10.5% of participants, a similar proportion to the aforementioned maltreatment and domestic violence class. Previous research revealed that witnessing domestic violence confers an increased risk for other types of maltreatment (Hamby et al., 2010; Radford et al., 2011), but in contrast, the current findings highlight that it should not be assumed that a child who is exposed to domestic violence is also likely to have experienced direct maltreatment. Further inspection of the item response probabilities indicates that direct maltreatment is more likely to be associated with exposure to multiple forms of domestic violence (physical, verbal and a drug-related threat) than is exposure to verbal domestic violence only. This observation illustrates the usefulness of person-centred approaches in discovering qualitative differences in victimisation profiles that might signal a differential risk of other maltreatment experiences.

Differences were also observed in the sociodemographic composition of these two classes. Having three or more siblings predicted membership to the maltreatment and domestic violence class but not the high verbal domestic violence class. Moreover, members of the maltreatment and domestic violence class were more likely to be White whereas member of the high verbal domestic violence class were more likely to be non-White. Previous research by Finkelhor et al. (2007) also demonstrated that poly-victims were more likely to come from larger families, and although these children were more likely to be of Black ethnic origin, this might be attributable to the inclusion of a wider range of victimisation types in Finkelhor et al.'s study, including non-maltreatment. From an evolutionary perspective, it has been argued that siblings are natural-born competitors for material goods and parental attention (Dantchev & Wolke, 2019). This might explain why children from the maltreatment and domestic violence class were the most likely to report sibling abuse and having three or more siblings. These findings might carry important implications for the targeting of secondary prevention initiatives designed to protect children from further victimisation following exposure to a single type of maltreatment. However, this should not be the responsibility of a single sector, and close collaboration is required between agencies/services working with both adult and child victims in order to appropriately target interventions and monitor progress.

The current study should be interpreted in light of several limitations. First, we recruited participants from a small selection of schools and colleges and did not include children under the age of 10. This study warrants replication among a larger and more diverse sample to ascertain whether the findings can be generalised to children and adolescents as a whole. Second, we relied entirely on self-reported lifetime maltreatment, which was coded dichotomously (yes/no). This meant that we could not ascertain the age of onset or the frequency of maltreatment, which are important factors in predicting the severity of the impact on mental health (Rivera et al., 2018). Information pertaining to the sex of the perpetrator also was not collected, though this is understood to influence both the frequency/severity of abuse and the severity of post-traumatic stress symptomology among male victims (Gil, 2014). Future research should endeavour to use multi-rater assessments including a combination of self-report and parent/professional ratings, especially as the latter can be particularly useful in terms of gauging the age of onset and the severity or chronicity of abuse. It will also be important that future studies use assessments of mental health outcomes that have been validated for use within general population samples of children and young people. Third, the adoption of a cross-sectional design also precluded the identification of any causal relationships. It is entirely plausible, for instance, that one-parent households might reflect the breakdown of relationships following domestic or child abuse, as opposed to being a risk factor for the occurrence of violence. Further, children with mental health problems might be more vulnerable to abuse, and therefore we cannot be certain that indicators of poor mental health reflect a consequence of their victimisation. Longitudinal research is required to establish cause-effect relationships and developmental trajectories in mental health sequelae.

In conclusion, the current study provides important information how child abuse and neglect, exposure to domestic violence and sibling abuse can intersect to produce complex patterns of poly-victimisation. Compared to the low victimisation class, participants in the high verbal domestic violence class, emotional abuse and neglect class, and especially the maltreatment and domestic violence class, reported higher symptoms of anxiety and depression and an increased likelihood of non-suicidal self-injury, suicide ideation and suicide attempt. Associations with sociodemographic profiles also revealed important differences in the composition of the classes, such as an increased likelihood of one-parent families and larger families (more siblings) in the most severely victimised class. These findings indicate that future research would benefit from the incorporation of a broader range of victimisation experiences – academics investigating child abuse and neglect should be cognisant of exposure to domestic violence and sibling abuse, and vice versa. Although these findings already carry important implications for policy and practice, further research is needed to clarify our understanding of the

antecedents and consequences of maltreatment profiles so that we might be in a better position to identify the most vulnerable and severely victimised children with a view to implementing targeted prevention and harm reduction programmes.

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