

## Prevalence and Unintended Consequences of Corporal Punishment in Northern Ireland: Evidence to Support the Introduction of an Educational Prohibition?

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### Abstract

Implementation rates for corporal punishment (CP) are problematically high in Northern Ireland (NI). The government has resisted introducing legislative changes to ban corporal punishment despite repeated calls from the UNCRF. This study examined (1) links between CP and adult psychopathology and (2) characteristics of implementers and cycle breakers. Data were from 1,986 adults who completed the NI Study of Health and Stress. CP, maltreatment and parental bonding were queried using validated measures. Assessment of psychiatric disorders was based on DSM-IV criteria. Logistic regression analysis, population attributable fractions (PAFs), and chi-square tests of independence were conducted. Exposures were significantly linked with mood disorders and substance use disorders (SUDs). Forty four per cent of parents implemented CP. Maintainers (21.6%) and cycle breakers (4.7%) were more likely to have reported physical abuse, exposures to domestic violence and suffer from SUDs. Cycle breakers were more likely to be married and to have been exposed to child sexual abuse (CSA). Eliminating exposures to CP may significantly reduce the prevalence of psychopathology, particularly SUDs. Prohibition should be flanked by ongoing educational media campaigns to effectively reduce CP implementation. Targeted capacity building supports should be considered for parents who themselves were exposed to certain childhood adversities.

**Keywords:** Physical punishment; Smacking prohibitions; Mood disorders; SUDs; Intergenerational transmission; Cycle breaking

### Introduction

Substantive bodies of evidence suggest that exposures to violence during childhood transmit psychopathology from one generation to the next [1-3]. It therefore stands to reason that the elimination of this mediating pathway should form the basis of any mental health strategy aimed at reducing the prevalence of mental disorders. Indeed, the use of corporal punishment (CP) as a means of disciplining children is a very common, although a highly controversial, childrearing practice both in NI [4,5] and internationally [6]. The United Nations has unequivocally stated that CP is a form of violence [7] and it should be banned in all contexts. CP prohibition, when accompanied by ongoing educational media campaigns, has been found to act as a catalyst for parental attitudinal change towards the acceptability of its use. Importantly, prohibition has also been linked to significant reductions in the perpetration of violence against children [8,9]. However, CP prohibition is a notoriously divisive issue for two main reasons. First because of concerns, albeit unmerited, that prosecutions might proliferate following the introduction of legislative changes. However, states where CP has been banned have not experienced a proliferation of parental prosecutions because only extreme cases make their way into the court system [8]. The second reason relates to an ongoing debate in relation to the magnitude of the negative consequences associated with its use [10-12].

Full prohibition of CP in NI would be achieved by removing the defence of reasonable chastisement from common law. This legislative change would offer children the same protection from exposures to

violence that adults have. However, only 30% of the NI population support the introduction of a complete ban on the use of CP in all contexts [13]. Indeed, it is a matter of concern that 65% of mothers of 5 year olds reported implementing CP [5]. Notably, these reported rates are considerably higher in NI than in other areas of the UK [5]. Additionally, the NSPCC found an increase in the level of acceptance towards its implementation on children aged three to ten between the years 2003 and 2009 [13]. There is an ongoing debate surrounding the magnitude of the negative consequences associated with the implementation of CP. Ferguson et al. [10] reported that CP has not only few benefits, but also fewer negative consequences than often assumed. Implementation however, has been linked with emotional and behavioural problems in children [14-16]. Additionally findings from large scale prospective studies suggest that CP is a risk factor for child aggression and antisocial behaviour while controlling for initial levels of child antisocial behaviour and levels of emotional support in the home [12,14,16,17] argue that the use of CP can be beneficial under certain conditions. They argue that prohibitions should not be introduced unless evidence is provided that the use of CP, when implemented non-abusively (correct dosage) and in appropriate disciplinary situations, is shown to be associated with negative outcomes. [18] reported that the outcomes of CP compared unfavourably with alternative disciplinary tactics only when it was the *primary* disciplinary method or if implementation was too severe. However, Holden et al. [19] found that parents who used CP did not follow the guidelines. Their findings identified that parents used CP frequently, impulsively and emotionally rather than using it intentionally and as a last resort. Further Durrant et al. [20] revealed that most cases of child physical abuse began with a parent implementing CP for a perceived misbehaviour. The difference

therefore between physical punishment and physical abuse is related to degree (duration, amount of force, object used) rather than intent.

It is noteworthy that only a few studies have reported no association or even a negative association between parental use of CP and child behaviour problems [18,21]. Tennant et al. [22] for example reported that CP reduced drug abuse more than non-CP. However harsh CP has consistently been linked to both depression and substance misuse in the literature [1-3]. A recent study found that exposures to harsh CP act as sub-traumatic stressors that contribute to brain alterations, particularly in dopaminergic pathways, which mediate an increased vulnerability to drug and alcohol abuse [12,23] argue that rare exposures, within an authoritative parenting context, should not be associated with negative outcomes. However the findings of Sheu et al. [23] suggest that even rare exposures may increase the risk for SUDs. Bunting et al. [4] revealed an overall CP implementation rate of 47% in NI. Parents in lower income categories and members of the Protestant community were found to be more likely to be implementers. Additional research is now required to identify characteristics of parents at greatest risk for maintaining implementation. Transmission of parenting behaviours is widely viewed as multiply determined. A parent's history of adversity has been identified as a key risk factor for exposures among his or her own children [24-26]. Berlin et al. [27] found that parental history of physical abuse but not neglect directly predicted offspring victimization. [28] reported that cycle breakers were significantly more likely to have received emotional support during childhood and to have had a non-abusive and more stable, emotionally supportive, and satisfying relationship with a mate. Shonkoff et al. [29] suggest that access to nurturing human relationships preserves the ability to regulate stress levels. This capacity may also be crucial for breaking cycles of transmission. Evidence suggests that survivors of CSA are more likely to become permissive parents and they have been found to lack the ability to provide consistent discipline, and clear behavioural expectations for their children [30]. This suggests that survivors of CSA may not implement CP.

This study sought to (1) initiate an investigation of the links between CP exposures and mental health outcomes in NI and (2) identify parental characteristics associated the transmission of its implementation. It was predicted that frequent exposures to CP, while controlling for parental warmth and over-control, and in the absence of maltreatment, would be associated with adult psychiatric outcomes. Rare exposures were also predicted to be linked with SUDs. Based on previous research it was predicted that exposures to neglect and CSA and relationship status would differentiate maintainers of implementation from cycle breakers.

## Methods

### Survey

Data from 1,986 participants (950 males, 1036 females; age range 18-93 yrs) who completed part II of the Northern Ireland Study of Health and Stress (NISHS) were analyzed. The study is part of the World Mental Health (WMH) Survey Initiative [31]. The NISHS is a representative survey of English-speaking household residents aged 18 years and older in NI. The sample was selected under a multi-stage area sample design based on a probability proportional to size (PPS) selection strategy. A more detailed description of the methods, sampling strategy, survey instrument and weighting procedures are outlined elsewhere [32].

### Measures of independent variables

Socio-demographic characteristics included gender, age-at-interview, marital status (married/cohabitating, separated/divorced/widowed, and never married), years in education and religion (Protestant/Catholic/other). Economic adversity during childhood was assessed with questions about the receipt of welfare and other government assistance and queried whether the family often lacked enough money to pay for basic necessities of living. Childhood corporal punishment was assessed using a modified version of the Conflict Tactics Scale [33] with the question, "When you were growing up, how often did someone in your household do any of these things to you-pushed, grabbed or shoved, threw something, slapped or hit". Frequent CP was coded as often and sometimes. Rare CP was coded as rare exposure.

**Parental maladjustment:** A modified version of the Family History Research Diagnostic Criteria Interview [34] was used.

**Parental bonding:** The following questions from a modified version of the Parental Bonding Instrument [35] were used : (a) "How much love and affection did she/he give you"(Care 1); (b) "How much effort did she/ he put into watching over you and making sure you had a good upbringing" (Care 2); (c) "How much did she/he stop you from doing the things that other kids your age were allowed to do" (Control 1); (d) "How strict was she/he with her/his rules for you" (Control 2). The questions were based on a 4-point Likert scale [a lot (1), some (2), a little (3) and not at all (4)]. Overall scores for maternal and paternal care and control were computed separately by totalling the scores for the care and control items. These factor scores were then centred for use in the regression analysis.

**Conflict trauma:** Individuals were assigned to a conflict-related category if they experienced conflict related events from 1968 onwards. A detailed description is outlined elsewhere [36,37].

### Measures of Dependent Variables

Assessment of Disorders was based on the CIDI version 3.0, a fully structured lay administered diagnostic interview. This is the same instrument utilised by all WMH Survey Initiative countries [38]. Results presented in this paper are based on DSM-IV criteria [39] and the following disorders were examined: anxiety disorders (panic disorder, generalized anxiety disorder (GAD), social phobia, specific phobia, agoraphobia without panic, posttraumatic stress disorder (PTSD), obsessive compulsive disorder (OCD) and separation anxiety disorder/adult separation anxiety (SAD/ASA); mood disorders (major depressive disorder (MDD), dysthymia and bipolar disorder); substance use disorders (alcohol abuse, drug abuse, alcohol dependence, drug dependence).

### Child maltreatment

Physical, sexual abuse and neglect were assessed using measures developed for the NCS-R [40]. A modified version of the Conflict Tactics Scale [33] was used to query exposures to domestic violence. Physical abuse was defined as being beaten up by a caregiver. Rape was defined as someone either having sexual intercourse with the respondent or penetrating their body with a finger or object when they did not want them to, either by threatening them or using force, or when they were so young that they didn't know what was happening. Sexual molestation was defined as inappropriate or unwanted touching. The various dimensions of neglect were assessed using the

following questions: (a) “How often were you made to do chores that were too difficult or dangerous for someone your age”; (b) “How often were you left alone or unsupervised when you were too young to be alone”; (c) “How often did you go without things you need like clothes, shoes, or school supplies because your parents or caregivers spent the money on themselves”; (d) “How often did your parents or caregivers make you go hungry or not prepare regular meals”; (e) “How often did your parents or caregivers ignore or fail to get you medical treatment when you were sick or hurt” ?; Exposure to intimate partner violence was assessed using the following question : “How often did (your parents/the people who raised you) do any of these things, pushed, grabbed or shoved, threw something, slapped or hit each other, while you were growing up”.

### Analysis plan I

Associations between Exposures to Corporal Punishment and Mental Health Outcomes. The overall prevalence of exposures to corporal punishment and maltreatment were estimated using the entire part II sample (n = 1986; mean age = 45.44; Female = 52.5%). The complex samples module of SPSS [41] was used to accurately account for design effects associated with stratification and clustering. Chi-square tests of independence were conducted to test for gender and age cohort differences for the queried exposures. To ensure that CP was considered in the absence of more severe child maltreatment, respondents who endorsed severe physical abuse (n = 57), childhood rape (n = 53), sexual molestation (n = 102), or any exposure to intimate partner violence (n =181) were excluded before performing the logistic regression analyses (n = 1670; mean age = 45.69; Female = 51.4%). The logistic regression analyses were performed in Mplus [42] using the MLR estimator and while including the part II weight, stratification and cluster variables. This ensured that the standard errors were accurately adjusted to account for design effects. The PAFs were calculated using the following formula:  $P = \frac{OR-1}{1+OR-1}$ , where P was the proportion of CP endorsed in the population and OR was equal to the odds ratio for adult onset psychopathology.

### Implementation of corporal punishment

A subsample of parents (n = 1119) were queried in relation to their use of CP. Implementation was assessed using an item from the modified version of the Conflict Tactics Scale [33]: “How often did/do you do any of these things to your own children – pushed, grabbed or shoved, threw something, slapped or hit”. Responses were based on a 4-point Likert scale (often, sometimes, rarely and never). Any reported implementation was coded as an endorsement of CP.

### Analysis Plan II

Prevalence of Implementation and Characteristics of Implementers and Non-Implementers. The percentage of parents who implemented or did not implement corporal punishment on their own children (n = 1119; mean age = 51.58; Female = 58.3%) were estimated. In order to examine patterns of transmission 4 binary coded variables were created. Maintainers of corporal punishment endorsed exposure to corporal punishment and implemented corporal punishment on their own children. Maintainers of no implementation were not exposed to corporal punishment and nor did they implement on their own children. Cycle breakers reported exposures to corporal punishment but did not report implementing on their own children. Initiators were not exposed to corporal punishment but reported implementing on their own children. Chi-square tests of independence and associated

odds ratios were estimated to investigate the profiles of the various groups.

## Results

### Descriptive statistics

Table 1 reveals that three out of ten adults reported exposures to CP. Males were significantly more likely to report exposures to CP ( $\chi^2 = 14.02, 1, 42, p < 0.001$ ; OR = 1.44, 95% CI = 1.16-1.78) and physical abuse ( $\chi^2 = 8.18, 1, 42, p < 0.05$ ; OR = 2.21, 95% CI = 1.10-4.44) but were less likely to have reported rape ( $\chi^2 = 21.59, 1, 42, p < .01$ ; OR = 0.15, 95% CI = 0.04 – 0.56) and molestation ( $\chi^2 = 9.90, 1, 42, p < 0.01$ ; OR = 0.46, 95% CI = 0.24- 0.88) than females. Cohort effects were evident: the 35-49 year category were more likely to have reported exposures to CP ( $\chi^2 = 30.85, 1, 42, p < 0.0001$ ; OR = 1.77, 95% CI = 1.34-2.33) , neglect ( $\chi^2 = 10.34, 1, 42, p < 0.05$ ; OR = 2.75, 95% CI = 1.12-6.77) and domestic violence ( $\chi^2 = 16.10, 1, 42, p < 0.01$ ; OR = 1.95, 95% CI = 1.20-3.18) than those aged 65 or over. Just over a quarter of respondents reported exposures to CP in the absence of maltreatment (see Table 2). Males were significantly more likely than females to have reported exposures to CP ( $\chi^2 = 11.82, 1, 42, p < 0.01$ ; OR = 1.47, 95% CI = 1.13-1.92).

	CP	Rape	Molestation	Neglect	Physical Abuse	Domestic Violence
N	695	53	102	48	57	181
Weighted %	31.30%	2.10 %	3.80%	1.90%	2.90%	7.90%
Male	308**	6	24	17	26*	73
(n = 822)	35.40%	0.50 %	2.40%	2.10%	4%	8.30%
Female	387	47*	78*	31	31	108
(n = 1164)	27.50%	3.50 %	5.10%	1.80%	1.80%	7.50%
18-34yrs	169	18	25	7	19	51
(n = 502)	29.70%	3.20 %	3.50%	0.90%	3.30%	7.70%
35-49yrs	252***	14	38	19*	17	67**
(n = 595)	40%	1.50 %	4.90%	3.40%	3.40%	11.60%
50-64yrs	201	14	27	15	14	50
(n = 519)	33%	2%	3.90%	1.70%	2.80%	7%
65-93yrs	73	7	12	7	7	13
(n = 370)	16.80%	1.20 %	2.40%	1.40%	1.20%	3.10%

Note: \*\*\*p<.001,\*\*p<.01, \*P<.05 for  $\chi^2$  tests of independence. 65+ was used as comparison.

**Table 1:** Rates of CP and maltreatment exposures by gender and age cohort.

Frequency of Exposure	Overall	Male**	Female
	25.50%	29.30%	22%
Rare (n)	266	135	131
Weighted %	14%	15.90%	12.20%
Frequent (n)	205	89	116
Weighted %	11.50%	13.40%	9.80%

Note\*\*p<.001, for  $\chi^2$  tests of independence.

**Table 2:** Rates of CP exposures for subsample with no maltreatment.

	Any Disorder Anxiety	Any Disorder Mood	Any SUD
	OR (95%CI)	OR (95%CI)	OR (95%CI)
Gender	0.40*** (0.28-0.57)	0.50*** (0.38-0.65)	4.31*** (3.04-6.11)
Age	0.99 (0.980-1.00)	0.98*** (0.97-0.99)	0.97*** (0.96-0.99)
Maternal Care	1.11 (0.82-1.50)	1.15 (0.92-1.44)	1.05 (0.90-1.13)
Maternal Control	0.88* (0.80-0.98)	0.92 (0.81-1.03)	1.01 (0.90-1.13)
Paternal Care	1.02 (0.91-1.13)	1.1 (0.97-1.24)	1.23* (1.05-1.45)
Paternal Control	1.05 (0.95-1.15)	1.05 (0.95-1.16)	1.01 (0.88-3.21)
Parental Maladjustment	3.29*** (2.02 – 5.36)	3.03*** (2.03-4.50)	2.96*** (1.65-5.38)
Childhood Economic Adversity	1.62 (0.90-2.90)	1.69 (0.89-3.21)	1.54 (0.77-3.07)
Rare Corporal Punishment	1.06 (0.69-1.64)	1.09 (0.77-1.54)	1.77* (1.02-3.08)
Frequent Corporal Punishment	1.34 (0.84-2.12)	1.63* (1.07-2.50)	2.26* (1.18-4.33)
Conflict Trauma	2.47*** (1.81-3.39)	1.85*** (1.36-2.51)	1.64* (1.07-2.53)
R2	13.9%***	11.9%***	30.5%***

Note: OR, odds ratio; CI ,confidence interval,\*\*\*p< 0.0001,\*\*p < 0.01, \*P< 0.05

**Table 3:** Associations between CP exposures and psychiatric disorders.

## Binary Logistic Regression Analyses

### Anxiety disorders

Overall there was a higher prevalence of psychiatric disorders in both the frequent and rare CP exposure groups than the no exposure group. The results of the binary logistic regression analysis are presented in Table 3. No significant differences in risk for anxiety disorders were found between groups. The strongest predictor of anxiety disorders in this regression model was parental maladjustment (OR = 3.29, 95% CI = 2.02-5.36). The percentage of anxiety disorders that was explained by the model was a modest 13.9%.

### Mood disorders

For any mood disorder the prevalence was 15.4% in the no exposure group, 20.4% in the rare and 27.7% in the frequent exposure group. No significant difference was found between the rare and the no exposure group. The frequently exposed group were found to be significantly more likely to suffer from a mood disorder than the no exposure group (OR = 1.63, 95% CI = 1.07-2.50). The strongest predictor of mood disorders in this regression model was parental maladjustment (OR = 3.03, 95% CI = 2.03-4.50). The percentage of mood disorders that was explained by the model was a modest 11.9%.

### SUDs

The prevalence for SUDs was 8.8% in the no exposure group, 18.9% in the rare and 22.9% in the frequent exposure group. Both rare (OR = 1.77, 95% CI = 1.02-3.08) and frequent exposures (OR = 2.26, 95% CI = 1.18-4.33) were found to be significantly linked with the development of SUDs. Males were significantly more likely to suffer from a SUD (OR = 4.31, 95% CI = 3.04-6.11). Gender was the strongest predictor of SUDs in this model. The percentage of SUDs that was explained by the current model was a substantial 30.5%.

### Population attributable fractions (PAFs)

A reduction of 7% in mood disorder cases could have been achieved if frequent exposures to corporal punishment were eliminated (0.12(1.63-1)/0.12(1.63-1) +1). This compares to a 22.9% reduction in mood disorders if conflict trauma exposures were eliminated (0.35(1.85-1)/0.35(1.85-1) +1). A reduction of 13.3% in SUDs could have been achieved if frequent exposures to corporal punishment were eliminated (0.12(2.26-1)/0.12(2.26-1)+1) and a further reduction of 9.7% if rare exposures were eliminated (0.14(1.77-1)/0.14(1.77-1)+1).This compares to 18.3% of a reduction in SUDs if conflict trauma exposures were eliminated (0.35(1.64-1)/0.35(1.64-1)+1). These figures are based on the assumptions that the relationship between exposures and onset of psychopathology are causal and that the distribution of all other variables remains constant.

### Prevalence and characteristics of maintainers of implementation

Maintainers of implementation represented 21.6% of the parent population. They were more likely to be aged between 35-49 years than

older than 65 years ( $\chi^2 = 25.80$ , 1, 42,  $p < 0.01$ ; OR = 2.10, 95% CI = 1.48-2.97). Those aged between 18-34 years were less likely to be maintainers than those aged over 65 years ( $\chi^2 = 8.12$ , 1, 42,  $p < 0.05$ ; OR = 0.50, 95% CI = 0.27 - 0.94). Maintainers were more likely to be male ( $\chi^2 = 7.54$ , 1, 42,  $p < 0.05$ ; OR = 1.49, 95% CI = 1.08-2.06), to suffer from SUDs ( $\chi^2 = 14.74$ , 1, 42,  $p < 0.001$ ; OR = 2.27, 95% CI = 1.48-3.46), and to identify themselves as not belonging to either the Catholic or Protestant religious communities ( $\chi^2 = 12.44$ , 1, 42,  $p < 0.05$ ; OR = 2.27, 95% CI = 1.11 - 4.64). Maintainers were more likely than those in other categories to have reported parental maladjustment ( $\chi^2 = 22.56$ , 1, 42,  $p < 0.001$ ; OR = 3.15, 95% CI = 2.01-4.95) and to have also been exposed to domestic violence ( $\chi^2 = 2.80$ , 1, 42,  $p < 0.001$ ; OR = 9.11, 95% CI = 4.55-18.24), physical abuse ( $\chi^2 = 47.00$ , 1, 42,  $p < 0.001$ ; OR = 8.91, 95% CI = 2.40-33.14) and neglect ( $\chi^2 = 43.22$ , 1, 42,  $p < 0.001$ ; OR = 13.22, 95% CI = 3.50 - 49.91).

### Prevalence and characteristics of maintainers of no implementation

Maintainers of no implementation made up 51.6% of the population. They were more likely to be members of the 18-34 year cohort ( $\chi^2 = 22.28$ , 1, 42,  $p < 0.01$ ; OR = 2.34, 95% CI = 1.36-4.00) and less likely to be members of the 35-49 year cohort ( $\chi^2 = 9.36$ , 1, 42,  $p < 0.05$ ; OR = 0.68, 95% CI = 0.49-0.96) than to be aged 65 or over, compared with all other groups. They were also significantly less likely to suffer from a mood ( $\chi^2 = 4.58$ , 1, 42,  $p < 0.05$ ; OR = 0.70, 95% CI = 0.52-0.94) or SUD ( $\chi^2 = 5.88$ , 1, 42,  $p < 0.01$ ; OR = 0.43, 95% CI = 0.26-0.71) or to have been exposed to neglect ( $\chi^2 = 17.83$ , 1, 42,  $p < 0.01$ ; OR = 0.08, 95% CI = 0.01-0.46) or domestic violence ( $\chi^2 = 72.90$ , 1, 42,  $p < 0.001$ ; OR = 0.05, 95% CI = 0.02-0.13) than other groups. Additionally they were more likely to identify themselves as belonging to either the Catholic or Protestant religious communities than to be a non-believer or to belong to another religious faith ( $\chi^2 = 10.01$ , 1, 42,  $p = 0.05$ ; OR = 0.48, 95% CI = 0.23-1.00).

### Prevalence and characteristics of cycle breakers

Cycle breakers made up 4.7% of the parent population. They were less likely to be separated than married ( $\chi^2 = 6.31$ , 1, 42,  $p = 0.01$ ; OR = 0.22, 95% CI = 0.08 - 0.61). They were more likely to suffer from SUDs than other groups ( $\chi^2 = 18.49$ , 1, 42,  $p = 0.01$ ; OR = 3.82, 95% CI = 1.70 - 8.61). They were more likely to have been exposed to sexual abuse ( $\chi^2 = 4.88$ , 1, 42,  $p = 0.05$ ; OR = 2.77, 95% CI = 1.00-7.93), domestic violence ( $\chi^2 = 31.85$ , 1, 42,  $p = 0.001$ ; OR = 5.58, 95% CI = 2.23-13.93) and physical abuse ( $\chi^2 = 22.96$ , 1, 42,  $p = 0.01$ ; OR = 7.39, 95% CI = 1.65-33.08). They were also significantly more likely to identify themselves as non-believers or as not belonging to the Catholic or Protestant religious communities ( $\chi^2 = 6.86$ , 1, 42,  $p = 0.01$ ; OR = 2.66, 95% CI = 1.35-5.24).

### Prevalence and characteristics of initiators

Cycle initiators made up 21.9% of the population. They were more likely to be aged over 50 years. Specifically members of the 18-34 ( $\chi^2 = 15.65$ , 1, 42,  $p = 0.01$ ; OR = 0.35, 95% CI = 0.18-0.69) and members of the 35-49 ( $\chi^2 = 5.09$ , 1, 42,  $p = 0.05$ ; OR = 0.71, 95% CI = 0.50-0.99) cohorts were less likely than those aged over 65 years to be initiators. Those aged 50-64 years were more likely to be initiators, than those aged over 65 years, but this was not significant. Initiators were less likely to be male ( $\chi^2 = 9.71$ , 1, 42,  $p = 0.01$ ; OR = 0.63, 95% CI = 0.47-0.85) or to have been exposed to domestic violence ( $\chi^2 = 6.90$ , 1, 42,  $p = 0.05$ ; OR = 0.38, 95% CI = 0.17-0.85) or neglect ( $\chi^2 = 5.75$ , 1,

42,  $p = 0.001$ ; OR = 0.05, 95% CI = 0.01-0.45) than the other groups. Additionally years in education was not significantly associated with a pattern of initiation.

## Discussion

This study encompassed an extension of related research from the US and Canada in two important ways. First, parenting style characteristics were controlled for, and second, links between rare exposures and SUDs were investigated. Attention was then turned to identifying characteristics associated with the continuity and discontinuity of CP implementation. Based on previous research, it was predicted that childhood exposures to neglect and CSA and a secure relationship with a partner would differentiate maintainers of CP implementation from cycle breakers.

## Major Findings

The reported prevalence of frequent exposures to CP, in the absence of maltreatment, was considerably higher in NI (11.5%) than in a US sample (5.9%) Afifi et al. [2]. Conversely the prevalence rates of other forms of maltreatment were lower than those in a Canadian sample, with the exception of domestic violence [43]. Contrary to expectations exposures to CP were not significantly linked with anxiety disorders. This result is not consistent with findings from the US [2] or Canada [43]. A possible explanation for this divergence may be the inclusion of parenting characteristics in this study. Indeed, maternal over-control was significantly linked with anxiety disorders. As expected, frequent exposures to CP were significantly associated with mood disorders and the magnitude of the risk was similar to that reported by Afifi et al. [2] in the US sample. Additionally rare exposures were significantly linked with SUDs. These findings corroborate and extend upon findings from the US and Canada by establishing that rare exposures were also linked with SUDs. These findings suggest that reducing the implementation of CP could significantly reduce the development of SUDs.

The findings highlight the need for public health interventions to support parents to eliminate CP implementation because cycle breaking appears to be rare. It is clear however, that cycle breaking is possible, even for those who experienced additional adversities and who developed SUDs. As predicted cycle breakers were more likely to be married than separated. Exposures to neglect were not significantly associated with cycle breaking. Additionally those exposed to CSA were more likely to be cycle breakers. As discussed Ruscio et al. [30] found that CSA survivors were more likely to become permissive parents and suggested that they may lack the ability to provide consistent discipline for their children. The current findings suggest that exposures to CSA may alter the course of the transmission cycle but further research in this area is necessary to clarify the implications of this for children of CSA survivors.

Maintainers of implementation were more likely to be males. They were also more likely to have had a parent who displayed maladjustment and to have been exposed to domestic violence and neglect. Exposures to neglect that co-occur with maltreatment are associated with decreased capacities to regulate emotions and behavioural responses [29]. These are essential skills for effectively and adaptively navigating challenging childrearing situations. The current findings are not congruent with those of Berlin et al. [27] who found that a history of physical abuse but not neglect directly predicted offspring victimization. However Berlin et al. operationalized continuity as a child having a visible bruise or physical injury. Our

study suggests that parental exposures to neglect do increase the likelihood of implementing CP which is known to increase the risk of perpetrating child physical abuse.

Bunting et al. [4] found that members of the Protestant faith were more likely than Catholics and members of other religious communities to implement CP in NI. The current findings are not consistent with those results. Our findings instead highlight that transmission is associated with exposures to childhood maltreatment and also with SUDs in parents. These findings are consistent with previous international research [24-27]. It was interesting that cycle breakers were also more likely to suffer from a SUD. Data was not available to investigate if those who broke cycles of implementation may have been in recovery from addiction and future research should address this issue.

## Limitations and Strengths

Findings of the current study must necessarily be considered in light of a number of limitations.

**Limitations:** Data on childhood experiences were collected retrospectively, which may introduce some sampling error due to reporting and recall bias. There is evidence however, that validates the reliability of the recall of adverse childhood events [45]. The sample may not be fully representative of the population as a number of groups were omitted, including those with learning disabilities, immigrants, homeless people, and those in institutions. However this study followed the standardised format of the WMH-CIDI. Additionally the sub-sample of parents in this survey did not include parents under 18 years. These may represent a particularly vulnerable subgroup of parents within the population. This highlights the need for caution in relation to the finding that parents in the youngest cohort are less likely to implement CP.

It was not possible to test if cycle breakers had access to an emotionally supportive adult during childhood as this aspect of childhood experience was not queried. The exclusion of such items is a major limitation of the WMH-CIDI and needs to be addressed during the development of future survey instrumentation. The associated odds ratios for the chi-square Tests of Independence were very broad for domestic violence, physical abuse and neglect in the maintainers of implementation and cycle breakers groups due to low prevalence. The probability values suggest the associations hold in the population, but the precision of these estimates for extrapolation to the population has been obscured. However, considering the practical importance of profiling these groups elucidation was considered important. Finally the findings in relation to patterns of transmission from this survey may not be generalizable to other populations. It is important to investigate if the prevalence figures for initiation of CP implementation, in those aged over 50 years, represents an international phenomenon, or if it was a pattern that emerged in NI during the civil conflict.

While the study has some limitations, it nevertheless adds significantly to the previous literature on the association between exposures to CP and psychiatric outcomes, particularly SUDs. The current findings clarify that CP is linked to adult mental health outcomes independently of parenting characteristics. It also establishes a link between rare exposures to CP and SUDs. Additionally it contextualises the magnitude and specificity of this association by comparing it with the conflict trauma PAFs. It appears that conflict exposures impacted on a broad range of psychopathological outcomes

while the impacts of CP exposure seem to be more restricted. These findings are consistent with the hypothesis that exposures to CP act as sub-traumatic stressors and increase the likelihood of drug and alcohol abuse. Finally the results provide important information about the transmission of parenting behaviours using a representative sample. These findings offer a strong foundation for developing effective evidence informed approaches for reducing implementation and promoting positive parenting. The findings also highlight that CSA survivors deviate from other maltreatment subtypes in terms of CP implementation. This is an area that deserves the focused research attention of epidemiologists who are interested in patterns of transmission.

## Policy and Practice Implications

The high prevalence figures and the clear links with psychopathology, particularly SUDs, highlight the need to actively reduce CP implementation in NI. Additionally, it is a matter of concern that the NSPCC reported an increase in the level of acceptance towards its implementation on children aged three to ten between the years 2003 and 2009 [13]. Proponents of conditional CP argue against banning corporal punishment and suggest mentoring for parents in a broad range of behaviour management strategies, including CP. From a children's rights perspective this approach constitutes a violation of children's rights. This approach suggests that certain thresholds of violence are beneficial during childrearing. There is no evidence to support this position. Research instead highlights that prohibition is the most effective strategy for modifying parental attitudes towards the acceptability of CP implementation and for reducing the perpetration of violence against children [8,9].

The current findings also highlight that prosecuting parents who themselves were exposed to maltreatment during their own childhoods may not be helpful, or indeed humane. Instead the introduction of capacity building interventions for vulnerable parents is suggested. These interventions should not rely exclusively on information provision, but instead target specific skill deficits associated with exposures to maltreatment. Shonkoff et al. [29] argue that the best way to augment child outcomes is to enhance the care-giving environment by strengthening executive functioning skills and mental health in parents. Although there is currently a paucity of experimental evidence, some promising programs for parents are using coaching, multimedia, and computer games that have been specifically designed to create ways for these adults to improve memory, focus, attention, impulse control, organization, problem solving, and multitasking skills [45]. Mindfulness meditation training, mind-body exercises (e.g., relaxation breathing practice), and brain games are tools that may increase the quality of parent-child interactions, and likely better mental health and health outcomes [46,47].

## Conclusion

CP during childrearing is a highly divisive subject area and this can interfere with the summoning of political will to effectively reduce implementation. The evidence however is clear, corporal punishment is not an effective disciplinary strategy, and its use is linked with a host of enduring negative outcomes. The majority of states who introduced prohibition did not have a majority in favour of a ban when the defence was removed from common law. The introduction of legislative changes therefore needs to be construed as an educational and not a punitive measure. In order to support parents to uphold the law, and to avoid prosecutions, legislative changes should be flanked by

educational media campaigns. Additionally more targeted capacity building interventions should be put in place for parents who suffered childhood toxic stress exposures. Eliminating exposures to corporal punishment may significantly reduce the prevalence of psychopathology in future generations, particularly SUDs.

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