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## Examining the unique contributions of parental and youth maltreatment in association with youth mental health problems

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## ABSTRACT

**Background:** Extensive research seeks to understand the intergenerational impact of child maltreatment. However, it remains unclear how parent's history of child maltreatment (PCM) is associated with child mental health, after accounting for children's experiences of maltreatment and other proximal risk factors.

**Objective:** This study examines the associations between PCM and youth internalizing and externalizing problems, while accounting for youth experiences of maltreatment (YM), and parent mental health and positive parenting.

**Participants and setting:** Youth aged 14 to 17 years ( $N = 2266$ ) participated in the 2014 Ontario Child Health Study.

**Methods:** Parents and youth reported their experiences of child maltreatment. Parent-report and self-reports of youth internalizing and externalizing problems were also collected. Number of subtypes of maltreatment and specific subtypes of maltreatment were examined. Parents reported their own mental health problems and positive parenting practices.

**Results:** Regarding number of maltreatment subtypes, initially PCM was associated with parent-reported, but not self-reported, youth internalizing and externalizing problems. After accounting for YM, parent mental health problems and positive parenting, only YM remained significant. Regarding specific subtypes of maltreatment, both parent and youth emotional abuse were related to parent- and youth-reported internalizing and externalizing problems, after controlling for other maltreatment subtypes. However, the effects of parent emotional abuse became nonsignificant after accounting for YM and proximal risk factors.

**Conclusions:** Findings indicate: 1) the unique associations between specific PCM and YM subtypes and youth mental health problems; 2) the role of proximal risk factors in explaining the association between PCM and youth mental health; and 3) the importance of multiple informants of youth mental health problems.

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## 1. Introduction

Child maltreatment is a global problem with widespread adverse health outcomes (Hughes et al., 2017). Reducing child maltreatment and the associated consequences is an international priority, given its health, social, and economic burden—Canadian annual cost is \$23 billion (Public Health Agency of Canada (PHAC), 2016). Maltreatment and its associated consequences can be transferred from one generation to the next, such that parental history of childhood maltreatment (PCM) increases the risk for maltreatment of offspring (Assink et al., 2018; Madigan et al., 2019). Evidence indicates that a parent's own history of maltreatment exposure, as well as their offspring's exposure to maltreatment can place children at elevated risk of experiencing mental health difficulties (Madigan et al., 2019; Plant et al., 2018). At the same time, these negative outcomes are by no means a certainty; there is great heterogeneity in the associations between PCM or child maltreatment and child mental health (Bödeker et al., 2019; English et al., 2005). The present study focuses on a sample of youth (age 14–17) to disentangle the associations between PCM, youth experiences of maltreatment (YM), and youth internalizing and externalizing problems, by accounting for the role of proximal factors (parenting behavior, parent depression) and assessing both parent and youth reports of youth psychopathology.

### 1.1. Theoretical framework

The bioecological model (Bronfenbrenner and Morris, 2006) can provide a theoretical framework through which to understand how PCM, YM, and more proximal environmental factors are related to the development of internalizing and externalizing problems. Bronfenbrenner's (1979) original ecological model proposed that distal factors, which describe the more general environmental influences on the child (e.g., parental history of childhood maltreatment), only impact child development to the extent that they influence more proximal factors (e.g., experiences of child maltreatment, parent mental health). The Bioecological Model (Bronfenbrenner and Evans, 2000; Bronfenbrenner and Morris, 2006) emphasizes the importance of interactions between individuals and their environment, called proximal processes. The impact of these processes on child development depends on the individual (including biological factors), their immediate proximal and distal environmental contexts, and the specific time periods that these processes take place. In the present study, we examine the distal association between PCM and youth psychopathology, as well as the more proximal associations between the youth's direct experience (i.e., YM) and factors related to the parent-child relationship.

### 1.2. Adolescent internalizing and externalizing problems

Adolescence is a fundamental developmental period marked by neurobiological pruning, cognitive maturation, physical growth, and psychosocial transitions (Blakemore and Mills, 2014; Casey et al., 2008). Although there are many opportunities for growth, adolescence is also a period of vulnerability to psychopathology (Ernst and Korelitz, 2009). Adolescent mental health difficulties have often been categorized into internalizing (i.e., anxiety, depression, withdrawal, somatic complaints) and externalizing (i.e., aggression, oppositionality, conduct) problems. A recent population-based survey from Ontario, Canada indicated that 18.2% and 21.8% of youth experienced a mental health disorder, based on parent and youth reports, respectively (Georgiades et al., 2019). Adolescence is a period of increased individuation, thus capturing both parent and youth reports of mental health problems is essential. It is important to understand the risk factors associated with psychopathology at this transitional stage of development, given the strong link between adolescent mental health difficulties and adult mental and physical health problems (e.g., McGue and Iacono, 2005).

### 1.3. Parent history of maltreatment and child mental health

Several studies have shown associations between PCM and child internalizing and externalizing problems (e.g., Collishaw et al., 2007; Myhre et al., 2014; Roberts et al., 2004). As reviewed by Plant et al. (2018), most research examines the impact of PCM severity, without exploring potential unique associations between specific subtypes of maltreatment (e.g., emotional abuse, physical abuse, sexual abuse, neglect) and child mental health problems. For example, Plant et al. (2017) showed that severity of PCM was directly linked to higher levels of internalizing and externalizing problems in their children. Similarly, Rijlaarsdam et al. (2014) found a direct link between a cumulative index of PCM and child internalizing problems at age 6. Additional research showed that severe PCM was associated with poorer child mental health trajectories from ages 4 to 7 (Collishaw et al., 2007). However, these studies assessed cumulative measures of PCM and did not explore unique associations with subtypes of PCM. Given high inter-correlations between child maltreatment subtypes (Kim et al., 2017), it is not clear whether associations between PCM and child mental health problems are indicative of the impact of a particular subtype of maltreatment or the combined effects of multiple subtypes of maltreatment.

A handful of studies have examined the role of specific types of PCM on offspring mental health outcomes (albeit without accounting for the role of other types of maltreatment). For example, Dubowitz et al. (2001) found that: 1) mothers with a history of physical abuse or a history of both physical and sexual abuse during childhood, reported more externalizing behaviors in their 6- to 7-year-old children compared to mothers without any history of abuse; and 2) that there were no differences in children's behavior between mothers who experienced physical abuse or sexual abuse during childhood. Parental history of childhood physical abuse has also been associated with elevated internalizing problems in their 5- to 16-year-old offspring (Esteves et al., 2017). However, these studies primarily focused on child (not adolescent) mental health outcomes and exclusively assessed one or two types (physical or sexual abuse) of PCM, without accounting for the associations between other forms of PCM and child mental health. Based on the extant literature, it also remains unclear whether parental history of emotional abuse or experiences of neglect during childhood are

uniquely associated with youth mental health difficulties, as the impact of these specific types of PCM are not often explored. Although not assessed in relation to PCM, children's experience of emotional abuse and neglect have emerged as unique predictors of youth internalizing problems, after controlling for physical and sexual abuse (Arata et al., 2007). Similarly, it is possible that parental history of childhood emotional abuse is uniquely associated with offspring psychopathology. Taken together, it remains unclear whether specific subtypes of PCM are uniquely linked to youth mental health problems.

In addition to the subtype of PCM, the informant of child mental health problems may influence the nature of associations between PCM and child outcomes. The majority of research exclusively measures parent-reported child mental health outcomes. Research that has collected both parent and child reports of child psychopathology (Rijlaarsdam et al., 2014) has combined assessment across informants and has not explored whether PCM is differentially related to parent-reported or self-reported mental health problems. The predominance of parent-reported child mental health might be related to sample age. The majority of previous research focuses on child samples, often before age 12 (e.g., Bodeker et al., 2019; Collishaw et al., 2007; Cooke et al., 2019; Dubowitz et al., 2001; Rijlaarsdam et al., 2014). Adolescent research has the advantage of youth and parents reporting their experience of child maltreatment and their impressions of youth emotional/behavioral difficulties. A recent meta-analysis by De Los Reyes et al. (2015) indicated modest parent-child agreement in the reporting of child internalizing ( $r = 0.26$ ) and externalizing ( $r = 0.32$ ) problems. Capturing both parent and youth reports provides unique perspectives on child mental health problems. Thus, it is important to establish whether the relation between PCM and offspring internalizing and externalizing problems persist into adolescence (aged 14–17) and whether these associations differ based on parent- or self-reported youth mental health problems. The present study will address this gap by separately examining the associations between different subtypes of PCM and youth internalizing/externalizing problems, while statistically adjusting for the role of other PCM subtypes, as well as YM and proximal risk factors related to the parent-child relationship.

#### 1.4. Child maltreatment and child mental health

Given that parental history of childhood maltreatment increases the risk that their offspring will experience maltreatment (Assink et al., 2018; Buisman et al., 2020; Madigan et al., 2019), it is essential to also consider the direct association between child maltreatment and youth mental health problems. Ample evidence indicates that exposure to maltreatment places children at elevated risk for externalizing and internalizing problems (e.g., Maguire et al., 2015; McCrory et al., 2012). However, similar to the role of PCM, research often assesses the cumulative impact of maltreatment (i.e., overall number of maltreatment subtypes or severity of maltreatment) (e.g., Cecil et al., 2017). Some studies demonstrate non-unique associations between physical abuse, emotional abuse, and neglect and internalizing and externalizing difficulties (e.g., Vachon et al., 2015), while others have found unique associations between particular subtypes of child maltreatment and specific forms of child mental health problems. For example, a unique association between physical abuse and externalizing behavior has been found in samples of children and adolescents (e.g., Petrenko et al., 2012; van der Put et al., 2015). In contrast, other research indicates that emotional abuse, after accounting for all child maltreatment subtypes, emerged as a unique predictor of internalizing and externalizing problems in a sample of 16- to 24-year-olds (Cecil et al., 2017). Another study showed that, after accounting for family stressors, only children exposed to abuse and intimate partner violence (IPV) experienced behavior difficulties (Moylan et al., 2010). This highlights the need to examine multiple subtypes of child maltreatment in relation to both youth internalizing and externalizing problems.

#### 1.5. PCM and child mental health: role of child maltreatment and proximal risk factors

A burgeoning literature has begun to assess whether the link between PCM and child mental health is accounted for by exposure to proximal risk factors. In addition to PCM increasing risk for childhood maltreatment (e.g., Madigan et al., 2019), PCM has been associated with elevated risk of parental depression and caregiving difficulties (Plant et al., 2013; Savage et al., 2019; Warmingham et al., 2020), both of which are associated with child internalizing and externalizing problems. Indeed, preliminary work indicates that the link between PCM and child internalizing and externalizing problems is accounted for, at least partially, by children's direct exposure to maltreatment, maternal mental health difficulties, and parenting practices (Bosquet Enlow et al., 2018; Plant et al., 2017; Myhre et al., 2014; Morrel et al., 2003; Rijlaarsdam et al., 2014). In contrast, in a sample of 5- to 16-year-olds, children's exposure to maltreatment and harsh parenting practices did not mediate the link between PCM and child internalizing problems (Esteves et al., 2017). Similarly, in a sample of 5- to 12-year-olds, the direct association between PCM and child psychopathology was not accounted for by levels of maternal sensitivity (Bodeker et al., 2019). Given the prior inconsistencies, it remains unclear whether there are unique associations between particular forms of PCM or YM and youth internalizing and externalizing problems, after accounting for parenting practices and parent mental health.

This study has four primary objectives: 1) to assess the association between specific subtypes of PCM and youth internalizing and externalizing problems; 2) to examine whether the relation between PCM and youth mental health remains significant, after accounting for YM; 3) to assess the unique associations between both PCM and YM and youth internalizing and externalizing problems, after accounting for more proximal risk factors related to the parent-youth relationship (parent reported positive parenting practices and parent mental health); and 4) to explore whether findings differ based on informant (parent or youth) of internalizing and externalizing problems. In order to gain a more comprehensive understanding of child maltreatment, we examine a) the cumulative number of subtypes of child maltreatment and b) the unique contribution of five different subtypes of maltreatment (physical, emotional, sexual abuse; neglect; witnessing IPV). This study focuses on adolescence, a relatively understudied time period and examines multiple informants of youth internalizing and externalizing problems.

## 2. Methods

### 2.1. Sample

The study sample comes from the 2014 Ontario Child Health Study (OCHS). The OCHS is a province-wide, cross-sectional, epidemiologic study of child and youth health with data collected from October 2014–2015. A probability sample of 6537 households (50.8% response) with 10,802 children aged 4 to 17 years participated. Households were selected based on a 3-stage survey design that involved cluster sampling of residential areas and stratification by residency (urban, rural) and income (areas and households cross-classified by 3 levels of income: <20th, 20th to 80th, and > 80th percentiles). The eligible sample for analyses in the current study consists of youth aged 14–17 years and their primary caregivers ( $n = 2910$ ) (i.e., the person most knowledgeable, for simplicity, hereafter referred to as parent). Selection of this age group allowed us to assess both parent and youth-reported child maltreatment (PCM and YM, respectively) and mental health. Restricting the sample to complete data across study variables resulted in a sample size of  $N = 2266$  youth (77.9% of the eligible sample). In total, 30% of youth had at least one sibling included in the sample. Detailed accounts of the survey design and data collection are available elsewhere (Boyle et al., 2019a, 2019b; Statistics Canada, 2017).

**Table 1**  
Descriptive statistics.

	Sample characteristics % / M (SD)	Standardized Cronbach's Alpha
Youth age	15.43 (1.09) years	
Youth sex (female)	48.6%	–
Parent sex (female)	89.4%	–
Parent relationship		
Biological mother	85.6%	–
Step mother	1.7%	–
Adoptive mother	1.5%	—
Biological father	10.2%	
Parent age	45.91 (5.56) years	
Living with two biological parents	66.2%	–
Urban		
Rural	13.8%	–
Small to median urban	15.0%	—
Large urban	71.2%	
Race (% White)	61.6%	–
Immigrant	47.2%	–
Household income (below poverty)	16.9%	–
YM		
EA	11.9%	
PA	14.5%	---
SA	2.3%	–
Neglect	7.7%	–
IPV	8.2%	–
Any CM	27.3%	–
1 type CM	16.2%	–
2 types CM	6.5%	—
3–5 types CM	4.5%	
PCM		
EA	24.2%	
PA	21.8%	---
SA	15.4%	–
Neglect	10.5%	–
IPV	21.1%	–
Any CM	42.8%	–
1 type CM	18.8%	–
2 types CM	8.5%	—
3–5 types CM	15.6%	
Externalizing		
Parent report	4.13 (5.37) [range 0–46]	$\alpha = 0.91$
Youth report	7.18 (5.88) [range 0–37]	$\alpha = 0.86$
Internalizing		
Parent report	6.02 (6.90) [range 0–40]	$\alpha = 0.92$
Youth report	11.66 (9.41) [range 0–49]	$\alpha = 0.92$
Parent mental health problems	3.35 (3.89) [range 0–24]	$\alpha = 0.87$
Positive parenting	17.71 (2.65) [range 0–20]	$\alpha = 0.84$

Note: CM = Child maltreatment; PCM = parent history of child maltreatment; YM = youth exposure to child maltreatment; PA = Child physical abuse; SA = child sexual abuse; EA = child emotional abuse; IPV = child seeing or *hearing* physical or verbal intimate partner violence; Neglect = child neglect; Rates of CM indicate percentage of sample scoring above questionnaire cut-off scores.

## 2.2. Measures

### 2.2.1. Parent and youth experiences of child maltreatment

Parents and youth reported their child maltreatment exposure (emotional abuse, physical abuse, sexual abuse, IPV, and neglect). Parents were asked about experiences of maltreatment “before age 16”, whereas youth were asked about maltreatment experiences “while growing up”. Exposure to child maltreatment questions and cut-offs were derived from two validated sources (Walsh et al., 2008). Respondents were categorized as having experienced *emotional abuse* if they reported having hurtful things said to them or feeling unwanted or loved six or more times. Exposure to *physical abuse* was classified as one or more of the following: 1) being slapped on the face, head or ears, or spanked with something hard three or more times; 2) being pushed, grabbed or shoved, or having something thrown at them to hurt them three or more times; and 3) being kicked, bit, punched, choked, burned, or physically attacked one or more times. Respondent history of *sexual abuse* was assessed as one or more of the following: 1) attempted or being forced into unwanted sexual activity by being threatened, held down, or hurt in some way one or more times; and 2) being sexually touched, meaning unwanted touching or grabbing or kissing or fondling against the respondent's will, one or more times. Exposure to *IPV* was classified as having seen or heard caregivers hitting each other or another adult in the home three or more times (physical), and/or having seen or heard caregivers say hurtful or mean things to one another or another adult in the home six or more times (verbal). *Neglect* was classified as not having basic needs, such as not being kept clean or not having food and clothing provided one or more times. Each of these child maltreatment subtypes were dichotomized as present (1) or absent (0) based on established cut offs outlined above (Walsh et al., 2008; Kennedy, 2018). In addition to maltreatment subtypes, variables were computed from these reports to classify the number of subtypes of child maltreatment experienced (e.g., someone who endorsed physical abuse, emotional abuse, and neglect would have 3 subtypes of maltreatment). For analyses, number of child maltreatment subtypes were coded as 0,1,2,3 and 4+ for parents and 0,1,2 and 3+ for youth (because few youth reported more than 3 types of maltreatment, as noted in Table 1). Separate analyses were conducted to a) assess the unique effects of different subtypes of maltreatment and b) the number of subtypes of maltreatment (severity score).

### 2.2.2. Internalizing and externalizing problems

The OCHS Emotional-Behavioral Scales (OCHS-EBS; Boyle et al., 2019a; Duncan et al., 2019) were used to assess parent- and self-reported dimensional measures of youth externalizing and internalizing problems. The OCHS-EBS captures internalizing problems (27 items) including major depressive disorder, generalized anxiety disorder, separation anxiety disorder, and social anxiety disorder, and externalizing problems (25 items) including attention-deficit hyperactivity disorder, oppositional-defiant disorder, and conduct disorder. The OCHS-EBS has response options of ‘0=never or not true’, ‘1=sometimes or somewhat true’ and ‘2=often or very true’. Items were summed to generate scale scores for internalizing and externalizing problems; higher scores indicate greater severity of emotional and behavioral problems. The OCHS-EBS have strong psychometric properties (Boyle et al., 2019; Duncan et al., 2019), including internal consistency in the current sample (Cronbach's alpha range 0.84–0.92, see Table 1).

### 2.2.3. Parent mental health

Parent mental health (including anxiety and depression) was assessed using the K6 scale (Furukawa et al., 2003), which was developed for use in the U.S. National Health Interview Survey (NHIS) to measure nonspecific psychological distress. Parents rated the extent to which they felt nervous, hopeless, restless or fidgety, depressed, worthless, and that everything was an effort, from (1) All of the time, (2) Most of the time, (3) Some of the time, (4) A little of the time, and (5) None of the time. Items were reversed scored so that higher scores indicate more mental health problems. The K6 has a cut-off score of  $\geq 13$ , to indicate significant mental illness (Furukawa et al., 2003). The K6 had strong internal consistency (Cronbach's alpha = 0.87).

### 2.2.4. Positive parenting practices

Parents completed a self-report questionnaire on positive parenting practices in the past 6 months, which was developed specifically for the 2014 OCHS study. Positive parenting items were selected or adapted from the National Longitudinal Survey of Children and Youth and the child report of the Parent Behavior Inventory (Lovejoy et al., 1999) after conducting an empirical item reduction using data sets. Five items focused on the degree to which parents enjoy activities with their child, listen to their child's ideas/opinions, give their child care and attention, cheer their child up when s/he is sad, and speak of the good things their child does. Each item was scored from (0) Never to (4) Always. A positive parenting composite was created by summing the five items; higher scores indicate more positive parenting. This measure had strong internal consistency (Cronbach's alpha = 0.84).

### 2.2.5. Socio-demographic factors

Socio-demographic factors in our analyses included youth sex, youth age, parent education (dichotomized by greater/ less than high school), family poverty (composite variable derived from family size, geographic location, and household income using a dichotomous poverty cut-off), single parenthood (two-parent household, single parent), immigrant background, and area of residence (rural, small to medium urban, large urban).

## 2.3. Statistical analyses

We used a SURVEYREG procedure in SAS (v.9.4) to account for the sample design and obtain accurate standard errors to estimate the multivariate regression models. Sampling weights were applied in all analyses to generate estimates representative of the target

population of youth aged 14–17 years in Ontario. The bootstrapping method was used to estimate robust standard errors. We estimated the associations between the main independent variables (PCM, YM, positive parenting and parent mental health) and youth internalizing and externalizing outcome variables. Each model had a single outcome (self- or parent-reported youth internalizing or externalizing problems). Separate regression analyses were conducted using the two types of child maltreatment independent variables: (1) a single index of the number of maltreatment subtypes, and 2) five binary measures for each subtype of child maltreatment (entered simultaneously). When assessing child maltreatment subtypes, all subtypes of maltreatment were entered simultaneously (the variable representing the total number of child maltreatment subtypes was not included), thus models explored the unique adjusted effects of each form of child maltreatment experienced by the parent and the youth on internalizing/externalizing problems. In each regression analysis, we first entered the PCM variables as independent variable(s) along with the sociodemographic variables (Model 1), then entered the YM variables (Model 2), and finally entered parent mental health problems and positive parenting variables (Model 3). Lastly, separate regression analyses were performed for each informant (parent or youth) of youth mental health problems and for both internalizing and externalizing problems.

### 3. Results

#### 3.1. Descriptive statistics

Sample characteristics, prevalence (above cut-off scores) of child maltreatment indices, the means and standard errors of mental health and parenting measures, as well as internal consistency values (Cronbach's alpha) are presented in Table 1. See Supplementary Table 1 for bivariate correlations between study variables. Given that maltreatment subtypes were included as simultaneous predictors, multicollinearity was assessed. The variance inflation factor (VIF) for each variable ranged between 1 and 2 and tolerance values ranged from 0.51 to 0.91. VIF values below 2.5 (O'Brien, 2007) and tolerance values above 0.20 (Tabachnick et al., 2007) indicate no concerns with multicollinearity. Thus, multicollinearity among the maltreatment subtypes was not a concern.

#### 3.2. Number of child maltreatment subtypes

##### 3.2.1. Internalizing problems

We first examined whether the number of PCM or YM subtypes were associated with parent- or youth-reported internalizing problems. First, number of PCM subtypes and number of YM subtypes were significantly associated with parent-reported youth internalizing problems (Model 1 and 2 respectively, Table 2). The inclusion of YM into the model attenuated the effect of parent maltreatment from 0.75 to 0.64, a reduction of 14.6%. After adjusting for parent mental health problems and positive parenting, only number of YM subtypes, not number of PCM subtypes, was significantly associated with parent-reported youth internalizing problems (Model 3). The addition of parent mental health problems and positive parenting further attenuated the effect of parent-reported internalizing problems (beta 0.64 to 0.21; 67% reduction).

In contrast, for youth-reported internalizing problems, number of PCM subtypes was not associated with this outcome across Models 1–3 (Table 2). However, number of YM continued to be associated with youth-reported internalizing problems, even after accounting for parent mental health problems and positive parenting (Model 3).

**Table 2**

Number of maltreatment subtypes in relation to parent- and youth-reported youth internalizing and externalizing problems.

Variables	Internalizing				Externalizing			
	Parent report		Youth report		Parent report		Youth report	
	Beta	(SE)	Beta	(SE)	Beta	(SE)	Beta	(SE)
<b>Model 1: PCM</b>								
PCM subtypes	0.75****	(0.19)	0.48	(0.28)	0.70****	(0.16)	0.26	(0.20)
<b>Model 2: YM</b>								
PCM subtypes	0.64***	(0.19)	0.24	(0.25)	0.62****	(0.16)	0.10	(0.17)
YM subtypes	1.78****	(0.36)	3.79****	(0.44)	1.25****	(0.24)	2.46****	(0.30)
<b>Model 3: positive parenting and depression</b>								
PCM subtypes	0.21	(0.19)	0.06	(0.26)	0.27	(0.14)	−0.088	(0.17)
YM subtypes	1.39****	(0.34)	3.65****	(0.45)	0.85****	(0.22)	2.26****	(0.28)
Parent mental health problems	0.48****	(0.08)	0.25**	(0.09)	0.28****	(0.05)*	0.17**	(0.06)
Positive parenting	−0.39****	(0.08)	−0.06	(0.12)	−0.66****	(0.08)	−0.30****	(0.07)

Note: All models are adjusted for the following demographic variables: age, sex, two biological parents, household poverty, immigrant background, urban-rural residency, parent less than high school education. PCM = parent history of child maltreatment; YM = youth exposure to child maltreatment.

\*  $p < .05$ .  
 \*\*  $p < .01$ .  
 \*\*\*  $p < .001$ .  
 \*\*\*\*  $p < .0001$ .

### 3.2.2. Externalizing problems

With regard to the association between number of child maltreatment subtypes and externalizing problems (Table 2), number of PCM subtypes were significantly associated with parent-reported externalizing behavior (Model 1), even after adjusting for the number of YM subtypes (Model 2). The addition of the number of YM subtypes resulted in a modest attenuation of the effect of parent maltreatment from 0.70 to 0.62, a reduction of 11.4%. After adjusting for parent mental health problems and parenting, only number of YM subtypes was significantly associated with this outcome (Model 3). The addition of parent mental health problems and positive parenting further attenuated the effect of number of PCM subtypes by 56.5% (beta 0.62 to 0.27).

In terms of youth-reported externalizing problems, only number of YM subtypes, parent mental health problems, and parenting were significant (Model 3, Table 2). Similar to youth-reported internalizing problems, number of PCM subtypes was not significantly associated with youth-reported externalizing behavior in all Models 1–3.

Taken together, after accounting for proximal risk factors, number of YM subtypes remained strongly associated with both parent- and self-reported youth internalizing and externalizing problems. In contrast, despite initially being associated with parent-reported internalizing and externalizing problems, after taking into account YM and proximal risk factors, number of PCM subtypes was not associated with either parent- or youth-reported problems. Of additional relevance, when PCM and YM variables were dichotomized into any maltreatment/no maltreatment, results remain largely consistent with the above results for number of PCM and YM subtypes.

### 3.3. Specific subtypes of child maltreatment

#### 3.3.1. Internalizing problems

When examining the associations between specific subtypes of PCM and YM and parent-reported youth internalizing problems (Table 3), only parent emotional abuse was significantly associated with this outcome (Model 1). In Model 2, with YM subtypes added,

**Table 3**  
Maltreatment subscales in relation to parent- and youth-reported youth internalizing and externalizing problems.

Variables	Internalizing				Externalizing			
	Parent report		Youth report		Parent report		Youth report	
	Beta	(SE)	Beta	(SE)	Beta	(SE)	Beta	(SE)
<b>Model 1: PCM</b>								
Parent PA	0.10	(0.56)	-1.16	(0.99)	-0.09	(0.49)	-0.10	(0.57)
Parent SA	0.40	(0.63)	0.47	(1.03)	1.12	(0.62)	0.14	(0.57)
Parent EA	1.65**	(0.62)	2.24	(1.29)	1.82***	(0.54)	1.37*	(0.66)
Parent IPV	0.92	(0.60)	0.29	(1.14)	-0.32	(0.48)	-0.38	(0.62)
Parent neglect	-0.75	(0.73)	-0.34	(1.12)	0.49	(0.69)	-0.46	(0.74)
<b>Model 2: YM</b>								
Parent PA	0.04	(0.56)	-1.22	(0.89)	-0.27	(0.49)	-0.28	(0.56)
Parent SA	0.65	(0.62)	1.02	(0.99)	1.26*	(0.61)	0.46	(0.53)
Parent EA	1.32*	(0.60)	1.52	(1.19)	1.59**	(0.53)	0.90	(0.62)
Parent IPV	0.75	(0.61)	-0.21	(1.02)	-0.23	(0.49)	-0.44	(0.55)
Parent Neglect	-0.69	(0.71)	-0.17	(1.07)	0.55	(0.68)	-0.40	(0.65)
Youth PA	0.75	(0.83)	0.88	(0.88)	2.05**	(0.68)	2.47***	(0.74)
Youth SA	0.96	(1.66)	4.39*	(2.09)	0.17	(1.11)	0.31	(1.09)
Youth EA	3.12***	(0.90)	7.12***	(0.90)	1.54*	(0.66)	3.15***	(0.69)
Youth IPV	1.21	(1.23)	2.66*	(1.16)	-0.33	(0.72)	1.33	(0.85)
Youth neglect	1.52	(1.05)	2.68	(1.78)	1.17	(0.90)	1.91*	(0.86)
<b>Model 3: Positive parenting and depression</b>								
Parent PA	-0.21	(0.55)	-1.34	(0.89)	-0.43	(0.45)	-0.38	(0.56)
Parent SA	0.19	(0.60)	0.85	(1.00)	0.77	(0.51)	0.21	(0.53)
Parent EA	0.55	(0.60)	1.20	(1.23)	0.92*	(0.44)	0.54	(0.62)
Parent IPV	0.78	(0.61)	-0.21	(1.03)	-0.15	(0.43)	-0.40	(0.55)
Parent neglect	-1.43*	(0.67)	-0.51	(1.05)	0.02	(0.60)	-0.70	(0.59)
Youth PA	0.05	(0.77)	0.63	(0.86)	1.32*	(0.58)	2.09**	(0.71)
Youth SA	0.46	(1.67)	4.14*	(2.08)	-0.13	(1.07)	0.13	(1.00)
Youth EA	2.59**	(0.81)	6.92***	(0.89)	1.03	(0.58)	2.88***	(0.66)
Youth IPV	1.42	(1.05)	2.70*	(1.18)	-0.04	(0.60)	1.47	(0.82)
Youth neglect	1.55	(0.94)	2.74	(1.79)	1.03	(0.82)	1.86*	(0.84)
Parent mental health problems	0.50***	(0.08)	0.25**	(0.08)	0.28***	(0.05)	0.18**	(0.06)
Positive parenting	-0.40***	(0.08)	-0.08	(0.13)	-0.65***	(0.08)	-0.30***	(0.07)

Note: All models are adjusted for the following demographic variables: age, sex, two biological parents, household poverty, immigrant background, urban-rural residency, parent less than high school education. PCM = parent history of child maltreatment; YM = youth exposure to child maltreatment; PA = Child physical abuse; SA = child sexual abuse; EA = child emotional abuse; IPV = child seeing or hearing physical or verbal intimate partner violence; Neglect = child neglect.

\*  $p < .05$ .  
 \*\*  $p < .01$ .  
 \*\*\*  $p < .001$ .  
 \*\*\*\*  $p < .0001$ .

youth emotional abuse was significant and although the effect of parent emotional abuse was attenuated (beta change from 1.65 to 1.32, 20% reduction), it continued to be significantly associated with parent-reported youth internalizing problems. In Model 3, after adjusting for both parent mental health problems and positive parenting, youth emotional abuse was associated parent-reported youth internalizing problems, however, parent emotional abuse was no longer significant (further beta change from 1.32 to 0.55, 58.3% reduction). After adjusting for parent mental health problems and positive parenting, parent neglect was negatively related to parent-reported youth internalizing problems.

In contrast, none of the PCM subtypes were significantly associated with youth-reported internalizing problems, across Models 1–3 (Table 3). However, youth emotional abuse, sexual abuse, and exposure to IPV were all associated with youth-reported internalizing problems, even after accounting for parent mental health problems and positive parenting (Model 3).

### 3.3.2. Externalizing problems

Similar to parent-reported internalizing problems, only parent emotional abuse was significantly associated with parent-reported externalizing problems (Table 3; Model 1). When YM subtypes were entered in Model 2, the effect of parent emotional abuse was attenuated (beta change from 1.82 to 1.59, 12.6% reduction). In model 2, parent emotional abuse and sexual abuse, as well as youth physical abuse and emotional abuse were associated with parent-reported externalizing problems. After adjusting for parent mental health problems and parenting (Model 3), the effect of parent emotional abuse was further attenuated (beta change from 1.59 to 0.92, 42.1% reduction). In Model 3, parent emotional abuse and youth physical abuse remained significantly associated with parent-reported externalizing problems.

In contrast, for youth-reported externalizing problems, although parent emotional abuse was initially significant (Model 1), after adjusting for YM subtypes, parent emotional abuse was no longer significant (beta change from 1.37 to 0.90, 34.3% reduction) (Model 2). In Model 3, only YM subtypes (physical abuse, emotional abuse, and neglect), as well as parent mental health and positive parenting, were significantly associated with youth-reported externalizing behavior (Table 3).

## 4. Discussion

This study examined associations between PCM, YM, and proximal risk factors (parental mental health problems, positive parenting), and youth internalizing and externalizing problems. Study findings suggest: 1) unique associations between particular subtypes of PCM or YM and youth internalizing and externalizing problems; 2) the need to account for YM when examining the role of PCM; 3) the role of parent mental health and positive parenting in accounting for the link between PCM and youth mental health outcomes; and 4) the importance of examining the aforementioned associations using multiple informants of youth mental health problems. Together, these findings shed light on the intergenerational effects of child maltreatment, and the complexity of associations that should be considered.

### 4.1. Number of child maltreatment subtypes

The results of this study indicate the distinct importance of PCM and YM in association with youth internalizing and externalizing problems. Similar to prior research, we found that a summary index of PCM (number of PCM subtypes) was associated with parent-reported internalizing and externalizing problems. Importantly, PCM was not associated with youth-reported internalizing or externalizing problems. This underscores the need to include both parent and youth reported measures of mental health problems, which has rarely been done in prior research examining the link between PCM and child mental health. Furthermore, after accounting for parent mental health problems and parenting, only number of YM subtypes, not number of PCM subtypes, was associated with parent or youth-reported internalizing or externalizing problems. In fact, YM only showed minor attenuation with the introduction of these proximal risk factors. Taken together, these findings highlight the necessity of incorporating proximal risk factors, including YM, parent mental health and parenting behaviors, to understand the unique role of parent history of maltreatment on child mental health problems.

### 4.2. Unique role of maltreatment subtypes

In addition, this study demonstrated distinct links between subtypes of PCM and YM in relation to youth internalizing and externalizing problems. After adjusting for all subtypes of PCM and YM, PCM emotional abuse was uniquely associated with parent-reported, but not youth-reported, internalizing and externalizing problems. Youth emotional abuse emerged as uniquely associated with both youth and parent-reported internalizing and externalizing problems, after adjusting for the effects of other forms of YM. These findings are in line with prior work which indicates that direct exposure to child emotional abuse, contributes to mental health problems (Cecil et al., 2017; Edwards et al., 2003; Şar et al., 2004; Spertus et al., 2003). However, of these prior studies, only Cecil et al. (2017) statistically accounted for the association between different subtypes of YM to show that youth emotional abuse was uniquely associated with psychopathology.

The present findings also extend prior work by showing that emotional abuse has a unique intergenerational effect, such that both parental and youth experiences of emotional abuse, after accounting for other subtypes of PCM and YM, are significantly associated with youth mental health problems. Others have suggested that emotional abuse acts as a unique risk factor for mental health because it involves low levels of parental warmth, emotional scaffolding, and social support (Cecil et al., 2017; Wind and Silvern, 1994). Alternatively, it is possible that, to a degree, emotional abuse underlies all forms of child maltreatment, thus when emotional abuse is

controlled for, other forms of child maltreatment do not explain additional unique variance in mental health problems. Taken together, these findings indicate that emotional abuse carries long-lasting intergenerational effects, such that after accounting for other subtypes of child maltreatment, both parent and youth emotional abuse are related to youth behavior problems. Because emotional abuse is often less visible than other forms of child maltreatment (e.g., physical abuse or neglect), the effects of emotional abuse might be mistakenly underestimated. The current results underscore the importance of emotional abuse, specifically, in relation to youth mental health outcomes. These findings suggest that emotional abuse should be a particular focus for childhood maltreatment prevention and intervention efforts.

Youth physical abuse, after accounting for other subtypes of PCM and YM, also emerged as uniquely associated with both parent- and youth-reported externalizing problems, but not internalizing problems. The specific effect of child physical abuse on externalizing behavior has been shown in prior research (e.g., Ford et al., 2009; Petrenko et al., 2012; van der Put et al., 2015). The link between physical abuse and externalizing behavior may be accounted for by social modelling of physically aggressive behavior (Gershoff, 2002) and by biases in social information processing (Lee and Hoaken, 2007; Teisl and Cicchetti, 2008). This indicates that research on child maltreatment and externalizing behavior problems should examine physical abuse as a particularly salient risk factor. In addition, interventions for youth externalizing behavior should take into account physical abuse as a risk factor.

#### 4.3. Proximal risk factors: parent mental health and positive parenting

The above findings highlight the importance of proximal risk factors in attenuating some of the associations between PCM on youth mental health problems. After accounting for parental mental health problems and positive parenting, the effects of PCM were significantly reduced, and, in most instances, PCM was no longer associated with youth mental health problems. In fact, after accounting for YM, positive parenting, and parent mental health, only parent emotional abuse was related to parent-reported externalizing problems. These findings are in line with bioecological theory (Bronfenbrenner and Morris, 2006), given that the link between PCM (distal risk factor) and youth mental health problems is, in large part, related to the youth's direct exposure to maltreatment, disruptions to parenting, and parental experiences of mental health (proximal risk factors). Parents who endured maltreatment during their childhoods are at elevated risk for experiencing mental health problems and parenting difficulties (Savage et al., 2019; Warmingham et al., 2020). These difficulties can in-turn impact the child's stress regulation and emotion regulation abilities (Khoury et al., 2021; Silk et al., 2006; Warmingham et al., 2020), which are closely tied to mental health problems.

These findings extend prior research (Myhre et al., 2014; Plant et al., 2018; Rijlaarsdam et al., 2014), by demonstrating that parental mental health and positive parenting attenuate the associations between PCM and youth mental health, after accounting for youth experiences of maltreatment, and by showing somewhat different results related to internalizing and externalizing problems. These findings emphasize the importance of reducing parental mental health problems and enhancing positive parenting practices as viable intervention targets for mitigating the intergenerational associations between PCM and youth mental health problems. Addressing these more proximal, and modifiable, risk factors, through parental mental health treatment and parenting programs, can largely attenuate the association between PCM and youth mental health. Future research is also needed to explore other proximal risk factors that might show similar effects and be relevant intervention targets.

#### 4.4. Multiple informants

Lastly, the current study highlights the need to collect information about experiences of childhood maltreatment and youth mental health problems from both caregivers and youth. Generally, these findings indicate that child maltreatment exposure and outcomes are more strongly linked within respondents (e.g., PCM linked to parent reports of youth difficulties or YM linked to youth self-reported difficulties) than across respondents (e.g., PCM linked to youth self-reported difficulties). In several instances, PCM was only associated with parent-reported youth adjustment, and YM was only associated with youth self-reported adjustment. Although within-respondent associations were stronger, youth-reported maltreatment was significantly associated with parent-reported youth internalizing and externalizing problems. Within the overarching developmental psychopathology literature, there are often discrepancies in parent- and child-reported mental health difficulties (e.g., Bajeux et al., 2018; De Los Reyes et al., 2015), likely due to differential access to private experiences and distinct perceptions of behavior problems. In the present study, parent- and youth-reported internalizing and externalizing problems were moderately correlated ( $r = 0.45$  and  $0.43$ ,  $p < .001$ , internalizing and externalizing, respectively; Supplementary Table 1). Taken together, the present findings underscore the need for multiple informants reporting on mental health outcomes when examining the impact of child maltreatment.

#### 4.5. Strengths and limitations

This study has several strengths including a large population-based sample of youth and their caregivers, assessment of PCM and YM subtypes, and multiple informants of youth mental health. Despite these strengths, findings should be interpreted within the context of study limitations. First, this is a cross-sectional study, so inferences about causation, particularly related to youth-reported child maltreatment and youth adjustment, cannot be ascertained. Second, data on maltreatment and mental health are self-reported. In particular, maltreatment reports have not been verified through child protective services (CPS). Recent research points to low concordance between CPS reports of child maltreatment and self-reports of maltreatment (Negriff et al., 2017). Both assessment methods of maltreatment were uniquely related to adolescent outcomes (Negriff et al., 2017). Thus, best practices involve integrating multiple sources of information related to child maltreatment. Third, the assessments used did not specify the relationship between the

youth and those who committed maltreatment, thus we are unable to determine the role of the parent in relation to the maltreatment reported by the youth.

#### 4.6. Practical implications

The findings of this study have implications for future research, clinical practice, and policy. First, given the unique associations between subtypes of maltreatment (PCM and YM) and youth internalizing and externalizing problems, it is essential for future research to concurrently assess maltreatment subtypes and no longer exclusively focus on summary indices of parent or child maltreatment. Assessment of specific subtypes of maltreatment will also be important for determining risk for youth psychopathology. Our findings show that emotional abuse is uniquely associated with youth psychopathology. These findings have implications for informing child maltreatment prevention and early detection efforts (e.g., education related to the specific impact of emotional abuse), as well as refining clinical interventions for families affected by child maltreatment, to specifically target emotional abuse. Lastly, much of the link between PCM and youth psychopathology was accounted for by proximal risk factors, including parent mental health and parenting practices. Policy and practice efforts aimed to reduce the intergenerational effects of maltreatment must focus directly on bolstering positive parenting practices and providing support for parents to cope with their own mental health problems. Targeting these proximal risk factors can have a protective impact for youth mental health.

### 5. Conclusion

The current cross-sectional, population-based study explored the nuanced associations between both PCM and YM in relation to youth internalizing and externalizing problems. Findings highlight: 1) the unique associations between particular forms of maltreatment and youth mental health problems; 2) the role of YM and proximal risk factors (parental mental health problems and parenting) in attenuating the association between PCM and youth mental health problems; and 3) the importance of including both parent and youth reports of youth mental health, as findings vary based on informant. Taken together, this research expands knowledge of the intergenerational effects of PCM on youth mental health, by highlighting the importance of youth direct exposure to maltreatment and the role of proximal familial factors in mitigating these associations.

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