

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

Running Head: BORDERLINE INTERGENERATIONAL MALTREATMENT

Manuscript accepted for publication in *Development and Psychopathology*

The Intergenerational Transmission of Childhood Maltreatment: Non-specificity of Maltreatment
Type and Associations with Borderline Personality Pathology

Sarah E. Paul¹, Michael J. Boudreaux¹, Erin Bondy¹, Jennifer L. Tackett², Thomas F. Oltmanns¹,
Ryan Bogdan^{1*}

- 1. Department of Psychological and Brain Sciences, Washington University in St. Louis
- 2. Department of Psychology, Northwestern University

*Please address correspondence to Ryan Bogdan (rbogdan@wustl.edu)

17 **ABSTRACT**

18 One generation's experience of childhood maltreatment is associated with that of the next.
19 However, whether this intergenerational transmission is specific to distinct forms of maltreatment
20 and what factors may contribute to its continuity remains unclear. Borderline personality
21 pathology is predicted by childhood maltreatment and characterized by features (e.g., dysregulated
22 emotion, relationship instability, impulsivity, inconsistent appraisals of others) that may contribute
23 to its propagation. Among 364 older adults and 573 of their adult children (total $n=937$), self-
24 reported exposure to distinct forms of childhood maltreatment (i.e., emotional, physical and sexual
25 abuse and emotional and physical neglect as assessed by the Childhood Trauma Questionnaire)
26 showed homotypic and heterotypic associations across generations with little evidence that latent
27 factors unique to specific forms of maltreatment show generational continuity. General non-
28 specific indices of childhood maltreatment showed evidence of intergenerational transmission
29 after accounting for demographic factors and parent socioeconomic status ($b = 0.126, p = 9.21 \times 10^{-4}$).
30 This continuity was partially mediated by parental borderline personality pathology (assessed
31 longitudinally through a variety of measures and sources, indirect effect: $b = 0.031$ [95% CI 0.003,
32 0.060]). The intergenerational continuity of childhood maltreatment may largely represent general
33 risk for non-specific maltreatment that may, in part, be propagated by borderline personality
34 pathology and/or shared risk factors.

35

36 *Keywords:* Borderline personality, childhood maltreatment, intergenerational transmission, stress,
37 abuse, neglect

38 INTRODUCTION

39 Maltreatment during childhood (i.e., abuse and/or neglect) is common and among the largest risk
40 factors for adverse outcomes. By age 18, over 37% of children in the United States are investigated
41 for maltreatment by child protective services (CPS); a third of these cases are substantiated (Kim,
42 Wildeman, Jonson-Reid, & Drake, 2017). Consequences are severe and broad. Those who were
43 abused/neglected have vastly increased odds and earlier onsets of later stress- and age-related
44 disease and dysfunction (e.g., psychopathology, cardiovascular disease, obesity; Batten, Aslan,
45 Maciejewski, & Mazure, 2004; McLaughlin et al., 2012; Shields et al., 2016). Further, each case
46 of nonfatal childhood maltreatment is estimated to cost society \$210,000 (in 2010 \$; Fang, Brown,
47 Florence, & Mercy, 2012). Given the widespread prevalence and consequences of childhood
48 maltreatment, it is critical to understand factors associated with its expression so that strategies
49 and policies may be put in place to mitigate its burden.

50

51 Intergenerational Transmission of Childhood Maltreatment

52 Maltreatment during childhood tends to aggregate within families (see **Table 1** for a summary of
53 research). Much of this work has focused on the intergenerational transmission of childhood
54 maltreatment (ITCM) in vulnerable populations (e.g., young mothers, low SES, criminality). For
55 instance, in the largest study of ITCM, adolescent first-time mothers (n=85,084) who were
56 maltreated as children were more likely to be investigated for the perpetration of maltreatment by
57 the time their children were 5 years old (substantiated HR: 3.19; unsubstantiated HR: 2.19;
58 Putnam-Hornstein, Cederbaum, King, Eastman, & Trickett, 2015). Comparably less work has been
59 conducted in community and general population samples, but findings are similar. For example,
60 in a sample drawn from a birth registry of British twins, children were more likely to be physically

61 maltreated if their mother had experienced maltreatment (Jaffee et al., 2013). Indeed, parental
62 history of childhood maltreatment is among the most potent risk factors for children to be
63 maltreated, with evidence that its effect is even larger than other well-documented risk factors
64 including poverty, criminality, and mental health conditions (Ben-David, Jonson-Reid, Drake, &
65 Kohl, 2015). This robust evidence (**Table 1**) suggests that understanding childhood maltreatment
66 requires an intergenerational family-based perspective. However, there has been limited work
67 evaluating whether ITCM is general and/or specific to unique forms of maltreatment and what
68 potential factors may contribute to its continuity.

69

70 **ITCM: Maltreatment Specificity**

71 Theoretical models pioneered by McLaughlin and colleagues (2014) speculate that distinct forms
72 of childhood maltreatment may be associated with unique pathways to both shared and distinct
73 outcomes. These models postulate that threat experiences (e.g., abuse) disrupt social and emotional
74 processing, while deprivation (e.g., neglect) alters cognitive development to increase risk for
75 psychopathology. However, whether ITCM represents continuity of non-specific childhood
76 maltreatment or is associated with specific types of maltreatment remains uninvestigated.

77 Research on ITCM has evaluated broad dimensions of maltreatment (e.g., all abuse and all
78 neglect), multiple specific subtypes (e.g., physical and emotional abuse and neglect and sexual
79 abuse) or only one specific subtype (e.g., physical abuse) independently. Generally, this work
80 provides evidence for the intergenerational transmission of homotypic (i.e., association of the same
81 subtype of maltreatment across generations) and heterotypic (i.e., association of different subtypes
82 of maltreatment across generations) childhood maltreatment (**Table 1**). For example, in the Add
83 Health study, young parents (n=2,977) who were neglected and/or abused as children were more

84 likely to endorse being abusive and/or neglectful to their infants/toddlers (Kim, 2009). While some
85 work has examined whether ITCM is characterized by non-specific and maltreatment type
86 specificity in the context of a single study (e.g., Widom, Czaja, & DuMont, 2015), no studies, to
87 our knowledge, have examined whether specific forms of childhood maltreatment exert unique
88 patterns of association across generations above and beyond non-specific maltreatment. Indeed,
89 we are aware of only one study that has tangentially tested this question; in that study, Newcombe
90 and Locke (2001) found evidence that increased childhood maltreatment as assessed using a
91 general latent factor was linked to poor parenting, but that maternal history of neglect was
92 associated with poor parenting over and above the latent general maltreatment factor.

93

94 **Borderline Personality Pathology: A Potential Mediator of Intergenerational Childhood**
95 **Maltreatment**

96 Borderline personality pathology (BPP), which is characterized by pervasive emotion
97 dysregulation, impulsivity, distress intolerance, inconsistent appraisals of others, feelings of
98 isolation, and unstable interpersonal relationships, is a promising potential contributor to ITCM.
99 Both retrospective and prospective data reveal that maltreatment during childhood is strongly
100 associated with BPP and that this relationship remains even after accounting for other forms of
101 psychopathology (e.g., depression) related to both early life stress and BPP (Gratz, Tull, Baruch,
102 & Bornovalova, 2008; Hernandez, Arntz, Gaviria, Labad, & Gutiérrez-Zotes, 2012; Ibrahim,
103 Cosgrave, & Woolgar, 2018; Joyce et al., 2003; Stone, 1981). For example, Zanarini and
104 colleagues (1997) found that 90% of patients with borderline personality disorder were exposed to
105 childhood maltreatment and that they were more likely to be exposed than patients with other
106 personality disorder diagnoses.

107 A comparatively small literature suggests that parents with BPP are more likely to be
108 investigated for perpetrating childhood maltreatment by CPS, even after accounting for their own
109 maltreatment (Perepletchikova, Ansell, & Axelrod, 2012; Bools, Neale, Meadow, 1994; Laporte,
110 2009). These findings are buttressed by evidence that BPP is associated with factors that mediate
111 ITCM or have been associated with risk for maltreatment exposure in one's children (e.g., young
112 parenthood, single parenthood, substance use disorder, depression, interpersonal stress and
113 violence, stress exposure, familial instability, domestic violence; Chan, 2011; Conway,
114 Boudreaux, & Oltmanns, 2018; Daley, Burge, & Hammen, 2000; De Genna, Feske, Larkby,
115 Angiolieri, & Gold, 2012; Grant et al., 2008; Hopwood, Donnellan, & Zanarini, 2010; Liebke et
116 al., 2017; Martín-Blanco et al., 2014; Radtke et al., 2015; Skodol et al., 1999; Smith et al., 2014;
117 Weinstein, Gleason, & Oltmanns, 2012; Wilson, Stroud, & Durbin, 2017). For example,
118 individuals with BPP are more likely to end long-term relationships and voluntarily or
119 involuntarily lose custody of their children (Zanarini et al., 2014), and single parenthood is
120 associated with heightened risk for childhood maltreatment (Gelles, 1989; Schneider, 2017).
121 Moreover, BPP and childhood maltreatment exposure also share similar associations with other
122 outcomes (e.g., impulsivity, emotional instability, relationship issues, substance use, epigenetic
123 signatures within the glucocorticoid receptor gene *NR3C1*; Dammann et al., 2011; Geiger & Crick,
124 2001; Martín-Blanco et al., 2014; Rogosch & Cicchetti, 2005; Weaver et al., 2004). Collectively,
125 these convergent data suggest that BPP may plausibly contribute to the propagation of childhood
126 maltreatment across generations.

127 Influential biosocial developmental models of BPP provide a framework for understanding
128 how BPP might contribute to ITCM (Crowell et al., 2009; Linehan, 1993). These theoretical
129 models postulate that genetically-driven vulnerability for dysregulated emotion and environmental

130 sensitivity interact with an invalidating environment characterized by maltreatment to promote the
131 development of BPP. Accordingly, the moderate heritability of BPP (Reichborn-Kjennerud et al.,
132 2013) may be passed from parents to offspring, leading to the expression of related prodromal
133 temperamental traits in children (e.g., dysregulated emotion and stress sensitivity) that may evoke
134 childhood maltreatment and inconsistent caregiver practices, especially among caregivers with
135 BPP traits. This invalidating early environment may then potentiate BPP development in offspring
136 already at risk by encouraging dysregulated and volatile emotion by inconsistently reinforcing and
137 punishing emotional expression (Crowell et al., 2009; Gunderson & Lyons-Ruth, 2008; Linehan,
138 1993).

139 Consistent with this model, emotion dysregulation—a core component of BPP—among
140 parents has been associated with their invalidation of adolescent emotion expression (a tenet of
141 emotional abuse), which is further linked to BPP-related characteristics (e.g., poor emotion
142 regulation; Buckholdt, Parra, & Jobe-Shields, 2014). Further, dysregulated emotion is associated
143 with the propagation of maltreatment across generations (Smith et al., 2014) and indirectly links
144 childhood emotional abuse to unhealthy relationship characteristics, such as intimate partner
145 violence (Berzenski & Yates, 2010), which, in turn, indirectly links maltreatment across
146 generations (Rodriguez, Silvia, Gonzalez, & Christl, 2018). Together, theoretical work supported
147 by empirical data raise the intriguing possibility that BPP may indirectly link childhood
148 maltreatment across generations. Such an indirect effect might reflect a behavioral mechanism
149 underlying ITCM and/or common factors associated with exposure to childhood maltreatment (in
150 both generations) as well as BPP expression.

151

152

153 The Current Study

154 Among a representative community sample (n=937) of older parents (n=364, age: 66.68±3.01) and
155 their adult children (n=573, age: 38.67±7.39 years), we tested whether the intergenerational
156 transmission of childhood maltreatment is general and/or specific to certain forms, and whether
157 parental BPP mediates this continuity. Based on work suggesting general maltreatment continuity
158 and heterotypic associations across distinct forms of child maltreatment, we hypothesized that non-
159 specific childhood maltreatment would be transmitted across generations with little evidence that
160 unique specific forms of maltreatment are. Further, because borderline personality pathology is
161 associated with both exposure to childhood maltreatment and risk factors for its perpetuation, we
162 expected that it would mediate childhood maltreatment continuity across generations.

163 [Insert Table 1 Here]

164 **METHOD**165 **Participants and Procedure**

166 Participants (n=937; **Table 2**) included 364 parents (G1; age 66.68±3.01 years, 59.44% female,
167 71.70% white) and 573 of their biological adult children (G2; age 38.67±7.39 years, 43.96%
168 female, 73.73% white). These families were recruited from the St. Louis Personality and Aging
169 Network (SPAN) study, which examines personality, health, biomarkers, and aging in later life
170 (Oltmanns, Rodrigues, Weinstein, & Gleason, 2014). Of the original 659 SPAN participants (G1)
171 who reported having biological children, 543 (82%) provided permission to contact their G2
172 offspring (465 provided contact information for all of their children, 78 provided contact
173 information for some of their children). G2 participants were called or emailed up to 5 times
174 inviting them to participate in our study. Of the potential 855 G2 participants, 610 (71%)
175 completed questionnaires (through mail or online surveys) about themselves as well as their
176 children (G3).¹ Data from G1 participants were drawn from SPAN. In cases where G1 participants
177 had insufficient or missing maltreatment reports, observations were excluded from analyses.
178 Participants provided informed consent to a protocol approved by the Washington University in
179 St. Louis Institutional Review Board. G2 participants were compensated \$30 for returning
180 questionnaires. G1 participants received \$60 for completing each in-person SPAN session.

181 [Insert Table 2 Here]

182

¹ G1 individuals who participated in our study and those with children who declined did not differ on summed CTQ subscale scores, BPP, or age, all $ps > 0.25$). G1 participants had higher levels of education, higher household income, and were more likely to be female and white (all $ps < 0.05$) relative to those who declined consent.

183 **Measures**

184 **Childhood Maltreatment**

185 Self-reported childhood maltreatment experienced by G1 and G2 participants was assessed using
186 the 28-item Childhood Trauma Questionnaire (CTQ) (Bernstein & Fink, 1998). It is composed of
187 5 subscales, which had good-excellent internal consistency across both generations in our sample
188 [sexual abuse: α s = 0.92(G1), 0.94(G2); emotional neglect: α s = 0.91, 0.88; emotional abuse: α s =
189 0.89, 0.87; physical abuse: α s = 0.81, 0.73; physical neglect: α s = 0.76, 0.67).

190 Given evidence that CTQ subscales represent a general factor of childhood maltreatment
191 (Spinhoven et al., 2014; Pezzoli et al., 2018), we used Mplus v. 7.3 software (Muthén & Muthén,
192 1998-2012) to conduct confirmatory bifactor analyses of G1 data using mean and variance-
193 adjusted weighted least squares (WLSMV) and G2 data, nested by family, using maximum
194 likelihood estimation with robust standard errors. Variances of the general and group specific
195 factors were set to 1 and correlations between factors to 0, producing a general factor on which all
196 items are permitted to load (representing shared variance among indicators) as well as second
197 factors representing unique variance among sets of items with similar content. Thus, we modeled
198 a single global factor of childhood maltreatment, as assessed by all CTQ items (n=25) contributing
199 to the 5 subscales, as well as five group specific factors, as assessed by the five CTQ items
200 composing each subscale. Model fit was acceptable-excellent in both G1 and G2 (RMSEA = 0.05
201 (G1), 0.05 (G2); CFI = 0.99, 0.94; TLI: 0.98, 0.85). However, one item (Item #14; family members
202 saying hurtful or insulting things, part of the emotional abuse subscale) was removed from G1 data
203 because it resulted in negative residual variance. Factor loadings on the general factor were
204 moderate-large in both generations (G1: M = 0.70, range = 0.44 to 0.91; G2: M = 0.50, range =
205 0.22 to 0.78). Subscale specific factor loadings were generally lower (G1: Emotional Abuse M =

206 0.18, range = 0.047 – 0.33; Physical Abuse $M = 0.51$, range = 0.38 to 0.65; Sexual Abuse $M =$
207 0.75, range = 0.63 to 0.81; Emotional Neglect $M = 0.43$, range = 0.32 to 0.55; Physical Neglect M
208 = 0.37, range = 0.22 to 0.59. G2: Emotional Abuse $M = 0.34$, range = 0.16 to 0.52; Physical Abuse
209 $M = 0.43$, range = 0.35 to 0.57; Sexual Abuse $M = 0.78$, range = 0.61 to 0.87; Emotional Neglect
210 $M = 0.42$, range = .24 to 0.62; Physical Neglect $M = 0.34$, range = 0.14 to 0.6). Following evidence
211 that a general single latent factor represented these data well, we also constructed CTQ total scores
212 (with and without log-transformation), consistent with prior work (MacDonald et al., 2016;
213 Schmidt, Narayan, Atzl, Rivera, & Lieberman, 2018), so that our results would be more readily
214 combined with and interpreted alongside other studies.

215

216 **Borderline Personality Pathology**

217 As described in our prior work (Conway, Boudreaux, & Oltmanns, 2018; Di Iorio et al., 2018)
218 borderline pathology was assessed in G1 participants dimensionally from multiple perspectives
219 (i.e., clinician, self, and informant ratings) across time. Because many people exhibit at least some
220 personality pathology symptoms (Oltmanns et al., 2014) and subthreshold borderline personality
221 disorder symptoms are associated with psychosocial impairment (Ellison, Rosenstein, Chelminski,
222 Dalrymple, & Zimmerman, 2016; Zimmerman, Chelminski, Young, Dalrymple, & Martinez,
223 2013), scores were treated continuously to retain variation at subthreshold diagnostic levels.
224 Borderline pathology was assessed using multiple sources and methods to improve our coverage
225 of subthreshold presentations. Informant reports were included because they add unique
226 information about an individual's personality that the participant may be unable or unwilling to
227 report (Oltmanns & Turkheimer, 2006) and are predictive of health outcomes over and above self-
228 report (Cruitt & Oltmanns, 2017). Interviewer ratings of borderline personality pathology were

229 acquired using the Structured Interview for DSM-IV Personality (SIDP-IV; Pfohl, Blum, &
230 Zimmerman, 1997); self- and informant reports were collected using the Revised NEO Personality
231 Inventory (NEO PI-R; Costa & McCrae, 1992) and the Multisource Assessment of Personality
232 Pathology (MAPP; Oltmanns, Turkheimer, & Strauss, 1998). Interviewer ratings and self-reports
233 were collected at three in-person sessions from participants: baseline (the initial session), and the
234 first and second in-person follow-up session (IPFU1 and IPFU2, respectively). IPFU1 occurred
235 0.72-6.65 ($M = 2.83$) years following the baseline session; IPFU2 occurred 0.29-6.33 ($M = 3.93$)
236 years following IPFU1. Informant reports were collected at these same times through mail or
237 email.

238 **Clinical Interview:** The SIDP-IV is a semi-structured interview in which trained
239 interviewers rate 80 items corresponding to criteria of the 10 PDs on a scale of 0 (no pathology
240 present) to 3 (pathology strongly present). SIDP scores were treated continuously by summing
241 responses across the 9 borderline personality disorder (BPD) criteria at each assessment (range: 0-
242 4; $n=67$ (18.41%) met at least one criterion at one or more assessments; $M\pm SD$: baseline:
243 0.140 ± 0.457 ; IPFU1: 0.123 ± 0.448 ; IPFU2: 0.122 ± 0.468). Trained full-time staff members,
244 graduate students in clinical psychology, or undergraduate research assistants conducted all
245 interviews. Inter-rater reliability ratings from a selected subsample of 265 video-recorded baseline
246 interviews show excellent agreement (intraclass correlation coefficient: 0.77; Oltmanns et al.,
247 2014).

248 **Self and Informant Report:** In addition to self-report, we also acquired informant-report
249 of G1 personality. Most (95%) participants had an associated informant consent to the SPAN
250 protocol and report on their (i.e., the participant's) personality at the baseline assessment
251 (informant $n = 344$; age: range 25.86.83, $M = 59.81$, $SD = 12.15$; 65.41% female, 72.30%

252 European-American, 24.78% African-American). Informants knew the participant for an average
253 of 32.86 years ($SD = 13.10$) at the baseline SPAN assessment. Most were a spouse or romantic
254 partner (54.65%, $n = 188$), other family member (29.07%, $n = 100$), or friend (14.53%, $n = 50$),
255 with the remainder consisting of neighbors, coworkers, or other acquaintances (1.74%, $n = 6$).
256 Informants completed questionnaires about their associated participant through the mail or online
257 at baseline, IPFU1, and IPFU2 sessions and received \$30 remuneration.

258 The NEO PI-R (Form S for self; Form R for informant) consists of 240-items assessing the
259 five domains of neuroticism, extraversion, openness, agreeableness, and conscientiousness, as well
260 as six lower-order facets within each domain. NEO PI-R borderline scores were generated
261 independently for self and informant report by summing anxiety, angry hostility, depression,
262 impulsiveness, vulnerability, openness to feelings, openness to actions, compliance (reverse
263 scored), and deliberation (reverse scored) facet scale scores within each assessment (self-report:
264 range 57.80-225.00, baseline: 117.70 ± 21.79 ; IPFU1: 115.80 ± 21.41 ; IPFU2: 118.90 ± 22.53 ;
265 informant-report: range 44.00-252.00, baseline: 123.60 ± 29.68 , IPFU1: 123.70 ± 30.03 ; IPFU2:
266 121.470 ± 30.66) (Miller, Reynolds, & Pilkonis, 2004). The MAPP is an 80-item measure of
267 personality pathology based on lay translations of DSM-IV PD diagnostic criteria. Self and
268 informant MAPP BPD scores were calculated by summing responses across the 9 BPD items (self:
269 range: 0-5; $n=117$ (32.14%) met at least one criterion at one or more assessments; baseline:
270 0.225 ± 0.559 ; IPFU1: 0.156 ± 0.461 ; IPFU2: 0.278 ± 0.619 ; informant: range: 0-8; $n=161$ (44.23%)
271 met at least one criterion at one or more assessments; baseline: 0.417 ± 0.850 IPFU1: 0.462 ± 1.08 ;
272 IPFU2: 0.438 ± 0.966).

273 We performed an exploratory structural equation modeling (ESEM) analysis on borderline
274 personality pathology scores derived from clinician-based interview (SIDP-IV) and self- and

275 informant-report (NEO PI-R and MAPP) data across all assessment times (baseline, IPFU1,
276 IPFU2) using maximum likelihood estimation in Mplus 7.3 (Muthén & Muthén, 1998-2012). We
277 hypothesized a one-factor model to account for the correlations among the 15 BPP measures (i.e.,
278 self and informant report and clinician ratings at baseline, IPFU1, and IPFU2 sessions), which fit
279 the data well (RMSEA = .056, CFI = .976, TLI = .955) with factor loadings ranging from .45 to
280 .70. Estimated factor scores were used to represent BPP in all subsequent analyses.

281

282 **Other Relevant Covariates**

283 Race, ethnicity, and gender were assessed via self-report. Participants were asked to choose from
284 eight options to identify their race (e.g., “White, Caucasian,” “Black, African American,”
285 “Other”), and were further asked to indicate whether they were Hispanic. Due to the low
286 prevalence of races other than White and Black and endorsement of being Hispanic (**Table 2**), the
287 present study formed one dichotomous variable indicating status as White/non-White and did not
288 consider Hispanic/non-Hispanic. Gender was assessed via self-report. Socioeconomic status (SES)
289 was formed as a composite measure of household annual income and level of education, each
290 assessed via self-reported choice from nine and eight ranked options, respectively, and
291 standardized prior to being summed.

292

293 **Statistical Analyses**

294 As the sample contains parents and one or more of their offspring, linear mixed effect models were
295 used to nest data according to family (random factor), when examining G1-G2 associations, to
296 account for the non-independence of measurement across generations using the lme4 R package
297 (Bates, Maechler, Bolker, & Walker, 2015). The following fixed effect covariates were included

298 in models: G1 age, sex, race (white/non-white), SES (in all analyses); G2 age and sex (in all
299 analyses involving G2). We first tested whether CTQ subscale summary scores (i.e., emotional
300 abuse, physical abuse, sexual abuse, emotional neglect, and/or physical neglect) show evidence of
301 intergenerational association before examining whether childhood maltreatment factors unique to
302 these subscales have generational continuity. To correct for the 25 associations tested, each of
303 these analyses was subjected to Benjamini and Hochberg (1995) false discovery rate (FDR)
304 correction.

305 Given evidence of non-specific association across CTQ subscales and limited evidence that
306 unique subscale-specific factors showed intergenerational continuity (see **Results**), we examined
307 relationships between G1 childhood maltreatment (i.e., CTQ summed scores), G1 Borderline
308 Personality Pathology (factor score), and G2 childhood maltreatment (i.e., CTQ summed scores)
309 using FDR adjustment to account for these 3 comparisons. Subsequently, we evaluated our
310 hypothesized mediational model by testing whether G1 borderline personality pathology indirectly
311 links childhood maltreatment experienced by G1 to childhood maltreatment experienced by G2 in
312 a 2-2-1 multilevel mediational model clustered by family using Mplus v. 7.3 software (Muthén &
313 Muthén, 1998-2012). As with the linear mixed effects models, demographic variables were
314 included as covariates on G1 BPP (m; G1 age, sex, race, SES) and G2 childhood maltreatment (y;
315 G1 age, sex, race, SES, and G2 age and sex).

316 **RESULTS**317 *Childhood Maltreatment: General and Specific Associations Across Generations*

318 Associations between CTQ summed subscales and unique CTQ subscale factors are summarized
319 in **Tables 3-4**. Broadly, with the exception of sexual abuse in G2, specific CTQ subscale total
320 scores (i.e., emotional and physical abuse and neglect) showed evidence of homotypic and
321 heterotypic association across generations (**Table 3**). However, unique subscale specific factor
322 scores orthogonal to a general CTQ factor revealed little evidence of intergenerational association,
323 with the only exceptions being heterotypic associations of G1 physical neglect and G2 sexual
324 abuse ($p = 3.69 \times 10^{-3}$; $p_{\text{fdr}} = 0.0461$), and homotypic associations of childhood emotional neglect
325 across generations ($p = 2.05 \times 10^{-4}$; $p_{\text{fdr}} = 5.13 \times 10^{-3}$; **Table 4**).² *Post hoc* analyses revealed no
326 evidence that BPP mediated the association between the homotypic emotional neglect association
327 across generations (indirect effects $b = 0.013$, 95% C.I. [-0.005, 0.032], $p = 0.159$) or the
328 association between G1 physical neglect and G2 sexual abuse (indirect effects $b = 0.024$, 95% C.I.
329 [-0.002, 0.029], $p = 0.096$). Unlike unique subscale factors, exposure to general childhood
330 maltreatment, as measured using the general latent factor, was positively coupled across
331 generations ($b = 0.0233$, $SE = 0.00817$, $p = 4.50 \times 10^{-3}$).

332

333

[Insert Tables 3 and 4 Here]

334

² Another way to address this question is to evaluate whether subscale scores show evidence of intergenerational continuity after accounting for summed scores of the other scales. Analyzing the data this way produces results analogous to our bifactor latent model approach, wherein only emotional neglect shows evidence of intergenerational homotypic continuity after controlling for demographic covariates. Emotional Abuse: $b = 0.0800$, $SE = 0.0482$, $p = 0.0984$, $p_{\text{fdr}} = 0.141$; Physical Abuse: $b = 0.0823$, $SE = 0.0412$, $p = 0.0467$, $p_{\text{fdr}} = 0.107$; Sexual Abuse: $b = 0.0528$, $SE = 0.0485$, $p = 0.278$, $p_{\text{fdr}} = 0.161$; Emotional Neglect: $b = 0.185$, $SE = 0.0440$, $p = 3.24 \times 10^{-5}$, $p_{\text{fdr}} = 1.22 \times 10^{-4}$; Physical Neglect: $b = 0.0722$, $SE = 0.0371$, $p = 0.0522$, $p_{\text{fdr}} = 0.107$).

335

336 ***Borderline Personality Pathology: A Mediator of ITCM***

337 The experience of childhood maltreatment (i.e., total CTQ scores) was positively coupled across
338 generations (without fixed effect covariates: $b = 0.203$, $SE = 0.0368$, $p = 8.34 \times 10^{-8}$, $p_{fdr} = 1.25 \times 10^{-7}$;
339 with fixed effect covariates: $b = 0.126$, $SE = 0.0375$, $p = 9.21 \times 10^{-4}$, $p_{fdr} = 9.21 \times 10^{-4}$). Further,
340 parent borderline personality pathology was positively associated with their own prior exposure to
341 maltreatment during childhood as well as their children's exposure (*G1* without covariates: $b =$
342 0.0206 , $SE = 0.00235$, $p < 2.22 \times 10^{-16}$, $p_{fdr} = 6.66 \times 10^{-16}$ with covariates; $b = 0.0198$, $SE = 0.00320$,
343 $p = 1.60 \times 10^{-9}$, $p_{fdr} = 4.80 \times 10^{-9}$; *G2* without fixed effect covariates: $b = 2.714$ $SE = 0.613$, $p =$
344 1.28×10^{-5} , $p_{fdr} = 1.28 \times 10^{-5}$; with fixed effect covariates: $b = 2.162$, $SE = 0.600$, $p = 3.62 \times 10^{-4}$, p_{fdr}
345 $= 5.43 \times 10^{-4}$).

346 G1 borderline personality pathology indirectly linked non-specific childhood maltreatment
347 (i.e., CTQ total scores) experienced by G1 to non-specific childhood maltreatment experienced by
348 G2 (**Figure 1; Table 3**; $b = 0.031$ [95% CI 0.003, 0.060], $p = 0.030$). G1 childhood maltreatment
349 was positively coupled with G1 BPP (a pathway: $b = 0.020$ [95% CI 0.013, 0.027], $p < 0.001$)³
350 which was associated with G2 childhood maltreatment (b pathway: $b = 1.598$ [95% CI 0.241,
351 2.955], $p = 0.021$) and indirectly linked G1 to G2 childhood maltreatment (c' pathway: $b = 0.125$
352 [95% CI 0.013, 0.236], $p = 0.021$; c pathway: $b = 0.142$ [95% CI 0.055, 0.230], $p = 0.001$). Results
353 of the mediational model were consistent when using log transformed CTQ total scores (indirect
354 effect: $b = 0.038$ [95% CI 0.007, 0.069], $p = 0.015$; c' pathway: $b = 0.116$ [95% CI 0.028, 0.205],
355 $p = 0.010$; c pathway: $b = 0.153$ [95% CI 0.059, 0.247], $p = 0.001$).

356

[Insert Figure 1 Here]

357 **DISCUSSION**

358 We evaluated whether the intergenerational transmission of childhood maltreatment (ITCM) is
359 non-specific and whether parental borderline personality pathology mediates this continuity. Three
360 primary findings emerged. First, we replicated a wealth of literature showing that childhood
361 maltreatment is shared across generations (**Table 1**). Second, we found homotypic and heterotypic
362 maltreatment type associations across generations (**Table 3**) with evidence that ITCM is largely
363 shared across forms of maltreatment. Further, with the exception of a homotypic association of
364 emotional neglect and a heterotypic association of G1 physical neglect and G2 sexual abuse, no
365 specific forms of childhood maltreatment showed unique evidence of continuity across generations
366 (**Table 4**). Third, parental borderline pathology partially mediated the association of global
367 childhood maltreatment across generations (**Figure 1; Table 5**). Collectively, these data suggest
368 that childhood maltreatment, broadly defined, is shared across generations and that parental
369 borderline personality pathology may represent a shared risk factor associated with ITCM and/or
370 a putative behavioral mechanism.

371

372 **The Intergenerational Transmission of Broad Spectrum Childhood Maltreatment**

373 The vast majority of childhood maltreatment research, including that on ITCM, has examined
374 specific forms of maltreatment independently. While this approach is intuitively appealing, it does
375 not account for common exposure to multiple forms of maltreatment and provides limited
376 information with regard to the specificity of associations with distinct forms of childhood
377 maltreatment.³ Most individuals maltreated during childhood are exposed to multiple forms of

³ Studies showing that one form of maltreatment is significantly associated with an outcome while another is not may or may not be reflective of maltreatment type specificity. Forms of maltreatment that are rare and/or less severe may require relatively larger samples for the accurate estimation of their effects. Moreover, significant

378 abuse and neglect, and evidence indicates that a single general latent factor characterizes overall
379 exposure well (Green et al., 2010; Kristjansson et al., 2016; Pezzoli, Antfolk, Hatoum, & Santtila,
380 2018; Spinhoven et al., 2014). Further, while limited studies have adopted such an approach,
381 available evidence suggests that a general indicator of early life stress is associated with
382 psychopathology, while unique aspects of specific forms of maltreatment are not (Green et al.,
383 2010). Building on these findings, we find that broad exposure to childhood maltreatment is
384 transmitted across generations with little evidence of unique distinct homotypic continuity.
385 However, it may be that disentangling homotypic and heterotopic patterns of ITCM unique to
386 specific forms of maltreatment requires much larger samples due to observed small effects.

387 Notably, unique aspects of emotional neglect unshared with the general childhood
388 maltreatment factor showed evidence of homotypic continuity across generations (**Table 4**). While
389 this finding was not hypothesized, the association survived correction for multiple testing and is
390 broadly consistent with one prior study, in which maternal history of emotional neglect during
391 childhood predicted poor parenting over and above a general maltreatment factor (Newcombe &
392 Locke, 2001). Measurement and construct definitions of emotional neglect may contribute to this
393 finding. With respect to measurement, emotional neglect is assessed on the CTQ entirely with
394 reverse-scored items (e.g., “I felt loved, “My family was a source of strength and support”), which
395 might constitute a relatively indirect measure of maltreatment that is conceivably more commonly
396 endorsed outside of exposure to other forms (e.g., abuse) (Spinhoven et al., 2014). As a construct,
397 some evidence suggests that neglect may be more specifically transmitted across generations than
398 abuse; for example, Yang and colleagues (2018) found that parental history of neglect (broadly

associations with one form of childhood maltreatment may be attributable to shared variance with other forms as well as unique contributions.

399 conceived) was associated with neglect but not physical abuse in the next generation, while
400 physical abuse was associated with both neglect and physical abuse. However, it is possible that
401 differential endorsement rates between neglect and abuse could underlie these differential
402 associations. Emotional neglect may be the most difficult form of maltreatment to define; unlike
403 abuse, emotional neglect is often more chronic and less easily traced to specific instances, and
404 there is a lack of consensus about what constitutes healthy emotional support (Stowman &
405 Donohue, 2005).

406 Lastly, we observed a heterotypic association between unique aspects of physical neglect
407 in G1 and unique aspects of sexual abuse in G2 that was negative (**Table 4**). This diverges from
408 prior evidence documenting that neglect in one generation is positively correlated with sexual
409 abuse in the subsequent one within documented cases of maltreatment (Widom et al., 2015). While
410 our unanticipated finding survived multiple testing correction and had a similar directional pattern
411 of association in subscale tests (i.e., subscales not orthogonal to general childhood maltreatment;
412 **Table 3**), it should be noted that physical neglect and sexual abuse were the least highly endorsed
413 subscales in this sample and further that physical neglect had the lowest internal consistency (see
414 Methods), which may contribute to imprecise estimates of association.

415

416 **Borderline Personality Pathology: A Putative Mediator of Childhood Maltreatment** 417 **Generational Continuity**

418 Clinical and subclinical forms of borderline personality pathology are associated with exposure to
419 abuse and neglect in childhood and the perpetration of offspring maltreatment in parents (e.g.,
420 Ibrahim et al., 2018; Perepletchikova et al., 2012). Our study critically extends this literature by

421 showing that parental BPP mediates the intergenerational transmission of childhood maltreatment.

422 Multiple, non-mutually exclusive pathways may contribute to this observation.

423 Consistent with theoretical models (e.g., Linehan, 1993) hypothesizing that childhood
424 maltreatment plays a causal role in the development of BPP and associated evidence relating
425 stressful family environments and predispositions for emotion dysregulation to the development
426 of BPP, our findings show that maltreatment is associated with BPP development. In turn, the
427 expression of BPP is associated with a heightened likelihood that one's children are exposed to abuse
428 or neglect. A series of observations arising from epigenetic studies are consistent with theoretical
429 models suggesting that childhood maltreatment may play a causal role in the development of BPP,
430 which may, in turn, contribute to maltreatment in the subsequent generation. Studies in rodents
431 have shown that maternal care affects later adult parenting behavior through epigenetic regulation
432 of the glucocorticoid receptor gene (*NR3C1*) to influence stress-related cortisol function (Weaver
433 et al., 2004). Specifically, cross fostering studies in rats show that pups raised by mothers who
434 provide less maternal care (i.e., less licking and grooming and arched back nursing) are
435 characterized by epigenetic changes resulting in an impaired ability to return to homeostasis
436 following stress exposure. These changes persist throughout the rat's lifespan and promote stress-
437 sensitive behavior and reduced maternal care of the subsequent generation; hence less caring
438 mothers beget relatively stress-sensitive pups that become less caring mothers through experience-
439 dependent mechanisms. However, this generational continuity can be disrupted; a pup born to a
440 less caring mother who is subsequently raised by a more caring mother is characterized by
441 epigenetic signatures associated with stress-resilience and increased maternal care in a subsequent
442 generation. A human post mortem study suggests that this mechanism may be conserved across
443 species (McGowan et al., 2009). Intriguingly, differential *NR3C1* methylation patterns in

444 peripheral blood have been linked to both BPP and childhood maltreatment, suggesting that
445 maltreatment-induced epigenetic signatures in stress responsive systems may contribute to the
446 expression of BPP and the continuity of maltreatment (Dammann et al., 2011; Martín-Blanco et
447 al., 2014; Perroud et al., 2011; Radtke et al., 2015; Steiger, Labonté, Groleau, Turecki, & Israel,
448 2013; Teschler et al., 2013).

449 Attachment theory offers further insight into the relationship between BPP and childhood
450 maltreatment. For instance, evidence suggests that parents with BPP may be more likely to engage
451 in inconsistent parenting styles that unpredictably oscillate between sensitivity and care to
452 punishment (Stepp, Whalens, Pilkonis, Hipwell, & Levine, 2011). Theoretical models postulate
453 that mothers with BPP are more likely to misperceive and invalidate their children's emotions,
454 interfering with healthy emotional development and contributing to emotional dysregulation
455 (Stepp et al., 2011). Such parenting styles are associated with the development of insecure, and
456 more specifically disorganized, attachment, which may impair children's capacity for distress
457 regulation (Crowell et al., 2009). Together with dysregulated emotion, insecure attachment, which
458 is common among individuals with BPP and a history of childhood maltreatment (Fonagy et al.,
459 1995), indirectly links parental exposure of childhood maltreatment to parental potential for abuse
460 (Finzi-Dottan & Harel, 2014).

461 Other non-mutually exclusive pathways challenging conventional wisdom that childhood
462 maltreatment contributes to the development of BPP may also explain our observed mediation.
463 For instance, it is plausible that the early expression of BPP-like characteristics in children evokes
464 childhood maltreatment from parents and others. In this sense the moderate heritability of BPP
465 (Reichborn-Kjennerud et al., 2013) may be transmitted from parent to offspring, with resulting
466 child behavior evoking maltreatment from those in the environment. As such, childhood

467 maltreatment may travel alongside BPP, while not contributing to its expression. It is also possible
468 that childhood maltreatment evoked by prodromal BPP-like traits may further potentiate the
469 development of BPP (Gunderson & Lyons-Ruth, 2008). Lastly, childhood maltreatment may not
470 mechanistically contribute to BPP and BPP-like behavioral expressions in children may not evoke
471 maltreatment. Instead, unmeasured familial factors may correlate with both childhood
472 maltreatment and BPP. Twin research shows that BPP and related characteristics, as well as the
473 perpetration of violence and likelihood of being exposed to maltreatment, have a moderate genetic
474 component (Reichborn-Kjennerud et al., 2013; Pezzoli et al., 2018) with a recent GWAS
475 identifying variation within genes linked to borderline personality disorder (Witt et al., 2017).
476 While the genetic correlation between BPP and exposure to childhood maltreatment has not been
477 estimated, to our knowledge, it is possible that common genetic influences on child maltreatment
478 (both exposure for oneself and one's child) and BPP may account for their co-occurrence.

479

480 **Strengths and Limitations**

481 Our study is relatively large (n=937; **Table 1**) for a parent-child study and is characterized by
482 multiple design recommendations for the study of ITCM (e.g., representative sample, independent
483 reports of childhood maltreatment in both generations; see Thornberry et al., 2012) and a thorough
484 assessment of borderline personality pathology (e.g., repeated evaluation over time, use of
485 dimensional measurement and multiple sources of information). Further, unlike many ITCM
486 studies, which focus on younger parents, our sample of older parents from the broader community
487 allowed us to assess childhood maltreatment dimensionally throughout the entirety of childhood
488 in both parents and their adult children, as opposed to only severe forms experienced during young
489 childhood. However, our study has limitations to consider when interpreting results.

490 First, much like the majority of ITCM and parent-child studies, parental exposure to
491 childhood maltreatment and borderline personality pathology were assessed with regard to one
492 parent only, which prevented us from evaluating additive and interactive effects across
493 parents/caregivers or other possible moderating factors (e.g., social support from other sources).
494 Relatedly, our broad assessment of childhood maltreatment did not include details of who
495 perpetrated the abuse/neglect. Given that borderline personality pathology is associated with
496 aggression as well as familial instability, it is possible that child maltreatment may be perpetrated
497 by parents with BPP and/or may arise from other caregivers or non-relatives. However, even if
498 such measures were available, our sample size likely does not provide sufficient power to
499 investigate these potentially complex interactive or specific effects.

500 Second, the CTQ is a retrospective and subjective measure of childhood trauma that may
501 be susceptible to memory errors and reporting biases. For example, despite evidence that the CTQ
502 shows convergence with clinician-rated childhood maltreatment interviews as well as strong test-
503 retest reliability (Bernstein et al., 1994; Bernstein et al., 2003), a recent study found that
504 retrospective self-reports of maltreatment on the CTQ have slight-fair agreement with prospective
505 informant (i.e., caregiver, researchers, clinicians) reports and that the CTQ was associated with a
506 relative underreporting of maltreatment and increased correspondence to psychopathology
507 (Newbury et al., 2018). Thus, it is possible that G1 with higher levels of BPP were more likely to
508 retrospectively report more childhood maltreatment; however, other evidence suggests that current
509 psychopathology does not inflate the association between such retrospective reports and
510 psychopathology (Fergusson, Horwood, & Boden, 2011). Relying on documented reports of
511 childhood maltreatment also introduces problems, particularly for studies of ITCM, due to
512 potential surveillance or detection bias. More specifically, among participants who self-report

513 childhood maltreatment, those whose parents have a documented history of exposure to childhood
514 abuse and neglect themselves are more than twice as likely to have a CPS report than maltreated
515 individuals whose parents have no documented history (Widom et al., 2015). As such, relying on
516 documented cases of maltreatment may lead to an overestimation of intergenerational continuity,
517 even while official records tend to underestimate exposure to maltreatment (Widom et al., 2015),
518 and in particular exposure to multiple different forms (Kim et al., 2017). While there is clearly no
519 current gold standard for the assessment of childhood maltreatment, our study would have
520 benefited from a multisource assessment of childhood maltreatment (e.g., Widom et al., 2015)
521 similar to our approach for characterizing borderline personality pathology.

522 Third, our assessment of borderline personality pathology among parents was conducted
523 during later life and was temporally disconnected from the time these individuals were parenting
524 their children. While borderline personality pathology is relatively stable (Bornovalova, Hicks,
525 Iacono, & McGue, 2009), there is evidence that it “matures out” with age (Shea et al., 2009;
526 Zanarini, Frankenburg, Reich, & Fitzmaurice, 2012). Thus, it is plausible that associations
527 between G1 BPP and G2 childhood maltreatment may be imprecise, as some parents may have
528 expressed BPP while their children were young, but do not express it or express it with less severity
529 in later life. More broadly, the lack of our ability to establish temporality with regard to
530 relationships between borderline personality pathology and both G1 and G2 childhood
531 maltreatment limits the inferences that can be generated from our mediational model (Maxwell,
532 Cole, & Mitchell, 2011).

533 Fourth, though our study shows evidence that BPP indirectly links childhood maltreatment
534 across generations, BPP is a heterogeneous construct. It is unclear what aspects or correlates of
535 BPP may contribute to its association with ITCM. Given evidence that negative affectivity and

536 emotion dysregulation mediate the relationship between parent and child experiences of
537 maltreatment (Smith et al., 2014), it is entirely possible that these facets of BPP are responsible
538 for the current finding. Consistent with this speculation, maltreated children who score highly on
539 measures of borderline symptomatology exhibit more intense emotional lability/negativity and are
540 further rated by peers as being more disruptive, aggressive, and disliked, relative to children who
541 did not experience maltreatment (Cicchetti et al., 2014). This evidence indicates that that affective
542 instability, inappropriate anger and impulsivity, and unstable relationships may be the most
543 important features of BPP in the context of ITCM. However, disarticulating these specific aspects
544 of BPP would require a large clinical sample; the levels of BPP in the present sample do not have
545 sufficient variability (see descriptive statistics provided in **Methods**).

546 Fifth, a substantial portion of individuals exposed to maltreatment during childhood
547 experience multiple different forms of abuse/neglect (Kim, Mennen, & Trickett, 2017). This
548 represents a major challenge to research attempting to evaluate associations of specific forms of
549 childhood maltreatment. As such, it is possible that there are unique specific aspects of childhood
550 maltreatment that show generational continuity, but that we are unable to detect them due to our
551 assessment and/or the common occurrence of multiple different types of abuse/neglect that would
552 require larger samples to detect.

553 Lastly, we evaluated childhood maltreatment across only two generations. Despite recent
554 calls advocating for studies across three generations (Cheng Johnson, & Goodman, 2016), only a
555 handful of studies to date have done so (e.g., Bailey, Hill, Oesterle, & Hawkins, 2009; Dumas,
556 Margolin, & Jon, 1994; Lev-Wiesel, 2007). In order to identify the most enduring factors that
557 contribute to ITCM, it will be important to extend this work to more than two generations.

558

559 Conclusions

560 Limitations notwithstanding, our study adds to a large literature documenting ITCM by replicating
561 this relationship among a sample of older adults and their adult children and showing that
562 childhood maltreatment is non-specifically transmitted across generations. The intergenerational
563 transmission of non-specific maltreatment may be partially attributable to parental borderline
564 personality pathology, which may plausibly reflect a behavioral mechanism underlying ITCM
565 and/or emerge due to common risk contributing to exposure to childhood maltreatment, the
566 expression of borderline personality pathology, and the likelihood that one's child is exposed to
567 maltreatment. Providing treatment for borderline personality pathology in the context of parenting
568 and development may help interrupt the continuity of childhood maltreatment and related health
569 problems across generations.

BORDERLINE AND CHILD MALTREATMENT ACROSS GENERATIONS

References

- Altemeier, W. A., O'Connor, S., Sherrod, K. B., Tucker, D., & Vietze, P. (1986). Outcome of abuse during childhood among pregnant low income women. *Child Abuse & Neglect, 10*(3), 319-330.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.
- Appleyard, K., Berlin, L. J., Rosanbalm, K. D., & Dodge, K. A. (2011). Preventing early child maltreatment: Implications from a longitudinal study of maternal abuse history, substance use problems, and offspring victimization. *Prevention Science, 12*(2), 139-149.
- Bailey, J. A., Hill, K. G., Oesterle, S., & Hawkins, J. D. (2009). Parenting practices and problem behavior across three generations: Monitoring, harsh discipline, and drug use in the intergenerational transmission of externalizing behavior. *Developmental Psychology, 45*(5), 1214–1226.
- Bartlett, J. D., & Easterbrooks, M. A. (2012). Links between physical abuse in childhood and child neglect among adolescent mothers. *Children and Youth Services Review, 34*(11), 2164-2169.
- Bartlett, J. D., Kotke, C., Fauth, R., & Easterbrooks, M. A. (2017). Intergenerational transmission of child abuse and neglect: Do maltreatment type, perpetration, and substantiation status matter? *Child Abuse and Neglect, 63*, 84-94.
- Bates, D., Maechler, M., Bolker, B., & Walker, S. (2015). Fitting Linear Mixed-Effects Models Using lme4. *Journal of Statistical Software, 67*(1), 1-48.
- Batten, S. V., Aslan, M., Maciejewski, P. K., & Mazure, C. M. (2004). Childhood maltreatment as a risk factor for adult cardiovascular disease and depression. *The Journal of Clinical Psychiatry, 65*(2), 249-254.
- Bavolek, S. J. (1984). *Handbook for the adult-teen parenting inventory*. Schaumburg, IL: Family Development Associates.
- Bavolek, S. J., & Keene, R. G. (2001). *Adult-Adolescent Parenting Inventory (AAPI-2): Administration and development handbook*. Park City, UT: Family Development Resources.
- Beauchaine, T. P., & Zalewski, M. (2016). Physiological and developmental mechanisms of emotional lability in coercive relationships. In T. J. Dishion & J. Snyder (Eds.), *Oxford handbook of coercive relationship dynamics*. New York, NY: Oxford University Press.
- Ben-David, V., Jonson-Reid, M., Drake, B., & Kohl, P. L. (2015). The association between childhood maltreatment experiences and the onset of maltreatment perpetration in young adulthood controlling for proximal and distal risk factors. *Child Abuse and Neglect, 46*, 132–141.

Benjamini, Y., & Hochberg, Y. (1995). Controlling the false discovery rate: A practical and powerful approach to multiple testing. *Journal of the Royal Statistical Society. Series B (Methodological)*, 57(1), 289-300.

Berger, A. M., Knutson, J. F., Mehm, J. G., & Perkins, K. A. (1988). The self-report of punitive childhood experiences of young adults and adolescents. *Child Abuse & Neglect*, 12(2), 251-262.

Berlin, L. J., Appleyard, K., & Dodge, K. A. (2011). Intergenerational continuity in child maltreatment: mediating mechanisms and implications for prevention. *Child Development*, 82(1), 162-176.

Bernstein, D. P., & Fink, L. (1998). Childhood Trauma Questionnaire: A retrospective self-report manual. San Antonio, TX: The Psychological Corporation.

Bernstein, D. P., Fink, L., Handelsman, L., Foote, J., Lovejoy, M., Wenzel, K., . . . Ruggiero, J. (1994). Initial reliability and validity of a new retrospective measure of child abuse and neglect. *The American Journal of Psychiatry*, 151(8), 1132-1136.

Bernstein, D. P., Stein, J. A., Newcomb, M. D., Walker, E., Pogge, D., Ahluvalia, T., . . . Zule, W. (2003). Development and validation of a brief screening version of the Childhood Trauma Questionnaire. *Child Abuse & Neglect*, 27(2), 169–190.

Bert, S. C., Guner, B. M., Lanzi, R. G., Centers for the Prevention of Child Neglect (2009). The influence of maternal history of abuse on parenting knowledge and behavior. *Family Relations*, 58(2), 176-187.

Bools, C., Neale, B., & Meadow, R. (1994). Munchausen syndrome by proxy: A study of psychopathology. *Child Abuse & Neglect*, 18(9), 773–788.

Border R, Keller MC. (2017). Commentary: Fundamental problems with candidate gene-by-interaction studies – reflections on Moore and Thoenes (2016). *Journal of Child Psychology and Psychiatry*, 58(3), 328-330.

Bornovalova, M. A., Hicks, B. M., Iacono, W. G., & McGue, M. (2009). Stability, change, and heritability of borderline personality disorder traits from adolescence to adulthood: a longitudinal twin study. *Development and Psychopathology*, 21(4), 1335-53.

Buckholdt, K. E., Parra, G. R., & Jobe-Shields, L. (2013). Intergenerational transmission of emotion dysregulation through parental invalidation of emotions: Implications for adolescent internalizing and externalizing behaviors. *Journal of Child and Family Studies*, 23(2), 324-332.

Chan, K. L. (2011). Children exposed to child maltreatment and intimate partner violence: A study of co-occurrence among Hong Kong Chinese families. *Child Abuse & Neglect*, 35(7), 532-542.

Cheng, T. L., Johnson, S. B., & Goodman, E. (2016). Breaking the intergenerational cycle of disadvantage: The three generation approach. *Pediatrics*, *137*(6), e20152467.

Chesin, M., Fertuck, E., Goodman, J., Lichenstein, S., & Stanley, B. (2015). The interaction between rejection sensitivity and emotional maltreatment in borderline personality disorder. *Psychopathology*, *48*(1), 31-35.

Cicchetti, D., Rogosch, F. A., Hecht, K. F., Crick, N. R., & Hetzel, S. (2014). Moderation of maltreatment effects on childhood borderline personality symptoms by gender and oxytocin receptor and FK506 binding protein 5 genes. *Development and Psychopathology*, *26*(3), 831-849.

Choi, K., Houts, R., Arseneault, L., Pariante, C., Sikkema, K., & Moffitt, T. (2018). Maternal depression in the intergenerational transmission of childhood maltreatment and its sequelae: Testing postpartum effects in a longitudinal birth cohort. *Development and Psychopathology*, 1-14.

Conway, C. C., Boudreaux, M., & Oltmanns, T. F. (2018). Dynamic associations between borderline personality disorder and stressful life events over five years in older adults. *Personality Disorders: Theory, Research, and Treatment*. Advance online publication. <http://dx.doi.org/10.1037/per0000281>

Cort, N. A., Toth, S. L., Cerulli, C., & Rogosch, F. (2011). Maternal intergenerational transmission of childhood multitype maltreatment. *Journal of Aggression, Maltreatment & Trauma*, *20*(1), 20-39.

Costa, P. T., Jr., & McCrae, R. R. (1992). Revised NEO Personality Inventory (NEO-PI-R) and the NEO Five-Factor Inventory (NEO-FFI) professional manual. Odessa, FL: Psychological Assessment Resources.

Crowell, S. E., Beauchaine, T. P., & Linehan, M. M. (2009). A biosocial developmental model of borderline personality: Elaborating and extending Linehan's theory. *Psychological Bulletin*, *135*(3), 495-510.

Cruitt, P. J., & Oltmanns, T. F. (2018). Incremental validity of self- and informant report of personality disorders in later life. *Assessment*, *25*(3), 324-335.

Daley, S. E., Burge, D., & Hammen, C. (2000). Borderline personality disorder symptoms as predictors of 4-year romantic relationship dysfunction in young women: Addressing issues of specificity. *Journal of Abnormal Psychology*, *109*(3), 451-460.

Dammann, G., Teschler, S., Haag, T., Altmüller, F., Tuzek, F., & Dammann, R. H. (2011). Increased DNA methylation of neuropsychiatric genes occurs in borderline personality disorder. *Epigenetics*, *6*(12), 1454-1462.

De Genna, N. M., Feske, U., Larkby, C., Angiolieri, T., & Gold, M. A. (2012). Pregnancies, abortions, and births among women with and without borderline personality disorder. *Women's Health issues: official publication of the Jacobs Institute of Women's Health*, 22(4), e371-7.

Di Iorio, C. R., Boudreaux, M., Winstone, J. M. A., Chang, K., Michalski, L. J., Cruitt, P. J., Oltmanns, T. F., & Bogdan, R. (submitted). Behavioral and biological mechanisms underlying childhood physical abuse and age-related disease: A study of borderline personality pathology and inflammation in an aging population.

Dixon, L., Brown, K., & Hamilton-Giachritsis, C. (2005). Risk factors of parents abused as children: a mediational analysis of the intergenerational continuity of child maltreatment (Part I). *The Journal of Child Psychology and Psychiatry*, 46(1), 47-57.

Dixon, L., Brown, K., & Hamilton-Giachritsis, C. (2008). Patterns of risk and protective factors in the intergenerational cycle of maltreatment. *Journal of Family Violence*, 24(2), 111-122.

Doumas, D., Margolin, G., & John, R. S. (1994). The intergenerational transmission of aggression across three generations. *Journal of Family Violence*, 9(2), 157-175.

Egeland, B., Jacobvitz, D., & Sroufe, L. (1988). Breaking the cycle of abuse. *Child Development*, 59(4), 1080-1088.

Egeland, B., & Susman-Stillman, A. (1996). Dissociation as a mediator of child abuse across generations. *Child Abuse & Neglect*, 20(11), 1123-1132.

Ellison, W. D., Rosenstein, L., Chelminski, I., Dalrymple, K., & Zimmerman, M. (2016). The clinical significance of single features of borderline personality disorder: Anger, affective instability, impulsivity, and chronic emptiness in psychiatric outpatients. *Journal of Personality Disorders*, 30(2), 261-270.

Fang, X., Brown, D. S., Florence, C. S., & Mercy, J. A. (2012). The economic burden of child maltreatment in the United States and implications for prevention. *Child Abuse & Neglect*, 36(2), 156-65.

Fergusson, D. M., Horwood, L. J. and Boden, J. M. (2011). Structural equation modeling of repeated retrospective reports of childhood maltreatment. *International Journal of Methods in Psychiatric Research*, 20(2), 93-104.

Finzi-Dottan, R., & Harel, G. (2014). Parents' potential for child abuse: An intergenerational perspective. *Journal of Family Violence*, 29(4), 397-408.

Fonagy, P., Steele, M., Steele, H., Leigh, T., Kennedy, R., Mattoon, G., & Target, M. (1995). Attachment, the reflective self, and borderline states: The predictive specificity of the Adult Attachment Interview and pathological emotional development. In S. Goldberg, R. Muir, & J. Kerr (Eds.), *Attachment theory: Social, developmental, and clinical perspectives* (pp. 233-278). Hillsdale, NJ, US: Analytic Press, Inc.

Geiger, T. C., & Crick, N. R. (2001). A developmental psychopathology perspective on vulnerability to personality disorders. In: Ingram, P. (Eds.), *Vulnerability to Psychopathology: Risk across the lifespan* (pp 57-99). New York, NY: Guilford Press.

Gelles, R. J. (1989). Child abuse and violence in single-parent families: Parent absence and economic deprivation. *American Journal of Orthopsychiatry*, 59(4), 492-501.

Grant, B. F., Chou, S. P., Goldstein, R. B., Huang, B., Stinson, F. S., Saha, T. D., . . . Pickering, R. P. (2008). Prevalence, correlates, disability, and comorbidity of DSM-IV borderline personality disorder: results from the Wave 2 National Epidemiologic Survey on Alcohol and Related Conditions. *The Journal of Clinical Psychiatry*, 69(4), 533.

Gratz, K. L., Tull, M. T., Baruch, D. E., Bornovalova, M. A., & Lejuez, C. W. (2008). Factors associated with co-occurring borderline personality disorder among substance users: the roles of childhood maltreatment, negative affect intensity/reactivity, and emotion dysregulation. *Comprehensive Psychiatry*, 49(6).

Green, J. G., McLaughlin, K. A., Berglund, P. A., Gruber, M. J., Sampson, N. A., Zaslavsky, A. M., & Kessler, R. C. (2010). Childhood adversities and adult psychiatric disorders in the national comorbidity survey replication I: associations with first onset of DSM-IV disorders. *Archives of General Psychiatry*, 67(2), 113-123.

Gunderson, J. G., & Lyons-Ruth, K. (2008). BPD's interpersonal hypersensitivity phenotype: a gene-environment-developmental model. *Journal of Personality Disorders*, 22(1), 22-41.

Haapasalo, J., & Aaltonen, T. (1999). Mothers' abusive childhood predicts child abuse. *Child Abuse Review*, 8(4), 231-250.

Hernandez, A., Arntz, A., Gaviria, A. M., Labad, A., & Gutiérrez-Zotes, J. A. (2012). Relationships between childhood maltreatment, parenting style, and borderline personality disorder criteria. *Journal of Personality Disorders*, 26(5), 727-736.

Herrenkohl, T. I., Kherrelika, J. B., Brown, E. C., Herrenkohl, R. C., & Leeb, R. T. (2013). Tests of the mitigating effects of caring and supportive relationships in the study of abusive disciplining over two generations. *The Journal of Adolescent Health: official publication of the Society for Adolescent Medicine*, 53(4 Suppl), S18-24.

Hesse, E., & Main, M. (2000). Disorganized infant, child, and adult attachment: Collapse in behavioral and attentional strategies. *Journal of the American Psychoanalytic Association*, 48(4), 1097-1127.

Heyman, R. E., & Slep, A. M. S. Do child abuse and interparental violence lead to adulthood family violence? *Journal of Marriage and Family*, 64(4), 864-870.

- Hopwood, C. J., Donnellan, M. B., & Zanarini, M. C. (2009). Temperamental and acute symptoms of borderline personality disorder: associations with normal personality traits and dynamic relations over time. *Psychological Medicine*, *40*(11), 1871-8.
- Hunter, W. M., & Everson, M. D. (1991). *Mother's History of Loss and Harm*. Unpublished Instrument. University of North Carolina at Chapel Hill.
- Ibrahim, J., Cosgrave, N., & Woolgar, M. (2018). Childhood maltreatment and its link to borderline personality disorder features in children: A systematic review approach. *Clinical Child Psychology and Psychiatry*, *23*(1), 57–76.
- Jaffee, S. R., Bowes, L., Ouellet-Morin, I., Fisher, H. L., Moffitt, T. E., Merrick, M. T., & Arseneault, L. (2013). Safe, stable, nurturing relationships break the intergenerational cycle of abuse: a prospective nationally representative cohort of children in the United Kingdom. *The Journal of adolescent health: official publication of the Society for Adolescent Medicine*, *53*(4 Suppl), S4-10.
- Joyce, P. R., Mckenzie, J. M., Luty, S. E., Mulder, R. T., Carter, J. D., Sullconwayivan, P. F., & Robert Cloninger, C. (2003). Temperament, childhood environment and psychopathology as risk factors for avoidant and borderline personality disorders. *Australian & New Zealand Journal of Psychiatry*, *37*(6), 756–764.
- Kessler, R. C., Andrews, G., Mroczek, D., Ustun, B., & Wittchen, H. (1998). The World Health Organization Composite International Diagnostic Interview short-form (CIDI-SF). *International Journal of Methods in Psychiatric Research*, *7*(4), 171-185.
- Kim, J. (2009). Type-specific intergenerational transmission of neglectful and physically abusive parenting behaviors among young parents. *Children and Youth Services Review*, *33*(7), 761-767.
- Kim, J., & Cicchetti, D. (2009). Longitudinal pathways linking child maltreatment, emotion regulation, peer relations, and psychopathology. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, *51*(6), 706-16.
- Kim, K., Mennen, F. E., & Trickett, P. K. (2017). Patterns and correlates of co-occurrence among multiple types of child maltreatment. *Child & Family Social Work*, *22*(1), 492-502.
- Kim, H., Wildeman, C., Jonson-Reid, M., & Drake, B. (2017). Lifetime prevalence of investigating child maltreatment among US children. *American Journal of Public Health*, *107*(2), 274–280.
- Kristjansson, S., McCutcheon, V. V., Agrawal, A., Lynskey, M. T., Conroy, E., Statham, D. J., Madden, P. A., Henders, A. K., Todorov, A. A., Bucholz, K. K., Degenhardt, L., Martin, N. G., Heath, A. C., ... Nelson, E. C. (2016). The variance shared across forms of childhood trauma is strongly associated with liability for psychiatric and substance use disorders. *Brain and Behavior*, *6*(2), e00432.

Lamela, D., & Figueiredo, B. (2013). Parents' physical victimization in childhood and current risk of child maltreatment: The mediator role of psychosomatic symptoms. *Journal of Psychosomatic Research*, 75, 178-183.

Laporte (2009). Children involved with youth protection services: The additional adversity of maternal BPD, The 11th International Congress of the International Society for the Study of Personality Disorders, New York, NY.

Lefebvre, R., Fallon, B., Van Wert, M., & Filippelli, J. (2017). Examining the Relationship between Economic Hardship and Child Maltreatment Using Data from the Ontario Incidence Study of Reported Child Abuse and Neglect-2013 (OIS-2013). *Behavioral Sciences (Basel, Switzerland)*, 7(1), 6.

Leve, L. D., Khurana, A., & Reich, E. B. (2015). Intergenerational transmission of maltreatment: A multilevel examination. *Development and Psychopathology*, 27(4 Pt 2), 1429-42.

Lev-Wiesel, R. (2007). Intergenerational transmission of trauma across three generations: A preliminary study. *Qualitative Social Work*, 6(1), 75-94.

Liebke, L., Bungert, M., Thome, J., Hauschild, S., Gescher, D., Schmahl, C., ... Lis, S. (2016). Loneliness, social networks, and social functioning in borderline personality disorder. *Personality Disorders: Theory, Research, and Treatment*, 8(4), 349-356.

Li, F., Godinet, M. T., & Arnsberger, P. (2010). Protective factors among families with children at risk of maltreatment: Follow up to early school years. *Children and Youth Services Review*, 33(1), 139-148.

Linehan, M. M. (1993). *Diagnosis and treatment of mental disorders. Cognitive-behavioral treatment of borderline personality disorder*. New York, NY, US: Guilford Press.

Lyons-Ruth, K., & Block, D. (1996). The disturbed caregiving system: Relations among childhood trauma, maternal caregiving, and infant affect and attachment. *Infant Mental Health Journal*, 17(3), 257-275.

MacDonald, K., Thomas, M. L., Sciolla, A. F., Schneider, B., Pappas, K., Bleijenberg, G., Bohus, M., Bekh, B., Carpenter, L., Carr, A., Dannlowski, U., Dorahy, M., Fahlke, C., Finzi-Dottan, R., Karu, T., Gerdner, A., Glaesmer, H., Grabe, H. J., Heins, M., Kenny, D. T., Kim, D., Knoop, H., Lobbestael, J., Lochner, C., Lauritzen, G., Ravndal, E., Riggs, S., Sar, V., Schäfer, I., Schlosser, N., Schwandt, M. L., Stein, M. B., Subic-Wrana, C., Vogel, M., ... Wingefeld, K. (2016). Minimization of childhood maltreatment is common and consequential: Results from a large, multinational sample using the childhood trauma questionnaire. *PloS one*, 11(1), e0146058.

MacPhee, D. (1981). Manual for the knowledge of infant development inventory. University of North Carolina; Unpublished Manuscript.

- Martín-Blanco, A., Ferrer, M., Soler, J., Salazar, J., Vega, D., Andi3n, O., ... Pascual, J. C. (2014). Association between methylation of the glucocorticoid receptor gene, childhood maltreatment, and clinical severity in borderline personality disorder. *Journal of Psychiatric Research*, *57*, 34-40.
- Maughan, A., & Cicchetti, D. (2002). Impact of child maltreatment and interadult violence on children's emotion regulation abilities and socioemotional adjustment. *Child Development*, *73*(5), 1525-1542
- Maxwell, S. E., Cole, D. A., & Mitchell, M. A. (2011). Bias in cross-sectional analyses of longitudinal mediation: Partial and complete mediation under an autoregressive model. *Multivariate Behavioral Research*, *46*(5), 816-841.
- McGowan, P. O., Sasaki, A., D'Alessio, A. C., Dymov, S., Labont3, B., Szyf, M., Turecki, G., ... Meaney, M. J. (2009). Epigenetic regulation of the glucocorticoid receptor in human brain associates with childhood abuse. *Nature Neuroscience*, *12*(3), 342-8.
- McLaughlin, K. A., Greif Green, J., Gruber, M. J., Sampson, N. A., Zaslavsky, A. M., & Kessler, R. C. (2012). Childhood adversities and first onset of psychiatric disorders in a national sample of US adolescents. *Archives of General Psychiatry*, *69*(11), 1151-60.
- McLaughlin, K. A., Sheridan, M. A., & Lambert, H. K. (2014). Childhood adversity and neural development: deprivation and threat as distinct dimensions of early experience. *Neuroscience and Biobehavioral Reviews*, *47*, 578-91.
- Milaniak, I., & Widom, C. S. (2014). Does child abuse and neglect increase risk for perpetration of violence inside and outside the home? *Psychology of Violence*, *5*(3), 246-255.
- Miller, J. D., Reynolds, S. K., & Pilkonis, P. A. (2004). The validity of the five-factor model prototypes for personality disorders in two clinical samples. *PsychologicCESal Assessment*, *16*(3), 310-322.
- Milner, J. S., Robertson, K. R., & Rogers, D. L. (1990). Childhood history of abuse and adult child abuse potential. *Journal of Family Violence*, *5*(1), 15-34.
- Milner, J. S. (2004). The Child Abuse Potential (CAP) inventory. In M. J. Hilsenroth & D. L. Segal (Eds.), *Comprehensive handbook of psychological assessment, Vol. 2. Personality assessment* (pp. 237-246). Hoboken, NJ, US: John Wiley & Sons Inc.
- Milner, J.S., Thomsen, C.J., Crouch, J.L., Rabenhorst, M.M., Martens, P.M., Dyslin, C.W., Guimond, J.M., Stander, V.A., & Merrill, L.L. (2010). Do trauma symptoms mediate the relationship between childhood physical abuse and adult child abuse risk? *Child abuse & neglect*, *34* 5, 332-44.
- Muth3n, L., & Muth3n, B. (1998-2012). Mplus User's Guide (7th ed.). Los Angeles, CA: Muth3n & Muth3n.

- Newbury, J. B., Arseneault, L., Moffitt, T. E., Caspi, A., Danese, A., Baldwin, J. R., & Fisher, H. L. (2018). Measuring childhood maltreatment to predict early-adult psychopathology: Comparison of prospective informant-reports and retrospective self-reports. *Journal of Psychiatric Research, 96*, 57-64.
- Newcomb, M. D., & Locke, T. F. (2001). Intergenerational cycle of maltreatment: a popular concept obscured by methodological limitations. *Child Abuse & Neglect, 25*(9), 1219–1240.
- Noll, J. G., Trickett, P. K., Harris, W. W., & Putnam, F. W. (2008). The cumulative burden borne by offspring whose mothers were sexually abused as children: descriptive results from a multigenerational study. *Journal of Interpersonal Violence, 24*(3), 424-49.
- Oliveira, R. V., Maroco, J., & País, L. G. (2012). The origin of maltreatment: An exploratory study on the intergenerational transmission of child abuse typologies. *Interdisciplinaria: Revista de Psicología y Ciencias Afines, 29*(2), 253–269.
- Oltmanns, T. F., Rodrigues, M. M., Weinstein, Y., & Gleason, M. E. J. (2014). Prevalence of personality disorders at midlife in a community sample: Disorders and symptoms reflected in interview, self, and informant reports. *Journal of Psychopathology and Behavioral Assessment, 36*(2), 177–188.
- Oltmanns, T. F., & Turkheimer, E. (2006). Perceptions of Self and Others Regarding Pathological Personality Traits. In R. F. Krueger & J. L. Tackett (Eds.), *Personality and Psychopathology* (pp. 71-111). New York, NY, US: Guilford Press.
- Oltmanns, T. F., Turkheimer, E., & Strauss, M. E. (1998). Peer assessment of personality traits and pathology in female college students. *Assessment, 5*(1), 53-65.
- Oshri, A., Sutton, T. E., Clay-Warner, J., & Miller, J. D. (2015). Child maltreatment types and risk behaviors: Associations with attachment style and emotion regulation dimensions. *Personality and Individual Differences, 73*, 127–133.
- Pears, K. C., & Capaldi, D. M. (2001). Intergenerational transmission of abuse: A two-generational prospective study of an at-risk sample. *Child Abuse & Neglect, 25*(11), 1439-1461.
- Perepletchikova, F., Ansell, E., & Axelrod, S. (2012). Borderline personality disorder features and history of childhood maltreatment in mothers involved with child protective services. *Child Maltreatment, 17*(2), 182–190.
- Perroud, N., Paoloni-Giacobino, A., Prada, P., Olié, E., Salzman, A., Nicastro, R., ... Malafosse, A. (2011). Increased methylation of glucocorticoid receptor gene (NR3C1) in adults with a history of childhood maltreatment: a link with the severity and type of trauma. *Translational Psychiatry, 1*(12), e59.

- Pezzoli, P., Antfolk, J., Hatoum, A. S., & Santtila, p. (2018). Genetic vulnerability to experiencing child maltreatment. *PsyArXive*, <https://doi.org/10.31234/osf.io/8hymt>
- Pfohl, B. M, Blum, N., Zimmerman, M. (1997). Structured interview for DSM-IV personality (SIDP-IV) Washington: American Psychiatric Association.
- Plant, D. T., Barker, E. D., Waters, C. S., Pawlby, S., & Pariante, C. M. (2012). Intergenerational transmission of maltreatment and psychopathology: the role of antenatal depression. *Psychological Medicine*, *43*(3), 519-28.
- Putnam-Hornstein, E., Cederbaum, J. A., King, B., Eastman, A. L., & Trickett, P. K. (2015). A population-level and longitudinal study of adolescent mothers and intergenerational maltreatment. *American Journal of Epidemiology*, *181*(7), 496-503.
- Radtke, K. M., Schauer, M., Gunter, H. M., Ruf-Leuschner, M., Sill, J., Meyer, A., & Elbert, T. (2015). Epigenetic modifications of the glucocorticoid receptor gene are associated with the vulnerability to psychopathology in childhood maltreatment. *Translational Psychiatry*, *5*(5), e571.
- Reichborn-Kjennerud, T., Ystrom, E., Neale, M. C., Aggen, S. H., Mazzeo, S. E., Knudsen, G. P., ... Kendler, K. S. (2013). Structure of genetic and environmental risk factors for symptoms of DSM-IV borderline personality disorder. *JAMA Psychiatry*, *70*(11), 1206-14.
- Renner, L. M., & Slack, K. S. (2006). Intimate partner violence and child maltreatment: Understanding intra- and intergenerational connections. *Child Abuse & Neglect*, *30*(6), 599-617.
- Robboy, J., & Anderson, K. G. (2011). Intergenerational child abuse and coping. *Journal of Interpersonal Violence*, *26*(17), 3526–3541.
- Rodriguez, C. M. (2016). Parental discipline reactions to child noncompliance and compliance: Association with parent–child aggression indicators. *Journal of Child and Family Studies*, *25*(4), 1363-1374.
- Rodriguez, C. M., Silvia P. J., Gonzalez, S., & Christl, M. E. (2018). Disentangling the cycle: Potential mediators and moderators in the intergenerational transmission of parent-child aggression. *Child Maltreatment*, *23*(3), 254-268.
- Rodriguez, C. M., Smith, T. L., & Silvia, P. J. (2016). Parent-child aggression risk in expectant mothers and fathers: A multimethod theoretical approach. *Journal of Child and Family Studies*, *25*(11), 3220-3235.
- Rogosch, F. A., & Cicchetti, D. (2005). Child maltreatment, attention networks, and potential precursors to borderline personality disorder. *Development and Psychopathology*, *17*(4), 1071-89.
- Rohner, R. P. (1991). *Handbook for the study of parental acceptance and rejection*. Storrs, CT: University of Connecticut, Center for the Study of Parental Acceptance and Rejection.

Rosenthal, M. Z., Cheavens, J. S., Lejuez, C. W., & Lynch, T. R. (2005). Thought suppression mediates the relationship between negative affect and borderline personality disorder symptoms. *Behaviour Research and Therapy*, *43*(9), 1173-1185.

Schmidt, M. R., Narayan, A. J., Atzl, V. M., Rivera, L. M., & Lieberman, A. F. (2018). Childhood maltreatment on the adverse childhood experiences (aces) scale versus the childhood trauma questionnaire (ctq) in a perinatal sample. *Journal of Aggression, Maltreatment & Trauma*. Advance online publication.

Schneider, W. (2017). Single mothers, the role of fathers, and the risk for child maltreatment. *Children and Youth Services Review*, *81*, 81–93.

Shea, M. T., Edelen, M. O., Pinto, A., Yen, S., Gunderson, J. G., Skodol, A. E., ... Morey, L. C. (2009). Improvement in borderline personality disorder in relationship to age. *Acta psychiatrica Scandinavica*, *119*(2), 143-8.

Shields, A., & Cicchetti, D. (2001). Parental maltreatment and emotion dysregulation as risk factors for bullying and victimization in middle childhood. *Journal of Clinical Child Psychology*, *30*(3), 349-363.

Shields, M. E., Hovdestad, W. E., Pelletier, C., Dykxhoorn, J. L., O'Donnell, S. C., & Tonmyr, L. (2016). Childhood maltreatment as a risk factor for diabetes: findings from a population-based survey of Canadian adults. *BMC Public Health*, *16*(1), 879.

Sidebotham, P., & Golding, J. (2001). Child maltreatment in the “Children of the nineties”: A longitudinal study of parental risk factors. *Child Abuse & Neglect*, *25*(9), 1177-1200.

Skodol, A. E., Stout, R. L., McGlashan, T. H., Grilo, C. M., Gunderson, J. G., Shea, M.T., ... Oldham, J. M. (1999). Co-occurrence of mood and personality disorders: A report from the Collaborative Longitudinal Personality Disorders Study (CLPS). *Depression and Anxiety*, *10*(4), 175-182.

Smith, A. L., Cross, D., Winkler, J., Jovanovic, T., & Bradley, B. (2014). Emotional dysregulation and negative affect mediate the relationship between maternal maltreatment and maternal child abuse potential. *Journal of Family Violence*, *29*(5), 483-494.

Spinhoven, P., Penninx, B. W., Hickendorff, M., van Hemert, A. M., Bernstein, D. P., & Elzinga, B. M. (2014). Childhood trauma questionnaire: Factor structure, measurement invariance, and validity across emotional disorders. *Psychological Assessment*, *26*(3), 717-729.

Steiger, H., Labonté, B., Groleau, P., Turecki, G., & Israel, M. (2013). Methylation of the glucocorticoid receptor gene promoter in bulimic women: Associations with borderline personality disorder, suicidality, and exposure to childhood abuse. *International Journal of Eating Disorders*, *46*(3), 246-255.

- Stepp, S. D., Whalen, D. J., Pilkonis, P. A., Hipwell, A. E., & Levine, M. D. (2011). Children of mothers with borderline personality disorder: identifying parenting behaviors as potential targets for intervention. *Personality Disorders: Theory, Research, and Treatment*, 3(1), 76-91.
- Stone, M. H. (1981). Borderline syndromes: A consideration of subtypes and an overview, directions for research. *Psychiatric Clinics of North America*, 4(1), 3-24.
- Straus, M. A. (1979). Measuring intrafamily conflict and violence: The Conflict Tactics (CT) Scales. *Journal of Marriage and the Family*, 41(1), 75-88.
- Stowman, S. A., & Donohue, B. (2005). Assessing child neglect: A review of standardized measures. *Aggression and Violent Behavior*, 10(4), 491-512.
- Teschler, S., Bartkuhn, M., Künzel, N., Schmidt, C., Dammann, G., Dammann, R. & Kiehl, S. (2013). Aberrant methylation of gene associated CpG sites occurs in borderline personality disorder. *PLoS One*, 8, e84180.
- Thompson, R. (2006). Exploring the link between maternal history of childhood victimization and child risk of maltreatment. *Journal of Trauma Practice*, 5(2), 57-72.
- Thornberry, T. P., Knight, K. E., & Lovegrove, P. J. (2012). Does Maltreatment Beget Maltreatment? A Systematic Review of the Intergenerational Literature. *Trauma, Violence & Abuse*, 13(3), 135-152.
- Tracy, M., Salo, M., & Appleton, A. A. (2018). The mitigating effects of maternal social support and paternal involvement on the intergenerational transmission of violence. *Child Abuse & Neglect*, 78, 46-59.
- Valentino, K., Nuttall, A. K., Comas, M., Borkowski, J. G., & Akai, C. E. (2012). Intergenerational Continuity of Child Abuse Among Adolescent Mothers: Authoritarian Parenting, Community Violence, and Race. *Child Maltreatment*, 17(2), 172-181.
- Viola, T. W., Salum, G. A., Kluwe-Schiavon, B., Sanvicente-Vieira, B., Levandowski, M. L., & Grassi-Oliveira, R. (2016). The influence of geographical and economic factors in estimates of childhood abuse and neglect using the Childhood Trauma Questionnaire: A worldwide meta-regression analysis. *Child Abuse & Neglect*, 51, 1-11.
- Weaver, I. C. G., Cervoni, N., Champagne, F. A., D'Alessio, A. C., Sharma, S., Seckl, J. R., ... Meaney, M. J. (2004). Epigenetic programming by maternal behavior. *Nature Neuroscience*, 7, 847.
- Weinstein, Y., Gleason, M. E., & Oltmanns, T. F. (2012). Borderline but not antisocial personality disorder symptoms are related to self-reported partner aggression in late middle-age. *Journal of Abnormal Psychology*, 121(3), 692-8.

Widom, C. S., Czaja, S. J., & DuMont, K. A. (2015): Intergenerational transmission of child abuse and neglect: real or detection bias? *Science*, 347(6229), 1480-1485.

Wilson, S., Stroud, C. B., & Durbin, C. E. (2017). Interpersonal dysfunction in personality disorders: A meta-analytic review. *Psychological Bulletin*, 143(7), 677-734.

Witt, S. H., Streit, F., Jungkunz, M., Frank, J., Awasthi, S., Reinbold, C. S., ... Rietschel, M. (2017). Genome-wide association study of borderline personality disorder reveals genetic overlap with bipolar disorder, major depression and schizophrenia. *Translational Psychiatry*, 7(6), e1155.

Yang, M. Y., Font, S. A., Ketchum, M., & Kim, Y. K. (2018). Intergenerational transmission of child abuse and neglect: Effects of maltreatment type and depressive symptoms. *Children and Youth Services Review*, 91, 364-371.

Zanarini, M. C., Frankenburg, F. R., Reich, D., & Fitzmaurice, G. (2012). Attainment and stability of sustained symptomatic remission and recovery among patients with borderline personality disorder and axis II comparison subjects: a 16-year prospective follow-up study. *American Journal of Psychiatry*, 169(5), 476-483.

Zanarini, M. C., Frankenburg, F. R., Reich, D. B., Wedig, M. M., Conkey, L. C., & Fitzmaurice, G. M. (2014). The course of marriage/sustained cohabitation and parenthood among borderline patients followed prospectively for 16 years. *Journal of Personality Disorders*, 29(1), 62-70.

Zanarini, M. C., Williams, A. A., Lewis, R. E., Reich, R. B., Vera, S. C., Marino, M. F., ... Frankenburg, F. R. (1997). Reported pathological childhood experiences associated with the development of borderline personality disorder. *American Journal of Psychiatry*, 154(8), 1101-1106.

Zimmerman, M., Chelminski, I., Young, D., Dalrymple, K., & Martinez, J. (2013). Is dimensional scoring of borderline personality disorder important only for subthreshold levels of severity? *Journal of Personality Disorders*, 27(2), 244-251.

Figure 1. Parental Borderline Personality Pathology Indirectly Links Childhood Maltreatment Across Generations.

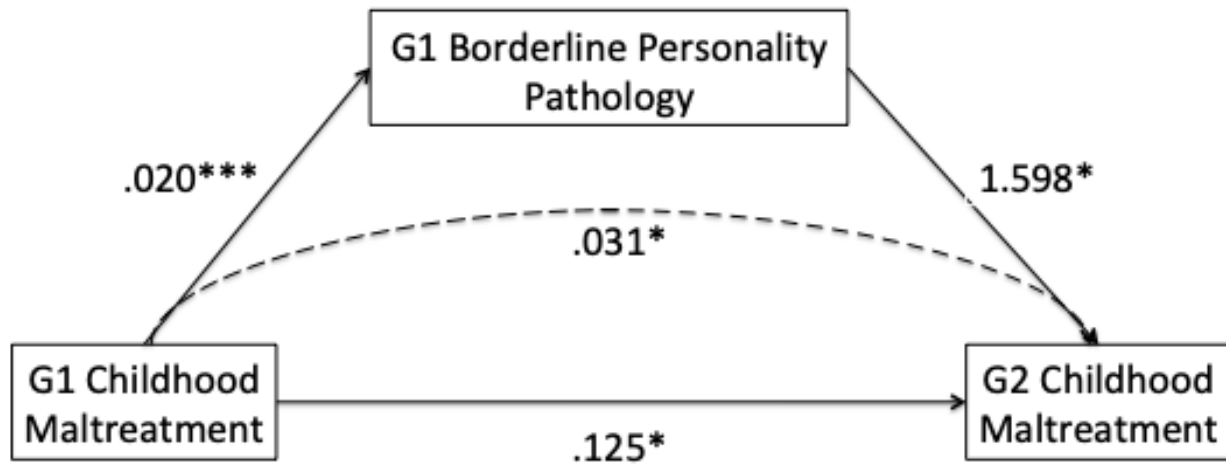


Figure 1. Parental Borderline Personality Pathology Indirectly Links Childhood Maltreatment Across Generations. G1 childhood maltreatment is associated with G1 Borderline Personality Pathology (path a), which is associated with G2 childhood maltreatment (path b). The association between G1 and G2 childhood maltreatment (path c: $b=0.142$, $p<0.001$) is attenuated by the inclusion of G1 Borderline Personality Pathology as a mediator (path c'). G1 and G2 childhood maltreatment represent latent general factors of childhood maltreatment generated from all CTQ items. G1 BPP represents a latent Borderline Personality Pathology factor gleaned from Borderline Personality Scores on the SIDP, participant- and informant-rated MAPP, and NEO-PI-R Personality Disorder Count Scores. The 95% CI represents a BCA simple bootstrapped confidence interval. This mediation model includes the following covariates: G1 and G2 Age, Gender, Race/Ethnicity (White, Black, Hispanic), and G1 Socioeconomic Status (a summed score of standardized education level and annual household income).

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

BORDERLINE AND CHILD MALTREATMENT ACROSS GENERATIONS

Table 1. Prior studies of intergenerational transmission of childhood maltreatment

Study Reference: Sample; Maltreatment Measure	Findings
Altemeier et al. (1986): Mothers (n = 927, 10.2% of whom experienced ch mal, A=20.8) and their infants (21-48 months); official reports of infant mal (protective agencies, Juvenile Court and DHS records), self-report mat exp to ch mal.	No significant difference in frequency of reports to protective services between mothers who were and were not exp to ch mal.
Appleyard et al. (2011): Mothers (n=499, A=27.3) and infants (n=499, A=0-26 months); PC-CTS, county records	Mat substance use mediates relationship between mat. exp to ch sexual and phy abu and infant os victimization.
Bartlett et al. (2012): Mothers (n=92, A=16.0) and children (A=7.9); PC-CTS, CPS reports.	Mat. exp to ch phy abu: greater neg of os.
Bartlett et al. (2017): Mothers (n=417, A=18.8) and children (A=4.8); DCF records.	Mat ch mal exp: increased perpetration of os mal (OR=2.52).
Ben-David et al. (2015): Low-income children (n=6,935) followed from age 1.5-11 and 18-26; Investigated report of maltreatment (statewide child welfare data).	Ch mal exp: increased young adult perpetration of ch mal.
Berlin et al. (2011): Mothers (n=499, A=27.3) and infants (A=0-26 months); PC-CTS, country records.	Mat exp to ch phy abu: increased os victimization, mediated by mat social isolation and aggression.
Bert et al. (2009): Mothers (n=681, A=19.8) and children; CTQ, KIDI, CAPI, PSEQ	Mat exp to emo and phy abu associated with increased potential for child abu.
Choi et al. (2018): Mothers (n=1,016, A=28.0) and their same-sex 12-year-old twins (n=2,032, 51% female); CTQ, interview with mothers.	Mat postpartum depression symptoms mediated relationship between mat exp to ch mal and subsequent child exp to harm.
Conger et al. (2013): Parents (G2; n=290, A=25.6, 58.6% female), their children (G3; n=290, A=2.3, 48.9% female), and their mothers (G1); observation of G1 parenting during adolescence, observation of G2 parenting.	Romantic partner warmth and nurturing behaviors interrupted intergenerational continuity in harsh parenting
Cort et al. (2011): Mothers (n=104; A=31.3) and children (A=10-12); CTQ, CPS and DHS records	Mat exp to ch mal predicted os mal; no indirect effects through romantic attachment, intimate partner violence, or psychological distress.
Dixon et al. (2005): Newborns (n=4,351; 3.1% of whom had caregivers who reported ch mal); Interview self-report (by mother or partner) and CPS referral.	History of mal associated with 4x greater risk of perpetration, increased to 17x when par were young, psychopathology history, and residing with a violent adult.
Dixon et al. (2008): Newborns (n=4351; 3.1% of whom had caregivers who reported ch mal); Interview self-report (by mother or partner) and CPS referrals for infant mal.	ITCM: increased caregiver isolation and serious financial difficulty.
Egeland et al. (1988): Mothers (n=267, A=20.5 at time of birth) and their children, from lower SES backgrounds; Interview, home observations (validated by official records)	Mothers who broke cycle of abu more likely to have emo support, therapy, and supportive partner; those who continued cycle has more life stress and were more anxious, dependent, immature, and depressed.
Egeland et al. (1996): Mothers (n=24, A=20.5 at birth); Interview.	ITCM: idealization, inconsistency, and escapism, higher on dissociation in parents.
Finzi-Dottan et al. (2014): Parents (n=213, A=20-60) and children (A≤6); CAPI, CTQ.	Serial mediation: history of mal. → insecure attachment → emo control → cognitive appraisals of stress and viewing parenthood as threat → potential of ch mal.
Haapasalo et al. (1999): Mothers (n=50, A=40.0) and children (A=12.0) with (50%) and without CPS involvement; Structured interview, CPS records.	Mothers with CPS contact had history of more ch psychological abu. No differences in terms of self-reported abu toward one's child.
Herrenkohl et al. (2013): Children (G2; n=268, 48.5% female) followed into adulthood; composite G1 harsh phy discipline (par self-report and severity ratings from specialists), G2 reports of harsh phy discipline toward children	G1 harsh phy discipline predicted G2 harsh phy discipline of similar type. No mediating or moderating effects of safe, stable, and nurturing relationships.
Heyman et al. (2002): Parents (n=2,704; 55% mothers) of ch under 18 years old; CTS and exposure to violence in parents during childhood.	Mat exp to 2 types of mal: increased family violence as adults. Frequency of exp to ch family violence predicted future child abu.

Jaffee et al. (2013): Mothers (n=1,116) with same-sex 5-year-old twins; CTQ, interview with mothers.

Kim (2009): Young parents (n=2,977, A=22.5; ch A≤2.60); Parent self-report of parenting behavior and experience of ch mal.

Lamela et al. (2013): Parents (n=924, A=37.12); CHQ, CAPI.

Leve et al. (2015): Women (n=166, A = 15.3) followed for 10 years; CWS records and self-reported CWS contact, CTS.

Li et al. (2011): Children (n=405, 49.9% female) assessed at ages 4 and 8 and their mothers, from mostly high-poverty areas; mat CHLV, ch CPS records

Milaniak et al. (2014): Children assessed again in adulthood (n=1,196, A=29.2, 49% female); Official records of mal. (physical and sexual abu and neg.), perpetration of mal. assessed via arrest records and self-report.

Milner et al. (2010): Navy recruits (n=5,394, A=19.7) and college students (n=716, A=19.2); CAPI, CTS-PC, ch history of sexual abu survey.

Newcomb et al. (2001): Parents (n=383, A=35); CTQ, PARQ

Noll et al. (2008): Women (n=164; 50% sexually abu). (G2; A=11.1 at T1 and A=24.9 at T5); os (G3; n=123, 56.1% female); mothers' caregivers (G1; n=128); G2 CTI, G3 CPS involvement, G1 history of ch sexual abu (retrospective self-report developmental questionnaire).

Oliveria et al. (2012): Caregivers (n=10, A=42.8) with exp to ch mal who maltreated children; Semi-structured interview, clinical files of abu children.

Pears et al. (2001): Male children (n=109, A=10.0) and their par (n=179, A=36.2, 59.2% female) from high crime area; AE-III (par abu by parents), modified AE-III for children.

Plant et al. (2013): Mothers (n=125, A=26.3 at birth) and their children at age 16; Mat ch mal (retrospective reports; 2+ types of mal), CAPA

Putnam-Hornstein et al. (2015): Children (n=85,084) of first-time mothers (ages 15-19); CPS reports for both generations

Renner et al. (2006): Mothers (n=1,005, A=33.4) and their children; CPS reports, self-report of mat exp to ch mal.

Robboy et al. (2011): Adolescent girls evaluated for sexual abu (n=139, A=14.5); Self-, par-, medical examiner-, and forensic interviewer-reports of current and past mal; mat history of sexual abu.

Relative to families in which mothers but not children experienced mal those in which both generations experienced mal had more supportive intimate relationships, more maternal warmth, and less partner violence.

Par exp to ch neg more likely to report neg (2.6x) and phy abu (2x) of their children.

Par exp to ch phy abu more likely to report phy abu (5x) and neg (1.4x).

Par psychosomatic symptoms partially mediate relationship between ch phy victimization and current mal risk toward children.

30-42% rate of intergenerational continuity, depending on measurement. Intervention reduced self-reported mal chronicity.

Mat history of ch mal predicted CPS reports of mal (OR=2.26).

History of ch abu and/or neg associated with perpetration of violence (relative risk = 1.26; criminal violence, child abu, intimate partner violence)

History of physical abu associated with greater odds (2-3x) of perpetrating physical abu, trauma symptoms mediated this relationship.

General factor of child mal associated with general factor of poor parenting in both mothers and fathers.

Children of mothers who were exp to ch sexual abu were more likely to be exp to ch sexual abu (G2) and be involved with CPS (G3).

Evidence of ITCM, but no difference in form of mal.

23% rate of intergenerational transmission. Parents of children who reported abu 2x as likely to have been abu. Parental depression, PTSD and consistency of parental discipline predicted child abu but did not mediate intergenerational relationship

Mothers with history of ch mal and antenatal depression had os with higher levels of mal; only for os exp to mat depression in utero did mat ch mal contribute significant variance in predicting os mal.

Increased substantiated mal in os of mothers with history of CPS involvement between age 10 and conception; history of substantiated or unsubstantiated mal. strongest predictor of reported and substantiated os mal by age 5.

Some evidence for ITCM of neg, no evidence for phy abu

Adolescents whose mothers exp to ch sexual abu were more likely to experience poly-victimization than those whose mothers did not.

Rodriguez et al. (2018): Mothers (n=180-201 depending on time point, A=26.04 at T1) and fathers (n=140-146, A=28.87 at T1); Par mal history (CTS-PC, CES, KDA) and par-child aggression (PCA) risk (CAPI, AAPI-2, ReACCT, CTS-PC).

Sidebotham et al. (2001): Children (n=14,138) and their par; Par self-report of exp to ch mal, Social Services child protection registers

Smith et al. (2014): Primarily African American and low-income mothers (n=83, A=34.8) of children aged 6-13; CTQ, TEI, CAPI.

Thompson (2006): Mothers (n=220, A=26.2) and children; CPS records, mat history of victimization (as a child and as an adult, MHLH).

Thornberry et al. (2013): Female adolescents (n=748, A=13.6) followed into adulthood; CPS records for history and perpetration of mal

Tracy et al. (2018): Children (n=11,384; 48.4% female) and mothers (A=28.4 at birth); Mat self-report of ch mal, report of os mal (by mother or partner) and timing of mal, os self-report of phy violence in adulthood

Valentino et al. (2012): Mothers (n=70, A=17.4 at birth) and children (n=70) followed 18 years; CTQ (mothers and os abu subscales only).

Widom et al. (2015): Children with documented cases of mal followed longitudinally (n=649, A=47.0 at assessment) and matched comparisons (n=497) and their children (n=697, A=22.8); CPS records for history of mal and reports of mal their children, number of filed reports against participants and chronicity of reports, self-reports by par or other caregivers; self-report measures to asses their children's histories of mal.

Yang et al. (2018): Mothers (n=1200, A=30.7) and children; CPS records of mat neg and phy abu; mat self-report of exp to ch neg and phy abu.

History of physical and psychological aggression predicted PCA risk prenatally and during toddlerhood, for both mothers and fathers. Different mediators and moderators of mal continuity among mothers and fathers.

Only mat exp to ch sexual abu significantly predicted child mal

Mat negative affect and emotional dysregulation mediated relationship between mat exp to ch abu and abu potential.

Association between mat history of phy victimization and risk of mal their children disappeared when marital status, depressive symptoms, and adult experiences of victimization were added to model

Adolescent, but not ch-limited mal, increases odds of later perpetration of mal

Among mothers with and without history of mal but not currently experiencing intimate partner violence, social support reduced mal risk.

Exp to community violence and lower authoritarian parenting attitudes increased risk for continuity of abu across generations. Authoritarian attitudes were only protective among African American families

Strongest evidence for intergenerational transmission of neg and sexual abu; little evidence for phy abu. Par with documented mal more likely to have a CPS report with os compared to matched controls.

Mat neg history increased risk of neg their children, while their phy abu history increased risk of both neg and physically abu their children. Mat depressive symptoms mediated transmission of mat neg to child phy abu but not mat phy abu to child neg.

Note. AAPI-2 = Adult Adolescent Parenting Inventory-2 (Bavolek & Keene, 2001); AE-III = Assessing Environments-III questionnaire (Berger, Knutson, Mehm, & Perkins, 1988); CAPI = Child Abuse Potential Inventory (Milner, 2004); CES = Compliance Expectations Scale (Rodriguez, Smith, & Silvia, 2016); CHLV = Caregiver's History of Loss and Victimization (Hunter & Everson, 1991); CHQ = Childhood History Questionnaire (Milner, Robertson, & Rogers, 1990); CIDI-SF = Composite International Diagnostic Interview-Short Form (Kessler, Andrews, Mroczek, Ustun, & Wittchen, 1998); CPS = Child Protective Services; CTQ = Childhood Trauma Questionnaire (Bernstein & Fink, 1998); CTS = Conflict Tactics Scale (PC = Primary Caregiver; Straus, 1979); CWS = Child Welfare Services; DCF = Department of Children and Families; KDA = Knowledge of Discipline Alternatives (Rodriguez et al., 2016); KIDI = Knowledge of Infant Development Inventory (MacPhee, 1981); MHLH = Mother's History of Loss and Harm (Hunter & Everson, 1991); PARQ = Parental Acceptance-Rejection Questionnaire (Rohner, 1991); PSEQ = Parenting Style Expectations Questionnaire (Bavolek, 1984); ReACCT = Response Analog to Child Compliance Task (Rodriguez, 2016). A = Average Age. Mat = Maternal. Exp = Exposure. Abu = Abuse. Neg = Neglect. Ch = childhood. Mal = maltreatment. OS = offspring. Phy = physical. Emo = emotional. Par. = parent. A = mean reported age, if not available, range is reported. Reported in years unless otherwise noted.

Table 2. Demographic and study characteristics of G1 and G2 generations

Variable	G1 % (n)/M (SD)	G2 % (n)/M (SD)
Age	66.7 (3.01)	38.7 (7.39)
Race		
White	71.7 (261)	73.7 (421)
Black	24.7 (90)	22.9 (131)
Gender		
Female	59.3 (216)	44.0 (251)
Male	40.7 (148)	56.0 (320)
Education		
High school or less	12.7 (46)	6.3 (36)
Some college, vocational or associates	29.3 (106)	25.9 (148)
College degree	27.4 (99)	35.9 (205)
Graduate degree	30.7 (111)	31.9 (182)
Annual household income (baseline)		
Under \$20,000	9.7 (34)	9.0 (51)
\$20,000 – \$40,000	12.0 (42)	12.4 (70)
\$40,000 – \$60,000	20.6 (72)	15.9 (90)
\$60,000 – \$80,000	15.7 (55)	10.8 (61)
\$80,000 – \$100,000	8.0 (28)	10.8 (61)
\$100,000 – \$120,000	9.4 (33)	9.2 (52)
\$120,000 – \$140,000	7.1 (25)	9.4 (53)
\$140,000 or more	17.4 (61)	22.6 (128)
Childhood Trauma		
Emotional Abuse	7.85 (4.22)	7.88 (3.93)
Physical Abuse	7.06 (3.16)	6.48 (2.49)
Sexual Abuse	6.40 (3.51)	6.33 (3.62)
Emotional Neglect	8.80 (4.42)	8.37 (3.77)
Physical Neglect	6.40 (2.57)	6.11 (2.06)
Borderline Personality Pathology*		
SIDP	0.70 (1.15)	--
PMAPP	3.40 (2.76)	--
IMAPP	4.64 (4.11)	--
PNEO	117.47 (20.68)	--
INEO	122.99 (28.62)	--

Note. G1 = parents; G2 = children; SIDP = Structured Interview for DSM-IV Personality; PMAPP = Participant-rated Multisource Assessment of Personality Pathology; IMAPP = Informant-rated Multisource Assessment of Personality Pathology; PNEO = Participant-rated Revised NEO Personality Inventory; INEO = Informant-rated Revised NEO Personality Inventory

* Total scores, averaged across the three time points.

Table 3. CTQ Subscale Summary Score Associations Across Generations

G1 CTQ	G2 Childhood Abuse and Neglect				
	Abuse			Neglect	
	Emotional	Physical	Sexual	Emotional	Physical
Emotional Abuse	0.17*	0.12*	0.01	0.17*	0.07
Physical Abuse	0.14*	0.15*	0.001	0.11*	0.06
Sexual Abuse	0.16*	0.15*	0.07	0.12*	0.12*
Emotional Neglect	0.11*	0.07	-0.05	0.19*	0.06
Physical Neglect	0.09	0.10	-0.10	0.12*	0.08

Note. $N = 568$; $k = 362$, where k = number of families. * = $p_{\text{fdr}} < 0.05$. G1 and G2 age, sex, and race, and G1 SES, were included as covariates. All estimates reflect standardized values.

Table 4. Unique CTQ Subscale Factor Score Associations Across Generations

G1 CTQ	G2 Childhood Abuse and Neglect				
	Abuse			Neglect	
	Emotional	Physical	Sexual	Emotional	Physical
Emotional Abuse	0.05	0.0003	0.06	-0.02	-.01
Physical Abuse	0.01	0.02	-0.05	-0.08	-0.05
Sexual Abuse	0.02	0.04	0.01	-0.04	0.02
Emotional Neglect	-0.04	-0.01	-0.07	0.16*	0.02
Physical Neglect	-0.003	0.08	-0.13*	0.01	0.08

Note. $N = 569$; $k = 362$, where k = number of families. *= p_{fdr} < 0.05. G1 and G2 age, sex, and race, and G1 SES, were included as covariates. All estimates reflect standardized values.

Table 5. Mediation Model Statistics: G1 Borderline Personality Pathology Indirectly Links Childhood Maltreatment Across Generations

	Borderline Pathology (a pathway)		G2 Child Maltreatment (b and c' pathway)	
	b	p	b	p
G1 Gender	-0.060	0.496	-3.175	0.511
G1 White	0.420	<0.000	-3.454	0.071
G1 Age	-0.030	0.052	0.031	0.951
G1 SES	-0.094	0.001	0.096	0.954
G2 Gender	---	---	-51.704	0.329
G2 Age	---	---	0.192	0.646
G1 Child Maltx	0.020	<0.000	0.125	0.028
G1 Borderline PP	---	---	1.598	0.021

Note. **b** = unstandardized beta regression coefficient. **P** = p-value of association.

PP = Personality pathology. SES = Socioeconomic status. C' pathway: $b = 0.125$ [95% CI 0.013, 0.236], $p = 0.021$; C pathway: $b = 0.142$ [95% CI 0.055, 0.230], $p = 0.001$