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Trait self-acceptance mediates parental childhood abuse predicting depression and anxiety symptoms in adulthood

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ABSTRACT

Background: Biopsychosocial models posit that experiencing parental childhood abuse increases vulnerability to psychopathology in adulthood. There are a lack of studies investigating mediators of the parental childhood abuse–adulthood psychopathology relation. The current study investigated if trait self-acceptance mediated the parental childhood abuse–adulthood major depressive disorder (MDD), generalized anxiety disorder (GAD), and panic disorder (PD) severity relations.

Methods: Participants ($n = 3294$) partook in the 18-year Midlife Development in the United States (MIDUS) study at three time-points. We conducted structural equation modeling analyses to test how maternal and paternal childhood abuse at Time 1 would independently positively predict MDD, GAD, and PD severity at Time 3, and if self-acceptance at Time 2 mediated those relations while controlling for adulthood MDD, GAD, and PD severity at Time 1.

Results: Self-acceptance notably mediated the parental childhood abuse-adulthood MDD, GAD, and PD relations. Overall, higher paternal and maternal childhood abuse was associated with lower self-acceptance. Reduced self-acceptance predicted heightened adulthood MDD, GAD, and PD.

Conclusion: Findings highlight the importance of understanding the parental childhood abuse–adulthood psychopathology relation and the possible mechanisms of its long-term impact.

1. Introduction

Childhood parental abuse is the repeated exposure to primary caregiver-inflicted physical, emotional, or sexual abuse, neglect, or maltreatment that affects a child's health, development, and welfare (Tuscic, 2013). In a national U.S.-based sample, 16.7 % of adolescents reported exposure to at least one form of abuse. Also, 58.3 % reported exposure to at least one type of childhood adversity (McLaughlin et al., 2012). Experiencing more frequent (vs. single) abuse or neglect may lead to developing myriad childhood abuse-related mental disorders. These may include anxiety disorders, post-traumatic stress disorder (PTSD), and mood disorders (Gibb et al., 2007; Lindert et al., 2014; Moretti & Craig, 2013). Further, increased childhood abuse may compromise overall quality of life, somatic symptoms, and daily functioning (Newman et al., 2000; Norman et al., 2012; Weber, Jud, & Landolt, 2016). Thus, understanding the relationship between childhood abuse and adulthood psychopathology is essential.

Biopsychosocial models propose that childhood abuse and maltreatment consequences include low self-esteem, reduced self-efficacy, emotion regulation problems, interpersonal issues, and lack of social support (Carlson et al., 1997). One possible outcome of childhood abuse is a low level of *self-acceptance*. Self-acceptance is a core component of mental well-being characterized by self-evaluation, awareness of one's strengths and limitations, mindfulness, and distress tolerance skills (Carson & Langer, 2006). Persons who exhibit higher levels of self-acceptance are at a lower risk for problematic psychological

Abbreviations: MDD, major depressive disorder; GAD, generalized anxiety disorder; PD, panic disorder; T1, Time 1; T2, Time 2; T3, Time 3; SAQs, Self-administered Questionnaires; CTS2, Revised Conflict Tactics Scale; SPWB, The Scales of Psychological Well-Being; DSM-III-R, Diagnostic and Statistical Manual of Mental Disorders, Revised Third Edition; CIDI-SF, Composite International Diagnostic Interview–Short Form; WHO, World Health Organization; SEM, structural equation modeling; CFI, confirmatory fit index; TLI, Tucker-Lewis index; RMSEA, root mean square error of approximation; SRMR, standardized root mean square residual.

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functioning as it has a buffering impact on psychological problems (Bernard et al., 2013). Chronic lack of self-acceptance could lead to developing or worsening psychological symptoms after exposure to childhood abuse across long durations. Plausibly, exposure to childhood abuse would negatively impact self-acceptance long-term.

Consistent with biopsychosocial models, ample studies have observed that more frequent exposure to childhood abuse increased the risk of developing typical childhood trauma-related mental illnesses in adulthood. These include major depressive disorder (MDD), generalized anxiety disorder (GAD), and panic disorder (PD) (e.g., An et al., 2021; Chaney et al., 2014; Gold et al., 2016). Other empirical studies supported linking psychosocial factors (e.g., emotion dysregulation, avoidance patterns, lack of support) with childhood abuse and depression and anxiety disorders in adulthood (e.g., Karakuş, 2012; Sachs-Ericsson et al., 2011; Stevens et al., 2013). Moreover, lending credence to biopsychosocial theories, four studies showed that more frequent childhood abuse and neglect predicted worse future self-acceptance and related concepts. First, college students who encountered more frequent childhood maltreatment before age 15 reported lower self-acceptance and fewer positive relationships (Limke et al., 2010). Similarly, severe child abuse in persons suffering from alcohol use disorders was associated with less self-acceptance, lower levels of compassion, sensitivity toward others, and weaker goal-pursuit tenacity in the face of adversity encountered later in life (Gerhant & Olajossy, 2016). Likewise, more adverse childhood experiences correlated with deficits in self-acceptance and psychological well-being after several decades in community adults (Mosley-Johnson et al., 2019). In addition, self-acceptance buffered the effects of childhood emotional and physical abuse among middle-aged adults (Savla et al., 2013).

In addition, theorists have proposed that self-acceptance deficits could precede mental illnesses. This is because satisfaction with oneself is critical for better psychological well-being, as it fosters stable self-compassion, non-judgment, and present-mindedness (Bernard et al., 2013; Ellis, 1977, 1995). Specifically, developing self-acceptance allows individuals with psychological health problems to learn from life events, promoting optimal mental health across adulthood (Macinnes, 2006). Moreover, people are at a higher risk of persistently heightened depression and anxiety symptoms when they lack acceptance of self, others, and their immediate circumstances (cf. *cognitive triad theory*; Ellis & Robb, 1994; Hayes, Strosahl, Bunting, Twohig, & Wilson, 2004).

Five cross-sectional studies to date showed notable relations between self-acceptance, common mental health symptoms, and related psychological outcomes, consistent with the theories above. For instance, higher levels of depression were associated with lower levels of unconditional self-acceptance and self-esteem in Romanian adolescents (Cucu-Ciuhan & Dumitru, 2017). Similarly, in a clinically diverse inpatient psychiatry sample, lower self-acceptance and self-esteem coincided with poorer myriad mental health indices (e.g., high levels of depression and anxiety; Macinnes, 2006). Likewise, remitted patients with PD (vs. healthy controls) showed lowered levels of self-acceptance (Fava et al., 2001). Further, self-acceptance protected against mental illnesses and mediated between perceived social support and mental health issues among imprisoned Chinese adults undergoing court trials (Huang et al., 2020). Also, self-acceptance mediated the link between higher mindfulness and greater subjective well-being in college students (Xu et al., 2016).

A major limitation of these studies was that their single-time-point assessments precluded potential weak (or Granger) causal inferences due to the absence of temporal precedence (Blackwell & Glynn, 2018). To date, three longitudinal studies examined the association between self-acceptance and related constructs with psychological outcomes. For instance, present moment awareness, a facet of self-acceptance, was negatively connected with depression and positively related to quality of life across time (Long & Hayes, 2014). Similarly, reduced self-acceptance was linked to worse mental health outcomes (e.g., lower psychological well-being) four years later (Tibubos et al., 2019). Further, those with reduced self-acceptance had increased depression 10 years later (Wood & Joseph, 2010). Overall, cross-sectional and longitudinal studies suggested self-acceptance deficits predicted adulthood depression and anxiety symptoms.

Despite the progress made on this topic thus far, there remains a dearth of studies investigating *mediators* of the relation between parental childhood abuse and adulthood psychopathology. This aim is essential, as it allows researchers to understand the mechanism behind how a third variable can affect the link between a predictor variable and an outcome variable (MacKinnon et al., 2007). Studying how trait self-acceptance mediates the relationship between parental childhood abuse and adulthood psychopathology can help improve our understanding of the mechanisms of the long-term physical and psychological impact of childhood abuse in adulthood (Dye, 2018; Lewis et al., 2016; Lippard & Nemeroff, 2020).

Based on the theoretical and empirical literature outlined, we hypothesized that trait self-acceptance would significantly mediate the relations between *maternal* childhood abuse and MDD (Hypothesis 1A), GAD (Hypothesis 2A), and PD (Hypothesis 3A) symptom severity. Additionally, we predicted that trait self-acceptance would significantly mediate the relations between *paternal* childhood abuse and MDD (Hypothesis 1B), GAD (Hypothesis 2B), and PD (Hypothesis 3B) symptom severity. Paternal and maternal abuse were examined as separate predictors because each parental figure may have different caregiving styles and roles within the family, which may have differential impacts on a child (Cox & Paley, 1997; Cui et al., 2018).

2. Methods

2.1. Study design

The present study used the Midlife Development in the United States (MIDUS) dataset that is publicly available and accessible through a repository (https://tinyurl.com/j2ycfspk). The MIDUS project collected data across three waves of assessment: 1995–1996 (Time 1 [T1]); 2004–2005 (Time 2 [T2]); 2012–2013 (Time 3 [T3]). Data collected at T1 was via telephone interviews and self-administered questionnaires (SAQs). Data at T2 and T3 was collected via SAQs. For those that did not complete the SAQs, a modified version of the assessment was administered via telephone (refer to codebooks for more information; Brim et al., 2020; Ryff et al., 2019; Ryff et al., 2017).

2.2. Procedures

The present study focused on data from 3294 participants who completed telephone interviews and/or SAQs assessing MDD, GAD, and PD symptom severity at T1 and T3. Participants also completed the measures that evaluated the frequency of experiences of childhood emotional, physical, and severe physical abuse at T1 and the degree of trait self-acceptance at T2.

2.3. Measures

2.3.1. Childhood abuse

Experiences of abuse were reported retrospectively with the Revised Conflict Tactics Scale (CTS2; Straus et al., 1996). The CTS2 measures childhood abuse and examined three categories: emotional abuse, physical abuse, and severe physical abuse. Respondents rated their experiences on a 4-point Likert scale (1 = *Often* to 4 = *Never*). Each category was examined separately for abuse perpetrated by their mother, or the woman who raised them, and their father, or the man who raised them. For emotional abuse (6 items), respondents indicated if the perpetrators behaved in the following ways: "insulted you or swore at you; sulked or refused to talk to you; stomped out of the room; did or said something to spite you; threatened to hit you; smashed or kicked something in anger." For physical abuse (3 items), respondents indicated

whether the perpetrators acted in these ways: "pushed, grabbed, or shoved you; slapped you; threw something at you." Lastly, respondents endorsed severe physical abuse (5 items) if the perpetrators demonstrated the following: "kicked, bit, or hit you with a fist; hit or tried to hit you with something; beat you up; choked you; burned or scalded you." CTS2 scores showed acceptable internal consistency herein: emotional abuse (Cronbach's α = 0.73), physical abuse (α = 0.71), and severe physical abuse (α = 0.75). CTS2 scores also showed good validity and reliability across diverse samples (Chapman & Gillespie, 2018).

2.3.2. Self-Acceptance

The Scales of Psychological Well-Being (SPWB; Ryff & Singer, 1996) measured trait self-acceptance. Respondents rated their responses on a 5-point Likert scale (1 = *least like me* to 5 = *most like me*). The SPWB assessed attitude toward the self, aspects of self, including good and bad qualities, and feelings about the past (e.g., "When I look at the story of my life, I am pleased with how things have turned out."). Specifically, the 3-item trait self-acceptance items assessed how respondents felt about themselves and their lives thus far (i.e., like most aspects of my personality; pleased with how life turned out; disappointed about achievements in life). The SPWB trait self-acceptance scale showed acceptable internal consistency (α = 0.70 herein). Its scores further showed reasonable validity and reliability scores of other measures of overlapping and unique constructs (Akin, 2008; Shryock & Meeks, 2018).

2.3.3. MDD, GAD, and PD symptom severity

MDD, GAD, and PD severity scores were based on the American Psychiatric Association (APA) *Diagnostic and Statistical Manual of Mental Disorders, Revised Third Edition* (DSM-III-R; American Psychiatric Association, 1987) criteria using the World Health Organization's (WHO) *Composite International Diagnostic Interview – Short Form* (CIDI-SF; Kessler et al., 1998). It used continuous scales to assess MDD, GAD, and PD symptom severity. Respondents' scores on each symptom severity were measured on a continuum indicating lowest to highest symptom severity. MDD severity was measured on a continuum of 0–7 (0 = *lowest depression* to 7 = *highest depression*). It measured MDD symptoms linked to depressed affect and anhedonia in the past 12 months (7 items: loss of interest in most things; fatigue; appetite changes; sleep difficulties; concentration problems; low self-worth; thoughts about death). Responses for each item were coded as "yes" (1 = *yes*) or "no" (0 = *no*). A total score of MDD severity was computed. GAD severity was measured on a continuum of 0–10 (0 = *lowest anxiety score* to 10 = *highest anxiety score*). It measured GAD symptoms linked to excessive and uncontrollable worry in the past 12 months (10 items: restlessness, keyed up, on edge, or had a lot of nervous energy, irritability, trouble falling asleep, trouble staying asleep, trouble keeping your mind on the task-at-hand, trouble remembering things, low on energy, easily tired, sore, or aching muscles). Responses for each item were coded from 0 = *never* to 1 = *worries for more days than not or most days.* PD symptom severity was dimensional from 0 to 6 (0 = *lowest panic score* to 6 = *highest panic score*). It measured symptoms during panic attacks or spells (6 items: heart-pounding, tightness, pain or discomfort in chest or stomach, trembling or shaking, hot flashes or chills, sense of unreality). Responses for each item were coded as "yes" (1 = *yes*) or "no" (0 = *no*). CIDI-SF scores showed good internal consistency for the dimensional symptom scales (MDD (α = 0.94), GAD (α = 0.89), and PD (α = 1.00) herein). The CIDI-SF also showed good psychometric reliability and validity for MDD, GAD, and PD symptom severity (Kessler et al., 1999; Wang et al., 2000).

2.4. Data analyses

Longitudinal structural equation modeling (SEM) latent mediation analyses were conducted using the *lavaan R* package (Rosseel, 2012) in the *Rstudio* software (Version 1.3.1093). To assess the SEM model fit, we used the chi-square (Hu & Bentler, 1999), model degrees of freedom and its probability (*p*) value, confirmatory fit index (CFI; Bentler, 1990), Tucker-Lewis index (Tucker & Lewis, 1973), root mean square error of approximation (RMSEA; Steiger, 1990) and its 95% confidence interval (CI), and standardized root mean square residual (SRMR; Byrne, 1998; Hu & Bentler, 1999). Mediation analyses were conducted via the product-of-coefficients method of indirect effect ($a \times b$) for regression coefficients of the CTS2-derived latent composite scores (maternal and paternal childhood abuse) predicting the SPWB-based trait self-acceptance latent composite score (*a* path) and trait self-acceptance predicting adulthood MDD, GAD, and PD severity (*b* path). We showed the unstandardized regression coefficients (β), standard error (*SE*), *t*-value, and *p*, and used bootstrapping with 10,000 resampling draws (Cheung & Lau, 2008). The mediation effect size is the proportion of indirect effect (a^*b) relative to the total effect, $c = a^*b + c'$ (Cheung & Lau, 2008; Cole & Maxwell, 2003; Preacher & Kelley, 2011). It was denoted as the percentage of variance of the degree to which trait self-acceptance explained the unique relations between T1 maternal or paternal childhood abuse and T3 adulthood MDD, GAD, or PD. Note that all models controlled for T1 outcome variables (e.g., the inclusion of T1 MDD when predicting T3 MDD severity).[1] Also, missing data (a total of 0.535 % of observations) were handled using full information maximum likelihood (Lee & Shi, 2021).

3. Results

3.1. Characteristics of study variables and sample

Participants (n = 3294) averaged 45.62 years of age (SD = 11.41, range = 20–74 years) at baseline, 44.84 % were female, and 68.97 % had a college education. Most participants identified as White Caucasian (89.01 %), and the remaining 10.99 % identified as African American, Native American, Asian, multiracial, or others. Table 1 provides a correlation matrix and descriptive statistics for the study variables of interest. T1 maternal and paternal abuse (emotional abuse, physical abuse, and severe physical abuse) items were negatively correlated with T2 self-acceptance items. Maternal and paternal abuse items were positively correlated with T1 and T3 psychopathology (MDD, GAD, and PD). Furthermore, self-acceptance items at T2 were negatively correlated with T1 and T3 psychopathology. All these relations were significant.

3.2. Direct effect: Parental childhood abuse predicting adulthood psychopathology

3.2.1. Model fit indices

The direct effect model of T1 maternal childhood abuse predicting T3 disorder symptom severity had good fit for T3 MDD ($\chi^2(df = 17) = 48.261$, $p < .001$, CFI = 0.988, TLI = 0.981, RMSEA = 0.026, 90 % CI [0.018, 0.035], SRMR = 0.035), T3 GAD ($\chi^2(df = 17) = 25.353$, $p = .09$, CFI = 0.996, TLI = 0.994, RMSEA = 0.013, 90 % CI [0.000, 0.024], SRMR = 0.053), and T3 PD ($\chi^2(df = 17) = 53.402$, $p < .001$, CFI = 0.985, TLI = 0.976, RMSEA = 0.028, 90 % CI [0.030, 0.037], SRMR = 0.047). Also, the model of T1 paternal childhood abuse predicting T3 diagnostic severity had good fit for T3 MDD ($\chi^2(df = 17) = 54.394$, $p < .001$, CFI = 0.987, TLI = 0.979, RMSEA = 0.029, 90 % CI [0.021, 0.038], SRMR = 0.037), T3 GAD ($\chi^2(df = 17) = 31.453$, $p < .05$, CFI = 0.995, TLI = 0.991, RMSEA = 0.018, 90 % CI [0.007, 0.028], SRMR = 0.053), and T3 PD ($\chi^2(df = 17) = 64.581$, $p < .001$, CFI = 0.983, TLI = 0.971, RMSEA = 0.033, 90 % CI [0.024, 0.041], SRMR = 0.049).

[1] We did not control for T1 self-acceptance because researchers well-versed in the study of causal inference and investigations suggest that controlling for a mediating variable at baseline may mistakenly bias the estimation of total effects as controlling for the same may block part of the causal effect through the mediator (D'Onofrio et al., 2020; Rosenbaum, 1984).

Table 1
Correlation matrix.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	EA-M (T1)	–														
2	PA-M (T1)	0.645**	–													
3	SPA-M (T1)	0.496**	.558**	–												
4	EA-P (T1)	0.447**	.319**	.265**	–											
5	PA-P (T1)	0.315**	.471**	.265**	.673**	–										
6	SPA-P (T1)	0.268**	.281**	.498**	.524**	.616**	–									
7	SA1 (T2)	-0.081**	-.067**	-.078**	-.083**	-.054**	-.043*	–								
8	SA2 (T2)	-0.101**	-.049**	-.054**	-.147**	-.087**	-.087**	.370**	–							
9	SA3 (T2)	-0.096**	-.061**	-.071**	-.102**	-.043*	-.045*	.332**	.534**	–						
10	MDD (T1)	0.125**	.083**	.075**	.103**	.061**	.049**	-.109**	-.176**	-.168**	–					
11	GAD (T1)	0.072**	.079**	.052**	.084**	.055**	0.034	-0.081**	-.097**	-.131**	.288**	–				
12	PD (T1)	0.112**	.089**	.085**	.080**	.052**	0.032	-0.058**	-.112**	-.134**	.286**	.262**	–			
13	MDD (T3)	0.133**	.132**	.125**	.100**	.087**	.087**	-.131**	-.176**	-.172**	.279**	.182**	.168**	–		
14	GAD (T3)	0.090**	.082**	.073**	.058**	.055**	.074**	-.086**	-.128**	-.121**	.159**	.354**	.155**	.340**	–	
15	PD (T3)	0.090**	.065**	.054**	.059**	0.021	0.000	-0.090**	-.121**	-.119**	.197**	.141**	.294**	.272**	.226**	–
	M	1.77	1.67	1.21	1.94	1.71	1.29	5.92	5.33	5.22	0.69	0.14	0.38	0.6	0.13	0.27
	SD	0.91	0.82	0.57	0.96	0.85	0.66	1.21	1.69	1.88	1.82	0.86	1.09	1.71	0.92	0.92
	Min	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0
	Max	4	4	4	4	4	4	7	7	7	7	10	6	7	10	6
	Skew	0.9	1.01	2.86	0.66	0.96	2.41	-1.58	-1.1	-0.7	2.43	7.47	3.17	2.69	7.89	3.73
	Kurtosis	-0.24	0.19	7.78	-0.67	0.01	5.13	2.69	0.12	-0.93	4.34	60.7	9.74	5.73	65.5	13.9

Note. * $p < .05$; ** $p < .01$; *** $p < .001$.
T1 = time 1; T2 = time 2; T3 = time 3; EA-M (T1) = emotional abuse-maternal at T1; EA-P (T1) = emotional abuse=paternal at T1; GAD (T1) = generalized anxiety disorder at T1; GAD (T3) = generalized anxiety disorder at T3; M = mean; Max = maximum; MDD (T1) = major depressive disorder at T1; MDD (T3) = major depressive disorder at T3; Min = minimum; PA-M (T1) = physical abuse-maternal at T1; PA-P (T1) = physical abuse-paternal at T1; PD (T1) = panic disorder at T1; PD (T3) = panic disorder at T2; SA1 (T2) = self-acceptance item 1 at T2-'like most aspects of my personality'; SA2 (T2) = self-acceptance item 2 at T2-'pleased with how life turned out'; SA3 (T2) = self-acceptance item 3 at T2-'disappointed about achievements in life'; SD = standard deviation; SPA-M (T1) = severe physical abuse-maternal at T1; SPA-P (T1) = severe physical abuse-paternal at T1.

3.2.2. Adulthood MDD, GAD, and PD symptom severity

Greater baseline retrospectively-reported maternal childhood abuse significantly predicted higher T3 MDD severity ($\beta = 0.328$, $SE = 0.062$, $t = 5.323$, $p < .001$), T3 GAD severity ($\beta = 0.093$, $SE = 0.031$, $t = 3.015$, $p = .003$), and T3 PD severity ($\beta = 0.100$, $SE = 0.034$, $t = 2.976$, $p = .003$). Further, a greater baseline retrospectively recalled paternal childhood abuse was significantly associated with higher T3 MDD severity ($\beta = 0.186$, $SE = 0.055$, $t = 3.367$, $p = .001$), and T3 GAD severity ($\beta = 0.069$, $SE = 0.032$, $t = 2.147$, $p = .032$). However, baseline paternal childhood abuse was not significantly associated with T3 PD severity ($\beta = 0.010$, $SE = 0.029$, $t = 0.359$, $p = .719$).

3.3. Indirect effect: Parental childhood abuse predicting adulthood psychopathology via trait self-acceptance

Tables 2 and 3 summarizes the longitudinal SEM mediation models of childhood maternal and paternal abuse predicting T3 disorder symptom severity via T2 trait self-acceptance, respectively. Figs. S1 to S6 in the Supplemental materials show the path diagrams.

Table 2
Childhood maternal abuse predicting future common mental health outcomes.

Outcome	MDD		GAD		PD	
	β	(*SE*)	β	(*SE*)	β	(*SE*)
Factor loadings						
Emotional abuse	0.806	–	0.794	–	0.809	–
Physical abuse	0.795***	(0.036)	0.811***	(0.035)	0.796***	(0.035)
Severe physical abuse	0.659***	(0.029)	0.658***	(0.029)	0.654***	(0.028)
Self-acceptance item 1	0.506	–	0.506	–	0.501	–
Self-acceptance item 2	0.749***	(0.126)	0.784***	(0.126)	0.746***	(0.130)
Self-acceptance item 3	0.699***	(0.136)	0.708***	(0.140)	0.710***	(0.138)
Regression estimates						
T1 abuse → T2 self-acceptance (*a* path)	-0.091***	(0.024)	-0.108***	(0.024)	-0.099***	(0.023)
T2 self-acceptance → T3 symptom severity (*b* path)	-0.642***	(0.084)	-0.192***	(0.049)	-0.095***	(0.016)
Indirect effect	0.059***	(0.016)	0.021**	(0.007)	0.026***	(0.007)
Direct effect	0.328***	(0.062)	0.093**	(0.036)	0.100**	(0.034)
Model fit indices						
χ^2	48.261		25.353		53.402	
df	17		17		17	
p	.000		0.087		0.000	
CFI	0.988		0.996		0.985	
TLI	0.981		0.994		0.976	
RMSEA [90% CI]	0.026 [0.018, 0.035]		0.013 [0.000, 0.024]		0.028 [0.020, 0.037]	
SRMR	0.035		0.053		0.047	

Note. * $p < .05$; ** $p < .01$; *** $p < .001$.
β = Beta weight (regression) estimate; *SE* = standard error of parameter estimate; CI = 95% confidence interval; CFI = confirmatory factor index; GAD = generalized anxiety disorder; MDD = major depressive disorder; PD = panic disorder; RMSEA = root mean square error of approximation; SPA = severe physical abuse; SRMR = square root mean residual; T1 = time 1 (1995); T2 = time 2 (2004); T3 = time 3 (2013); TLI=Tucker-Lewis index.

Table 3
Childhood paternal abuse predicting future common mental health outcomes.

Outcome	MDD		GAD		PD	
	β	(*SE*)	β	(*SE*)	β	(*SE*)
Factor loadings						
Emotional abuse	0.822	–	0.816	–	0.824	–
Physical abuse	0.828***	(0.030)	0.835***	(0.029)	0.831***	(0.029)
Severe physical abuse	0.685***	(0.028)	0.686***	(0.027)	0.679***	(0.027)
Self-acceptance item 1	0.498	–	0.498	–	0.494	–
Self-acceptance item 2	0.785***	(0.138)	0.793***	(0.143)	0.788***	(0.144)
Self-acceptance item 3	0.679***	(0.136)	0.681***	(0.139)	0.684***	(0.137)
Regression estimates						
T1 abuse → T2 self-acceptance (*a* path)	-0.101***	(0.021)	-0.109***	(0.021)	-0.108***	(0.021)
T2 self-acceptance → T3 symptom severity (*b* path)	-0.634***	(0.087)	-0.193***	(0.051)	-0.289***	(0.050)
Indirect effect	0.064***	(0.015)	0.021**	(0.007)	0.031***	(0.008)
Direct effect	0.186**	(0.055)	0.069*	(0.032)	0.010	(0.029)
Model fit indices						
χ^2	54.394		31.453		64.581	
df	17		17		17	
p	.000		0.018		0.000	
CFI	0.987		0.995		0.983	
TLI	0.979		0.991		0.971	
RMSEA [90% CI]	0.029 [0.021, 0.038]		0.018 [0.007, 0.028]		0.033 [0.024, 0.041]	
SRMR	0.037		0.053		0.049	

Note. * $p < .05$; ** $p < .01$; *** $p < .001$.
β = Beta weight (regression) estimate; *SE* = standard error of parameter estimate; CI = 95% confidence interval; CFI = confirmatory factor index; GAD = generalized anxiety disorder; MDD = major depressive disorder; PD = panic disorder; RMSEA = root mean square error of approximation; SPA = severe physical abuse; SRMR = square root mean residual; T1 = time 1 (1995); T2 = time 2 (2004); T3 = time 3 (2013); TLI = Tucker-Lewis index.

3.3.1. Hypothesis 1A and 1B

Supporting Hypothesis 1A, higher maternal childhood abuse significantly predicted lower T2 self-acceptance (β = −0.091, *SE* = 0.024, *t* = −3.872, *p* < .001), and lower T2 self-acceptance was significantly related to higher MDD severity (β = −0.642, *SE* = 0.0864 *t* = −7.606, *p* < .001). The maternal childhood abuse → T2 self-acceptance → adulthood MDD severity indirect effect was significant (β = 0.059, *SE* = 0.016, *t* = 3.684, *p* < .001). T2 self-acceptance accounted for 15.28 % of the maternal childhood abuse-adulthood MDD severity relation. Similarly, supporting Hypothesis 1B, higher paternal childhood abuse was significantly associated with lower T2 self-acceptance (β = −0.101, *SE* = 0.021, *t* = −4.775, *p* < .001), and reduced T2 self-acceptance significantly predicted higher T3 MDD severity (β = −0.634, *SE* = 0.087, *t* = −7.283, *p* < .001). The paternal childhood abuse → self-acceptance → adulthood MDD severity indirect effect was significant (β = 0.064, *SE* = 0.015, *t* = 4.285, *p* < .001). T2 self-acceptance accounted for 25.60 % of the paternal childhood abuse-adulthood MDD severity relation. Collectively, findings supported Hypotheses 1A and 1B.

3.3.2. Hypothesis 2A and 2B

Supporting Hypothesis 2A, higher maternal childhood abuse was significantly associated with lower T2 self-acceptance (β = −0.108, *SE* = 0.024, *t* = −4.547, *p* < .001), and less T2 self-acceptance significantly predicted higher GAD severity (β = −0.192, *SE* = 0.049, *t* = −3.923, *p* < .001). The maternal childhood abuse → T2 self-acceptance → adulthood GAD severity indirect effect was significant (β = 0.021, *SE* = 0.007, *t* = 3.007, *p* = .003). T2 self-acceptance accounted for 18.42 % of the maternal childhood abuse-adulthood GAD severity relation. Similarly, supporting Hypothesis 2B, higher paternal childhood abuse was significantly associated with lower T2 self-acceptance (β = −0.109, *SE* = 0.021, *t* = −5.134, *p* < .001), and reduced T2 self-acceptance was significantly related to higher GAD severity (β = −0.193, *SE* = 0.051, *t* = −3.796, *p* < .001). The paternal childhood abuse → T2 self-acceptance → adulthood GAD severity indirect effect was significant (β = 0.021, *SE* = 0.007, *t* = 3.136, *p* = .002). Self-acceptance accounted for 23.34 % of the paternal childhood abuse-adulthood GAD severity relation. Overall, the findings supported Hypotheses 2A and 2B.

3.3.3. Hypothesis 3A and 3B

Supporting Hypothesis 3A, higher maternal childhood abuse significantly predicted lower T2 self-acceptance (β = −0.099, *SE* = 0.023, *t* = −4.250, *p* < .001), and decreased T2 self-acceptance significantly related to greater PD severity (β = −0.264, *SE* = 0.046, *t* = −5.786, *p* < .001). The maternal childhood abuse → T2 self-acceptance → adulthood PD severity indirect effect was significant (β = 0.026, *SE* = 0.007, *t* = 3.539, *p* < .001). T2 self-acceptance accounted for 20.63 % of the maternal childhood abuse-adulthood PD severity relation. Similarly, supporting Hypothesis 3B, higher paternal childhood abuse was significantly associated with lower T2 self-acceptance (β = −0.108, *SE* = 0.021, *t* = −5.170, *p* < .001), and decreased T2 self-acceptance was significantly related to greater PD severity (β = −0.289, *SE* = 0.050, *t* = −5.831, *p* < .001). The paternal childhood abuse → T2 self-acceptance → adulthood PD severity indirect effect was significant (β = 0.031, *SE* = 0.008, *t* = 3.966, *p* < .001). Self-acceptance accounted for 71.81 % of the paternal childhood abuse-adulthood PD severity relation. Accordingly, findings supported Hypotheses 3A and 3B.

4. Discussion

The current study expands our understanding of the enduring negative impact parental childhood abuse can have on the incidence or recurrence of elevated MDD, GAD, or PD in adulthood. To the best of our knowledge, we reported novel findings that trait self-acceptance mediated the association between maternal *and* paternal childhood abuse and adulthood MDD, GAD, and PD severity as outcomes. These findings extend cross-sectional evidence that lowered self-acceptance was associated with more frequent and severe psychological issues (e.g., Cucu--Ciuhan & Dumitru, 2017; Huang et al., 2020; Macinnes, 2006; Su et al., 2019; Xu et al., 2016). Thus, our findings fully supported our study hypotheses, and we provide potential explanations regarding the subject matter.

Why did maternal and paternal abuse consistently predict lower future self-acceptance and reduced self-acceptance thereby relate to increased future MDD, GAD, and PD severity? The fact that childhood exposure to stressful events was associated with lower acceptance of diverse emotions and their fluctuations (Cărnuţă et al., 2015) might explain this finding. Also, concordant with the biopsychosocial model,

persons who experienced abuse were more likely to develop unhelpful behavioral repertoires, such as devaluing and criticizing themselves, a process entwined with lowered self-acceptance (Bernard, Vernon, Terjesen, & Kurasaki, 2013; Pilkington, Bishop, & Younan, 2021). Further, parental figures or caregivers' lack of consistent care and responsiveness likely contributed to developing limiting core beliefs and schemas (e.g., viewing the self as defective, unworthy, or unlovable, the world as a dangerous place, others as untrustworthy; Bowlby, 1969). In support of these speculations, much data showed that parental childhood abuse had long-term adverse effects on self-views, action tendencies, and behavioral regulation repertoires (e.g., Hong, 2012; Javakhishvili & Spatz Widom, 2021; Kong et al., 2019; Lee et al., 2018; VanMeter et al., 2021). Future research could examine the validity of these propositions.

What may account for lower self-acceptance predicting subsequent higher MDD, GAD, and PD severity? Theorists suggest pathological behaviors are rooted in the failure of the external world, such as parents, to provide optimal conditions for self-acceptance (Bernard et al., 2013; p. 13). Additionally, low self-acceptance could prevent children, adolescents, and young adults from learning to effectively address conflicts and solve problems encountered in daily life, thus leading to increased depression and anxiety symptoms (Iskakova et al., 2015). A lack of self-acceptance could correlate with persistent irrational and unhelpful beliefs that might, over time, lead to prolonged negative emotions and unhealthy behaviors (Davies, 2006; Jibeen, 2017). Further, a lack of positive self-acceptance was associated with increased risk of experiencing distress, alcohol use, and suicide attempts (Tanaka et al., 2011). Plausibly, a lack of self-acceptance may promote a tendency to suppress distressing emotions rather than skillfully relaying and expressing thoughts and feelings to significant others. Such interpersonal processes tend to lead to emotion dysregulation, a core transdiagnostic feature of depression and anxiety (Williams & Lynn, 2010). Further prospective research is required to confirm these ideas.

What could explain the observation that all direct effects were significant except for paternal abuse predicting future PD severity? We extended prior research that had rarely separately assessed maternal and paternal abuse as risk factors for mental illnesses. Most previous research on this topic emphasized abuse type, parents' own abuse experiences, parenting styles, or gender differences (Greene et al., 2020; Kong et al., 2019; Oshio & Umeda, 2016; Young, 2018). Our findings thus showed the importance of understanding potential differences in maternal versus paternal childhood abuse for predicting adulthood mental health consequences. Although we did not directly assess attachment (i.e., a sense of security, stability, and nurturance provided by a primary caregiver during formative developmental periods; (i.e., a sense of security, stability, and nurturance provided by a primary caregiver during formative developmental periods; Bowlby, 1969, 1973, 1980), it is likely a contributing factor to our discrepant findings. Mothers, compared to fathers, are considered primary attachment figures. Effects and interactions between children and their mothers extend well into adulthood (Rosenthal & Kobak, 2010). Thus, it is possible that maternal abuse can increase the risk of developing adulthood psychopathology more directly than paternal abuse due to differences in the frequency of interaction of each parental figure. Recent evidence demonstrated that affect dysregulation mediated the link between maternal abuse and adulthood depressive symptoms, but paternal abuse was related only via a direct relationship (Moretti & Craig, 2013). Similarly, some recent studies observed that maternal, but not paternal, childhood abuse predicted lower psychological well-being and distress and higher psychopathology (e.g., Kong & Martire, 2019; VanMeter et al., 2021). Further investigation is needed to explain how maternal versus paternal child interactions or abuse can affect long-term mental health outcomes.

This study had various limitations that warrant mention. First, we measured MDD, GAD, and PD severity using DSM-III-R (American Psychiatric Association, 1987) criteria. Thus, the results may not be generalizable to DSM-5 (American Psychiatric Association, 2013). Future replication efforts could include DSM-5-consistent assessments. Second, data on abuse experiences were collected retrospectively and might have been subject to recall bias. Third, the parental childhood abuse measure was not administered at T2 or T3. This may have given us further insight into how participants' self-report scores differed across time points. Finally, given the average age of our sample (45.62) at baseline, anxiety and mood disorders were measured 18 years or more after the abuse occurred and well after the typical age of onset for these disorders (i.e., Solmi et al., 2022). Thus, unmeasured variables (e.g., genetics) could have influenced the results. Future prospective studies could remedy such design flaws. Limitations notwithstanding, the current study had several strengths. First, we used a longitudinal design across three assessment waves over 18 years. Second, all measures used yielded psychometrically reliable and valid scores. Third, our study determined if and how a novel mediator, trait self-acceptance, was a potential mechanism between maternal and paternal childhood abuse predicting adulthood MDD, GAD, and PD severity. Our study highlights the importance of assessing mediators for the parental childhood abuse-adulthood psychopathology relationship, adding to the research on the psychosocial aftermath of parental abuse.

Statement of Ethics

This study was conducted in compliance with the American Psychological Association (APA) ethical standards in the treatment of human participants and approved by the institutional review board (IRB). Further, this research was conducted ethically following the World Medical Association Declaration of Helsinki. Informed consent was obtained from participants per IRB requirements at Harvard University, Georgetown University, the University of California at Los Angeles, and the University of Wisconsin. Since this study used a publicly available dataset, it was exempt from IRB approval.

Authorship contribution statement

My research team, Dr. Nur Hani Zainal, Dr. Michelle G. Newman, and I have no conflicts of interest regarding this article's authorship, research, and publication. I have enclosed the manuscript and tables in Microsoft word format. The Pennsylvania State University is the primary affiliation of all authors. Additionally, I am currently affiliated with Teachers College, Columbia University. Also, Dr. Zainal is affiliated with Harvard Medical School and the National University of Singapore.

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Author Contributions

My research team, Dr. Zainal, Dr. Newman, and I conceived the presented idea, developed the theory, and performed the statistical analyses. Dr. Zainal verified the analytical methods and outputs. Dr. Newman encouraged Dr. Zainal and me to refine the analyses and supervised the findings of this work. We take full responsibility for the data, the accuracy of analyses and interpretation, and the conduct of the research. All authors have (1) made substantial contributions to the analysis and interpretation of the study and its findings, (2) drafted and

revised the article for intellectual content, and (3) gave their final approval of the version to be submitted. All three authors have read and approved this manuscript.

Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at doi:10.1016/j.janxdis.2023.102673.

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