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ORIGINAL ARTICLE

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Attachment insecurity partially mediates the relationship between childhood trauma and depression severity in bipolar disorder

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Abstract

Background: Childhood trauma is associated with greater depression severity among individuals with bipolar disorder. However, the mechanisms that explain the link between childhood trauma and depression severity in bipolar disorder remain poorly understood. The mediational role of attachment insecurity in childhood and adulthood was assessed in the current study.

Methods: Participants with bipolar disorder ($N = 143$) completed measures of childhood trauma (Childhood Trauma Questionnaire), attachment insecurity (Experiences in Close Relationships Scale) and depression severity (Hamilton Depression Rating Scale) as part of the Prechter Longitudinal Study of Bipolar Disorder. A sequential mediation model was tested using path analysis: the direct and indirect effects of childhood trauma on depression severity with attachment insecurity (attachment anxiety and avoidance) in childhood (mother and father) and adulthood (partner) as mediators were estimated.

Results: The final path model demonstrated an excellent fit to the data (comparative fit index = 0.996; root mean square error of approximation = 0.021 [90% confidence interval = 0.000–0.073]). Supporting the hypothesised sequential

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mediation model, maternal attachment anxiety in childhood and romantic attachment avoidance in adulthood partially mediated the relationship between childhood trauma and depression severity; this effect accounted for 12% of the total effect of childhood trauma on depression severity.

Conclusion: Attachment insecurity in childhood and adulthood form part of the complex mechanism informing why people with bipolar disorder who have a history of childhood trauma experience greater depression severity. Addressing attachment insecurity represents a valuable psychotherapeutic treatment target for bipolar disorder.

KEYWORDS

attachment, bipolar disorder, childhood abuse, depression, treatment outcomes

1 | INTRODUCTION

Bipolar disorder is globally among the ten leading causes of disability.[1] Despite treatment strategies for bipolar disorder being available, treatment outcomes remain suboptimal.[2,3] Many patients do not achieve complete remission but continue to have residual symptoms, with almost 70% reporting an affective relapse within two to four years after a previous episode.[4-6] As such, novel treatment targets are urgently needed. Childhood trauma is related to a poorer illness course—indicated by greater severity and complexity—of various psychiatric disorders, including bipolar disorder.[7,8] In a recent meta-analysis, childhood trauma was linked to more severe depressive symptoms—among other indicators of a worse course of bipolar disorder.[9] This link persists even in those receiving treatment (A. L. Wrobel, unpublished data, 2021). The underlying mechanisms, however, remain poorly understood.

1.1 | Attachment theory

Attachment theory presents a valuable framework to elucidate the pathways by which childhood trauma may affect the severity of depression in bipolar disorder.[10-12] Attachment refers to an individual's 'internal working models' of self and others that are primarily based on interpersonal interactions with caregivers in childhood and shape relationships across the lifespan.[13] Secure attachments are based on consistent interpersonal experiences with a caregiver who is responsive, accessible and trustworthy.[14] Conversely, insecure attachments—comprised of attachment anxiety and attachment avoidance—may result from early adverse experiences, an unavailable or inconsistently responsive caregiver.[14] Attachment anxiety is characterised by a strong desire for closeness and fears of rejection or abandonment. Attachment avoidance, on the other hand, is characterised by a strong need for self-reliance and discomfort with intimacy.[14]

Significant outcomes

- This study provides a complex and clinically meaningful model of the interrelations between childhood trauma, attachment insecurity and depression severity in bipolar disorder.
- The present findings suggest that maternal attachment anxiety in childhood and romantic attachment avoidance in adulthood may work to explain why individuals with a history of childhood trauma experience greater depression severity.
- However, the results pertaining to the mediational role of attachment insecurity are preliminary; future research is needed to indicate whether the results of the current study can be generalised to other samples.

Limitations

- Childhood trauma and attachment insecurity in childhood were retrospectively assessed; potentially introducing recall bias.
- Childhood trauma and attachment insecurity were measured simultaneously; hence, the possibility of reverse causation cannot be excluded.
- There is a potential for overfitting; this calls for replication of the present findings in larger samples.

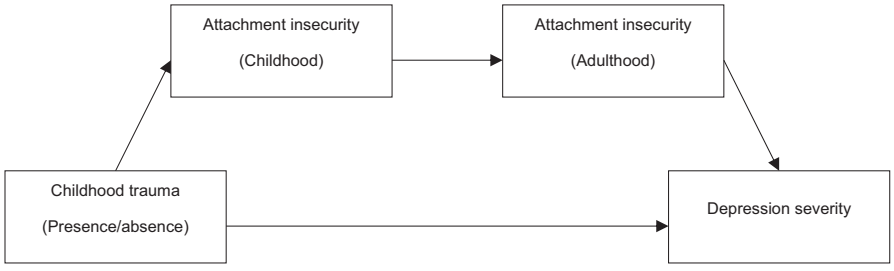


FIGURE 1 Hypothesised model of childhood trauma, attachment insecurity and depression severity

1.2 | Childhood trauma and attachment insecurity

Childhood trauma is a risk factor for developing attachment insecurity both in childhood[15,16] and in adulthood.[17-19] For instance, an early meta-analysis of almost 800 infants showed that 80% of infants who were exposed to childhood trauma demonstrated attachment insecurity, compared with only 36% of infants in the control groups.[15] Similarly, using data from a large prospective study ($N = 605$), Dion et al.[19] highlighted a significant association between childhood trauma and attachment insecurity in adulthood—specifically, attachment anxiety. Notably, these observations align with the notion of attachment continuity across the lifespan implying that attachment insecurity in childhood drives attachment insecurity in adulthood.[20-24] For example, in their longitudinal study, Nosko et al.[20] indicated that good parent–child relationships in adolescence were positively correlated with attachment security and negatively correlated with both attachment anxiety and attachment avoidance later in life.

1.3 | Childhood trauma, attachment insecurity and depression severity

Relationships between childhood trauma, attachment insecurity in adulthood and current psychiatric symptoms—including depressive symptomatology—have been highlighted in non-clinical and clinical samples.[25-29] For instance, Struck et al.[29] in a large sample of participants with major depressive disorder ($N = 580$), demonstrated that both attachment anxiety and attachment avoidance partially mediated the association between childhood trauma and the severity of depressive symptoms. However, there is a lack of research that has explored the mediational role of attachment insecurity in the relationship between childhood trauma and the severity of depression in bipolar disorder. Neither attachment insecurity in childhood nor adulthood has been sufficiently investigated in this context. This is surprising as individuals with bipolar disorder not only frequently report attachment insecurity[30-32] but also as attachment insecurity has been implicated as a mediator in the relationship between childhood trauma and other clinical outcomes in this population.[33]

1.4 | Aims of the study

Building on the assumptions of attachment theory and the presented research, attachment insecurity—in childhood and adulthood, respectively—may mediate the association between childhood trauma and the severity of current depressive symptoms among persons with bipolar disorder. To evaluate this hypothesis, we used path modelling and assessed the relationships between childhood trauma, attachment insecurity in childhood, attachment insecurity in adulthood and depression severity in a sample of participants with bipolar disorder receiving treatment. Here, we considered both attachment anxiety and attachment avoidance as potential mediators. To note, we explicitly tested a sequential mediation model with attachment insecurity in childhood and attachment insecurity in adulthood as sequential mediators of the association between childhood trauma and depression severity. Figure 1 displays a simplified representation of our hypothesised model.

2 | METHODS

Data from the Prechter Longitudinal Study of Bipolar Disorder (Prechter Study) were utilised for the current study.[34] The Prechter Study is an open cohort study of people with any bipolar disorder and healthy controls for which data collection started in 2005 and continues. The Institutional Review Board of the University of Michigan provided ethical approval for the Prechter Study; participants were required to give written informed consent prior to completing any research assessments. Comprehensive information pertaining to the design of the Prechter Study has been reported elsewhere.[34]

2.1 | Participants

For the present study, a subsample of participants with diagnoses of bipolar I disorder, bipolar II disorder, bipolar disorder not otherwise specified (NOS), and schizoaffective disorder (bipolar type) who reported receiving treatment (e.g. outpatient, inpatient and day treatment) at the 2-year follow-up assessment of the Prechter Study was investigated. To be eligible for entry into the Prechter Study, people with bipolar II disorder had to have a history of recurrent depression as well as hypomania. Diagnostic assessments were guided by the Diagnostic Interview for Genetic Studies (DIGS).[35] Using a best estimate process—which was completed by at least two doctoral-level clinicians—these diagnoses were validated (i.e. in concordance with the criteria set out in the Diagnostic and Statistical Manual of Mental Disorders, fourth edition [DSM-IV]).[36] In addition, included participants had provided information on childhood trauma, attachment insecurity and the severity of their current depressive symptoms.

2.2 | Measures

Participants completed the diagnostic assessment and the measures of childhood trauma and attachment insecurity on entry to the Prechter Study. Depression severity was evaluated at the 2-year follow-up assessment.

2.2.1 | Diagnosis and demographics

The DIGS[35] is a well-validated semi-structured clinical interview designed to assess major psychiatric disorders and covers mood as well as psychotic disorders. In addition, demographic information was collected during the clinical interview.

2.2.2 | Childhood trauma

Childhood trauma was evaluated with the Childhood Trauma Questionnaire (CTQ).[37] The CTQ, a 28-item self-report questionnaire, is rated on a five-point Likert scale ranging from 1 ('never true') to 5 ('very often true'). The items are responded to in the context of 'when you were growing up'. The measure consists of five subscales: physical abuse, sexual abuse, emotional abuse, physical neglect and emotional neglect (see below for relevant cut-off scores). Although it is a retrospective instrument, evidence of reasonable correlations between the CTQ and prospective measures of childhood trauma is emerging.[38] Consistent with previous research,[39-41] participants with a score of moderate severity on at least one subscale of the CTQ (physical abuse ≥10, sexual abuse ≥8, emotional abuse ≥13, physical neglect ≥10, emotional neglect ≥15)[42] were coded as having a history of childhood trauma.

2.2.3 | Attachment insecurity

Attachment insecurity was assessed with the Experiences in Close Relationships Scale (ECR).[43] The ECR, a 36-item self-report questionnaire, is rated on a seven-point Likert scale ranging from 1 ('strongly disagree') to 7 ('strongly agree'). The instrument consists of two subscales: attachment anxiety and attachment avoidance. To obtain a score for the two subscales, participants' responses were averaged (score range: 1–7), with higher scores implying greater attachment *in*security (i.e. lower attachment security). The ECR was initially developed to assess attachment insecurity in one's relationships with romantic partner(s) (participants 'general experience [of emotionally intimate] relationships'; i.e. attachment in adulthood). For the Prechter Study, the ECR was adapted to retrospectively evaluate participants' relationships with their mother and father during childhood ('when you were younger'; i.e. attachment in childhood). The 36 items of the ECR were administered three times, each time relating to a different relationship (i.e. partner, mother and father).

2.2.4 | Depression severity

Current depression severity was evaluated with the Hamilton Depression Rating Scale (HAM-D).[44] The HAM-D, a 17-item clinician-rated scale, measures depressive symptoms experienced during the past week. For the HAM-D, an overall severity score is derived (score range: 0–54), with higher scores indicating greater symptom severity.

2.2.5 | Treatment status

Treatment status was determined with information collected during the Longitudinal Interval Follow-up Evaluation (LIFE).[45] The LIFE is a semi-structured clinical interview designed to evaluate the longitudinal course of psychiatric disorders. Here, it was recorded whether participants reported to currently receive treatment (e.g. outpatient, inpatient and day treatment) and what medications they were taking (e.g. lithium, anticonvulsant and antipsychotic).

2.3 | Statistical analysis

The statistical open-source program R Version 4.1.0[46] and RStudio[47] were used to conduct all statistical analyses. We used descriptive statistics (*N* [%], Mean [*SD*]) to explore the characteristics of the total sample. We utilised a step-by-step approach to develop our model of how childhood trauma may affect depression severity mediated by attachment insecurity in childhood and adulthood. In all analyses, we distinguished between the two dimensions of attachment insecurity: attachment anxiety and attachment avoidance.

2.3.1 | Multivariate linear regressions

First, we fitted a series of multivariate linear regressions to individually assess the relationship between depression severity (i.e. continuous score) and each of the following predictors: childhood trauma (i.e. presence/absence), attachment insecurity in childhood (i.e. attachment anxiety [mother, father], attachment avoidance [mother, father]), attachment insecurity in adulthood (i.e. attachment anxiety [partner], attachment avoidance [partner]); these models were all adjusted for age and gender. Second, we entered the aforementioned variables as predictors of depression severity into one comprehensive model (also adjusted for age and gender).

2.3.2 | Path analysis

For the path analysis, we used the 'lavaan' package in R.[48] We entered childhood trauma (i.e. presence/absence), attachment insecurity in childhood (i.e. attachment anxiety [mother, father], attachment avoidance [mother, father]) and attachment insecurity in adulthood (i.e. attachment anxiety [partner], attachment avoidance [partner]) as predictors. In addition to the primary path analysis, we ran similar (exploratory) models using each of the subtypes of childhood trauma (i.e. physical abuse, sexual abuse, emotional abuse, physical neglect and emotional neglect) as a predictor. Childhood trauma (or its subtypes) was entered with a direct effect on depression severity and indirect effects via attachment insecurity. Paths from age and gender to depression severity as well as to all predictors were additionally included. Upon model estimation, we removed non-significant ($p > 0.050$) paths and re-estimated the model. The covariances between attachment anxiety (mother, father) and avoidance (mother, father) in childhood and the covariance between attachment anxiety (partner) and avoidance (partner) in adulthood were added. Standardised estimates (including their 95% confidence intervals [CI]) were calculated for all path coefficients.

The comparative fit index (CFI) and the root mean square error of approximation (RMSEA), standard fit indices, were used to evaluate goodness of fit of the final path model.[49] A CFI of 0.90 or above and a RMSEA of less than 0.08 are widely recognised as indicators of a good model fit.[50,51] For the RMSEA, we additionally report the 90% CI, indicating the precision of the estimate;[52] a CI upper bound below 0.08 suggests a good fit.[52]

2.3.3 | Direct and indirect effects

To investigate the mediational role of attachment insecurity, we computed direct and indirect effects with the 'lavaan' package.[48] In 'lavaan', indirect effects are calculated by taking the product of the path coefficients that constitute the effect. To evaluate the significance of the direct and indirect effects, we used 95% bootstrapped CIs with 1000 random re-samples. Additionally, we computed the proportion of the total effect mediated through attachment insecurity (indirect effects/total effect).

3 | RESULTS

3.1 | Sample description

Our sample comprised 143 participants with bipolar disorder of whom 53% ($n = 76$) reported a history of childhood trauma (with a mean CTQ total score of 45.2 [$SD = 18.0$]). More specifically, 18.3% reported a history of physical abuse, 29.6% of sexual abuse, 34.0% of emotional abuse, 18.9% of physical neglect and 26.2% of emotional neglect. The mean scores on the CTQ subscales ranged from 7.5 ($SD = 4.0$; for physical abuse) to 11.6 ($SD = 5.3$; for emotional neglect). The mean scores on the ECR subscales ranged from 2.6 ($SD = 1.5$; for anxiety [mother]) to 4.3 ($SD = 1.6$; for avoidance [father]). The mean ECR scores for attachment anxiety in adulthood (partner; $M = 3.7$, $SD = 1.5$) and attachment avoidance in adulthood (partner; $M = 3.3$, $SD = 1.3$) are comparable to reported non-clinical population norms (anxiety: $M = 3.6$, $SD = 1.1$; avoidance: $M = 2.9$, $SD = 1.2$).[53] The mean HAM-D total score was 8.7 ($SD = 7.6$), reflecting mild depression severity. Table 1 shows further details of the descriptive characteristics of the sample included in our analyses.

TABLE 1 Descriptive characteristics of the total sample ($N = 143$)

	n (%)	Mean (*SD*)
Gender (female)	97 (67.8)	
Age		47.6 (14.1)
Ethnicity		
Caucasian	130 (90.9)	
African-American	9 (6.3)	
Asian	2 (1.4)	
Multiracial	1 (0.7)	
Unknown/not reported	1 (0.7)	
Marital status		
Never married	61 (42.7)	
Married	57 (39.9)	
Divorced/separated	23 (16.1)	
Widowed	2 (1.4)	
Type of bipolar disorder		
Bipolar I disorder	94 (65.7)	
Bipolar II disorder	34 (23.8)	
Bipolar NOS	10 (7.0)	
Schizoaffective disorder (bipolar type)	5 (3.5)	
Childhood trauma (CTQ)		
Any childhood trauma		45.2 (18.0)
Physical abuse		7.5 (4.0)
Sexual abuse		7.9 (5.4)
Emotional abuse		10.7 (5.0)
Physical neglect		7.6 (3.3)
Emotional neglect		11.6 (5.3)
Attachment insecurity in childhood (ECR)		
Anxiety (mother)		2.6 (1.5)
Anxiety (father)		2.9 (1.5)
Avoidance (mother)		3.8 (1.7)
Avoidance (father)		4.3 (1.6)
Attachment insecurity in adulthood (ECR)		
Anxiety (partner)		3.7 (1.5)
Avoidance (partner)		3.3 (1.3)
Depression severity (HAM-D)		8.7 (7.6)
Medications (LIFE)		
Lithium	30 (21.1)	
Anticonvulsant	79 (55.6)	
Antipsychotic	64 (45.1)	
Antidepressant	77 (54.2)	
Sedative	48 (33.8)	
Stimulant	15 (10.6)	

Note: CTQ subscale scores can range from 5 to 25. ECR subscale scores can range from 1 to 7. HAM-D total scores can range from 0 to 54.

Abbreviations: CTQ, Childhood Trauma Questionnaire; ECR, Experiences in Close Relationships Scale; HAM-D, Hamilton Depression Rating Scale; LIFE, Longitudinal Interval Follow-up Evaluation; SD, Standard Deviation.

3.2 | Relationships between childhood trauma, attachment insecurity and depression severity

3.2.1 | Multivariate linear regressions—individual models

Table 2a shows the results from the individual multivariate linear regressions. Childhood trauma, increased attachment anxiety in childhood (mother), increased attachment avoidance in childhood (mother) and increased attachment avoidance in adulthood (partner) were significantly related to depression severity.

3.2.2 | Multivariate linear regression—comprehensive model

Table 2b shows the results from the comprehensive multivariate linear regression. The association between childhood trauma and depression severity as well as the association between increased attachment avoidance in adulthood (partner) and depression severity remained significant. Increased attachment anxiety in childhood (mother) and increased attachment avoidance in childhood (mother) were no longer significantly related to the severity of depressive symptoms.

3.2.3 | Path analysis

Figure 2 displays our final path model. There was a significant path from childhood trauma to depression severity ($p = 0.001$) as well as significant paths from childhood trauma to attachment anxiety in childhood (mother, father) and attachment avoidance in childhood (mother, father) (all $p < 0.001$). In turn, the paths from attachment anxiety in childhood (mother) to attachment anxiety in adulthood (partner) and attachment avoidance in adulthood (partner) (all $p < 0.001$) were significant as well as the path from attachment avoidance in childhood (mother) to attachment anxiety in adulthood (partner) ($p = 0.006$). Finally, there was a significant path from attachment avoidance in adulthood (partner)—but not from attachment anxiety in adulthood (partner)—to depression severity ($p < 0.001$). This model demonstrated excellent fit to the data (CFI = 0.996; RMSEA = 0.021 [90% CI = 0.000–0.073]). The exploratory path models showed similar relationships between the subtypes of childhood trauma, attachment insecurity in childhood, attachment insecurity in adulthood and depression severity; however, there were no significant paths from physical or emotional abuse to depression severity (for further details, see the Supplementary Material).

TABLE 2 Relationships between childhood trauma, attachment insecurity and depression severity, adjusted for age and gender—results from the (a) individual models and (b) comprehensive model

Predictor	Expected mean change in depression severity (β, 95% CI)	p-Value
(a)		
Childhood trauma	**4.48** (1.98 to 6.98)	**0.001**
Attachment insecurity in childhood		
Anxiety (mother)	**1.33** (0.49 to 2.16)	**0.002**
Anxiety (father)	0.48 (−0.39 to 1.34)	0.277
Avoidance (mother)	**1.15** (0.45 to 1.86)	**0.001**
Avoidance (father)	0.35 (−0.43 to 1.13)	0.375
Attachment insecurity in adulthood		
Anxiety (partner)	0.72 (−0.15 to 1.59)	0.102
Avoidance (partner)	**1.82** (0.89 to 2.75)	**<0.001**
(b)		
Childhood trauma	**3.15** (0.34 to 5.97)	**0.029**
Attachment insecurity in childhood		
Anxiety (mother)	0.49 (−0.83 to 1.82)	0.464
Anxiety (father)	−0.30 (−1.60 to 1.00)	0.650
Avoidance (mother)	0.33 (−0.71 to 1.38)	0.531
Avoidance (father)	−0.15 (−1.24 to 0.95)	0.791
Attachment insecurity in adulthood		
Anxiety (partner)	−0.17 (−1.20 to 0.86)	0.744
Avoidance (partner)	**1.55** (0.44 to 2.66)	**0.007**

Note: Estimates in bold are significant at $p < 0.050$.
Abbreviation: CI = Confidence Interval.

3.2.4 | Direct and indirect effects

Considering the mediational role of attachment insecurity, our model shows a significant direct effect of childhood trauma on depression severity (standardised $\beta = 0.24$, 95% bootstrap CI = 0.10–0.39, $p = 0.001$) as well as an indirect effect via attachment anxiety in childhood (mother) and attachment avoidance in adulthood (partner) respectively (standardised $\beta = 0.03$, 95% bootstrap CI = 0.01–0.06, $p = 0.019$); suggesting a partial mediation model (Figure 2). The indirect effect accounted for 12% of the total effect of childhood trauma on depression severity (standardised $\beta = 0.12$, 95% bootstrap CI = 0.003–0.23, $p = 0.044$). The final path model explained 15% of the variance in depression severity.

4 | DISCUSSION

The purpose of this study was to examine attachment insecurity—including attachment anxiety and attachment avoidance—in childhood and adulthood as plausible mechanistic pathways underlying the link between childhood trauma and current depression severity in a sample of individuals with bipolar disorder receiving treatment. Our results suggest that maternal attachment anxiety in childhood and romantic attachment avoidance in adulthood, respectively, partially mediate the relationship between childhood trauma and depression severity in bipolar disorder. Importantly, this indirect link between childhood trauma and depression severity via attachment insecurity was supported by our exploratory analyses of the subtypes of childhood trauma. These factors may thus represent salient psychological mechanisms that influence the clinical outcomes of bipolar disorder.

The current findings are in line with the assumptions of attachment theory. Multiple attachments are assumed to be organised in an 'attachment hierarchy', with the person at the top being favoured for the fulfilment of attachment needs; in childhood, this is often the mother.[54,55] Regarding the attachment hierarchy, the mother continues to be a significant figure across the lifespan;[56-58] likely playing a distinct role in determining the quality of future attachments. For example, in their longitudinal study, Doyle et al.[22] indicated links between maternal attachment insecurity—but not paternal attachment insecurity—and romantic attachment insecurity in adolescence. Additionally, maternal attachment insecurity

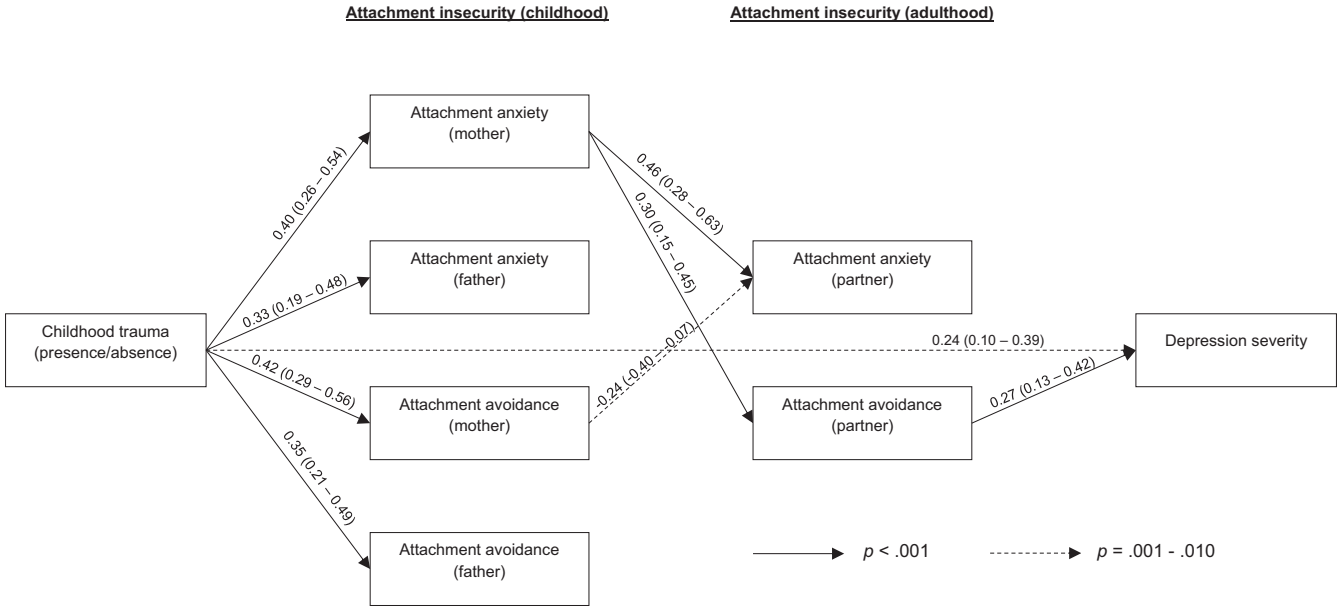


FIGURE 2 Path model of childhood trauma, attachment insecurity in childhood, attachment insecurity in adulthood and depression severity. Standardised estimates for all path coefficients are reported. The paths with *p*-values >0.050, the paths from age and gender, and the covariances were omitted for visual clarity

was a unique predictor of increases in romantic attachment insecurity over time; informing the mediational role of maternal attachment anxiety highlighted in the present model.

Within the attachment framework, attachment insecurity is postulated to encourage interpersonal behaviours which hamper the development of positive, satisfying and healthy relationships in adulthood.[59] More specifically, by avoiding intimacy and self-disclosure, avoidantly attached individuals are likely to have largely superficial relationships and frequently experience relationship dissolution.[59] This may lead to a perceived lack of social support, which, in turn, is associated with greater symptom severity among persons with psychiatric disorders.[60-63]

Supporting this hypothesis, attachment insecurity in adulthood and low social support have recently been shown to sequentially mediate the relationship between childhood trauma and depression severity in a sample of participants with major depressive disorder.[29] Using a non-clinical sample, Pascuzzo et al.[21] also highlighted a negative association between attachment avoidance in adulthood and support-seeking behaviour during stressful situations. As such, avoidantly attached individuals may be less likely to openly communicate their emotions or ask others for help with managing psychological distress and other negative emotional states, such as depression;[64,65] explaining why romantic attachment avoidance may act as a mediator in the current study.

4.1 | The mechanism underlying the effect of childhood trauma: insights from the broader literature

Overall, our findings are consistent with the broader literature: for other psychiatric disorders, there is a demonstrated pathway from childhood trauma through attachment insecurity to psychopathology. Although the body of evidence is limited, attachment insecurity in adulthood has been shown to mediate the association between childhood trauma and symptom severity in both major depressive disorder[29] and psychosis.[66-68] Interestingly, these studies identified both attachment anxiety and attachment avoidance as promising mediators, contrasting with our findings. Unlike these studies, however, we considered attachment insecurity both in childhood and adulthood in our path model. Hence, our research may provide a more complete picture of the relationships between childhood trauma, attachment insecurity and symptom severity.

Whilst this study suggests that attachment insecurity might mediate the association between childhood trauma and symptom severity in bipolar disorder, other psychological mechanisms have been considered in this population.[69,70] For example, affective lability, impulsivity and hostility have previously been established as crucial mediators that partially explain the link between childhood trauma and several clinical characteristics of bipolar disorder; this includes the number of mood episodes as well as rates of suicide attempts and comorbidities.[71-73] Interestingly, not only these trait-like features but also childhood trauma and attachment

insecurity are core elements of borderline personality disorder.[74] This is noteworthy as even the presence of one feature of borderline personality disorder has a meaningfully adverse impact on the outcome of mood disorders.[75]

4.2 | Strengths, limitations and future directions

The present study builds on prior work and provides a comprehensive assessment of the relationships between childhood trauma, attachment insecurity and depression severity in a sample of participants with bipolar disorder. By exploring the subtypes of childhood trauma as well as by examining attachment insecurity in childhood and adulthood, we obtained an inclusive, nuanced and multifaceted understanding of the mediational role of attachment insecurity. To date, only a small number of path analyses that focus specifically on samples of participants diagnosed with bipolar disorder have been conducted. As such, the identification of mechanistic models that clarify the relationship between childhood trauma and clinical outcomes in bipolar disorder is still in its infancy. Therefore, the current study is of significant theoretical and clinical relevance.

Several limitations need to be noted. First, childhood trauma and attachment insecurity in childhood were retrospectively assessed; thus, participants' responses may have been influenced by recall bias. Then, childhood trauma and attachment insecurity (both in childhood and adulthood) were measured simultaneously; hence, the possibility of reverse causation (e.g. behaviours related to attachment insecurity in childhood result in childhood trauma) cannot be excluded. Depression severity was prospectively assessed, which represents a significant strength of the present path analysis. Nevertheless, these limitations highlight the need for long-term cohort studies that would allow for a better evaluation of the directionality of the effects. Additionally, there is a potential for overfitting in our path model, which calls for replication of the present findings in larger samples. Furthermore, the average age of our sample was 47.6: due to the changes in the caregiving role of mothers and fathers in more contemporary family dynamics,[76,77] our results may not apply to younger samples.

Finally, the present model only explained a relatively small (15%) proportion of the total variance in depression severity, suggesting the existence of other vital processes. For example, investigating the role of participants' demographic characteristics (e.g. gender, current relationship status and childhood family structure) in the link between childhood trauma, attachment insecurity and depression severity may represent a valuable avenue for future research. Also, the CTQ does not collect data on characteristics that provide greater detail about a participant's history of childhood trauma. Age at exposure, for instance, has been shown to moderate the effect of childhood trauma on symptom severity and functional outcomes in participants with early psychosis.[78,79] Relevant characteristics of participants' childhood trauma should be considered in future studies that examine the link between childhood trauma and the clinical outcomes of bipolar disorder.

4.3 | Implications

Even when receiving guideline-recommended treatments for bipolar disorder, patients with a history of childhood trauma experience worse treatment outcomes, including greater severity of depressive symptoms (A. L. Wrobel, unpublished data, 2021). The current results suggest that identifying and addressing operative pathways like attachment insecurity during treatment may be a worthy therapeutic goal—especially during psychotherapy. Previous research demonstrated that attachment insecurity might result in weaker therapeutic alliances[80] which can reduce adherence to pharmacotherapy[81-83] and negatively impact the success of psychotherapy.[84-87] However, a growing body of research stresses that attachment security is increased by psychological interventions;[84,88] notably, several psychological interventions, including Schema Therapy[89] and Compassion Focused Therapy,[90] specifically target attachment insecurity. Individualising the treatment plan, and considering relevant contextual factors, such as childhood trauma and attachment insecurity, may significantly facilitate treatment success in bipolar disorder.

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CONFLICT OF INTERESTS

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AUTHOR CONTRIBUTIONS

ALW developed the research question, completed all quantitative analyses and drafted/edited/approved the final version of the manuscript. ML assisted with the quantitative analyses and edited/approved the final version of the manuscript. AT, OMD, SMC, MB and MGM developed the research question and edited/approved the final version of the manuscript. All other authors edited/approved the final version of the manuscript.

ETHICAL APPROVAL

The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008.

PEER REVIEW

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DATA AVAILABILITY STATEMENT

The datasets generated and/or analysed during the current study are not publicly available due to privacy restrictions, but are available from the Prechter Longitudinal Study of Bipolar Disorder (prechter-data-request@med.umich.edu) on reasonable request.

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SUPPORTING INFORMATION

Additional supporting information may be found in the online version of the article at the publisher's website.

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