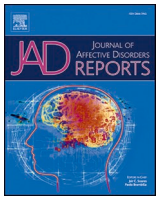
Journal of Affective Disorders Reports 21 (2025) 100938

Contents lists available at ScienceDirect

Journal of Affective Disorders Reports

journal homepage: www.sciencedirect.com/journal/journal-of-affective-disorders-reports



Research Paper

The echoes of childhood: How parental bonding and emotional trauma shape loneliness in young adults

Ilenia Rosa [a], Chiara Conti [b,*], Roberta Lanzara [b], Irene Ceccato [b], Chiara Gallelli [b], Pasquale La Malva [b], Alberto Di Domenico [b], Piero Porcelli [b]

[a] Department of Neuroscience, Imaging and Clinical Sciences, University G. d'Annunzio of Chieti-Pescara, Chieti, Italy
[b] Department of Psychology, University G. d'Annunzio of Chieti- Pescara, Chieti, Italy

ARTICLE INFO

Keywords:
Loneliness
Child abuse
Parental bonding
Distress
College students

ABSTRACT

Background: Loneliness is a subjective and painful experience resulting from an imbalance between desired and perceived social relationships. Several situational factors may increase loneliness in young adults. The study aimed to explore the association between parental bonding and loneliness by including childhood traumatic experiences and current psychological distress as potential mediators.
Method: A sample of 608 college students in psychology (Mage = 21.23, SD = 2.10) was consecutively enrolled. Sociodemographic characteristics, parental bonding (PBI), loneliness (UCLA), childhood traumatic emotional experiences (CTQ), anxiety (GAD-7), depressive (PHQ-9), and somatic symptoms (PHQ-15) were assessed through an online survey. After preliminarily assessing frequency distributions, descriptive statistics, and correlation, we performed a path analysis to examine both direct and indirect effects among the variables of interest.
Results: The path model showed that PBI care was negatively associated with traumatic experiences in childhood (ps $\leq$ 0.01). Both emotional abuse and neglect during childhood predicted higher levels of anxiety and depression (ps $\leq$ 0.05). Emotional abuse further predicted somatic symptoms ($p < .001$). Finally, loneliness was positively predicted by childhood traumatic emotional experiences, both neglect and abuse (ps < 0.001), as well as by depression ($p < .001$). Overall, the model explained a significant amount of variance in the UCLA scale ($R^2 = 0.44$, $p < .001$).
Conclusions: Childhood trauma and adult depressive symptoms mediate the link between low parental care and loneliness. Recognizing early negative parental bonding's impact allows for tailored interventions to enhance psychological well-being by addressing early attachment issues.

1. Introduction

Loneliness is a subjective, unpleasant, and painful experience resulting from an imbalance between desired and perceived social relationships (Peplau and Perlman, 1982). This imbalance is not only quantitative, such as having few friends or infrequent social activities, but it is also indicative of poor-quality relationships in which people feel a lack of intimacy and emotional closeness as well as feel unloved, unaccepted, not sufficiently cared for, misunderstood, or invalidated (Rubenstein and Shaver, 1982). Individuals can be socially isolated without feeling lonely, while other individuals feel lonely without being socially isolated; in other words, a person can feel lonely while being in a close relationship (Hawkley and Cacioppo 2010). Objective isolation and subjective feelings of loneliness are therefore related but distinct constructs (Hughes et al., 2004). The risk for increased loneliness can be further heightened by several situational factors such as few connections with friends and family, low socioeconomic status, reduced marital quality, insufficient social roles, physical and mental health symptoms, and weakness (Hawkley et al., 2008; Mann et al., 2022; Savikko et al., 2005). Bidirectionally, it has been agreed upon that the subjective situation of loneliness entails negative consequences at the level of physical and mental health (e.g., Heinrich and Gullone, 2006; Conti et al., 2023; Di Tomasso and Spinner, 1997; Ernst and Cacioppo, 1999). It is hence not surprising that the World Health Organization (2023) announced a new Commission on Social Connection to address loneliness as a global health priority and promote social connection. Therefore, improving our understanding of risk factors associated with loneliness is crucial to predict and prevent adverse health outcomes.

* Corresponding author.
E-mail address: cconti@unich.it (C. Conti).

https://doi.org/10.1016/j.jadr.2025.100938
Received 7 January 2025; Received in revised form 12 April 2025; Accepted 7 June 2025
Available online 9 June 2025

Adolescence and young adulthood involve an important restructuring of social life due to the developmental changes in the attachment organization and the consequent transformation of parent-child relationships (Cacioppo et al., 2015; Goosby et al., 2013). Previous research indicates that adverse family experiences such as parental separation or divorce (Schaan et al., 2019), marital discord (Johnson et al., 2001), physical punishment (de Heer et al., 2024), different types of childhood abuse (sexual abuse, physical abuse) (e.g. Brown et al., 2016; de Heer et al., 2024; Hanlon et al., 2020; Shevlin et al., 2015) further predispose to loneliness in young adult (Laursen and Hartl, 2013). Various theoretical and empirical studies reveal that loneliness may be also associated not only with more severe and overt forms of childhood abuse but also to more subtle forms of maltreatment such as early emotional trauma (emotional/psychological abuse, and neglect) and parental bonding attitudes (Burns et al., 2022; Jackson, 2007; Pinquart, 2017; Wiseman et al., 2006). Specifically, early experiences of a lack of parental care can lead to less socialising with others as well as a perception of dissatisfaction with interpersonal relationships that turns out in feeling lonely (Wiseman et al., 2006). It was found that loneliness and interpersonal problems in adolescents were associated with low parental care and high overprotection, a dimension which is known as "affectionless control", whereas positive parental behaviors were associated with a positive feeling of connection with others (Saffer et al., 2015; Scharf et al., 2011). Parental affectionless control can limit the development of a positive model of self-as valuable and others as supportive, which, in turn, can predispose to maladaptive, untrustful relationships with others and feelings of loneliness in later life (Otani et al., 2016). Parental style contributes on individual psychological development and may serve as protective factor for adolescents' mental health: the warmer, closer, and more affectionate the parental bonding attitude, the less lonely the individual is likely to feel, and vice versa (Rubenstein and Shaver, 1982; Yang et al., 2008). Some literature highlights that parental bonds characterized by low care and overprotection have been associated with various mood and anxiety disorders in adults (Badr et al., 2018: Curcio et al., 2019; Jiang et al., 2021; Khalid et al., 2018; Mills et al., 2013), vulnerability to several negative personality traits (such as low self-esteem and melancholy; Burns et al., 2022; Campos et al., 2010; Davies and Cummings, 2015; de Man et al., 1993; Parker, 1979; Wiseman et al., 2006), and poor well-being and social support scores (Canetti et al., 1997).

To our knowledge, to date, no study has investigated the pathways through which parental bonding, emotional trauma, and psychological distress may influence loneliness in young adults. This study aimed to explore the association between parental bonding and loneliness by including the experiences of emotional abuse and neglect during childhood and the current psychological distress as mediating factors in a nonclinical sample of college students. Previous research suggests that early negative bonding experiences may affect emotional and behavioral development, influence emotion regulation, and shape self- and other-related beliefs (Lowell et al., 2014; Wright et al., 2009). Over time, these factors could contribute to feelings of distrust and difficulties in relationships, potentially increasing the risk of loneliness (Akdogan, 2017; Baugh et al., 2019; Capaldo and Perrella, 2018; Gobin and Freyd, 2014; Qualter et al., 2009; Wols et al., 2015).

Based on this framework, the expected hypothesis was that retrospective (i.e., parental bonding and experiences of emotional abuse and neglect during childhood) and current psychological features (i.e., anxiety and depressive symptoms, somatic complaints) would be associated with loneliness. In particular, parental bonding would be expected to indirectly affect loneliness through the mediating role of childhood traumatic experiences and current psychological symptoms.

2. Materials and methods

2.1. Participants and procedure

A sample of 608 college students of psychology was consecutively enrolled at the University "G. d'Annunzio" of Chieti, Italy. Students were invited through email to complete an online survey (www.qualtrics.com/it) and received course credits for their participation.

Inclusion criteria were being regular university students and having a good understanding of the Italian language. Exclusion criteria were self-reported severe medical, psychiatric, or neurological disorders in the last 5 years, inability to complete the questionnaire, and being aged >30 years-old. After removing those who did not meet the inclusion criteria or provided incomplete data, the final sample included 587 (93.92 %) students.

All participants provided online informed consent to take part in the study. The study was designed and carried out in accordance with the World Medical Association Declaration of Helsinki and its subsequent revisions (General Assembly of the World Medical Association, 2013) and approved by the Ethics Committee of the Department of Psychological, Health, and Territorial Sciences (DiSPuTer) of University G. d'Annunzio - Chieti-Pescara (Protocol Number: 20,003).

2.2. Measures

2.2.1. Sociodemographic and clinical characteristics

Ad-hoc questions concerning sociodemographic and clinical variables were included in the online survey. Data were self-reported by the participants, including gender, age, student position and medical, psychiatric, or neurological disorders in the last 5 years.

2.2.2. Parental bonding

The parental behaviors and attitude to the child were evaluated using the validated Italian version of the widely accepted Parental Bonding Instrument (PBI) (Parker et al., 1979; Scinto et al., 1999), The PBI is formed of two subscales, Care (12 items) and Overprotection (13 items) related to mothers and fathers, separately. Each item is rated on a four-point Likert scale from 0 ("very like") to 3 ("very unlike") (e.g., "Did not talk with me very much"). Some items (2, 3, 4, 7, 14, 15, 16, 18, 21, 22, 24, 25) are scored reversed (from 3 "very like" to 0 "very unlike") (e.g., "Appeared to understand my problems and worries").

Care is bipolarly defined as emotional support, affection, and fair treatment at one extreme, and neglect and abandonment at the opposite extreme. Protection is also bipolarly defined as a parental relationship that fostered psychological autonomy at one extreme, and overprotection and control (intrusiveness, directiveness, and psychological control through guilt) at the opposite extreme. The total score ranges between 0 and 36 for the Care subscale and between 0 and 39 for the Protection subscales, with higher scores indicating a higher level of care or overprotection, respectively. Within this sample, Cronbach's α was 0.92 for PBI Paternal Care, 0.88 for PBI Paternal Protection, 0.92 for PBI Maternal Care, 0.86 for PBI Maternal Protection.

2.2.3. Childhood traumatic emotional experiences

The childhood traumatic emotional experiences were evaluated using the two Emotional Abuse and Neglect subscales of the validated Italian version of the 10-item Childhood Trauma Questionnaire-Short Form (CTQ-SF) (Bernstein et al., 2003; Sacchi et al., 2018). This choice was driven by the non-clinical nature of our sample, for which a low prevalence of physical and sexual abuse was expected. Moreover, our primary aim was to explore the effects of less visible forms of childhood trauma, such as emotional maltreatment, which may be particularly relevant to the development of loneliness and psychological symptoms.

Each item is rated on a five-point Likert scale from 1 ("never true") to 5 ("very often true"). The total score ranges between 5 and 25 for each

subscale. Scores to each subscale of ≥13 for Emotional Abuse and ≥15 for Emotional Neglect are used as indicative of exposure to trauma (Bernstein and Fink, 1998). Within this sample, Cronbach's α was 0.87 for CTQ-SF Emotional Abuse and 0.89 for CTQ-SF Emotional Neglect.

2.2.4. Anxiety symptoms

Anxiety symptoms were evaluated using the Italian version of the Generalized Anxiety Disorder - 7 (GAD-7) (Spitzer et al., 2006) .[1] Each item is rated on a four-point Likert scale from 0 ("not at all") to 3 ("nearly every day"). The total score ranges between 0 and 21, and cutoff scores for mild (≥5), moderate (≥10), and severe (≥15) levels of anxiety are provided (Spitzer et al., 2006). Within this sample, Cronbach's α was 0.88.

2.2.5. Depressive symptoms

Depressive symptoms were evaluated using the Italian version of the Patient Health Questionnaire - 9 (PHQ-9) (Kroenke et al., 2001; Mazzotti et al., 2003). Each item is rated on a four-point Likert scale from 0 ("not at all") to 3 ("nearly every day"). The total score ranges between 0 and 27, and cutoff scores for mild (≥5), moderate (≥10), moderately severe (≥15), and severe (≥20) levels of depression are provided (Kroenke et al., 2001). Within this sample, Cronbach's α was 0.85.

2.2.6. Somatic symptoms

Somatic symptoms were evaluated using the validated Italian version of the Patient Health Questionnaire - 15 (PHQ-15) (Fossati et al., 2015; Kroenke et al., 2002). Each item is rated on a three-point Likert scale from 0 ("not bothered at all") to 2 ("bothered a lot"). The total score ranges between 0 and 30, and cutoff scores for low (≥5), medium (≥10), and high (≥15) somatic symptoms severity are provided (Kroenke et al., 2002). Within this sample, Cronbach's α was 0.78.

2.2.7. Loneliness

Loneliness was evaluated using the validated Italian version of UCLA (University of California, Los Angeles) Loneliness Scale – version 3 (Boffo et al. 2012; Russell, 1996). Respondents answered 20 questions about how often loneliness-related feelings were descriptive for them (e.g., "how often do you feel that there is no one you can turn to?"). Each item is rated on a four-point Likert scale from 1 ("never") to 4 ("always"). The total score ranges between 20 and 80, with higher scores indicating greater perception of loneliness. Within this sample, Cronbach's α was 0.94.

2.3. Statistical analyses

A two-step strategy was used for data analysis. First, we preliminary assessed frequency distributions and descriptive statistics, and calculated the correlation matrix for all the study variables. Second, a path modelling approach was used to test the indirect effects of quality of parental bonds on loneliness through the mediating role of emotional abuse and neglect, and anxiety, depressive, and somatic symptoms. Based on the literature (see the Introduction section), we performed a model in which the quality of the parental bonds predicted the experiences of emotional abuse and neglect during childhood. Covariance paths among the four scales of the PBI were entered. Emotional Abuse and Emotional Neglect subscales were also intercorrelated. In turn, traumatic emotional experiences were estimated as predictors of the three dimensions of psychological distress (i.e., anxiety, depressive, and somatic symptoms). Covariance paths among these three dimensions were also specified. Finally, loneliness was regressed onto anxiety, depression, and somatic symptoms. Furthermore, we specified direct associations between traumatic emotional experiences (neglect and abuse) and loneliness. Fig. 1a graphically presents the hypothesized model. A multiple-group modelling approach with gender as the grouping variable was adopted to control for potential gender differences in path associations.

In addition to our hypothesized model, two alternative hierarchical models were tested presenting theoretically plausible competing hypotheses. The first alternative model proposes that childhood experiences (parental bonds and traumatic emotional experiences) did not impact on current psychological distress. Yet, current psychological distress has an independent effect on perceived loneliness (Fig. 1b). The second alternative model is a just-identified model proposing that parental bonds impact on loneliness not only indirectly, via traumatic emotional experiences, but also directly; furthermore, parental bonds have direct effects on the three dimensions of psychological distress. Moreover, traumatic emotional experiences have a direct effect on loneliness, above and beyond the indirect effect mediated by psychological distress (Fig. 1c). Testing our model against these alternative models enhances the credibility of the findings and provides further insights into the theoretical underpinnings of the relationships between loneliness and past and current emotional vulnerabilities.

Hypotheses regarding the structural relationships among the constructs were evaluated using the following common recommendations: chi-squared (χ^2) ($p > .05$), Comparative Fit Index (CFI) near 0.90 or greater and Tucker–Lewis Index (TLI) near 0.90 or greater, Root Mean Square Error of Approximation (RMSEA) ≤ 0.08, upper-bound of the RMSEA confidence interval (90 % CI) lower than 0.10, Standardized Root Means Square Residual (SRMR) ≤ 0.08 (Brown, 2015; Hu and Bentler, 1999; Kline, 2011). Beyond these fit indices, we also examined the significance of individual parameter estimates.

Mediation analyses were performed using a bias-corrected bootstrapping approach (with 10,000 replications) to estimate indirect effects and their 95 % CI (Hayes and Preacher, 2014; Walters, 2019). For the multi-group analysis, χ^2 difference test was used (Satorra and Bentler, 2001). Specifically, the model in which all parameters were freely estimated across gender (unconstrained model) was compared to the nested model in which all the parameters were forced to be equal across gender. A non-significant χ^2 would indicate that constraining the parameters in the nested model did not worsen the model fit. The χ^2 difference tests were also used to compare the hypothesized model with the two alternative models.

Descriptive and correlation analyses were conducted using SPSS 27 (IBM Corp. Released, 2020). Path analyses and mediation were performed using Mplus 7.4 (Muthén and Muthén, 2012).

3. Results

3.1. Characteristics of the sample and preliminary analyses

No significant difference was found between the final sample (N = 587, 96.5 %) and the excluded subjects (N = 21, 3.5 %) in gender, $\chi^2(1) = 1.16$, $p = .281$, and marital status, $\chi^2(1) = 1.86$, $p = .172$. As expected, participants were mostly women (N = 498, 85 %), unmarried (N = 495, 84 %), and with age ranging from 18 to 30 years ($M = 21.23$, $SD = 2.10$). This reflects the typical composition of psychology student populations (Fowler et al., 2018).

Descriptive statistics for UCLA, PBI, CTQ-SF, GAD-7, PHQ-9, and PHQ-15 scores and demographic data are reported in Table 1. In our sample the mean score for the UCLA scale was 42.26 (SD = 12.43). The frequency distribution of the UCLA scores is shown in the Supplementary material (Figure S1). Kolmogorov-Smirnov tests indicated that all the investigated variables were not normally distributed (Ds (587) ≥ 0.069, $ps < 0.001$).

The following correlation analyses were conducted using Spearman's rho. Overall, results indicated that all the constructs examined were significantly associated with loneliness, with effect sizes ranging from medium (PBI Overprotection Mother, $rho = 0.27$) to high (PHQ-9,

[1] Italian version of GAD-7 retrieved from www.phqscreeners.com/select-screener.

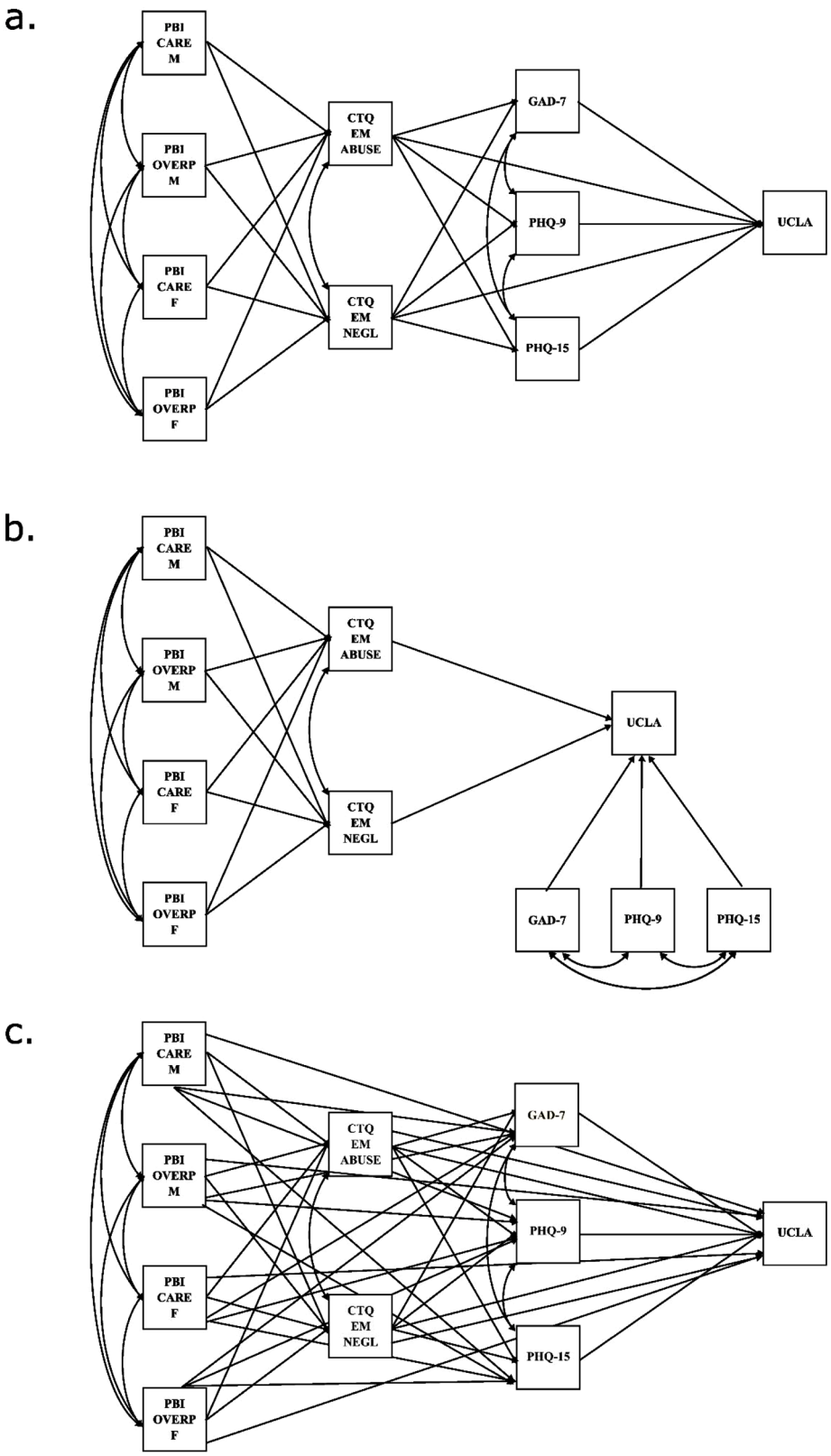


Fig. 1. The hypothesized model (a), the alternative model 1 (b) and the alternative model 2 (c).
Note. PBI = Parental bonding; CARE *M* = Care Mother; OVERP *M* = Overprotection Mother; CARE *F* = Care Father; OVERP *F* = Overprotection Father; CTQ= Childhood traumatic emotional experiences; EM ABUSE = Emotional Abuse subscale; EM NEGL = Emotional Neglect subscale; GAD-7 = general anxiety disorder; PHQ-9 = depressive symptoms; PHQ-15 = somatic symptoms; UCLA = loneliness.

Table 1
Descriptive information on demographic data and UCLA, PBI, CTQ, GAD-7, PHQ-9, and PHQ-15.

	M (SD)	Median	Actual range (possible range)
Age	21.23 (2.10)	22	18–30
Gender, n(%)			
Male	89 (15 %)	–	–
Female	498 (85 %)	–	–
Marital status, n(%)			
Unmarried	495 (84 %)	–	–
Married	93 (16 %)	–	–
UCLA	42.26 (12.43)	41	20–80 (20–80)
PBI Care Mother	25.37 (8.75)	28	0–36 (0–36)
PBI Overprotection Mother	13.99 (7.88)	13	0–39 (0–39)
PBI Care Father	22.73 (9.29)	25	0–36 (0–36)
PBI Overprotection Father	12.89 (8.34)	11	0–39 (0–39)
CTQ Emotional Abuse	8.11 (3.15)	6	5–24 (5–25)
CTQ Emotional Neglect	10.01 (4.54)	9	5–25 (5–25)
GAD-7 Anxiety	7.82 (5.18)	7	0–21 (0–21)
PHQ-9 Depression	8.78 (5–51)	8	0–27 (0–27)
PHQ-15 Somatic symptoms	8.67 (4.94)	8	0–25 (0–25)

rho = 0.52) (see Table S1 in the Supplementary material).

3.2. Path analysis

The hypothesized structural model was then tested. Given the non-normal distribution of the data, we used a robust estimator (maximum likelihood estimation with robust standard errors, MLR). Fig. 2 shows results for the path analysis, with standardized parameter estimates (unstandardized estimates are reported in Table S2 in the Supplemental material). Findings indicated an excellent model fit, $\chi^2(16) = 22.84$, $p = .118$, CFI = 0.995, TLI = 0.988, RMSEA = 0.027, 90 % CI [.00, 0.05], SRMR = 0.031. Starting with parental bonding, findings showed that low parental care was associated with traumatic experiences in childhood ($ps \leq 0.007$). Both emotional abuse and emotional neglect during childhood predicted higher levels of anxiety and depression ($ps \leq 0.025$). Emotional abuse, but not emotional neglect, further predicted somatic symptoms ($p < .001$). Finally, loneliness was positively predicted by childhood traumatic emotional experiences, both neglect and abuse ($ps < 0.001$), as well as by depression ($p < .001$). Neither anxiety nor somatic symptoms significantly predicted loneliness. Overall, the model explained a significant amount of variance in the UCLA scale ($R^2 = 0.44$, $p < .001$).

Mediation analyses confirmed that PBI care – both maternal and paternal – had significant indirect effects on loneliness, via emotional traumatic experiences during childhood. The indirect paths from PBI to loneliness via depression were significant as well (see Table 2). Overall, maternal care had a total indirect effect on loneliness (unstandardized estimate = −0.205, 95 % CI [−0.309, -0.098], standardized estimate = −0.145). Paternal care had a total indirect effect on loneliness (unstandardized estimate = −0.289, 95 % CI [−0.381, -0.205], standardized estimate = −0.216). In sum, results of the path analysis indicate that higher scores of childhood traumatic emotional experiences, and higher levels of depression in adulthood, mediated the relationship between low parental care and high loneliness.

Finally checked if modelling results were equal across women and men, and, therefore, whether our results could be considered valid for both genders. Results showed nonsignificant deterioration in model fit

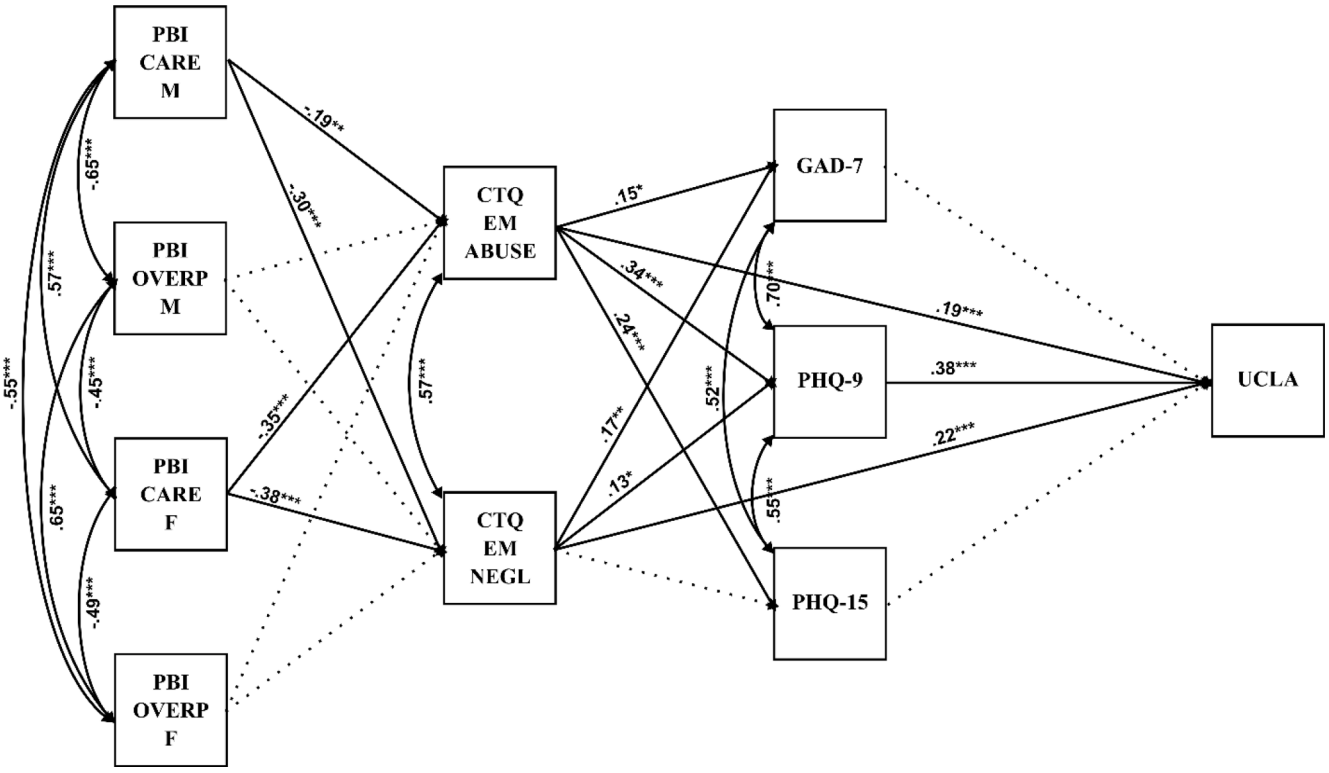


Fig. 2. Path diagram depicting the relationships between loneliness, psychological distress, childhood traumatic emotional experiences and parental bonding.
Note. Standardized estimates are shown. Paths with $p > .05$ are shown in dotted line.
Note. PBI = Parental bonding; CARE *M* = Care Mother; OVERP *M* = Overprotection Mother; CARE *F* = Care Father; OVERP *F* = Overprotection Father; CTQ= Childhood traumatic emotional experiences; EM ABUSE = Emotional Abuse subscale; EM NEGL = Emotional Neglect subscale; GAD-7 = general anxiety disorder; PHQ-9 = depressive symptoms; PHQ-15 = somatic symptoms; UCLA = loneliness.
*$p < .05$, **$p < .01$, ***$p < .001$.

Table 2
Significant indirect effects from PBI to loneliness.

	Unstandardized estimate	95 % CI for the unstandardized estimate	Standardized estimate
PBI Care Mother → CTQ Emotional Abuse → UCLA	−0.053	−0.107, −0.015	−0.037
PBI Care Mother → CTQ Emotional Neglect → UCLA	−0.092	−0.150, −0.047	−0.065
PBI Care Mother → CTQ Emotional Abuse → PHQ-9 → UCLA	−0.035	−0.075, −0.010	−0.025
PBI Care Mother → CTQ Emotional Neglect → PHQ-9 → UCLA	−0.021	−0.049, −0.004	−0.015
PBI Care Father → CTQ Emotional Abuse → UCLA	−0.089	−0.151, −0.045	−0.067
PBI Care Father → CTQ Emotional Neglect → UCLA	−0.110	−0.169, −0.062	−0.082
PBI Care Father → CTQ Emotional Abuse → PHQ-9 → UCLA	−0.059	−0.098, −0.034	−0.044
PBI Care Father → CTQ Emotional Neglect → PHQ-9 → UCLA	−0.025	−0.055, −0.005	−0.019

moving from the freely estimated model to the more parsimonious, constrained model, $\Delta\chi^2$ (29) = 34.29, p = .229. This indicates no significant gender differences in the relationships described above.

When testing our hypothesized model against the two competing models, fit indices and χ^2 difference tests indicates the superiority of the hypothesized model (Table 3).

Table 3
Models fit indices and comparisons between the hypothesized model and the two alternative models.

	df	χ^2	CFI	TLI	RMSEA	χ^2 difference testing
Hypothesized model	16	22.84 p = .118	.995	.988	.027	–
Alternative model 1	22	146.08 p < .001	.844	.830	.098	112.96 p < .001
Alternative model 2	0	0.00	1.00	1.00	.000	22.84 p = .118

Note. As the alternative model was just-identified, fit indices do not apply (Brown, 2015). A non-significant χ^2 indicates that both models fit equally well, so the more parsimonious, constrained model (i.e., the model with more degrees of freedom, *df*) should be favored.

4. Discussion

This study aimed to investigate the relationship between quality of parental bonds and loneliness among college students, considering childhood traumatic experiences and psychological distress as potential mediators.

Drawing from prior research, parental bonding would be expected to indirectly influence loneliness through the mediating pathways of childhood emotional abuse and neglect, as well as current psychological symptoms. The hypothesis was supported by the present findings. We found that low maternal and paternal care, rather than overprotection, had an indirect effect on loneliness through childhood traumatic emotional experiences (including both abuse and neglect), as well as current depressive symptoms. In other words, it appears that neither parent has filled in for the shortcomings of the other. This suggests that the level of care provided by parents plays a crucial role in determining feelings of loneliness among young adults.

However, anxiety and somatic symptoms did not significantly mediate the relationship between parental bonding and loneliness. One possible explanation is that depressive symptoms, more than anxiety or somatization, are closely tied to the emotional withdrawal, hopelessness, and low self-worth that may arise from early relational neglect and emotional abuse, factors that resonate with the experience of loneliness (Mann et al., 2022).

These findings suggest that a lack of parental care may contribute to childhood traumatic experiences, which, in turn, could increase the risk of developing depressive symptoms and subsequently experiencing loneliness in young adulthood. This underscores the importance of parental care in shaping emotional well-being and highlights the potential long-term consequences of childhood experiences on mental health outcomes in later stages of life. The notion that poor parental care increases susceptibility to adverse experiences aligns with previous research (Lo et al., 2017; Rikhye et al., 2008; Bannink et al., 2013; Gewirtz-Meydan and Lahav, 2020; Lin et al., 2016). Regardless of the maternal or paternal role, it is the quality of parental care that is a protective factor from adverse experiences (Lowell et al., 2014; Sriskandarajah et al., 2015). Conversely, it is not surprising that parents who provide lower levels of care may be less equipped to protect their children from harmful circumstances (Lo et al., 2017; Rikhye et al., 2008). Negative bonding experiences during childhood have been specifically reported to be associated in adulthood with psychopathology (Bannink et al., 2013 Jiang et al., 2022; Bogaerts et al., 2005), adjustment difficulties (Bishop et al., 2019; Raudino et al., 2013), and suicidality (Tugnoli et al., 2022). These findings align with the results of the current study, which indicated that both emotional abuse and emotional neglect perpetrated by carers during childhood were predictive of higher levels of anxiety and depression among young adults. The impact of emotional abuse is theorized to be particularly profound due to the betrayal of trust inherent in the perpetrator-victim relationship. Emotional abuse is often perpetrated by individuals the victim expects love and respect from, and the violation of this trust can result in severe emotional damage (Fonagy et al., 2019, 1991; Mehta et al., 2023; Moretti and Craig, 2013). Consequently, emotional abuse and neglect may impede the psychological maturation of children and adolescents (Wu et al., 2022; Xiao et al., 2023). Early-life adverse emotional experiences can also undermine crucial aspects of development, such as self-esteem, self-determination, and resilience. These factors are

essential for behavioral, emotional, social, cognitive, and physical development from childhood through adulthood (Abranches and Assis, 2011; Li et al., 2020; Moraes et al., 2018).

In the current study, emotional abuse was also associated with somatic symptoms. Recent research has explored various biological mechanisms in this context. For instance, studies have examined genetic factors and their role in influencing an individual's vulnerability to somatic symptoms following experiences of emotional abuse (Antypa and Van der Does, 2010; Shadrina et al., 2018). Additionally, there has been interest in neurobiological factors, such as changes in brain function or alterations of the hypothalamic-pituitary-adrenal axis responsiveness to stress, which may contribute to the development of somatic symptoms among individuals who have experienced emotional abuse (Zhong et al., 2020).

Overall, the study's findings are consistent with existing research indicating that early negative bonding experiences may hinder the development of later emotional and behavioral functioning (Lowell et al., 2014), disrupt emotion regulation and understanding (Heim et al., 2013), and foster negative beliefs about oneself and others (Wright et al., 2009). This can lead individuals to experience a sense of betrayal and distrust, which may generalize to other relationships contributing to heightened feelings of loneliness (Akdogan, 2017; Baugh et al., 2019; Capaldo and Perrella, 2018; Gobin and Freyd, 2014; Qualter et al., 2009; Wols et al., 2015).

4.1. Strengths and limitations

The model accuracy, an excellent model fit, the high response rate, and the use of well-validated questionnaires are major strengths of this study. However, some limitations are to be acknowledged. First, psychological features, childhood traumatic emotional experiences, and parental bonding were assessed only with self-report scales and not checked with multi-method assessment. Also, though distinct, self-reported symptoms of anxiety, depression, and somatic health were highly inter-correlated, as would be expected. We cannot exclude that in this non-clinical sample, scores on the three scales may suggest negative affective states and psychological distress rather than separate syndromes mediating the link between parental bonding and loneliness. Second, childhood traumatic emotional experiences and parental bonding were assessed with retrospective scales. Third, the cross-sectional nature of the current study does not enable us to explore causal relationships between psychological features, childhood traumatic emotional experiences, and parental bonding. One could hypothesize that the present experience of loneliness exacerbates depressed mood, leading individuals to selectively focus on the deficit aspects of their relationships with parents. Our study builds upon a well-established rationale in literature, as most research aligns with the causality of past experiences influencing present psychological outcomes, rather than vice versa (Bannink et al., 2013; Gewirtz-Meydan and Lahav, 2020; Lin et al., 2016; Lo et al., 2017; Rikhye et al., 2008). Fourth, prospective longitudinal studies should be used in the future to explore the timing and sequence of loneliness onset and various psychological features across the lifespan to tease apart these complex relationships. Fifth, although expected in psychology students (Fowler et al., 2018), the gender ratio was unbalanced with much more women than men. Sixth, current or more recent stressful events, behavioral factors such as the size of students' social network, social support, and the use of social media were not controlled for, despite they are likely to influence perceived loneliness.

5. Conclusion

Our study underscores the enduring impact of parental care on mental health outcomes in the lifetime, highlighting the importance of addressing early bonding experiences issues in interventions aimed at promoting psychological well-being in young adults. By acknowledging the particular vulnerability linked to early negative bonding experiences, interventions can be customized to address the emotional needs and social connections of those who have encountered these forms of lack and maltreatment (e.g., Cuijpers et al., 2006; Reynolds et al., 2012).

From a clinical perspective, these results suggest that interventions designed to enhance emotional resilience and social connectedness in individuals with early adverse experiences could be particularly beneficial. Attachment-based therapies and structured psychological support for young adults might help mitigate feelings of loneliness and emotional distress by addressing maladaptive beliefs and fostering healthier interpersonal relationships. Moreover, endeavors to prevent and mitigate early negative bonding experiences can play a pivotal role in reducing the likelihood of loneliness among vulnerable populations.

Therefore, addressing the consequences of early negative bonding experiences is critical not only for preventing immediate psychological harm but also for fostering healthy development across the lifespan.

Funding sources

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Data availability

The data that support the findings of this study are available from the corresponding author upon reasonable request.

CRediT authorship contribution statement

Ilenia Rosa: Writing – original draft, Methodology, Data curation. **Chiara Conti:** Writing – original draft, Methodology, Data curation, Conceptualization. **Roberta Lanzara:** Writing – original draft, Methodology, Data curation. **Irene Ceccato:** Writing – original draft, Methodology, Formal analysis. **Chiara Gallelli:** Writing – original draft. **Pasquale La Malva:** Formal analysis, Data curation. **Alberto Di Domenico:** Writing – review & editing. **Piero Porcelli:** Writing – review & editing, Conceptualization.

Declaration of competing interest

The authors report there are no competing interests to declare.

Acknowledgments

None.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.jadr.2025.100938.

References

Abranches, C.D., Assis, S.G., 2011. A (in)visibilidade da violência psicológica na infância e adolescência no contexto familiar [The (in)visibility of psychological family violence in childhood and adolescence]. Cad. Saúde Pública. 27 (5), 843–854. https://doi.org/10.1590/s0102-311x2011000500003.

Akdoğan, R., 2017. A model proposal on the relationships between loneliness, insecure attachment, and inferiority feelings. Pers. Individ. Dif. 111, 19–24. https://doi.org/10.1016/j.paid.2017.01.048.

Antypa, N., Van der Does, A.J., 2010. Serotonin transporter gene, childhood emotional abuse and cognitive vulnerability to depression. Genes. Brain Behav. 9 (6), 615–620. https://doi.org/10.1111/j.1601-183X.2010.00593.x.

Badr, H.E., Naser, J., Al-Zaabi, A., Al-Saeedi, A., Al-Munefi, K., Al-Houli, S., Al-Rashidi, D., 2018. Childhood maltreatment: a predictor of mental health problems among adolescents and young adults. Child Abuse Negl. 80, 161–171. https://doi.org/10.1016/j.chiabu.2018.03.011.

Bannink, R., Broeren, S., van de Looij-Jansen, P.M., Raat, H., 2013. Associations between parent-adolescent attachment relationship quality, negative life events and mental health. PLoS. One 8 (11), e80812. https://doi.org/10.1371/journal.pone.0080812.

Baugh, L.M., Cox, D.W., Young, R.A., Kealy, D., 2019. Partner trust and childhood emotional maltreatment: the mediating and moderating roles of maladaptive schemas and psychological flexibility. J. Context. Behav. Sci. 12, 66–73. https://doi.org/10.1016/j.jcbs.2019.02.001.

Bernstein, D.P., Stein, J.A., Newcomb, M.D., Walker, E., Pogge, D., Ahluvalia, T., Stokes, J., Handelsman, L., Medrano, M., Desmond, D., Zule, W., 2003. Development and validation of a brief screening version of the Childhood Trauma Questionnaire. Child Abuse Negl. 27 (2), 169–190. https://doi.org/10.1016/s0145-2134(02)00541-0.

Bernstein, D., Fink, L., 1998. Childhood Trauma Questionnaire: A Retrospective Self-Report. The Psychological Corporation, Orlando.

Bishop, D.I., Hansen, A.M., Keil, A.J., Phoenix, I.V., 2019. Parental attachment and adjustment to college: the mediating role of avoidant coping. J. Genet. Psychol. 180 (1), 31–44. https://doi.org/10.1080/00221325.2019.1577797.

Boffo, M., Mannarini, S., Munari, C., 2012. Exploratory structure equation modeling of the UCLA loneliness scale: a contribution to the Italian adaptation. TPM 19 (4). https://doi.org/10.4473/TPM19.4.7.

Bogaerts, S., Vanheule, S., Declercq, F., 2005. Recalled parental bonding, adult attachment style, and personality disorders in child molesters: a comparative study. J. Forens. Psychiatry Psychol. 16 (3), 445–458. https://doi.org/10.1080/14789940500094524.

Brown, S., Fite, P.J., Stone, K., Bortolato, M., 2016. Accounting for the associations between child maltreatment and internalizing problems: the role of alexithymia. Child Abuse Negl. 52, 20–28. https://doi.org/10.1016/j.chiabu.2015.12.008.

Brown, T., 2015. Confirmatory Factor Analysis for Applied Research, 2nd ed. Guilford Press, New York. https://doi.org/10.1680/geot.8.B.012.

Burns, A., Leavey, G., O'Sullivan, R., 2022. Associations between parental bonding, social isolation and loneliness: do associations persist in later life and is isolation a mediator between parental bonding and loneliness? BMC. Psychol. 10 (1), 152. https://doi.org/10.1186/s40359-022-00855-z.

Cacioppo, S., Grippo, A.J., London, S., Goossens, L., Cacioppo, J.T., 2015. Loneliness: clinical import and interventions. Perspect. Psychol. Sci. 10 (2), 238–249. https://doi.org/10.1177/1745691615570616.

Campos, R.C., Besser, A., Blatt, S.J., 2010. The mediating role of self-criticism and dependency in the association between perceptions of maternal caring and depressive symptoms. Depress. Anxiety. 27 (12), 1149–1157. https://doi.org/10.1002/da.20763.

Canetti, L., Bachar, E., Galili-Weisstub, E., De-Nour, A.K., Shalev, A.Y., 1997. Parental bonding and mental health in adolescence. Adolesc 32 (126), 381–394.

Capaldo, M., Perrella, R., 2018. Child maltreatment: an attachment theory perspective. Mediterr. J. Clin. Psychol. 6 (1), 1–19. https://doi.org/10.6092/2282-1619/2018.6.1822.

Conti, C., Lanzara, R., Rosa, I., Müller, M.M., Porcelli, P., 2023. Psychological correlates of perceived loneliness in college students before and during the COVID-19 stay-at-home period: a longitudinal study. BMC. Psychol. 11 (1), 60. https://doi.org/10.1186/s40359-023-01099-1.

Cuijpers, P., van Straten, A., Smits, N., Smit, F., 2006. Screening and early psychological intervention for depression in schools: systematic review and meta-analysis. Eur. Child Adolesc. Psychiatry 15 (5), 300–307. https://doi.org/10.1007/s00787-006-0537-4.

Curcio, A.L., Mak, A.S., George, A.M., 2019. Maternal and paternal bonding and self-esteem as predictors of psychological distress among male and female adolescents. J. Psychol. Couns. Sch. 29 (1), 54–68. https://doi.org/10.1017/jgc.2018.14.

Davies, P.T., Cummings, E.M., 2015. Interparental discord, family process, and developmental psychopathology. In: Cicchetti, D., Cohen, D.J. (Eds.), Developmental Psychopathology: Vol 3: Risk, Disorder and Adaptation. Wiley, New York, pp. 86–128.

de Heer, C., Bi, S., Finkenauer, C., Alink, L., Maes, M., 2024. The Association between child maltreatment and loneliness across the lifespan: a systematic review and multilevel meta-analysis. Child Maltreat. 29 (2), 388–404. https://doi.org/10.1177/10775595221103420.

de Man, A.F., Labrèche-Gauthier, L., Leduc, C.P., 1993. Parent-child relationships and suicidal ideation in French-Canadian adolescents. J. Genet. Psychol. 154 (1), 17–23. https://doi.org/10.1080/00221325.1993.9914717.

DiTommaso, E., Spinner, B., 1997. Social and emotional loneliness: a re-examination of Weiss' typology of loneliness. Pers. Individ. Dif. 22 (3), 417–427. https://doi.org/10.1016/S0191-8869(96)00204-8.

Ernst, J.M., Cacioppo, J.T., 1999. Lonely hearts: psychological perspectives on loneliness. Appl. Prev. Psychol. 8 (1), 1–22. https://doi.org/10.1016/S0962-1849(99)80008-0.

Fonagy, P., Luyten, P., Allison, E., Campbell, C., 2019. Mentalizing, epistemic trust and the phenomenology of psychotherapy. Psychopathol 52 (2), 94–103. https://doi.org/10.1159/000501526.

Fonagy, P., Steele, M., Steele, H., Moran, G.S., Higgitt, A.C., 1991. The capacity for understanding mental states: the reflective self in parent and child and its significance for security of attachment. Infant. Ment. Health J. 12 (3), 201–218. https://doi.org/10.1002/1097-0355(199123)12:3<201::AID-IMHJ2280120307>3.0.CO;2-7.

Fossati, A., Borroni, S., Del Corno, F., 2015. Scale di Valutazione Adulti: DSM-5. Raffaello Cortina Editore, Milano.

Fowler, G., Cope, C., Michalski, D., Christidis, P., Lin, L., Conroy, J., 2018. Women outnumber men in psychology graduate programs. Monit. Psychol. 49 (11), 255–278.

Gewirtz-Meydan, A., Lahav, Y., 2020. Sexual functioning among childhood Sexual abuse survivors from an attachment perspective. J. Sex. Med. 17 (7), 1370–1382. https://doi.org/10.1016/j.jsxm.2020.03.014.

Gobin, R.L., Freyd, J.J., 2014. The impact of betrayal trauma on the tendency to trust. Psychol. Trauma 6 (5), 505–511. https://doi.org/10.1037/a0032452.

Goosby, B.J., Bellatorre, A., Walsemann, K.M., Cheadle, J.E., 2013. Adolescent loneliness and health in early adulthood. Sociol. Inq. 83 (4). https://doi.org/10.1111/soin.12018, 10.1111/soin.12018.

Hanlon, P., McCallum, M., Jani, B.D., McQueenie, R., Lee, D., Mair, F.S., 2020. Association between childhood maltreatment and the prevalence and complexity of multimorbidity: a cross-sectional analysis of 157,357 UK Biobank participants. J. Comorb. 10. https://doi.org/10.1177/2235042X10944344, 2235042X10944344.

Hawkley, L.C., Cacioppo, J.T., 2010. Loneliness matters: a theoretical and empirical review of consequences and mechanisms. Ann. Behav. Med. 40 (2), 218–227. https://doi.org/10.1007/s12160-010-9210-8.

Hawkley, L.C., Hughes, M.E., Waite, L.J., Masi, C.M., Thisted, R.A., Cacioppo, J.T., 2008. From social structural factors to perceptions of relationship quality and loneliness: the Chicago health, aging, and social relations study. J. Gerontol. B Psychol. Sci. Soc. Sci. 63 (6), S375–S384. https://doi.org/10.1093/geronb/63.6.s375.

Hayes, A.F., Preacher, K.J., 2014. Statistical mediation analysis with a multicategorical independent variable. Br. J. Math. Stat. Psychol. 67 (3), 451–470. https://doi.org/10.1111/bmsp.12028.

Heim, C.M., Mayberg, H.S., Mletzko, T., Nemeroff, C.B., Pruessner, J.C., 2013. Decreased cortical representation of genital somatosensory field after childhood sexual abuse. Am. J. Psychiatry 170 (6), 616–623. https://doi.org/10.1176/appi.ajp.2013.12070950.

Heinrich, L.M., Gullone, E., 2006. The clinical significance of loneliness: a literature review. Clin. Psychol. Rev. 26 (6), 695–718. https://doi.org/10.1016/j.cpr.2006.04.002.

Hu, L., Bentler, P.M., 1999. Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. Struct. Equ. Model. 6 (1), 1–55. https://doi.org/10.1080/10705519909540118.

Hughes, M.E., Waite, L.J., Hawkley, L.C., Cacioppo, J.T., 2004. A short scale for measuring loneliness in large surveys: results from two population-based studies. Res. Aging 26 (6), 655–672. https://doi.org/10.1177/0164027504268574.

IBM Corp. Released., 2020. IBM SPSS Statistics for Windows, Version 27.0. IBM Corp.

Jackson, T., 2007. Protective self-presentation, sources of socialization, and loneliness among Australian adolescents and young adults. Pers. Individ. Dif. 43 (6), 1552–1562. https://doi.org/10.1016/j.paid.2007.04.012.

Jiang, Z., Xu, H., Wang, S., Gao, X., Li, S., Zhang, S., Tao, F., Wan, Y., 2022. Parent-child relationship quality, childhood maltreatment, and psychological symptoms in Chinese adolescent. J. Interpers. Violence 37 (19–20), NP18130–NP18151. https://doi.org/10.1177/08862605211035869.

Johnson, H.D., LaVoie, J.C., Mahoney, M., 2001. Interparental conflict and family cohesion: predictors of loneliness, social anxiety, and social avoidance in late adolescence. J. Adolesc. Res. 16 (3), 304–318. https://doi.org/10.1177/0743558401163004.

Khalid, A., Qadir, F., Chan, S.W.Y., Schwannauer, M., 2018. Parental bonding and adolescents' depressive and anxious symptoms in Pakistan. J. Affect. Disord. 228, 60–67. https://doi.org/10.1016/j.jad.2017.11.050.

Kline, R.B., 2011. Principles and Practice of Structural Equation Modeling, 3rd ed. Guilford Press, New York.

Kroenke, K., Spitzer, R.L., Williams, J.B., 2001. The PHQ-9: validity of a brief depression severity measure. J. Gen. Intern. Med. 16 (9), 606–613. https://doi.org/10.1046/j.1525-1497.2001.016009606.x.

Kroenke, K., Spitzer, R.L., Williams, J.B., 2002. The PHQ-15: validity of a new measure for evaluating the severity of somatic symptoms. Psychosom. Med. 64 (2), 258–266. https://doi.org/10.1097/00006842-200203000-00008.

Laursen, B., Hartl, A.C., 2013. Understanding loneliness during adolescence: developmental changes that increase the risk of perceived social isolation. J. Adolesc. 36 (6), 1261–1268. https://doi.org/10.1016/j.adolescence.2013.06.003.

Li, E.T., Luyten, P., Midgley, N., 2020. Psychological Mediators of the Association between Childhood Emotional Abuse and Depression: a systematic Review. Front. Psychiatry 11, 559213. https://doi.org/10.3389/fpsyt.2020.559213.

Lin, X., Li, L., Chi, P., Wang, Z., Heath, M.A., Du, H., Fang, X., 2016. Child maltreatment and interpersonal relationship among Chinese children with oppositional defiant disorder. Child Abuse Negl. 51, 192–202. https://doi.org/10.1016/j.chiabu.2015.10.013.

Lowell, A., Renk, K., Adgate, A.H., 2014. The role of attachment in the relationship between child maltreatment and later emotional and behavioral functioning. Child Abuse Negl. 38 (9), 1436–1449. https://doi.org/10.1016/j.chiabu.2014.02.006.

Mann, F., Wang, J., Pearce, E., Ma, R., Schlief, M., Lloyd-Evans, B., Ikhtabi, S., Johnson, S., 2022. Loneliness and the onset of new mental health problems in the general population. Soc. Psychiatry Psychiatr. Epidemiol. 57 (11), 2161–2178. https://doi.org/10.1007/s00127-022-02261-7.

Mazzotti, E., Fassone, G., Picardi, A., Sagoni, E., Ramieri, L., Lega, I., Camaioni, D., Abeni, D., Pasquini, P., 2003. The patient health questionnaire (PHQ) for the screening of psychiatric disorders: a validation study versus the structured clinical interview for DSM-IV axis I (SCID-I). Ital. J. Psychopathol. 9, 235–242. https://doi.org/10.1037/a0023883.

Mehta, D., Kelly, A.B., Laurens, K.R., Haslam, D., Williams, K.E., Walsh, K., Baker, P.R.A., Carter, H.E., Khawaja, N.G., Zelenko, O., Mathews, B., 2023. Child maltreatment and long-term physical and mental health outcomes: an exploration of biopsychosocial determinants and implications for prevention. Child Psychiatry Hum. Dev. 54 (2), 421–435. https://doi.org/10.1007/s10578-021-01258-8.

Mills, R., Scott, J., Alati, R., O'Callaghan, M., Najman, J.M., Strathearn, L., 2013. Child maltreatment and adolescent mental health problems in a large birth cohort. Child Abuse Negl. 37 (5), 292–302. https://doi.org/10.1016/j.chiabu.2012.11.008.

Moraes, C.L., Sampaio, P.F., Reichenheim, M.E., Veiga, G.V.D., 2018. The intertwined effect of lack of emotional warmth and child abuse and neglect on common mental disorders in adolescence. Child Abuse Negl. 83, 74–82. https://doi.org/10.1016/j.chiabu.2018.07.008.

Moretti, M.M., Craig, S.G., 2013. Maternal versus paternal physical and emotional abuse, affect regulation and risk for depression from adolescence to early adulthood. Child Abuse Negl. 37 (1), 4–13. https://doi.org/10.1016/j.chiabu.2012.09.015.

Muthén, L.K., Muthén, B.O., 2012. Mplus User's Guide, 7th ed. Muthén & Muthén, Los Angeles, CA.

Otani, K., Suzuki, A., Matsumoto, Y., Enokido, M., Shirata, T., 2016. Effects of perceived affectionless control parenting on working models of the self and other. Psychiatry Res. 242, 315–318. https://doi.org/10.1016/j.psychres.2016.05.018.

Parker, G., 1979. Parental characteristics in relation to depressive disorders. Br. J. Psychiatry 134, 138–147. https://doi.org/10.1192/bjp.134.2.138.

Parker, G., Tupling, H., Brown, L.B., 1979. A parental bonding instrument. J. Br. Med. Psycho. 52 (1), 1–10. https://doi.org/10.1111/j.2044-8341.1979.tb02487.x.

Peplau, L.A., Perlman, D., 1982. Perspectives on loneliness. In: Peplau, L.A., Perlman, D. (Eds.), Loneliness: A Sourcebook of Current Theory, Research and Therapy. John Wiley & Sons, New York, pp. 1–18.

Pinquart, M., 2017. Associations of parenting dimensions and styles with externalizing problems of children and adolescents: an updated meta-analysis. Dev. Psychol. 53 (5), 873–932. https://doi.org/10.1037/dev0000295.

Qualter, P., Quinton, S.J., Wagner, H., Brown, S., 2009. Loneliness, interpersonal distrust, and alexithymia in university students. J. Appl. Soc. Psychol. 39 (6), 1461–1479. https://doi.org/10.1111/j.1559-1816.2009.00491.x.

Raudino, A., Fergusson, D.M., Horwood, L.J., 2013. The quality of parent/child relationships in adolescence is associated with poor adult psychosocial adjustment. J. Adolesc. 36 (2), 331–340. https://doi.org/10.1016/j.adolescence.2012.12.002.

Reynolds 3rd, C.F., Cuijpers, P., Patel, V., Cohen, A., Dias, A., Chowdhary, N., Okereke, O.I., Dew, M.A., Anderson, S.J., Mazumdar, S., Lotrich, F., Albert, S.M., 2012. Early intervention to reduce the global health and economic burden of major depression in older adults. Annu. Rev. Public Health 33, 123–135. https://doi.org/10.1146/annurev-publhealth-031811-124544.

Rikhye, K., Tyrka, A.R., Kelly, M.M., Gagne Jr, G.G., Mello, A.F., Mello, M.F., Price, L.H., Carpenter, L.L., 2008. Interplay between childhood maltreatment, parental bonding, and gender effects: impact on quality of life. Child Abuse Negl. 32 (1), 19–34. https://doi.org/10.1016/j.chiabu.2007.04.012.

Rubenstein, C., Shaver, P.R., 1982. The experience of loneliness. In: Peplau, L.A., Perlman, D. (Eds.), Loneliness: A Sourcebook of Current Theory, Research, and Therapy. Wiley, New York, pp. 206–223.

Russell, D.W., 1996. UCLA Loneliness Scale (Version 3): reliability, validity, and factor structure. J. Pers. Assess. 66 (1), 20–40. https://doi.org/10.1207/s15327752jpa6601_2.

Sacchi, C., Vieno, A., Simonelli, A., 2018. Italian validation of the childhood trauma questionnaire-short form on a college group. Psychol. Trauma 10 (5), 563–571. https://doi.org/10.1037/tra0000333.

Saffer, B.Y., Glenn, C.R., David Klonsky, E., 2015. Clarifying the relationship of parental bonding to suicide ideation and attempts. Suicide Life Threat. Behav. 45 (4), 518–528. https://doi.org/10.1111/sltb.12146.

Satorra, A., Bentler, P.M., 2001. A scaled difference chi-square test statistic for moment structure analysis. Psychometrika 66 (4), 507–514. https://doi.org/10.1007/BF02296192.

Savikko, N., Routasalo, P., Tilvis, R.S., Strandberg, T.E., Pitkälä, K.H., 2005. Predictors and subjective causes of loneliness in an aged population. Arch. Gerontol. Geriatr. 41 (3), 223–233. https://doi.org/10.1016/j.archger.2005.03.002.

Schaan, V.K., Schulz, A., Schächinger, H., Vögele, C., 2019. Parental divorce is associated with an increased risk to develop mental disorders in women. J. Affect. Disord. 257, 91–99. https://doi.org/10.1016/j.jad.2019.06.071.

Scharf, M., Wiseman, H., Farah, F., 2011. Parent-adolescent relationships and social adjustment: the case of a collectivistic culture. Int. J. Psychol. 46 (3), 177–190. https://doi.org/10.1080/00207594.2010.528424.

Scinto, A., Marinangeli, M.G., Kalyvoka, A., Daneluzzo, E., Rossi, A., 1999. Utilizzazione della versione italiana del Parental Bonding Instrument (PBI) in un campione clinico ed in un campione di studenti: uno studio di analisi fattoriale esplorativa e confermatoria [the use of the Italian version of the Parental Bonding Instrument (PBI) in a clinical sample and in a student group: an exploratory and confirmatory factor analysis study. Epidemiol. Psichiatr. Soc. 8 (4), 276–283. https://doi.org/10.1017/s1121189x00008198.

Shadrina, M., Bondarenko, E.A., Slominsky, P.A., 2018. Genetics factors in major depression disease. Front. Psychiatry 9, 334. https://doi.org/10.3389/fpsyt.2018.00334.

Shevlin, M., McElroy, E., Murphy, J., 2015. Loneliness mediates the relationship between childhood trauma and adult psychopathology: evidence from the adult psychiatric morbidity survey. Soc. Psychiatry Psychiatr. Epidemiol. 50 (4), 591–601. https://doi.org/10.1007/s00127-014-0951-8.

Spitzer, R.L., Kroenke, K., Williams, J.B., Löwe, B., 2006. A brief measure for assessing generalized anxiety disorder: the GAD-7. Arch. Intern. Med. 166 (10), 1092–1097. https://doi.org/10.1001/archinte.166.10.1092.

Sriskandarajah, V., Neuner, F., Catani, C., 2015. Parental care protects traumatized Sri Lankan children from internalizing behavior problems. BMC. Psychiatry 15, 203. https://doi.org/10.1186/s12888-015-0583-x.

Tugnoli, S., Casetta, I., Caracciolo, S., Salviato, J., 2022. Parental bonding, depression, and suicidal ideation in medical students. Front. Psychol. 13, 877306. https://doi.org/10.3389/fpsyg.2022.877306.

Walters, G.D., 2019. Why are mediation effects so small? Int. J. Soc. Res. Methodol. 22 (2), 219–232. https://doi.org/10.1080/13645579.2018.1517232.

Wiseman, H., Mayseless, O., Sharabany, R., 2006. Why are they lonely? Perceived quality of early relationships with parents, attachment, personality predispositions and loneliness in first-year university students. Pers. Individ. Dif. 40 (2), 237–248. https://doi.org/10.1016/j.paid.2005.05.015.

Wols, A., Scholte, R.H., Qualter, P., 2015. Prospective associations between loneliness and emotional intelligence. J. Adolesc. 39, 40–48. https://doi.org/10.1016/j.adolescence.2014.12.007.

World Health Organization, 2023. WHO Launches Commission to Foster Social Connection. https://www.who.int/news/item/15-11-2023-who-launches-commission-to-foster-social-connection.

World Medical Association, 2013. World Medical Association Declaration of Helsinki: ethical principles for medical research involving human subjects. JAMa 310 (20), 2191–2194. https://doi.org/10.1001/jama.2013.281053.

Wright, M.O., Crawford, E., Del Castillo, D., 2009. Childhood emotional maltreatment and later psychological distress among college students: the mediating role of maladaptive schemas. Child Abuse Negl. 33 (1), 59–68. https://doi.org/10.1016/j.chiabu.2008.12.007.

Wu, Q., Cao, H., Lin, X., Zhou, N., Chi, P., 2022. Child maltreatment and subjective well-being in Chinese emerging adults: a process model involving self-esteem and self-compassion. J. Interpers. Violence 37 (15–16), NP13685–NP13706. https://doi.org/10.1177/0886260521993924.

Xiao, Z., Murat Baldwin, M., Wong, S.C., Obsuth, I., Meinck, F., Murray, A.L., 2023. The impact of childhood psychological maltreatment on mental health outcomes in adulthood: a systematic review and meta-analysis. Trauma Violence Abuse 24 (5), 3049–3064. https://doi.org/10.1177/15248380221122816.

Yang, A., Wang, D., Li, T., Teng, F., Ren, Z., 2008. The impact of adult attachment and parental rearing on subjective wellbeing in Chinese late adolescents. Soc. Behav. Pers. 36 (10), 1365–1378. https://doi.org/10.2224/sbp.2008.36.10.1365.

Zhong, X., Ming, Q., Dong, D., Sun, X., Cheng, C., Xiong, G., Li, C., Zhang, X., Yao, S., 2020. Childhood maltreatment experience influences neural response to psychosocial stress in adults: an fMRI study. Front. Psychol. 10, 2961. https://doi.org/10.3389/fpsyg.2019.02961.