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Childhood Sexual Abuse and Posttraumatic Stress Disorder Symptoms: Examining the Role of Avoidant Attachment

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Abstract

The current study investigated whether there is a relationship between childhood sexual abuse (CSA) and posttraumatic stress disorder (PTSD) symptoms and whether avoidant attachment plays a moderating role in this relationship. These insights may contribute to a more refined understanding of why some CSA victims experience more severe PTSD symptoms than others. Female first-year students (N = 237) with an average age of 20 years (SD = 2.93) completed the *Childhood Trauma Questionnaire – Short Form* (CTQ-SF), *PTSD Checklist for DSM-5* (PCL-5), and *Experiences in Close Relationships Scale – Revised* (ECR-R). The results showed a weak but significant positive relationship between CSA and PTSD symptoms, but no significant moderating effect of avoidant attachment on this relationship. These findings add to the existing evidence supporting CSA as a predictor of PTSD, but also underscore the multifaceted nature of PTSD, shaped by a wide range of factors occurring before, during, and after trauma. Further research is needed to examine the role of avoidant attachment and other potential moderators within other samples, to gain a more refined understanding of which risk factors are involved in the relationship between CSA and PTSD symptoms. Considering the negative impact of PTSD on both individual and societal level, such insights could be valuable for more accurate diagnostic assessments and the development of potential preventive strategies for PTSD.

Keywords: posttraumatic stress disorder (PTSD) symptoms, childhood sexual abuse (CSA), avoidant attachment

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Posttraumatic Stress Disorder

Around 70% of people worldwide will experience a traumatic event at some stage in their life (World Health Organization: WHO, 2024). After such an experience, some individuals experience severe distress and others may even develop posttraumatic stress disorder (PTSD; Kessler et al., 2017; WHO, 2024). PTSD is a serious psychiatric disorder that is defined in the DSM-5-TR based on four symptom clusters: intrusions, avoidance, negative alterations in cognition and mood, and marked alterations in arousal and reactivity (American Psychiatric Association: APA, 2022). Examples of symptoms include distressing dreams, feelings of dissociation, hyperarousal, and exaggerated negative beliefs and emotional state. These symptoms can interfere with one's everyday life and exert a negative influence on areas such as interpersonal relationships and self-care, according to a meta-analysis by Jellestad et al. (2021; $k = 34$, $N = 14{,}206$; interpersonal interactions and relationships: $d = 1.88$, 95% CI 1.47-2.23; self-care: $d = 1.01$, 95% CI 0.38-1.64). Besides the negative impact on individuals themselves, PTSD can have adverse consequences for health systems and societies as well. PTSD is associated with significant costs related to healthcare, medication, unemployment, and productivity loss, posing an immense economic burden for society (Davis et al., 2022). Each year, the overall cost for the United States is estimated at around $200 billion, which equates to approximately $20,000 per individual with PTSD (Davis et al., 2022). Furthermore, health care costs in Germany are more than three times higher for individuals with PTSD compared to individuals without PTSD (Bothe et al., 2020). Given the immense impact of PTSD on both individual and societal level, further examination of this disorder is needed. By delving deeper into the factors that may be related to this disorder, diagnostic procedures can

be enhanced and preventive strategies accurately tailored, thereby potentially improving the productivity and overall health outcomes among victims of trauma.

Childhood Sexual Abuse and PTSD Symptoms

An example of a traumatic experience that can cause the development of PTSD is sexual abuse, which refers to any situation in which an individual is coerced to engage in sexual activity without providing free and informed consent (Bruno et al., 2018). Specifically childhood sexual abuse (CSA) is regarded as one of the most severe forms of trauma, which can be described as the involvement of a child in sexual activity that they cannot comprehend mentally, and to which they cannot give informed consent (Cea et al., 2025). According to a meta-analysis by Boumpa et al. (2022), there is a strong association between CSA and the development of PTSD in children and adolescents up to 21 years of age ($k = 28$, $N = 28{,}693$, $OR_{\text{pooled}} = 3.60$, 95% CI 2.09-3.91). Another meta-analysis, by Cea et al. (2025), showed that CSA victims, who experienced sexual abuse before the age of 18, reported significantly higher PTSD severity, compared to individuals without a history of CSA ($k = 126$, $N = 29{,}517$, $r = .422$, $\delta = 0.93$, 80% CI 0.19-1.68). Given the strong association between CSA and the development and severity of PTSD symptoms, this study aims to replicate and further investigate this relationship.

Avoidant Attachment as a Moderator

Not every CSA victim develops PTSD or experiences the same level of trauma-related symptoms (Hébert et al., 2024; Jardin et al., 2017). Hébert et al. (2024) studied PTSD symptoms in sexually abused children and found that most children experienced moderate PTSD symptoms, while others had complex, elevated symptoms, or were resilient and experienced relatively few symptoms. This raises the question of what factors could explain this variation. One such factor is attachment, which describes the extent to which individuals feel inclined to form strong and affective relationships with preferred others, such as primary

caregivers (Bowlby, 1977). Attachment behavior manifests in early childhood but continues to exert an influence throughout the whole lifespan. Within the concept of attachment, four different styles can be distinguished: secure, avoidant, anxious, and disorganized attachment (Bartholomew & Horowitz, 1991). These attachment styles can influence how individuals cope with important life events, including trauma (Bruno et al., 2018; Ensink et al., 2021). While secure attachment is often considered a protective factor against PTSD symptoms in victims of CSA, other attachment styles have been linked to poorer outcomes (Ensink et al., 2021). According to previous studies, especially avoidant attachment is associated with greater PTSD symptoms in adolescent and adult victims of CSA (Bruno et al., 2018; Elklit, 2015; Zvi & Rachimi, 2024). Individuals with an avoidant attachment style often experience discomfort with closeness, intimacy, and depending on others (Bruno et al., 2018; Domic-Siede et al., 2024; Murphy et al., 2016). They are reluctant to seek social support and tend to cope with situations on their own (Zvi & Rachimi, 2024). This lack of social support could be an underlying mechanism through which avoidant attachment moderates the relationship between CSA and PTSD symptoms. Research shows that perceived social support mediates the relationship between avoidant attachment and PTSD symptoms in young adult women who have experienced sexual abuse around the age of 20, suggesting that social support may serve as a linking mechanism (Zvi & Rachimi, 2024). CSA victims with an avoidant attachment style generally tend to withdraw from their close relationships during difficult times, which may negatively impact their resilience and, consequently, their PTSD symptoms (Zvi & Rachimi, 2024). Furthermore, as they tend to deal with situations on their own, avoidantly attached individuals may take longer to disclose sexual abuse, which has been shown to predict PTSD symptoms in child and adolescent victims of CSA (Lam, 2015; Ullman, 2007). Research has shown that negative feelings about disclosure, rather than the severity of the actual experience, were the strongest predictors of PTSD in adolescent victims

of CSA (Lam, 2015). Another factor that may help explain the role of avoidant attachment is emotion dysregulation (Jin et al., 2025; Leonard, 2024). Individuals with an avoidant attachment style often suppress unwanted thoughts in order to avoid painful trauma-reminders (Jin et al., 2025). Although this coping style may provide short term relief, it hinders emotional processing and maintains PTSD symptoms in the long term (Jin et al., 2025). According to research in adult first responders, emotion dysregulation served as a mediator in the associations between avoidant attachment and all four PTSD symptom clusters (Jin et al., 2025). Given these findings, it is plausible that avoidant attachment plays a moderating role in the relationship between CSA and PTSD symptoms, partly through reduced social support, negative attitudes toward disclosure, and emotion dysregulation.

In line with this view, research has shown that the interaction between CSA and attachment contributes significantly to the prediction of PTSD symptoms among children with a history of CSA ($n = 43$, $\Delta R^2 = .05$, $p = .02$), revealing that victims with an insecure attachment style reported significantly higher PTSD symptoms ($b = 8.23$, $p = .01$; Ensink et al., 2021). Here, insecure attachment refers to all attachment styles except secure, that is, avoidant, anxious, and disorganized attachment. Another study found that attachment avoidance is associated with greater PTSD symptom severity in adult women who have experienced sexual violence at some point in their lives ($N = 189$, $\beta = .28$, $p < .001$; Bruno et al., 2018). Additionally, insecure attachment to both parents was shown to have a moderating effect on the relationship between a history of sexual trauma (HST) and PTSD-related symptoms among adolescent inpatients at a psychiatric center ($N = 229$; mother: $d = .421$, $p = .001$; father: $d = .272$, $p = .048$; Jardin et al., 2017). Building on these findings, avoidant attachment is expected to strengthen the relationship between CSA and PTSD symptoms. By examining avoidant attachment as a potential moderator, we can gain more insight into factors that may contribute to PTSD symptom severity in CSA victims. Such insights could help

refine existing risk assessment methods by taking attachment styles into account, ultimately contributing to a more comprehensive understanding of PTSD.

Operationalizations of CSA, PTSD, and Attachment

In order to examine CSA, PTSD symptoms, and avoidant attachment, empirically validated operationalizations of these variables are needed. Accordingly, CSA was measured using the *Childhood Trauma Questionnaire – Short Form* (CTQ-SF), a retrospective self-report instrument that assesses various forms of childhood maltreatment (CM; Bernstein et al., 2003). Although the CTQ-SF relies on victim recollections of past experiences, it is a well-validated and widely used measure (Hoeboer et al., 2026). PTSD symptoms were assessed using the *PTSD Checklist for DSM-5* (PCL-5), which measures current symptom severity in line with DSM-5 criteria, yet does not constitute a clinical diagnosis (Weathers et al., 2013). Finally, avoidant attachment was assessed using the *Experiences in Close Relationships Scale – Revised* (ECR-R), a validated self-report measure of attachment (Fraley et al., 2000). However, the ECR-R does not fully capture attachment as originally conceptualized by Bowlby (1977). Whereas Bowlby's (1977) theory emphasized attachment to primary caregivers, the ECR-R focuses mainly on attachment to romantic partners. Accordingly, the findings of the present study should be interpreted with caution and understood specifically within the framework of these self-report operationalizations.

Study Objectives and Hypotheses

The current study aims to explore two questions. First, whether there is a relationship between CSA and PTSD symptoms. Secondly, whether avoidant attachment moderates this potential relationship. Regarding the first question, it is hypothesized that there is a positive relationship between CSA and PTSD symptoms. Concerning the second question, it is hypothesized that avoidant attachment strengthens the relationship between CSA and PTSD symptoms. That is, CSA victims with high levels of avoidant attachment will experience

greater PTSD symptoms, compared to CSA victims with lowers levels of avoidant attachment.

Method

Study Design and Procedure

The current study used a pooled dataset from a larger study by Fereidooni et al. (2023). The participants were female first-year Psychology students from the Universities of Groningen, Amsterdam, Utrecht, Leiden, and Maastricht in the Netherlands, as well as Canterbury in New Zealand. After providing informed consent, they completed various questionnaires, either online, in a laboratory or hybrid. The participants were compensated for their participation with either course credits or monetary payment. The study was approved by the ethics committees of all participating universities.

Participants

The initial pooled dataset consisted of 573 participants. Participants who were not presented with the CTQ-SF, PCL-5, or ECR-R were excluded (n = 336). For the remaining cases, participants were retained only if they completed at least 80% of the items on each questionnaire. This cutoff was chosen in order to retain participants who completed the majority of the items, while minimizing excessive data loss. This resulted in a final sample size of N = 237. Within this sample, eight participants were missing one CTQ-SF item (3.4%), and two participants were missing two CTQ-SF items (0.8%), totaling 4.2% of the final sample. Given the limited amount of item-level missing data, series mean imputation was used to retain the single missing cases. Within the final sample (N = 237), ages ranged from 17 to 53 (M = 20.05, SD = 2.93). Furthermore, 85 participants were Dutch (35.9%), 82 were German (34.6%), and 70 reported a different nationality (29.5%). Within the excluded group (n = 336), aged ranged from 17 to 33 (M = 19.79, SD = 2.06). No significant age difference was found between the included and excluded group (t(599) = -1.25, p = .211).

However, as for nationality, a significant difference between the included and excluded group was found ($\chi^2(3) = 18.37$, $p < .001$). The included sample contained relatively more Dutch participants, while the excluded sample contained more German participants and also a small group from New Zealand. These differences indicate possible self-selection bias, so the findings of the current study should be interpreted with caution outside of the nationalities that are mainly represented in the final sample.

Materials

Childhood Trauma Questionnaire – Short Form

CSA was measured using the sexual abuse (SA) subscale of the CTQ-SF (Bernstein et al., 2003). The CTQ-SF also measures emotional abuse (EA), physical abuse (PA), emotional neglect (EN), and physical neglect (PN). It consists of 28 items: five items per scale plus three validity items. Each item was answered on a Likert scale ranging from 1 (*never true*) to 5 (*very often true*). Total scores were calculated by taking the sum of the corresponding five items, resulting in a score between 5 and 25. The total SA score reflects the extent to which people believe they have been sexually abused as a minor by an older person (Bernstein et al., 2003). According to Bernstein et al. (1997), a cutoff score of 9 on the SA subscale is recommended to identify sexually abused participants, so this value was used to distinguish participants with probable CSA experiences. Furthermore, to identify probable cases of EA, PA, EN, and PN, the following cutoff scores were used: 13, 10, 15, and 10, respectively (Bernstein & Fink, 1998). These cutoffs were used to examine whether participants with probable CSA experiences also report other forms of CM. The SA subscale exhibited strong internal consistency in the current sample (Cronbach's $\alpha = .90$). This is comparable to other studies, showing internal consistencies between Cronbach's $\alpha = .91$-$.92$ (Bernstein et al., 1997, Fereidooni et al., 2023). The internal consistencies for the other subscales EA, PA, EN, PN, and the entire CTQ-SF were Cronbach's $\alpha = .83$, $\alpha = .71$, $\alpha = .90$, $\alpha = .58$, and $\alpha = .89$,

respectively. Thus, only the PN subscale appeared to have poor internal consistency, but other studies also show internal consistencies for PN between Cronbach's α = .49-.61 (Fereidooni et al., 2023; Peng et al., 2023). This could be due to the diversity of the PN items, some of which are mainly about negligence and others more about poverty (Peng et al., 2023). Examples of items include: "*My parents were too drunk or high to take care of the family*" and "*I had to wear dirty clothes*." (Bernstein et al., 2003).

PTSD Checklist for DSM-5

PTSD symptoms were examined using the PCL-5 (Weathers et al., 2013). This checklist, consisting of 20 items, measures one's PTSD symptoms in the past month according to the DSM-5 criteria. Each item was answered on a Likert scale ranging from 0 (*not at all*) to 4 (*extremely*). Total scores were calculated by adding up the twenty items, resulting in a score between 0 and 80. This score reflects the degree of self-reported PTSD symptoms based on DSM-5 criteria. According to a systematic review by Forkus et al. (2023), cutoff scores between 31-33 are recommended to identify participants with probable PTSD. Given our non-clinical sample of first-year students, a cutoff score of 31 was chosen to allow for broad screening for PTSD. The PCL-5 showed strong internal consistency in the current sample (Cronbach's α = .92). This is comparable to a study by Blevins et al. (2015), who found internal consistencies between Cronbach's α = .94-.95.

Experiences in Close Relationships Scale – Revised

Avoidant attachment was measured using the Avoidance subscale of the ECR-R (Fraley et al., 2000). The ECR-R consists of 36 items and measures attachment Anxiety and Avoidance, using 18 items for each. Items were answered on a Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). The scores of items 9, 11, 20, 22, 26-31 and 33-36 were reverse coded, as these were worded in the opposite direction compared to the other items. Mean total scores were calculated for both Avoidance and Anxiety by averaging the

corresponding 18 items. The mean total Avoidance score shows the extent to which an individual exhibits attachment avoidance in emotionally intimate relationships. The Avoidance subscale showed good internal consistency in the current sample (Cronbach's α = .85), which is slightly lower than another study that found internal consistencies between Cronbach's α = .88-.94 (Conradi et al., 2006). The Anxiety subscale and entire ECR-R also showed good internal consistencies, Cronbach's α = .86 and α = .89, respectively.

Statistical Analysis

IBM SPSS Statistics (Version 28) was used to perform the statistical analyses. Before testing the hypotheses, four assumptions were checked using the recommendations of Ernst and Alberts (2017). Corresponding figures and tables were noted in Appendix B. The assumptions include normality of residuals, linearity (and the absence of multicollinearity), homoscedasticity, and independence. Regarding the first assumption, the histogram and normal P-P plot indicated no severe deviations from normality of residuals, so this assumption was considered met. As for linearity and homoscedasticity, visual inspection of standardized residuals plotted against standardized predicted PCL-5 values indicated no clear deviations from linearity and no evidence for heteroscedasticity, so these assumptions were also considered met. The absence of multicollinearity between the predictors was checked by calculating *Variance Inflation Factor* (VIF) values for each variable. All VIF values were approximately 1, indicating no multicollinearity. Finally, the assumption of independence was checked by examining the autocorrelation of residuals using the Durbin Watson test. A value of 1.81 was found, so this assumption was considered sufficiently met as well. With the four assumptions satisfied, the statistical analyses were conducted.

First, descriptive statistics were calculated to gain a general overview of the data. This was done for the entire sample, as well as separately for participants scoring above and below the cutoff values for SA and PCL-5. Next, bivariate correlations were calculated between the

CTQ-SF (including all subscales), the PCL-5, and Avoidance. Then, to answer hypothesis 1, a linear regression analysis was performed. This tested whether a main effect existed between SA (predictor) and PCL-5 (dependent variable). Before testing the second hypothesis, SA and Avoidance scores were centered to prevent multicollinearity and allow for a correct interpretation of the moderation. Hypothesis 2, regarding the moderation effect, was then tested with a hierarchical regression analysis. Avoidance was added in step 1, SA in step 2, and the interaction term in step 3, so that all their effect sizes could be compared. For all statistical analyses, a threshold of $p = .05$ (two-sided) was used to indicate statistical significance.

Results

Descriptive Statistics

Total Sample

Descriptive statistics for the key study variables, including age, CTQ-SF, PCL-5, ECR-R, and the corresponding subscales, were presented in Table 1. The average age in the current sample was slightly lower than the average age in similar research on CTQ-SF, PCL-5, and attachment avoidance within female students ($M = 23.09$; Simonelli & Sacchi, 2016). The mean scores on SA, EA, PA, EN, and PN in the current sample were comparable to, though somewhat higher than, the mean scores in that same study ($M = 5.29$, 6.62, 5.42, 8.92, and 5.67, respectively; Simonelli & Sacchi, 2016). The mean PCL-5 score was also similar to, but slightly higher than, the mean score reported in the same study ($M = 18.21$; Simonelli & Sacchi, 2016). Finally, as for Avoidance and Anxiety, the mean scores for Avoidance in the current sample were similar to those of female adult victims of sexual abuse, whereas the means scores for Anxiety in the current sample were relatively lower ($M = 3.62$ and 4.38, respectively; Bruno et al., 2018).

When inspecting the distributions of SA and PCL-5 scores in the current sample, both showed a positively skew. However, the skew was particularly pronounced for SA, with the vast majority of participants (84%) scoring the lowest possible value on this subscale, thereby indicating zero inflation. These skewed distributions should be carefully considered when interpreting the results of the subsequent analyses. Corresponding graphs were included in Appendix B.

Table 1

Descriptive Statistics for Total Sample

	M	*SD*	Min	Max
Age	20.05	2.93	17.00	53.00
SA (CTQ-SF)	5.83	2.72	5.00	23.00
EA (CTQ-SF)	8.96	4.16	5.00	22.00
PA (CTQ-SF)	5.74	1.76	5.00	17.00
EN (CTQ-SF)	9.32	4.31	5.00	23.00
PN (CTQ-SF)	6.11	2.01	5.00	16.00
CTQ-SF Total	35.96	10.69	25.00	81.00
PCL-5 Total	20.46	15.06	0.00	70.00
Avoidance (ECR-R)	3.65	0.95	1.00	5.56
Anxiety (ECR-R)	3.70	1.01	1.17	5.94

Note. $N = 237$. *M* = mean; *SD* = standard deviation; Min = minimum; Max = maximum; SA = Sexual Abuse; EA = Emotional Abuse; PA = Physical Abuse; EN = Emotional Neglect; PN = Physical Neglect; CTQ-SF = Childhood Trauma Questionnaire – Short Form; PCL-5 = PTSD Checklist for DSM-5; ECR-R = Experiences in Close Relationships Scale – Revised.

Participants With Probable SA Experiences

Within the final sample, 17 participants scored above the specified cutoff value of 9 on the SA subscale of the CTQ-SF, representing 7.2% of the entire sample. Within this group, 9 participants (52.9%) also scored above the cutoff value for at least one other form of CM. Compared to the participants who did not score above the cutoff value (n = 220), participants with probable SA experiences (n = 17) showed higher mean scores on SA, the entire CTQ-SF, and the PCL-5, whereas mean scores on Avoidance were similar (Table 2).

Table 2

Descriptive Statistics for Participants With and Without Probable SA Experiences

		N	*M*	*SD*	Min	Max
Age	SA+	17	19.82	1.88	18.00	26.00
	SA–	220	20.07	3.00	17.00	53.00
SA (CTQ-SF)	SA+	17	14.37	4.63	9.00	23.00
	SA–	220	5.17	0.58	5.00	8.00
CTQ-SF Total	SA+	17	50.80	14.45	30.00	81.00
	SA–	220	34.82	9.46	25.00	68.67
PCL-5 Total	SA+	17	28.12	11.60	8.00	47.00
	SA–	220	19.87	15.16	0.00	70.00
Avoidance (ECR-R)	SA+	17	3.61	1.08	1.50	5.17
	SA–	220	3.65	0.95	1.00	5.56

Note. SA+ = participants scoring above the SA cutoff; SA– = participants scoring below the SA cutoff; *M* = mean; *SD* = standard deviation; Min = minimum; Max = maximum; SA = Sexual Abuse; CTQ-SF = Childhood Trauma Questionnaire – Short Form; PCL-5 = PTSD Checklist for DSM-5; ECR-R = Experiences in Close Relationships Scale – Revised.

Participants With Probable PTSD

Regarding PTSD, a total of 61 participants scored above the specified score of 31 on the PCL-5, representing 25.7% of the final sample. Compared to the participants who did not score above the cutoff value (n = 176), the participants with probable PTSD (n = 61) showed higher mean scores across all main measures, including SA, the entire CTQ-SF, the PCL-5 and Avoidance (Table 3).

Table 3

Descriptive Statistics for Participants With and Without Probable PTSD

		N	*M*	*SD*	Min	Max
Age	PTSD+	61	19.80	1.89	17.00	26.00
	PTSD–	176	20.14	3.21	17.00	53.00
SA (CTQ-SF)	PTSD+	61	6.59	3.87	5.00	23.00
	PTSD–	176	5.56	2.15	5.00	21.00
CTQ-SF Total	PTSD+	61	42.15	11.94	25.00	81.00
	PTSD–	176	33.82	9.34	25.00	70.00
PCL-5 Total	PTSD+	61	41.74	8.60	31.00	70.00
	PTSD–	176	13.09	8.26	0.00	30.00
Avoidance (ECR-R)	PTSD+	61	3.81	1.01	1.00	5.56
	PTSD–	176	3.59	0.93	1.06	5.28

Note. PTSD+ = participants scoring above the PCL-5 cutoff; PTSD– = participants scoring below the PCL-5 cutoff; *M* = mean; *SD* = standard deviation; Min = minimum; Max = maximum; SA = Sexual Abuse; CTQ-SF = Childhood Trauma Questionnaire – Short Form; PCL-5 = PTSD Checklist for DSM-5; ECR-R = Experiences in Close Relationships Scale – Revised.

Correlation Analysis

Bivariate correlations were reported in Table 4. SA showed weak but significant positive correlations with all other CTQ-SF subscales, except EN, which supports the idea that SA experiences can coexist with other forms of CM in the current sample. Furthermore, SA was weakly but significantly associated with PCL-5 scores, meaning that higher scores on the SA subscale of the CTQ-SF were associated with higher PCL-5 scores. Also, PCL-5 was weakly but significantly correlated to Avoidance, meaning that higher PCL-5 scores were related to higher scores on the Avoidance subscale of the ECR-R. Finally, no significant correlation was found between SA and Avoidance.

Table 4

Bivariate Correlations

	1.	2.	3.	4.	5.	6.	7.	8.
1. SA (CTQ-SF)	-							
2. EA (CTQ-SF)	.206**	-						
3. PA (CTQ-SF)	.215**	.422**	-					
4. EN (CTQ-SF)	.047	.666**	.272**	-				
5. PN (CTQ-SF)	.166*	.419**	.341**	.610**	-			
6. CTQ-SF Total	.421**	.858**	.557**	.834**	.695**	-		
7. PCL-5 Total	.181**	.406**	.187**	.389**	.367**	.461**	-	
8. Avoidance (ECR-R)	-.002	.158*	.111	.184**	.230**	.196**	.134*	-

Note. $N = 237$. *$p < .05$. **$p < .01$. SA = Sexual Abuse; EA = Emotional Abuse; PA = Physical Abuse; EN = Emotional Neglect; PN = Physical Neglect; CTQ-SF = Childhood Trauma Questionnaire – Short Form; PCL-5 = PTSD Checklist for DSM-5; ECR-R = Experiences in Close Relationships Scale – Revised.

Regression Analysis

The linear regression analysis showed a significant positive relationship between SA and PCL-5 (Table 5), indicating that higher scores on SA were associated with higher scores on the PCL-5. The explained variance (R^2 = .033, F(1, 235) = 8.005, p = .005) showed that SA explained approximately 3.3% of the total variance in PCL-5 scores. This indicates a small but significant effect, using Cohen's (1988) rules of thumb.

Table 5

Linear Regression Analysis

Model	*B*	*SE*	*t*	*p*	95% CI
SA (CTQ-SF)	1.00	.36	2.83	.005	[0.31; 1.70]

Note. N = 237. Dependent variable = PTSD Checklist for DSM-5 (PCL-5); SA = Sexual Abuse; CTQ-SF = Childhood Trauma Questionnaire – Short Form; SE = standard error; CI = confidence interval.

Moderation Analysis

The results of the hierarchical regression analysis were reported in Table 6 and standardized regression coefficients were shown in Figure 1. Adding Avoidance in step 1 had a significant positive effect on PCL-5, but this model only explained a small portion of the variance (R^2 = .018, F_{change}(1, 235) = 4.31, p = .039). After adding SA in step 2, the explained variance increased significantly (R^2_{change} = .033, R^2 = .051, F_{change}(1, 234) = 8.15, p = .005), indicating that SA uniquely contributed to PCL-5 beyond Avoidance. However, adding the interaction term between Avoidance and SA in step 3 did not significantly improve the model (R^2_{change} = .002, R^2 = .053, F_{change}(1, 233) = 0.41, p = .520), which indicated that Avoidance did not moderate the relationship between SA and PCL-5 in the current sample.

Table 6

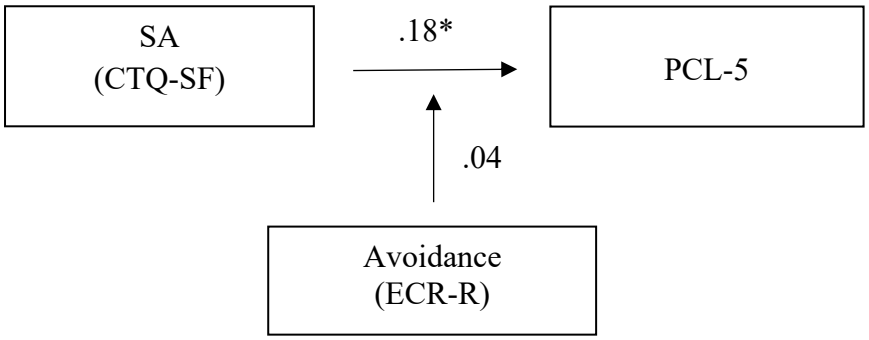
Hierarchical Regression Analysis

Step		*B*	*SE*	*t*	*p*	95% CI
1	Avoidance (ECR-R)	2.12	1.02	2.08	.039	[0.11; 4.13]
2	Avoidance (ECR-R)	2.12	1.01	2.11	.036	[0.14; 4.11]
	SA (CTQ-SF)	1.01	.35	2.85	.005	[0.31; 1.70]
3	Avoidance (ECR-R)	2.08	1.01	2.06	.041	[0.09; 4.07]
	SA (CTQ-SF)	1.00	.35	2.83	.005	[0.30; 1.69]
	Avoidance * SA	.22	.34	.64	.520	[-0.45; 0.88]

Note. $N = 237$. Dependent variable = PTSD Checklist for DSM-5 (PCL-5); SA = Sexual Abuse; CTQ-SF = Childhood Trauma Questionnaire – Short Form; ECR-R = Experiences in Close Relationships Scale – Revised; SE = standard error; CI = confidence interval.

Figure 1

Standardized Regression Coefficients for Moderation Model



Note. *$p < .05$. SA = Sexual Abuse; CTQ-SF = Childhood Trauma Questionnaire – Short Form; ECR-R = Experiences in Close Relationships Scale – Revised.

Discussion

The current study examined whether a relationship exists between CSA and PTSD symptoms and whether this relationship is moderated by avoidant attachment. It was

hypothesized that CSA is positively associated with PTSD symptoms, such that greater exposure to CSA is related to more severe PTSD symptoms. Furthermore, it was hypothesized that avoidant attachment moderates this relationship, such that the association between CSA and PTSD symptoms is stronger for individuals with higher levels of avoidant attachment than for those with lower levels. The main findings can be summarized as follows: (1) CSA was significantly positively associated with PTSD symptoms (R^2 = .033, $F(1, 235) = 8.005$, p = .005), and (2) avoidant attachment did not significantly moderate this relationship (R^2_{change} = .002, $F_{change}(1, 233) = 0.41$, p = .520).

Descriptive Statistics

The final sample of the current study consisted of 237 participants with an average age of 20 years (SD = 2.93), which suggests that the findings of the current study are particularly relevant young adults, especially those attending university, and less so to children and adults. The majority of participants were Dutch or German, whereas previous studies on CSA and PTSD-related symptoms primarily involved American and Canadian participants (Boumpa et al., 2022; Ensink et al., 2021; Jardin et al., 2017). In their meta-analysis on CSA and PTSD, Boumpa et al. (2022) explicitly call for more European research to increase global generalizability. So, the current sample contributes to filling this gap.

Compared to a similar study among female students using the CTQ-SF, PCL-5, and ECR-R, the mean scores on all CTQ-SF subscales in the current sample were comparable, although somewhat higher (Simonelli & Sacchi, 2016). However, only 7.2% of the participants scored above the CSA cutoff value in the current study, while a global analysis from 1990 to 2023 showed that the prevalence of sexual violence against children (SVC) within young adult women from the Netherlands and Germany was estimated at 25.7% and 17.9%, respectively (Cagney et al., 2025). As for PTSD symptoms, mean PCL-5 scores were similar to, but slightly higher than, the mean scores reported in the study on female students

(Simonelli & Sacchi, 2016). However, the current sample contained 25.7% of participants who scored above the cutoff value, but were not officially diagnosed with PTSD, whereas the prevalence of actual PTSD was estimated at around 34% in the meta-analysis of Cea et al. (2025). Thus, the prevalence of CSA and PTSD in the current study seems relatively low. As for Avoidance and Anxiety, mean Avoidance scores in the current sample were comparable to those observed in adult women who experienced sexual abuse at some point in their lives, whereas mean Anxiety scores in the current sample were relatively lower (Bruno et al., 2018).

Main Effect CSA and PTSD Symptoms

In line with the first hypothesis, a significant positive relationship was found between CSA and PTSD symptoms. This suggests that greater exposure to CSA is related to higher levels of PTSD symptoms among individuals, which is consistent with previous findings on the topic. The meta-analysis by Boumpa et al. (2022) showed a strong relationship between CSA and the development of PTSD later in life, within samples of sexually abused children, adolescents, and young adults. Additionally, the meta-analysis by Cea et al. (2025) showed higher PTSD scores among victims of CSA, compared to controls without a history of CSA, revealing a large effect size. It should be noted that, while the present study focused on CSA, other forms of CM may have also contributed to the relationship with PTSD symptoms. Notably, 52.9% of participants who scored above the SA threshold, also exceeded the cutoff for at least one other form of abuse or neglect, highlighting the multiplicity of childhood trauma. Future research should therefore control for other forms of CM to clarify the unique contribution of CSA on PTSD symptoms.

The current study found a very small effect size for the association between CSA and PTSD symptoms (R^2 = .033), compared to the aforementioned meta-analyses, reporting large effect sizes (OR_{pooled} = 3.60, r = .422; Boumpa et al., 2022; Cea et al., 2025). This discrepancy may be due to differences in sample characteristics. Whereas Boumpa et al. (2022) and Cea et

al. (2025) primarily included clinical samples, consisting of individuals with a history of CSA, the current sample consisted of non-clinical first-year students of whom relatively few scored above the cutoff values for CSA and PTSD. The distributions of both SA and PCL-5 scores were positively skewed, with SA showing zero inflation as 84% of participants scored the minimum value. This may have reduced the statistical power to find effects, whilst also increasing the risk of correlations reflecting co-occurrence of zeros rather than true graded associations. Another explanation for the small effect size is that other variables simply play a larger role in PTSD, which is plausible given the complex nature of the disorder. In line with this, an umbrella review of 33 meta-analyses and systematic reviews by Tortella-Feliu et al. (2019) identified 57 risk factors before, during and after trauma, that were significantly associated with PTSD.

Moderation Hypothesis

Contrary to the second hypothesis, no significant moderation effect of avoidant attachment on the relationship between CSA and PTSD symptoms was found. Given the negligible change in explained variance after adding the interaction term (R^2_{change} = .005), it is possible that the moderation effect simply does not exist. However, this is inconsistent with previous findings on the topic. Previous research shows that young CSA victims with an insecure attachment style reported significantly higher PTSD symptoms than CSA victims with a secure attachment style, revealing a moderate effect (Ensink et al., 2021). Furthermore, within a sample of adolescent psychiatric inpatients, insecure attachment showed a moderate to large moderating effect on the relationship between HST and PTSD-related symptoms (Jardin et al., 2017). This discrepancy may be due to differences in operationalizations. The previously cited studies used the *Child Attachment Interview* (CAI) to assess avoidant attachment (Ensink et al., 2021; Jardin et al., 2017), whereas the current study used the ECR-R. The CAI measures the attachment to parents or caregivers, closely aligning with Bowlby's

(1977) original conceptualization of attachment, whereas the ECR-R primarily captures attachment tendencies toward romantic partners. Attachment to parents or caregivers may play a larger role in CSA victims than romantic attachment, given that CSA typically involves parental or familial figures. Another possible explanation for the absence of a moderation effect in the current study may be, again, differences in sample characteristics. The current study examined young adults, while previous studies focused on children (Ensink et al., 2021) and adolescents (Jardin et al., 2017). Thus, it is possible that the role of avoidant attachment is not linear across the lifespan but depends on developmental stage. The same applies to cultural influences. The current study, focusing primarily on Dutch and German participants, found no significant moderation effect, while previous studies within North American samples did (Boumpa et al., 2022; Ensink et al., 2021; Jardin et al., 2017). A longitudinal study by Hoeboer et al. (2025) showed that the risk of PTSD is significantly higher for individuals with a non-university education and a non-Dutch cultural background, which could possibly explain the small and non-significant results found within the current sample. Thus, the role of attachment might depend on contextual factors, such as developmental stage and cultural background. However, in order to make more definitive statements about this, further research is needed. Besides sample characteristics, the absence of a moderation effect may also be explained by the involvement of another moderator variable. It is possible that the relationship between CSA and PTSD symptoms is moderated by a similar variable, such as anxious attachment. Characteristics of an anxious attachment style include a strong need for proximity, concerns about one's relationships, and fear of rejection (Mikulincer et al., 2003). According to the attachment theory, negative self-attributions cause anxiously attached individuals to feel limited in their ability to process a traumatic experience, resulting in more severe PTSD symptoms (Wittmann et al., 2024). This suggests that anxious attachment could potentially strengthen the association between a traumatic event, such as CSA, and PTSD

symptoms. In line with this, research shows that attachment anxiety prior to a traumatic event predicts higher PTSD symptoms 18 months later (Wittmann et al., 2024). Furthermore, young female CSA victims are found to exhibit more than three times higher levels of anxious attachment than young females without a history of CSA (*OR* = 3.34, 95% CI 1.77–6.28; Mokokwe et al., 2022). Building on these findings, future research could also examine the potential role of anxious attachment in the relationship between CSA and PTSD symptoms.

Implications

The current study offers several implications. First, the findings support the idea that CSA is a significant, but not uniform, predictor of PTSD among young adult female college students. As prior research has focused primarily on child or adolescent populations, the current study adds to the evidence on young adults. The small proportion of variance in PTSD symptoms explained by CSA can be understood in the light of the multifaceted nature of PTSD, shaped by a wide range of pre-, peri-, and post-trauma factors (Tortella-Feliu et al., 2019). This study thus contributes to existing evidence identifying CSA as one of the many risk factors associated with PTSD, thereby underlining the importance of personalized risk assessment. Second, the non-significant moderation effect in the current study implies that the role of avoidant attachment may depend on contextual factors, such as developmental stage and cultural background, or that avoidant attachment is diagnostically less relevant for PTSD. However, this interpretation should be tempered by the fact that avoidant attachment was measured using the ECR-R, which does not fully capture avoidant attachment as conceptualized by Bowlby (1977). Accordingly, further replication research is needed. Moreover, future studies should investigate other potential moderators that could help explain individual differences in PTSD symptom severity. Examining these factors could contribute to a more refined understanding of which individuals are most at risk and which protective or risk factors play a role in the relationship between CSA and PTSD symptoms. Given both the

individual and societal impact of PTSD, such insights could be very valuable for a more accurate diagnostic assessment and possible preventive strategies for PTSD.

Strengths

The current study has several strengths that contribute to the reliability and validity of the results. First, the analyses were conducted within a relatively large sample, consisting of 237 participants. This provides sufficient statistical power to detect small effects and make reliable statements. Second, the sample consists only of female first-year students, which reduces the chance of variability due to factors such as age or education differences. Lastly, this study employed well-validated and commonly used measurement instruments to assess CSA and PTSD symptoms (Bernstein et al., 2003; Weathers et al., 2013), which contributes to both the reliability and comparability of the results.

Limitations and Future Directions

Nevertheless, the current study has limitations that should also be considered when interpreting the findings. First, the study was conducted on non-clinical, highly educated young adults who showed relatively low levels of CSA, PTSD symptoms, and avoidant attachment. Especially SA scores showed a zero-inflated distribution, with a large clustering of participants at the lowest possible score, thereby reducing the power and increasing the risk of correlations reflecting co-occurring zeros rather than true associations. Therefore, future research should examine CSA, PTSD symptoms, and avoidant attachment within clinical or high-risk populations, as these groups may exhibit stronger symptomatology and show effects that were not detectable in the current sample. Second, the current study used the ECR-R to assess avoidant attachment. Although well-validated for romantic attachment, this scale may have been less suitable for the present study, which focuses more on parental attachment in the context of childhood experiences. Accordingly, replication studies should employ alternative measures of avoidant attachment to examine whether the current findings were

influenced by the ECR-R operationalization. Third, the current study focused on PTSD symptoms, as measured by the PCL-5, rather than an actual PTSD diagnosis, which may have affected the accuracy of prevalence estimates. Future studies should employ structured clinical interviews to establish formal PTSD diagnoses, to examine whether the observed main effect holds at disorder level rather than solely at symptom level. Fourth, only female participants were examined, which limits the representativeness of the entire population and may underestimate the male population in terms of traumatic symptoms. In their meta-analysis, Boumpa et al. (2022) found no significant gender differences in the risk of developing PTSD after experiencing CSA (N = 28.693; men: OR_{pooled} = 2.86, 95% CI 2.09-3.91; women: OR_{pooled} = 2.38, 95% CI 1.76-3.23), so both male and female victims of CSA appear to suffer from PTSD symptoms. Therefore, future research should aim to include both men and women to examine potential gender differences in the relationship between CSA and PTSD symptoms, thereby improving the generalizability of the findings on the entire population. Finally, as the current study uses cross-sectional data, causal inferences regarding the relationship between CSA and PTSD cannot be made. Longitudinal studies are needed to better understand the development of avoidant attachment patterns and their potential role in the relationship between CSA and PTSD over time.

Conclusion

Overall, the current study found a significant positive relationship between CSA and PTSD symptoms. This is consistent with earlier findings, showing a positive association between CSA and later PTSD development (Boumpa et al., 2022) and significantly higher PTSD levels among CSA victims compared to controls (Cea et al., 2025). Furthermore, no significant moderating effect of avoidant attachment on the relationship between CSA and PTSD symptoms was found. This is not fully consistent with previous studies, showing that avoidant attachment strengthens the relationship between CSA and PTSD symptoms in

various samples, including child survivors of CSA and adolescent psychiatric inpatients (Ensink et al., 2021, Jardin et al., 2017). Future research should further investigate the role of avoidant attachment in the relationship between CSA and PTSD symptoms within clinical samples, including both male and female participants, thereby increasing both the clinical relevance and generalizability of the results. In addition, further examination of other potential moderators is recommended, preferably with longitudinal designs. This may help understand why some individuals develop more severe trauma symptoms than others, thereby supporting more accurate diagnostic assessment and the development of possible prevention strategies for PTSD.

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Appendix A

AI Use Summary

AI system: ChatGPT (2026; version GPT-4.1). https://chat.openai.com

Use case: used to identify relevant articles by suggesting search terms, to obtain explanations of data imputation in SPSS 28, and to improve language through rephrasing and synonym suggestions.

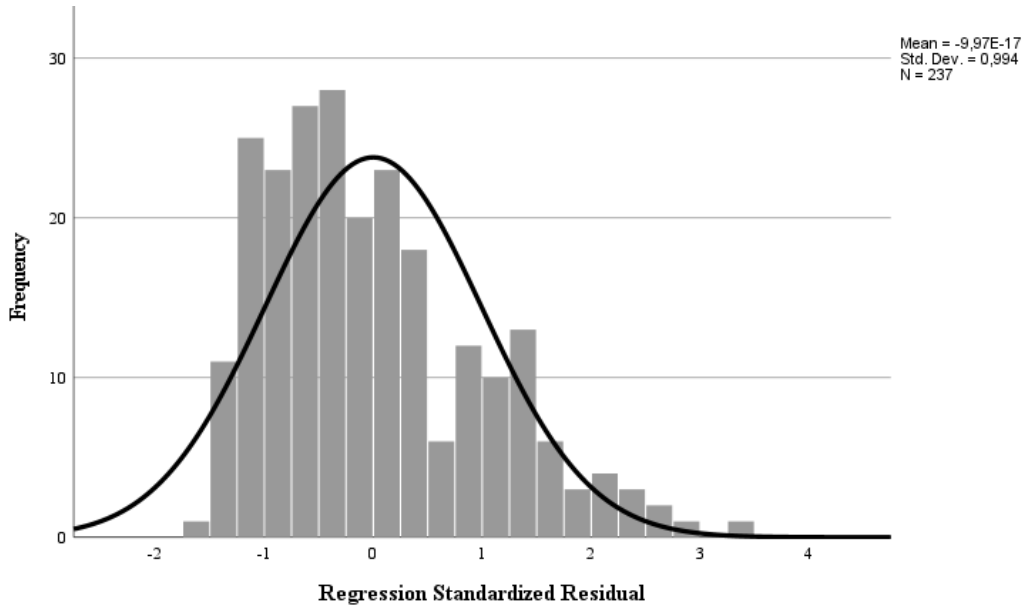
Main prompts used: “Provide comprehensive search terms for scientific articles on childhood sexual abuse (CSA), posttraumatic stress disorder (PTSD), and avoidant attachment style.”; “Explain step by step how to perform series mean data imputation in SPSS 28.”; “Provide alternative formulations for […]” or: “Provide English synonyms for the word [...]”.

Modifications: I used some of the suggested search terms to provide myself with more scientific articles, I reviewed the data imputation instructions to better understand the imputation process in SPSS, and I rewrote the AI-generated text in my own words.

Appendix B

Figure B1

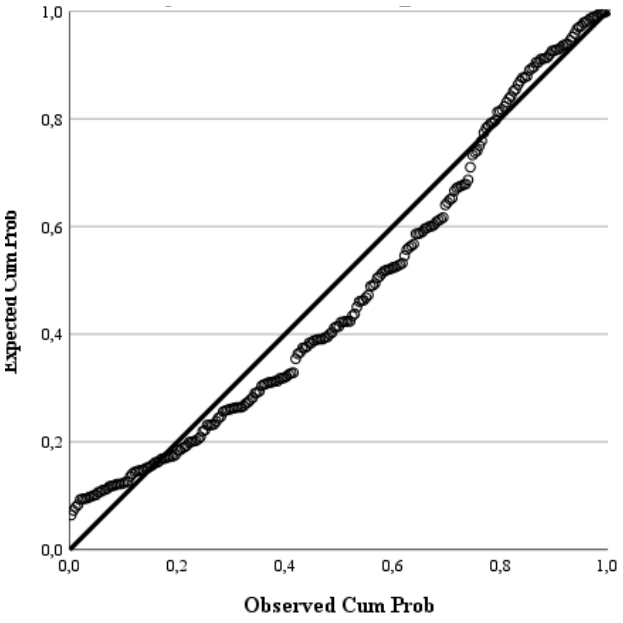
Histogram for Normality of Standardized Residuals PCL-5



Note. $N = 237$. Dependent variable = PTSD Checklist for DSM-5 (PCL-5).

Figure B2

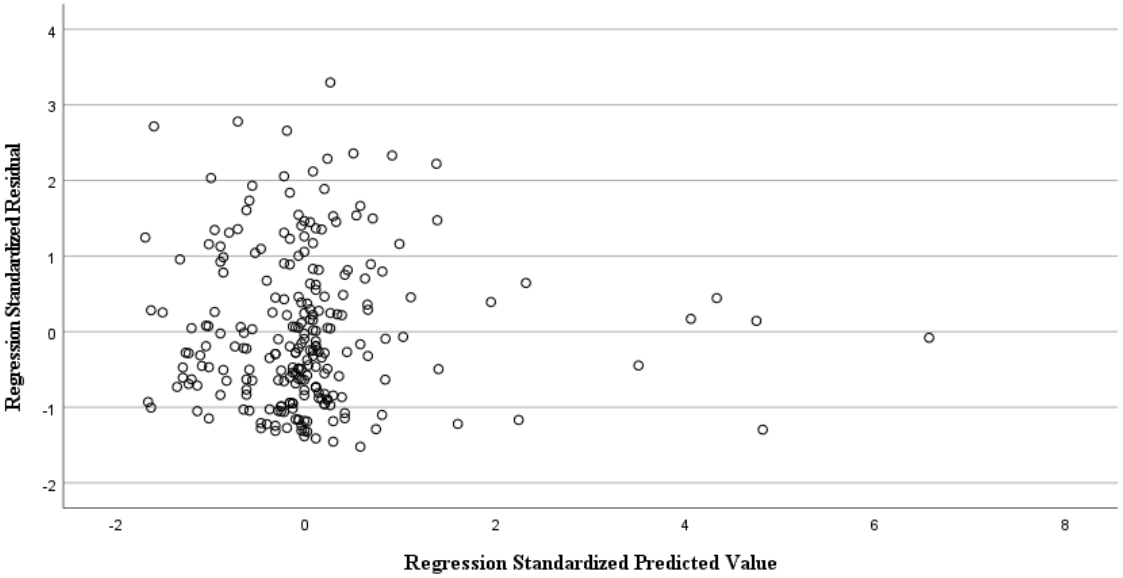
Normal P-P Plot of Standardized Residuals PCL-5



Note. $N = 237$. Dependent variable = PTSD Checklist for DSM-5 (PCL-5).

Figure B3

Scatterplot for Linearity and Homoscedasticity



Note. *N* = 237. Dependent variable = PTSD Checklist for DSM-5 (PCL-5); independent variable = SA (Sexual Abuse; Childhood Trauma Questionnaire – Short Form; CTQ-SF).

Table B1

Tolerances and VIF Values For SA, Avoidance, and Interaction Term

	Collinearity Statistics	
Variable	Tolerance	VIF
SA (CTQ-SF)	.999	1.001
Avoidance (ECR-R)	.995	1.005
SA * Avoidance	.994	1.006

Note. N = 237. Dependent variable = PTSD Checklist for DSM-5 (PCL-5); SA = Sexual Abuse; CTQ-SF = Childhood Trauma Questionnaire – Short Form; ECR-R = Experiences in Close Relationships Scale – Revised; VIF = Variance Inflation Factor

Table B2

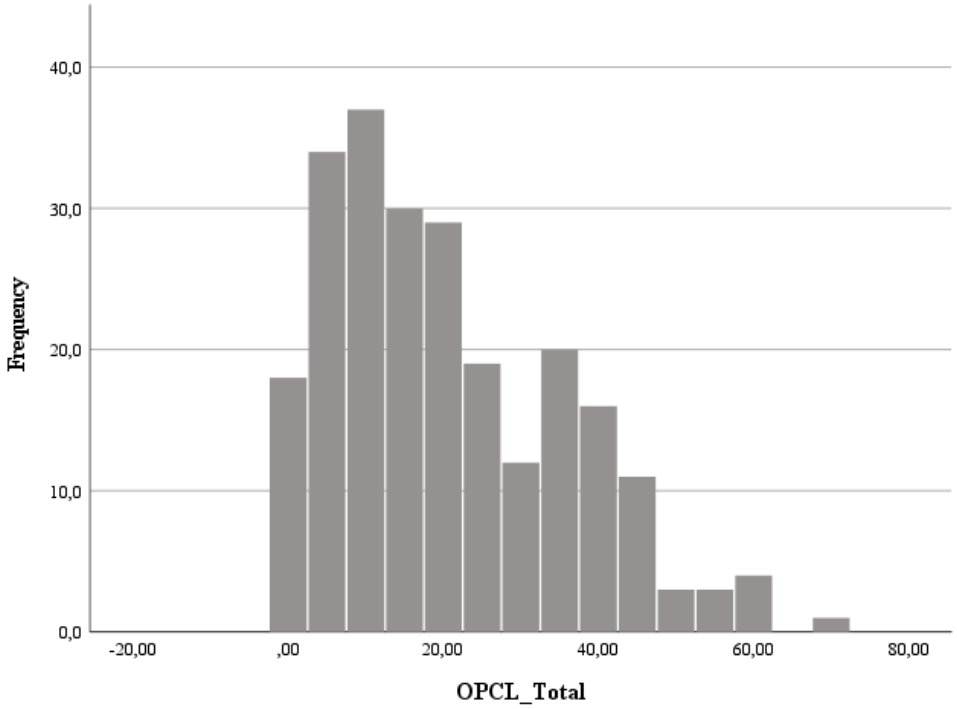
Durbin-Watson Test for Independence

Model	Durbin-Watson
SA (CTQ-SF), Avoidance (ECR-R), SA * Avoidance	1.809

Note. $N = 237$. Dependent variable = PTSD Checklist for DSM-5 (PCL-5); Predictors = SA, Avoidance, and Interaction Term; SA = Sexual Abuse; CTQ-SF = Childhood Trauma Questionnaire – Short Form.

Figure B4

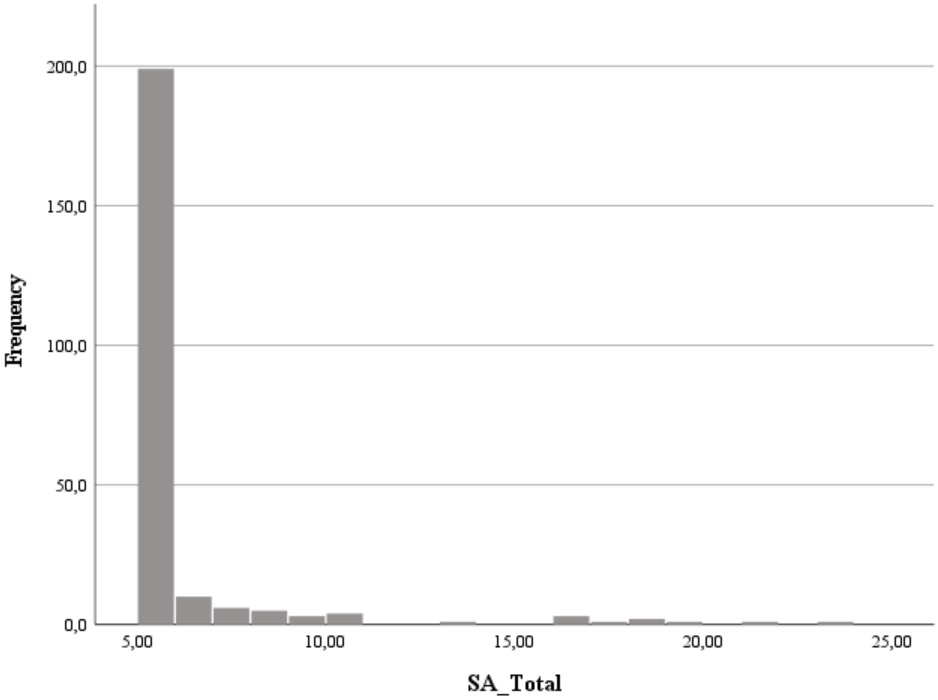
Histogram of the Distribution of PCL-5



Note. $N = 237$. PCL-5 = PTSD Checklist for DSM-5.

Figure B5

Histogram of the Distribution of SA



Note. $N = 237$. SA = Sexual Abuse (Childhood Trauma Questionnaire – Short Form; CTQ-SF).