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Chapter 5

Childhood Traumatic Experiences and Post-Traumatic Stress Disorder in Female Adults: Which is the Role Played by Romantic Attachment?

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Additional information is available at the end of the chapter

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Abstract

Childhood traumatic experiences are known to have strong and durable effects on physical, mental and reproductive health. One of the most studied consequences of childhood trauma is the post-traumatic stress disorder (PTSD). The present study aims to investigate in a community sample of Italian female students: (1) the prevalence of PTSD; (2) the association between reported childhood traumatic experiences and the presence of PTSD in adulthood and the role played by the romantic attachment (*anxiety*, *avoidance*) on the relationship between childhood traumatic experiences and PTSD symptoms. Three hundred and twenty-seven female Italian students (mean age = 23.09 years; SD = 2.98) of the University of Padova participated in the study. Participants have been tested on childhood traumatic experiences (Childhood Trauma Questionnaire-Short Form, CTQ-SF); romantic attachment (Experience in Close Relationship-Revised, ECR-R) and post-traumatic stress disorder (Post-traumatic Stress Disorder Checklist for DSM-5, PCL-5). Results show that PTSD symptoms are significantly predicted by the experiences of emotional abuse and neglect. Moreover, anxiety and avoidance play a significant role in the relationship between the emotional forms of traumatic experiences and the current presence of PTSD symptoms. Clinical implications for the treatment of PTSD patients with history of interpersonal trauma are discussed.

Keywords: childhood traumatic experiences, romantic attachment, post-traumatic stress disorder, mediating effect, moderating effect

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1. Introduction

Childhood traumatic experiences are known to have strong and lasting consequences on the physical, mental and reproductive health of victims as well as confining them to low mental health in adulthood [1]. A body of researches largely documented the severe and long-lasting effects of the adverse childhood experiences (ACEs) on the biological and psychological development of victims [1, 2], highlighting severe impairments in stress regulation and socio-emotional development. Indeed, early interpersonal traumas expose victims to attachment disorganization and progressive deterioration in the self-worth from the first and most vulnerable stages of a child's development [3].

Moreover, studies reported a significant odd-ratio for psychiatric disorders in adulthood, including major depression, panic disorder and bulimia nervosa in sexually abused victims [4]. Adults' at-risk behaviors, such as substance abuse and dependence, are twice as common among victims, compared to the general population [5], and a major risk for sexual behaviors as well as for re-victimization is also largely documented [6–8].

Complex trauma, referring to children's experiences of multiple traumatic events that occur within the caregiving system [9], has significant long-lasting effects on brain maturation. Structural and functional abnormalities are reported in abused children, namely reduction in the volume of the orbitofrontal cortex and over reactivity of the amygdala [10]. Both areas are of fundamental importance in emotional and stress responses, which display atypical functioning in abused children from the earliest stages of life [11].

Child maltreatment and adverse childhood experiences are a common occurrence. In 2013, 9.1 per 1000 children in the USA known to child protective services (CPS) had been victims of abuse and neglect experiences [12]. In Europe, more than 18 million children are estimated to suffer from maltreatment, as reported by the World Health Organization [13]. In particular, a prevalence of 9.6% for sexual abuse, 22.9% for physical abuse and 29.1% for mental or emotional abuse is reported. In Italy, around 9.5% per 1000 children and adolescents are subject to some form of violence in childhood [14]; the data support the international portrait.

One of the most studied effects of traumatic experiences in childhood is post-traumatic stress disorder (PTSD). Post-traumatic stress disorder is classified as a "trauma and stress-related disorder" in the new Diagnostic and Statistical Manual of Mental Disorders 5 (American Psychological Association, 2013). PTSD represents the most frequent consequence of interpersonal trauma histories [15], with 48–85% of childhood abuse survivors developing PTSD symptoms across life [16, 17].

Despite the fact that studies have mainly analyzed only the stress-related consequences of physical and sexual traumatic experiences, emotional abuse and neglect have also been shown to be associated with the development of PTSD symptoms [18].

The exposure to traumatic experiences is a necessary but not sufficient condition for the development of PTSD. According to Van der Kolk, to consider a linear relationship between early traumatic experiences and adult psychiatric disorders represents an oversimplification

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[19]; underlying mechanisms and victims' characteristics involved in the association between traumatic experiences and adult psychopathology is still a matter of on-going study.

Different studies report that psychopathological outcomes of childhood abuse are related to the quality of early attachment relationship. Around 80% of physical and emotional abuses during childhood are perpetrated by parents or close relatives [20], whom are supposed to be the primary and the first external source of emotion and stress regulation. Indeed, the parent-child relationship represents a key feature for the long-term ability of auto-regulation and social support [19, 21].

According to the attachment theory, the quality of early interactions between the caregiver and his/her child determines the child's immediate emotional response to stress and plays a decisive and lasting role in the latter's emotion-regulation ability [22–26]. Through the daily over-repetition of the interactive exchanges, a set of internal working models (IWMs) develops and becomes internalized as a patrimony of personal schema of self and of the other. The internal working models enable people to regulate emotions in interactions and to cope with stressful interpersonal situations across the life. These personal schemas are entirely developed during the first years of a child's life and become relatively stable across the life span. As a consequence, they represent a personal guide influencing interactions and relationships in adulthood [27].

Childhood experiences of abuse and maltreatment constitute a fearful and dangerous developmental environment, in which the intimacy and proximity with the caregiver produce a sense of fear instead of a feeling of "felt security," thus provoking a disorganization of the attachment system. Indeed, child abuse victims show significantly higher rates of attachment insecurity (70–100%) compared to the general population (30%) [28]. In addition, fearful and angry-dismissive patterns are the most associated with interpersonal traumatic experiences [29].

Furthermore, neglectful caregiving, even in the absence of physical and sexual abuse, denies the child the needed coherent external support. Through the inconsistent and neglectful responses of the caregiver, children develop interpersonal strategies characterized by anxious and/or avoidant behaviors [30].

As a consequence, the adverse childhood experiences shape the interpersonal strategies characterizing adult relationships. In particular, high levels of dependency or avoidance in social relationship as well as insecurity, suspiciousness, isolation, emotional distress and low intimacy in close relationships are reported as a consequence of traumatic experiences [19, 31, 32]. Indeed, the core concept of the attachment theory is that childhood attachment quality constitutes the paradigm for forming the adult romantic relationship [33]. Romantic attachment represents a personal system of beliefs and expectations on the availability and the responsiveness of the partner. It is based on the childhood experiences of being loved and felt security in the relationship with the caregiver [33], and it guides the interactive exchanges between partners. People differently experience and manage intimacy with the partner according to their own early experiences of caregiver's proximity and responsiveness. In particular, insecure adults are worried of being abandoned or being too close to and dependent

on the partner [33]. According to Hazan and Shaver [33], a lack of self-worth and a negative model of self tend to produce anxiety for not being loved and being abandoned; in contrast, a negative view of the other leads to mistrust feelings, expressed by avoidant behaviors and fear of intimacy.

Adult and adolescent victims of abuse have higher attachment insecurity and display more anxiety and/or avoidance in close relationships [15, 34]. In particular, 70% of female victims of sexual abuse have insecure romantic attachments [35]. Lower satisfaction and couple adjustment are also reported in female victims compared to the women who were not abused [34, 36, 37]. In addition, high levels of insecurity in adult attachments and romantic attachments are reported to be associated with increased distress and psychopathology, in particular depression, anxiety, substance abuse and post-traumatic stress disorder [35, 38, 39].

The attachment patterns characterized by insecure or negative IWMs seem to increase the risk of a post-traumatic stress disorder and promote post-traumatic symptoms [38, 40]. In contrast, secure attachment is reported to be a protective factor in adult trauma survivors, moderating the relationship between a traumatic event and the development of PTSD.

Different studies confirm that insecure schema of self and the other generate interpretation biases in interpersonal stressful situations. This mechanism leads to dysfunctional responses characterized by hyper-activation or deactivation of emotion regulation [30, 41]. In particular, the attachment patterns characterized by high levels of anxiety are likely to display hyper-activation of emotional and behavioral response to stress, causing an exaggerated seeking of proximity. In contrast, people with avoidant attachment deactivate the interpersonal strategies of stress response and suppress the search for support [42]. As a consequence, attachment serves as a regulatory system for the stress response; a mental representation of the other's unresponsiveness during stressful situations can be the mechanism responsible for the increased vulnerability to post-traumatic symptoms [42].

In both PTSD and insecure attachments, there is a lack of security in social and interpersonal contexts. Indeed, people suffering from PTSD report feelings of distrust and a state of anxious apprehension which impedes them from having satisfying interpersonal relationships [43].

As a consequence, both the difficulties in emotion regulation and the lack of interpersonal security represent key variables in association with insecure romantic attachment and post-traumatic stress disorder in victims of childhood traumatic experiences.

Up until now, there are only a few studies investigating the relationship between romantic attachment and the PTSD symptoms in childhood trauma victims. Hence, further studies are needed in order to examine the role played by anxiety and avoidance on the development and the severity of the post-traumatic stress disorder in adult victims of interpersonal traumatic experiences.

Available studies in this field suggest mediating or moderating role for social support, emotion regulation and coping strategies [30]. Few studies showed that romantic attachment styles characterized by high levels of anxiety and avoidance influence the relationship between early traumatic experiences and the development of psychopathology, including post-traumatic

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stress disorder [44–46]. Another study [47] observed that insecure attachment mediated the relationship between childhood trauma and somatization in adulthood. Other studies [48, 49] reported that adult attachment moderates the association between childhood experiences of abuse and depressive symptoms as well as PTSD in adulthood.

Yet, in other studies [20, 50] it was established that an association between insecure attachment and greater number of PTSD in adult women victims of child sexual abuse exists. Moreover, the ability to maintain closeness in intimate relationships is found to mediate the association between child sexual trauma and global psychological functioning [38].

Finally, all these studies have investigated romantic attachment in clinical samples, while no research has studied the contribution of attachment style to the association between post-traumatic stress disorder and childhood traumatic experiences in a general population [51]. This shortcoming of the available literature represents the starting point for our study.

2. Aims

The present study aims to investigate a nonclinical sample of female students: (1) the prevalence of PTSD in adulthood; (2) the association between reported childhood traumatic experiences and the presence of post-traumatic stress disorders in adulthood and the role played by romantic attachment.

3. Method

The sample is composed by 327 female students from different faculties of the University of Padova: 58.4% from Psychology, 17.1% from Educational Sciences, 9.5% from International Economy, 6.7% from Social Services, 5.2% from Human Rights and Multi-Governance, 1.5% from Communication Strategies, and 1.5% from Engineering.

Complete demographics of the sample are displayed in **Table 1**.

The participants were recruited on a voluntary basis and were part of a broader study on early traumatic experiences and adult psychological outcomes. All participants signed a consent form and no compensation was given for participation.

3.1. Measures

Participants completed the Childhood Trauma Questionnaire-Short Form, CTQ-SF, [52] in order to assess the presence and severity of childhood traumatic experiences; the Experience in Close Relationship-Revised, ECR-R, [53] for the evaluation of the romantic attachment; and the Post-traumatic Checklist for DSM-5, PCL-5 [54] for the post-traumatic stress disorder diagnosis.

The *Childhood Trauma Questionnaire-Short Form* (CTQ-SF; Bernstein et al. [52]) is a self-report questionnaire used to assess retrospectively the frequency and severity of different childhood

experiences of abuse (emotional, physical, sexual) and neglect (emotional, physical). The short form consists of 28 items, scored on a 5-point (Never True-Very Often True, when growing up) Likert scale. Twenty-five items are equally distributed among five clinical scales: Physical Abuse, Emotional Abuse, Sexual Abuse, Physical Neglect and Emotional Neglect. Three items assess the tendencies of responders to minimize or deny negative childhood experiences, composing the minimization/denial scale. In the present study, the Italian version of CTQ-SF, translated by Petrone and colleagues [55], was administered. The original study of Bernstein [52] demonstrated good internal consistency reliability for each of the CTQ-SF scales, across four heterogeneous clinical and not clinical samples. Cronbach's α ranged respectively from 0.83 to 0.86 for Physical Abuse, 0.84 to 0.89 for Emotional Abuse, 0.92 to 0.95 for Sexual Abuse; 0.61 to 0.78 for Physical Neglect and 0.85 to 0.91 for Emotional Neglect. In particular, in the community sample the reliability ranged from $\alpha = 0.61$ for the Physical Neglect to $\alpha = 0.92$ for the Sexual Abuse. For the Italian version, the CTQ-SF showed reliable psychometrics, with good reliability and confirmed structure validity (Sacchi, Simonelli, in preparation). In the present study, the Cronbach's α ranged from 0.51 for Physical Neglect to 0.90 for the Sexual Abuse, confirming that Physical Neglect represents the less reliable scale of the self-report.

Age	23.09 (2.98)
Ethnicity	
Italian	311 (96.3%)
Marital status	
Single	101 (31.1%)
Involved	202 (62.2%)
Living together	15 (4.6%)
Married	6 (1.8%)
Separated/divorced	1 (0.3%)
Widow	0%
Education	
College	58 (17.8%)
Professional high school	7 (2.1%)
Bachelor degree	254 (77.9%)
Master degree	4 (1.2%)
Postgraduate degree	2 (0.6%)
PhD	1 (0.3%)

Table 1. Demographics of the sample (*N = 327*).

The *Experiences in Close Relationships Scale-Revised* (ECR-R; Fraley et al. [53]; Italian version Calvo, 2008) is a 36-item questionnaire that measures the adult romantic attachment style.

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Respondents are given a description of a possible attitude toward relationships and asked to rate them on a 7-point Likert scale, ranging from "strongly disagree" to "strongly agree." The ECR-R contains two subscales that measure orthogonal dimensions of adult romantic attachment: attachment avoidance and attachment anxiety; each dimension is measured by summing 18 items. The ECR-R presented excellent psychometric properties in its Italian version. In the cross-cultural study of Calvo [56], the Cronbach's α was 0.93 for the avoidance and 0.88 for the anxiety. In the present study, the internal consistency reliability of the ECR-R was $\alpha = 0.93$ for the attachment avoidance scale and $\alpha = 0.90$ for the attachment anxiety scale.

The *Post-traumatic Stress Disorder Checklist* for DSM-5 (PCL-5; Weathers et al. [54]) is a 20-item self-report for the assessment of current post-traumatic stress disorder symptoms. The PCL-5 is developed from the PCL, and the 20 items correspond to the 20 symptoms describing the diagnosis of PTSD in the Diagnostic and Statistical Manual for Mental Disorders V version [57]. Since no Italian version for the PCL-5 is currently available, in the present study the original version was translated, using the back-translation method [58]. The 20 items belong to four sub-scales representing different clusters of the diagnosis of post-traumatic stress disorder. The severity of each class of symptoms is obtained by the sum of the scores within each cluster. For a provisional PTSD diagnosis and in order to have cutoff scores for the evaluation of symptoms' severity, items score 2 (moderately) or higher are considered as symptoms. In particular, the PCL-5 diagnosis requires at least: 1 B item, 1 C item, 2 D items and 2 E items score 2 or higher. Preliminary validation work proposes the overall cutoff point of 38 for the PTSD diagnosis, as "reasonable" http://www.ptsd.va.gov/. The PCL was largely examined, demonstrating excellent psychometric properties [59], while less information is available on PCL-5. Two recent studies demonstrate high internal consistency, with Cronbach's α of 0.94 and 0.95. In the present study, the internal consistency reliability result scored high for each cluster and for the overall measure. In particular, the overall Cronbach's α was 0.93.

4. Data analyses

First, means, standard deviations and percentile ranks have been calculated for the distribution of PCL-5 scores, in order to attest the rate of Italian female young students showing current PTSD symptoms above the cutoff point. The PCL-5 provisional diagnosis for PTSD was established following the indication of the National Centre for PTSD **http://www.ptsd.va.gov/**. Namely, it reflects the DSM-5 diagnostic rules according to which are required: at least 1 item in Cluster B scored above 2 point; at least 1 item in Cluster C above 2; at least 2 items above 2 in Cluster D; and 2 items above 2 in Cluster E.

Second, in order to examine the relationship between childhood traumatic experiences, romantic attachment and current post-traumatic symptoms, correlation analyses have been preliminary done on all dimensions and scales of the three measures. Then, moderation and mediation effects have been studied. The hypotheses are displayed in **Figures 1** and **2**.

In order to study moderation effects, a hierarchical regression analysis was built, in accordance with Baron and Kenny recommendations [60]. The interaction between predictors and

moderators was created by multiplying CTQ-SF five scales and the two dimensions of ECR-R. In the Step 1, predictors (childhood traumatic experiences) and moderators (avoidance and anxiety) were entered for direct effects analyses; in Step 2, variables of the previous step were considered along with the ten interaction variables for moderating effects, as suggested by Frazier and Barron [61].

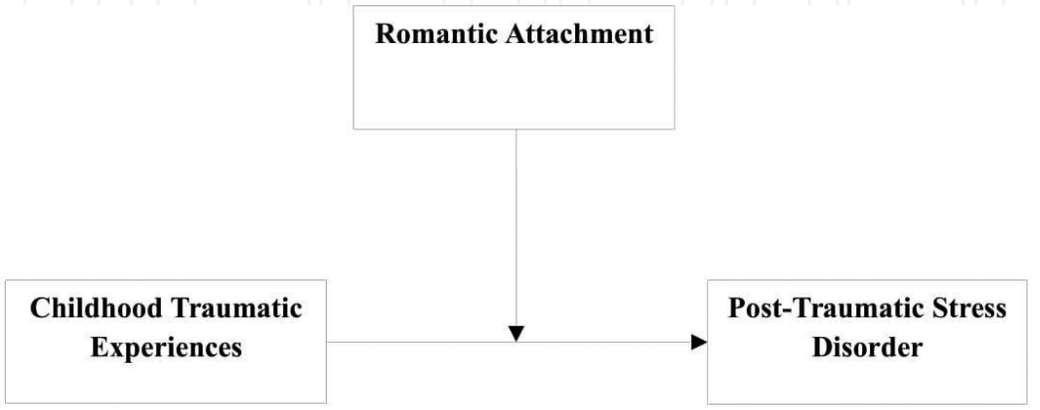


Figure 1. Moderation model of childhood traumatic experiences, romantic attachment and PTSD.

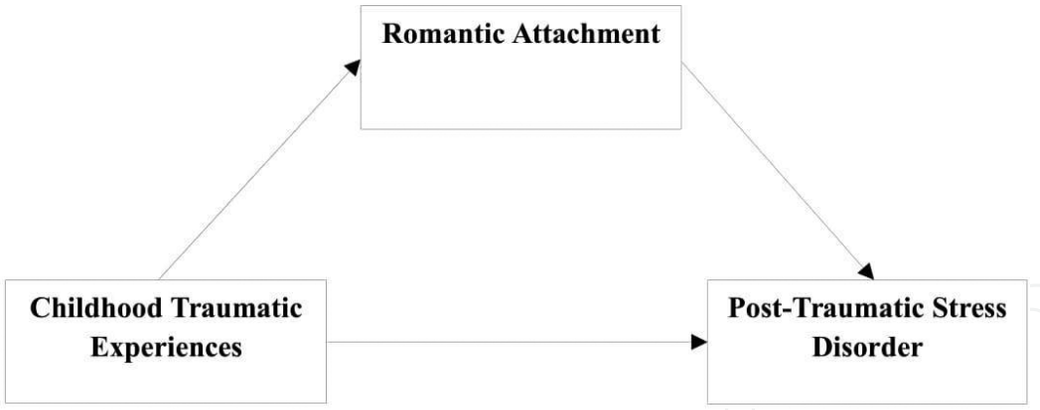


Figure 2. Mediation model of childhood traumatic experiences, romantic attachment and PTSD.

For the mediation effect hypothesized, a path analysis was performed using LISREL 8.8 [62]. PCL-5 total score has been used as dependent variable and the five scales of the CTQ-SF as independent variables. Avoidance and anxiety in romantic attachment have been considered as mediator variables. In a first saturated model, all the five scales of the CTQ-SF were supposed to have both direct and mediated effects on the post-traumatic symptoms. Secondly, from first results, a second model has been performed including the clinical scales of CTQ-SF presenting significant direct and/or mediated effects in the first model.

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5. Results

Descriptive statistics of the variables are presented in **Table 2**.

Measures	Means	Standard deviation	Min	Max
Childhood Trauma Questionnaire-Short Form (CTQ-SF)				
Emotional Abuse	6.62	2.601	5	22
Physical Abuse	5.42	1.490	5	19
Sexual Abuse	5.29	1.423	5	17
Emotional Neglect	8.92	3.829	5	24
Physical Neglect	5.67	1.393	5	16
Experience in Close Relationship-Revised(ECR-R)				
Avoidance	42.13	18.181	8	99
Anxiety	54.09	18.832	19	118
Post-traumatic Checklist for DSM-5 DSM-5 (PCL-5)				
Total PTSD score	18.21	13.699	0	66

Table 2. *Descriptive statistics of CTQ-SF, ECR-R, PCL-5 (N = 327).*

5.1. Prevalence of PTSD symptoms

Table 3 shows percentile ranks of PCL-5 and the rate of subjects exceeding cutoff point for the overall PTSD measure.

Measure (C.O.)	% above C.O.	25th percentile	50th percentile	75th percentile	90th percentile
PCL-5 total score (38)	9.5	7	15	27	37
Provisional diagnosis (DSM V*)	34.9%				

C.O., cutoff.
*The provisional diagnosis is calculated considering: at least 1 item of Cluster B scored above 2 point; at least 1 item of Cluster C above 2;, at least 2 items above 2 in Cluster D and 2 items above 2 in Cluster E.

Table 3. PCL-5 percentile scores.

5.2. Moderating role of romantic attachment

Table 4 presents the hierarchical regression analyses results.

Results from the hierarchical regression analyses showed that PTSD symptoms are significantly predicted using childhood traumatic experiences.

In particular, in the Model 1, both the Emotional Abuse (β = 0.198; p = 0.01) and Emotional Neglect (β = 0.148; p = 0.03) show significant direct effects on PTSD symptoms; moreover, the physical categories of traumatic experiences (abuse and neglect), display negative effects on PTSD, respectively, with β = −0.136; p = 0.03 and β = −0.170; p = 0.01.

As regards the romantic attachment, anxiety shows a direct effect on the post-traumatic stress symptoms, β = 0.286; p = 0.00, while no effects have been found for the avoidance. Globally, the R^2 of the first model indicates that childhood traumatic experiences and the romantic attachment account for the 22.7% of PTSD variance.

Measures	**Model 1**		**Model 2**	
	β	**SE**	**B**	**SE**
Step 1				
Emotional Abuse	0.198**	0.390	0.262**	0.434
Physical Abuse	−0.136*	0.576	−0.147*	0.649
Sexual Abuse	0.087	0.530	0.083	0.706
Emotional Neglect	0.148*	0.245	0.133	0.257
Physical Neglect	−0.170**	0.631	−0.178**	0.671
Avoidance	0.105	0.044	0.124*	0.046
Anxiety	0.286**	0.042	0.265***	0.044
Step 2				
Emotional Abuse × Anxiety			−0.150	1.109
Emotional Abuse × Avoidance			0.058	1.051
Physical Abuse × Anxiety			0.104	1.042
Physical Abuse × Avoidance			−0.025	1.383
Sexual Abuse × Anxiety			0.079	0.964
Sexual Abuse × Avoidance			−0.103	1.287
Emotional Neglect × Anxiety			−0.019	0.972
Emotional Neglect × Avoidance			−0.032	0.989
Physical Neglect × Anxiety			0.094	1.148
Physical Neglect × Avoidance			−0.027	1.174
Intercept	3.835	3.971	3.655	5.110
R^2	0.227		0.253	

*p < 0.05; **p < 0.01; ****p < 0.001.

Table 4. Hierarchical regression analyses: direct and moderating effect on PTSD symptoms.

In the Model 2, results show no moderating effects of anxiety and avoidance dimensions, with interaction variables presenting no significant weights. Among childhood traumatic experiences, Emotional Abuse (β = 0.262; p = 0.00), Physical Abuse (β = −0.147; p = 0.04) and Physical

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Neglect (β = −0.178; p = 0.01) remain significant predictors, while Emotional Abuse shows no significant association with post-traumatic symptoms. In particular, Emotional Abuse has a positive effect, while Physical Abuse and Neglects present negative influences. With regard to romantic attachment, in the second model, both anxiety and avoidance display direct significant effects on PTSD overall symptoms, respectively, β = 0.265; p = 0.00 for anxiety and β = −0.124; p = 0.04 for avoidance. The R^2 shows that Model 2 accounted a small (2.6%) nonsignificant percentage of additional variance of PTSD.

5.3. Mediating role of romantic attachment

Results of the first saturated model tested show the childhood traumatic experiences to have mainly direct effects on PTSD symptoms' severity.

From the results of the first model, a second path analysis was performed, removing Sexual Abuse and testing the direct effects of Emotional Abuse, Emotional and Physical Neglect. Moreover, in the second model, the effect of Physical Abuse and Emotional Neglect on avoidance and the effect of Physical Neglect on anxiety were tested.

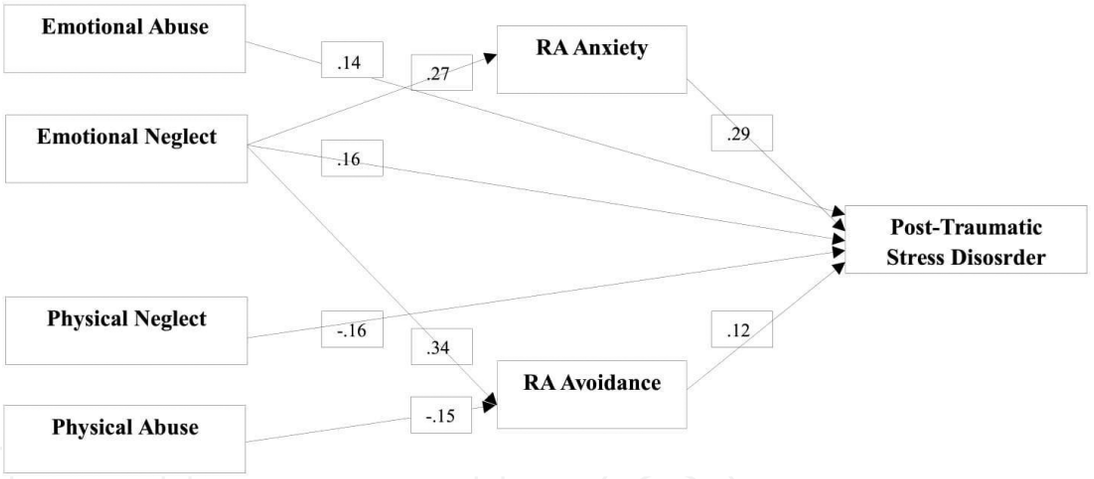


Figure 3. Results of mediation analyses.

For both models, the overall fit was provided by different goodness-of-fit indices, while the path coefficients estimated the relative effect of one variable on another. The goodness-of-fit indices, following Schermelleh and colleagues [63] recommendations, were: the Non-normed Fit Index (NNFI) and the Comparative Fit Index (CFI), both ranging from 0 to 1 with values close to 1 indicating good fit. The root mean square error of approximation (RMSEA) was considered, following Browne and Cudec [64] indications, that is: ≤0.05 considered as a good fit, between 0.05 and 0.08 as an adequate fit, and between 0.08 and 0.10 as a mediocre fit, whereas values >0.10 are considered not acceptable.

Chi-square of the second model was 6.84 df = 6; p = 0.34. Considering the definition of fit, all indices show a good fit, with NNFI and CFI equal to 1 and RMSEA 0.021.

Path coefficients indicate significant direct and mediating effects. In particular, in the second model, anxiety and avoidance mediate the effect of Emotional Neglect on PTSD ($\beta = 0.12$) and avoidance shows a tending to significance mediation of Physical Abuse on PTSD ($\beta = -0.02$; $p = 0.091$).

For the direct effects, Emotional Abuse shows significant direct effect ($\beta = 0.14$) on PTSD; Physical Abuse shows no direct influence on PTSD, but a significant negative effect on avoidance ($\beta = -0.15$). Emotional Neglect has direct effect on PTSD as well as on avoidance and anxiety, respectively 0.16, 0.34 and 0.27. The Physical Neglect only fits negatively to PTSD symptoms (−0.16).

Results of the mediation analyses are presented in **Figure 3**.

6. Discussion

The first aim of this study was to explore preliminary descriptive data on the presence of significant post-traumatic symptoms in nonclinical female students attending courses at the University of Padova. Moreover, the purpose of the present study was to analyze the relationship between childhood experiences of interpersonal traumas and the presence of current post-traumatic stress disorder symptoms in an Italian sample of students. More precisely, this study tested whether romantic attachment is a significant moderator and/or mediator in the relationship between traumatic experiences and current PTSD symptoms.

6.1. PTSD prevalence

The first objective of the study was to provide preliminary descriptive data on PTSD in Italian female students. Although university students are considered high functioning samples, results highlight that around 10% of female students attending courses at the University of Padova exceed the cutoff point indicating a potential for the presence of post-traumatic symptoms. A high percentage of them, 34.9%, satisfy DSM-5 criteria for a provisional clinical diagnosis of post-traumatic stress disorder. This result supports the on-going investigations to assess long-term effects of childhood adverse experiences as well as other factors influencing post-traumatic manifestations.

6.2. Moderating effect

With regard to the study of a moderating effect played by anxiety and avoidance, the aim of the study was to observe whether the long-term effects of childhood traumatic experiences can be altered, namely increased, under two different conditions: higher levels of anxiety in close relationship and higher levels of avoidance of intimacy. Our results do not support this hypothesis.

In the hierarchical regression, no interaction between traumas and romantic attachment significantly predicted the severity of post-traumatic symptoms. As a consequence, the present

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study suggests that romantic attachment is not a significant moderator in the association between childhood traumatic experiences and PTSD in adulthood. This result is in line with a recent study on the moderating role of partner emotional support and negative interaction [65], in which authors found no moderation and observed that the stress buffering theory does not explain the role of social support in distress. Our results may confirm that couple attachment does not buffer the effect of childhood trauma on post-traumatic symptoms in adulthood. However, the authors [65] suggest that further investigations should run both moderation and mediation analyses in order to have different functional understanding on the role of social support variables.

A previous study [50] found a moderation of the quality of romantic relationship on the association between sexual abuse experience and depression. However, methodological limitations linked to sampling and measure may account for the absence of the same result in our study.

Direct effects show that both anxiety and avoidance represent significant predictors of PTSD. Moreover, when all conditions are controlled, students with higher levels of emotional abuse present higher PTSD symptoms, confirming the centrality of the emotion dysregulation in the expression of post-traumatic symptoms.

The physical abuse and neglect both show direct negative effects on PTSD. This result is not immediate to understand and claims for further analyses. As a consequence, functional approaches overcome the limit of descriptive interpretations of results. Finally, the variance explained by predictors and moderators suggests that other variables could be involved as independent predictors as well as significant moderators.

6.3. Mediating effect

Results of the path analyses show that different forms of childhood traumatic experiences present different relationship with current post-traumatic symptoms: some forms of trauma show a direct influence on PTSD, while others are independent or have a combination of direct and indirect effects.

First, our results highlight that the inability to manage intimacy and closeness in romantic relationships leads to a severity of emotional neglect and ultimately, the development of post-traumatic symptoms in adulthood. Moreover, emotional abuse and emotional neglect display direct influences on PTSD.

These results allow two considerations. First, emotional components of trauma appear to have the greatest direct and mediated influences on PTSD. In particular, a possible explanation is that emotional traumas damage or compromise the development of affect regulation in infancy; such early impairment lasts into adulthood and exposes victims to a major risk of maladaptive response in stressful situations. Moreover, the emotional abuse appears to impede interpersonal affect regulation, with victims presenting higher levels of anxiety and avoidance in romantic attachment and then greater PTSD.

Emotional abuse and neglect experiences are mainly expressed in chronic familiar contexts, including ignoring the child, being constantly absent, blaming, humiliating and constantly criticizing the child. These repeated experiences produce a negative self-worth and a sense of guilt which are symptoms of complex PTSD. Moreover, emotional neglect involves showing no emotions in interactive exchanges with the child which leads to extreme difficulties in recognizing self- and other-emotions. This mechanism damages the development of reliable internal model of self and other, making victims more vulnerable to high levels of anxiety and avoidance in intimate relationship.

Second, the mediation of the relationship between emotional neglect and PTSD is provided by both anxiety and avoidance in romantic attachments. It is possible to suppose that previous levels of stress, due to traumatic repetitive experiences, like the inaccessibility of emotional support, can be reactivated by the vulnerability in the relationship, such as a perceived threat of abandonment. As a consequence, this mechanism might encourage people to read interpersonal minor stressors, quarrel and separations as trigger for high levels of stress, which, on the other hand, exposes hidden PTSD symptomatology. According to Van der Kolk [21], abused and maltreated children may show biases in the interpretation of interpersonal situations, quickly seeing the changes in voice tone and facial expression as a threat; consequently, they rapidly shift from the stimuli to a defensive reaction. In adulthood, this consolidated experience produces the internal perception of stress, even in neutral situation of fight or discussion in close relationships. The repetition of such mechanism produces dysregulation of emotion and hyper-arousal, characteristics of PTSD, as a response to non-stressing stimulus. A previous study shows that adult victims of childhood traumatic experiences are more likely to react with a deeper affective and physiological dysregulation to a harmless situation, compared to adult victims of a traumatic experience in adulthood [20].

A more controversial result is given by the negative influence of both physical abuse and neglect on post-traumatic stress disorder. Other investigations previously attested the ambiguous role of the dismissing pattern of attachment (characterized by greater avoidance) in association with PTSD. Moreover, this pattern appears to be less frequent in female samples. The two elements related to our study may affect the results. However, a possible interpretation of the results may also include that the negative emotions characterizing avoidance in romantic attachment may result in increase in emotional forms of trauma; physical abuse and neglect may have different long-terms effects, less connected with emotion regulation and PTSD. Physically abused subjects may have developed different defensive mechanisms reducing avoidance and PTSD. Further studies in this field are needed to reach a clearer interpretation.

Finally, the present study suggests that further investigations should consider the role of other independent predictors and other possible mediators, reported by literature, in the expression of post-traumatic symptoms and in the long-terms effects of physical interpersonal traumatic experiences.

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6.4. Limitations

The present study has some limitations. First, for a broader and more complete understanding of the variables involved in the relationship between childhood traumas and post-traumatic symptoms, the measures of childhood experiences, attachment and psychological outcomes should include interviews and different kinds of assessment. Indeed, the present results are totally produced based on self-report measures. Second, the measure of traumatic experiences is retrospective and participants are female students; further studies should be done with clinical subjects to evaluate, in clinical or high risk groups, the role of attachment on their symptomatology. Moreover, participants were all Italians; hence, the external validity is so far limited. Another limit is due to the lack of other psychopathological outcomes which might impact on the different roles played by anxiety and/or avoidance on different psychopathologies.

However, even if methodological shortcomings of the present results do not allow clear interpretations on the role that romantic attachment may play in determining adult post-traumatic symptomatology, one of the strength of the study lays in the opportunity to describe, in a functional framework, the relationship between childhood experiences and adult post-traumatic symptomatology. Indeed, the study of both moderation and mediation overcome limits linked with descriptive models.

7. Conclusion

In conclusion, the present study provides interesting results on the relationship between childhood traumatic experiences, romantic attachment and post-traumatic stress disorder, considering both the limited number of investigations involving nonclinical samples and the novelty of the application of a functional approach.

In particular, the results of the present study point out the role of emotional forms of trauma in later psychopathology and well-being, evidencing the role of severe impairment of early emotional regulation on stress and socio-emotional development.

The present results might be considered in a clinical framework, pointing to some aspects which should be included and focused on in the intervention with adults experiencing post-traumatic stress disorder as a result of the connection with a childhood history of abuse. From this study, we discover the role of anxiety and avoidance in close relationship as features to include in the clinical work with female victims presenting PTSD in adulthood.

In particular, programs of intervention should consider focusing on affect and interpersonal regulatory skills and implement strategies addressing the work on fear of abandonment as well as on avoidance of intimacy, in order to boost more adaptive coping skills to face stressful situations. Namely, reducing the negative self-believes and/or other-believes which lead to dependence on or avoidance of the other people may reduce their hyper sensibility to stressful situation and their avoidance of negative emotion. Both features characterize affect dysregu-

lation, interpersonal disturbance and negative self-concept typical of complex PTSD. Finally, results about the presence of PTSD among female students suggest the need for further studies and screening in general populations.

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