

**The Moderating Effect of Attachment Styles on the Relationship between Child
Maltreatment and Internalizing and Externalizing Problems**

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Abstract

Multiple studies have documented the relationship between child maltreatment and internalizing and externalizing problems. Evidence suggests that the link between child maltreatment and these psychopathological outcomes may be moderated by various factors. Attachment styles may be one such moderating factor in this relationship. This study seeks to explore whether different attachment style profiles are associated with different forms of maltreatment as well as internalizing and externalizing symptoms, and whether attachment styles may moderate the link between different forms of maltreatment and internalizing and externalizing problems. For this purpose, 270 students from Italian public high schools were recruited. We used the Italian version of the Attachment Style Questionnaire (ASQ) to assess different dimensions of attachment, the Italian version of the Childhood Experience of Care and Abuse Questionnaire (CECA.Q) to assess experiences of maltreatment, and the Italian version of the Youth Self-Report (YSR) to assess internalizing and externalizing problems. Results showed that different types of attachment style profiles were specifically associated with maltreatment variables and internalizing/externalizing problems as well as attachment style profiles moderated the relationships between maltreatment and internalizing problems. The findings are discussed in light of the theoretical framework and limitations, and implications for practice and child custody are presented.

Keywords: child maltreatment; attachment styles; internalizing and externalizing problems; adolescents.

The Moderating Effect of Attachment Styles on the Relationship between Child Maltreatment and Internalizing and Externalizing Problems

The relationship between different forms of child maltreatment and psychopathological outcomes has been widely studied (Jaffee, 2017; Infurna et al., 2016; Gershon, Sudheimer, Tirouvanziam, Williams, & O'Hara, 2013; Kim & Cicchetti 2010). Multiple studies have confirmed that maltreatment, such as physical, emotional, and sexual abuse as well as neglect are associated with high risk for developing internalizing (e.g., depression and anxiety) and externalizing problems (e.g., delinquency and disruptive behavior disorders) in youth (Moynan et al., 2010; Green et al. 2010; McLaughlin, Zeanah, Fox, & Nelson, 2012; Gershon et al., 2013). These studies also showed that the link between child maltreatment and internalizing and externalizing problems may involve numerous potential moderating factors, whose identification is crucial both to better understanding and preventing the psychopathological outcomes of childhood maltreatment (Alink, Cicchetti, Kim, & Rogosch, 2009). Indeed, not all children who have experienced maltreatment will develop emotional or behavioral problems (Luthar, Cicchetti, & Becker, 2000).

Attachment styles may be one such factor. Indeed, individual differences in attachment styles show relationships with both adverse childhood experiences and internalizing and externalizing problems (Lowell, Renk, & Adgate, 2014; Font & Berger, 2015). Previous studies suggested that children exposure to maltreatment and attachment styles may be linked to each other (Cicchetti, Rogosch, & Toth, 2006; see Cyr, Euser, Bakermans-Kranenburg, & van Ijzendoorn, 2010 for a meta-analysis; Bakermans-Kranenburg, & van Ijzendoorn 2009; Muller, 2010), but these findings have been inconsistent in terms of associations of specific forms of maltreatment with, and their impact on, specific attachment styles. For example, Widom, Czaja, Kozakowski and Chauhan (2018) found that individuals with histories of childhood neglect or physical abuse had higher levels of anxious

attachment in adulthood. In contrast, both Unger and De Luca (2014) and Finzi, Ram, Har-Even, Shnit and Weizman (2001) compared physically abused, neglected, and control group children, in terms of their attachment styles. The physically abused children were primarily characterized by an avoidant attachment style, whereas the neglected children were primarily characterized by an anxious/ambivalent attachment style. Thus, while there is a relationship between childhood maltreatment and attachment styles in youth, the specific nature of this relationship remains unclear. An explanation for these results is that the attachment style is formed based on a wide range of interactions with both primary caregivers and the closest living environments; consequently, even in situations of maltreatment, the impact of these conditions on the development of the attachment style is not necessarily decisive and other factors and dimensions can enter to contribute to its formation. This implies that the attachment style can be conceived not only as a consequence of maltreatment experiences, but also a potential moderator of the consequences of maltreatment on other dimensions such as behavioral and emotional problems.

Evidence from literature suggests that the relationships between attachment styles and internalizing versus externalizing problems are also unclear. For example, some studies found that anxious and avoidant attachment predicted internalizing problems in adolescents, with a weak or non-significant relationship with externalizing problems (Brumariu & Kerns, 2010; Di Stefano, Piacentino, & Ruvolo, 2017; Lacasa, Mitjavila, Ochoa, & Balluerka, 2015; Rönnlund & Karlsson, 2006). However, other studies have indicated significant associations between an avoidant attachment style and externalizing problems (Ramos, Canta, de Castro, & Leal, 2016; Nishikawa, Sundbom, & Hägglöf, 2010), or between insecure attachment and the cognitive and emotional components of aggression, including anger and hostility, but not physically and verbally aggressive behavior (Muris, Meesters, Morren, & Moorman, 2004). Moreover, some other studies have suggested that secure attachment is associated with lower,

and preoccupied attachment with higher, levels of internalizing and externalizing behaviors (Allen, Moore, Kuperminc, & Bell, 1998). Again, these mixed findings seem to suggest that the impact of attachment styles on internalizing and externalizing problems could be understood not only in terms of risk factors for the development of such problems or promotive factors for better levels of behavioral and emotional well-being, but also in terms of protection or vulnerability factors, which can mitigate or not the expression and/or intensity of the internalizing and externalizing problems.

In line with the different perspectives on the role of attachment styles, the literature shows studies that have examined the link between maltreatment and internalizing and externalizing problems using both mediating and moderating models. In the first case, attachment style is considered as a mediational mechanism linking maltreatment and psychopathology. For example, Muller, Thornback, and Bedi (2012) found that insecure attachment (both anxiety and avoidance) mediated the relationship between childhood psychological, but not physical, abuse and internalizing and externalizing symptoms in young adulthood. Dimitrova et al. (2010) found that the closeness dimension of attachment in children who were sexual abuse survivors specifically mediated the effect of maltreatment severity on problems in interpersonal relationships and depression. In the second case, studies (Beeghly & Cicchetti, 1994; DeKleyen & Greenberg, 2008) have emphasized that individual differences in attachment styles may moderate the effects of risk factors, including maltreatment, on the development of behavioral and emotional problems. In this case, as already above-mentioned, attachment style serves as a protective or vulnerability factor (see Masten, 2011, 2013) in buffering or boosting the risks. Thus, while children who show higher levels of maltreatment are more prone to develop behavioral and emotional problems (van Ijzendoorn, Schuengel, & Bakermans-Kranenburg, 1999; Warren, Huston, Egeland, & Sroufe, 1997), secure attachment may buffer this link (Hahm, Lee, Ozonoff, & van Wert,

2010), while insecure attachment may boost to some extent it.

However, studies testing the moderating role of attachment style between maltreatment and internalizing/externalizing problems are limited. For example, maltreatment was related to lower levels of emotional dysregulation for insecurely but not securely attached children (Alink et al., 2009), while positive attachment relationships to parents buffered the effects of childhood sexual abuse and later trauma symptoms in female college students (Aspelmeier, Elliott, & Smith, 2007). In adults, anxious attachment exacerbated the effects of intimate partner violence on symptoms of post-traumatic stress disorder (PTSD), while maltreatment more strongly predicted both internalizing and externalizing symptoms in children with a more negative view of their mothers (Toth, Cicchetti, & Kim, 2002). Seeing the literature, it seems to lack studies that propose a sufficient evaluation of the moderating role of the diverse attachment styles on the associations of diverse forms of maltreatment with diverse problem outcomes in adolescent populations not defined a priori as “clinical” or “maltreated”. A study that takes into account all these aspects could help us advance our current knowledge on how attachment styles can “generally” influence the strength of the links between risk factors and consequent behavioral and emotional problems in so-called “normal” populations, contributing thus to a greater generalizability of current studies and related theoretical formulations.

In line with this need for research, the central question revolves around the moderating role of attachment styles. As already mentioned above, although attachment representation in adolescence is based on early relationships with primary caregivers, other factors, such as negative or positive environmental influences and an easier or difficult temperament, may play a role in the formation of different types of attachment styles, able to reduce or amplify the strength of the relationships between adverse childhood experiences and internalizing and externalizing symptoms (Alink, et al., 2009). Precisely these “other factors” could account for

the moderating role of attachment styles on these relationships.

In the light of these considerations, the current study had the following objectives. First, we aimed at identifying groups of adolescents with specific attachment style profiles. To do so, unlike much prior research, we used a person-oriented approach (Bergman & Trost, 2006) that refers to a holistic perspective (Bergman & El-Khoury 2001) paying emphasis on both understanding the individual as a whole rather than as characterized by single characteristics and capturing non-linearity and interactions among variables that cannot be well described using variable-centered models (Bergman 2000). Typologies derived from person-oriented approaches are able to recognize individuals who are similar to and different from others, informing about the “tendency for a given person to have a distinct pattern of factors on which they are high, medium, or low” (Morin & Marsh, 2015, p. 39). Accordingly, individuals may be described as having different combinations of dimensions of attachment as deriving, as mentioned, from both early relationships with primary caregivers and “other influences”. This may result in diverse subgroups of individuals with specific configurations of attachment style characterized by high, medium, or low levels of attachment-related dimensions. Assuming the advantages of this approach, we hypothesized to have at least three profiles, including the well-known secure, avoidant and anxious attachment groups. Second, we aimed at examining associations between such profiles with different forms of maltreatment and internalizing and externalizing problems, generally hypothesizing that secure attachment group would be characterized by lower levels of both maltreatment and behavioral and emotions problems than the other attachment groups. Third, we aimed at investigating the moderating role of attachment style profiles in the relationships between different types of maltreatment and internalizing and externalizing problems. We hypothesized that maltreatment experiences would be differentially related to adolescents’ internalizing or externalizing symptoms based on individual differences in attachment

profiles, although we did not formulate more specific hypotheses given that literature did not unequivocally support a consistent picture of these relationships. Furthermore, due to prior work documenting gender differences in the types of maltreatment, maladaptive feelings and behaviors as well as the pathways between maltreatment and behavioral and emotional problems (e.g., Maschi, Morgen, Bradley, & Hatcher, 2008) we controlled the analyses for gender and expected that girls would generally report higher levels of internalizing symptoms than boys.

Method

Participants

Participants included 270 students recruited from public high schools located in western Sicily (Italy). Only a small proportion of them (3%) had missing information on one or more of the study variables. These participants were excluded from the analyses. Our final sample thus consisted of 262 adolescents (males = 53.8% and females = 46.2%) aged 13 to 18 years ($M = 15.83$, $SD = 1.54$). Almost all the participants were Caucasian Italians (90.4%), had married and cohabiting parents (92.4%), and indicated their birth mother (99.2%) and birth father (97.7%) as the reference figures who brought them up. The majority came from middle-class backgrounds (74.8%) with less than 2% of parents who had elementary school education or lower and less than 24% who had university or post-university education. About 4% experienced parental separation and about 1% had a previous hospitalization experience for psychological/psychiatric reasons, while 11.5% had some psychological (brief counselling) interventions with a psychologist or psychiatrist, consisting of at least one 1-hour meeting and usually for not more than six months.

Procedure

The local psychology department's ethics committee approved this study. Two hundred and eighty students were randomly and proportionally contacted in the schools

willing to participate in the study. Participants' parents were informed, through specific parent meetings, about the purpose of the research, the voluntary nature of participation, and the anonymity of responses. During the meetings, parents provided informed consent for their son or daughter's participation. Fewer than 5% ($n = 10$) of the parents did not allow their son or daughter to participate. In addition, adolescent participants provided signed assent agreeing to take part in the study. Italian research assistants and young graduate trainees collected the data during class time. Participants had 60 min to complete the survey and could withdraw at any time.

Measures

Socio-demographics. Respondents were asked to indicate their gender, age, ethnicity, level of socio-economic status (SES), previous hospitalization experience, previous psychological counseling and its typology, as well as their parents' marital status and education.

Attachment Style Questionnaire (ASQ). The 40-item self-report Italian version of the ASQ (Feeney, Noller, & Hanrahan, 1994; Fossati et al., 2003) was used to assess different dimensions of attachment. Specifically, the ASQ measures: confidence in self and others (eight items; example: "Overall, I am a worthwhile person") reflecting a secure attachment orientation; discomfort with closeness (10 items; example: "I worry about people getting too close") reflecting avoidant attachment according to Hazan and Shaver's (1987) conceptualization; relationships as secondary (seven items; example: "Doing your best is more important than getting along with others") reflecting dismissive attachment according to Bartholomew's (1990) conceptualization; need for approval (seven items; example: "I worry that I won't measure up with other people") reflecting need for acceptance and confirmation from others according to Bartholomew's (1990) fearful and preoccupied attachment pattern; and preoccupation with relationships (eight items; example: "I wonder how I would cope

without someone to love me”) reflecting anxious and dependent approaches to relationships according to Hazan and Shaver’s (1987) original anxious/ambivalent attachment pattern. Starting from this formulation, the ASQ has often been used to study the three prototypical attachment styles (Brennan & Shaver, 1995), namely secure attachment (via confidence subscale), insecure avoidant attachment (via discomfort with closeness and relationships as secondary subscales), and insecure anxious attachment (via need for approval and the preoccupation with relationships subscales). Items were scored on a Likert-type scale ranging from 1 (*totally disagree*) to 6 (*totally agree*). For each subscale, a total score was obtained by summing the items, with greater scores indicating higher levels of the dimension measured. Reliability and validity data have been provided for both English (Feeney et al., 1994) and Italian (Fossati et al., 2003) versions of the ASQ. In the current study, Cronbach’s alpha (α) values were .72, .71, .72, .63, and .73 for confidence, discomfort with closeness, relationships as secondary, need for approval, and preoccupation with relationships, respectively.

Childhood Experience of Care and Abuse Questionnaire (CECA.Q). The Italian version of the CECA.Q (Bifulco, Bernazzani, Moran, & Jacobs, 2005) was used to assess adverse childhood experiences (before the age of 17 for the older participants). The questionnaire incorporates sections on parental loss and references figures (see Participants section) in childhood as well as parental or reference figures’ neglect, and psychological, physical, and sexual abuse (we excluded parental or reference figures’ antipathy because it is questionable whether this dimension is indeed a form of maltreatment). The CECA.Q showed good internal consistency in different contexts (e.g., Infurna et al. 2016; Falgares et al., 2018; Smith, Lam, Bifulco, & Checkley, 2002; Verrocchio, Marchetti, & Baker 2014). Full description of CECA.Q scales and scoring is given by Falgares and colleagues (2018). Here, we report a brief definition of the scales and some additional information about scoring and internal consistency.

Neglect refers to a distinct disinterest in the child's material and physical care (e.g., food, clothing, and health), friendships, schoolwork, career prospects, and whereabouts by parents or surrogate parents. Maternal ($\alpha = .71$) and paternal ($\alpha = .87$) neglect scores were related (.52) and, therefore, averaged to provide a single indicator of parental neglect, with higher scores indicating more parental neglect.

Psychological abuse refers to a highly controlling and domineering relationship of parental figures with the child, including humiliation, terrorization, cognitive disorientation, exploitation, and corruption or intentional deprivation of needs or valued objects. Maternal ($\alpha = .70$) and paternal ($\alpha = .78$) psychological abuse scores were strongly related (.60) and, therefore, averaged to provide a single indicator of parental psychological abuse, with higher scores indicating more parental psychological abuse.

Physical abuse refers to violence toward the child by parents or other caregivers in the household, including attacks where implements such as belts or sticks are used, or punching or kicking occurs with the possibility of causing harm. The score was dichotomized with a score of 0 for absence of any episode of physical abuse and a score of 1 for presence of one or more of such episodes.

Sexual abuse refers to age-inappropriate physical contact or approach of a sexual nature by any adult to the child. The score was dichotomized with a score of 0 for absence of any episode of sexual abuse and a score of 1 for presence of one or more of such episodes.

Youth Self-Report for Ages 11–18 (YSR). The 112-item Italian version of the widely used YSR (Achenbach & Rescorla 2001; see Ammaniti, Cimino, & Petrocchi, 2005) assessed internalizing and externalizing problems. This instrument assesses child behavioral and emotional problems over the last 6 months. The YSR is comprised of eight core syndrome scales: anxious/depressed (13 items; example: "I am nervous or tense"), withdrawn/depressed (eight items; example: "I am too shy or timid"), somatic complaints (10 items; example: "I

feel overtired without good reason”), social problems (11 items; example: “I am too dependent on adults”), thought problems (12 items; example: “I deliberately try to hurt or kill myself”), attention problems (nine items; example: “I fail to finish things that I start”), rule-breaking behavior (15 items; example: “I break rules at home, school, or elsewhere”), and aggressive behavior (17 items; example: “I get in many fights”). However, as described by Achenbach and Rescorla (2001), three syndromes (anxious/depressed, withdrawn/depressed, and somatic complaints) comprise the internalizing scale, whereas two others (rule-breaking behavior and aggressive behavior) comprise the externalizing scale. The three remaining syndromes (social problems, thought problems, and attention problems) do not belong to either of these broad-band scales and, therefore, we did not consider them because they were outside the scope of this study (i.e., internalizing and externalizing problems). Items were rated as 0 (*not true*), 1 (*somewhat or sometimes true*), or 2 (*very true or often true*). For both the internalizing and externalizing scales, a total score was obtained by summing the related items, with greater scores indicating higher levels of these problems. Raw scores were used for all analyses. Reliability and validity of YSR are well established (Achenbach & Rescorla 2001). In this study, Cronbach’s alpha values were .87 for internalizing problems and .82 for externalizing problems.

Analytic Plan

We followed four main steps to carry out data analysis. First, we computed the prevalence of CECA.Q maltreatment dimensions in terms of their moderate or marked levels to confirm the non-clinical nature of the recruited sample. We also computed descriptive statistics for key study variables including means and standard deviations, skewness and kurtosis indices, and minimum and maximum values of standardized scores. This allowed verification of the univariate normality of the distributions. When it was the case, non-normally distributed variables were transformed to improve normality and extreme outliers.

Furthermore, Mahalanobis distance and the Mardia's multivariate kurtosis coefficient were used to test the multivariate normality and identify other potential multivariate outliers. Then, the final descriptive statistics for the study variables were computed.

Second, we identified attachment style patterns by a cluster analytic approach based on the standardized scores of ASQ subscales. Specifically, in an initial step, agglomerative hierarchical cluster analyses, using Ward's method based on the squared Euclidean distance (Aldenderfer & Blashfield, 1984) and examining solutions from two to six clusters, were performed to determine the most appropriate number of clusters. The criteria used for choosing this number included the theoretical meaningfulness of each cluster, parsimony, and explanatory power. With regard to the latter, the cluster solution had to explain at least 26% of the variance in each of the ASQ dimensions (see Cohen, 1988). After that, study participants were grouped by *K*-means cluster analysis procedures and standardized mean values of the ASQ grouping variables describing the characteristics of each identified cluster were calculated. Next, to check the validity of the solution, a multivariate analysis of variance (MANOVA) on the five ASQ dimensions by cluster was carried out and the replicability of the solution was tested. As suggested by Breckenridge (2000), data were randomly divided into two subsets (A and B) and cluster analyses were reconducted for each of them. Then, subset B was classified into clusters according to the cluster centers derived from subset A and the agreement between the two subset B solutions was computed using Cohen's kappa, with higher agreement indicative of a more stable cluster solution.

Third, associations of attachment style profiles with maltreatment variables and internalizing/externalizing problems using Multivariate Analyses of Covariance (MANCOVAs) were investigated with attachment style profiles as the independent variable and maltreatment dimensions of neglect, psychological abuse, and physical abuse as well as internalizing and externalizing problems serving as dependent variables. We excluded sexual

abuse here and in the following analyses due to the few cases of this type of maltreatment for each attachment style profile; see Results section). Gender (0 = male; 1 = female) was entered as covariates.

Fourth, to explore the moderating role of attachment style profile in the relationships between the diverse types of maltreatment and internalizing/externalizing problems we carried out a multiple-group path analysis with attachment style profile as the grouping variable and gender as a control variable. After reporting bivariate correlations, we carried out analyses to test the *a priori* model specifying the associations of neglect, psychological, and physical abuse with the internalizing and externalizing problems. The maximum likelihood estimation method within *Mplus 7.2* (Muthén & Muthén, 2014) was used to estimate coefficients. Following Faraci and Musso (2013), Hu and Bentler (1999), and Kline (2010), multiple indices were used to evaluate model fit (adopted cutoffs in parentheses): the chi-square (χ^2) test value with the associated *p* value ($p > .05$), comparative fit index ($CFI \geq .90$ for acceptable and ≥ 0.95 for good fit), root-mean-squared error of approximation ($RMSEA \leq .08$ for acceptable and $\leq .05$ for good fit), and standardized root mean square residual ($SRMR \leq .10$ for acceptable and $\leq .05$ for good fit). Nested model comparisons (the more restrictive vs. the less restrictive models) were used to examine whether or not paths differed by attachment style profile. In order to ascertain significant differences at least two out of these three criteria had to be satisfied: $\Delta\chi^2$ significant at $p < .05$, $\Delta CFI \leq -.010$, and $\Delta RMSEA \geq .015$ (Chen, 2007).

Results

Descriptive Statistics

Tables 1 and 2 summarize the descriptive statistics. Specifically, Table 1 presents prevalence scores of CECA.Q dimensions, showing the non-clinical nature of our sample. Tables 2 reports means, standard deviations, skewness, kurtosis, and minimum/maximum

values of standardized scores of all key study variables. Neglect, psychological abuse, and externalizing problems were not normally distributed with skewness and/or kurtosis values $>|1.00|$ (Curran, West, & Finch, 1996; Kline, 2010) as well as values of standardized scores $>|3.29|$ (see Tabachnick & Fidell, 2013; as dichotomous variables, physical abuse and sexual abuse were excluded from these considerations). For these reasons, a transformation was applied for non-normal variables by computing the base-e logarithm or the square root for each distribution as the best solution (see Table 2 for details). After re-calculating descriptive statistics for the transformed variables, the new distributions showed adequate skewness/kurtosis values and minimum/maximum values of standardized scores. Multivariate inspection of the data, using Mahalanobis distance with $p < .001$ and Mardia's multivariate kurtosis coefficient, revealed twelve cases being slight outliers. However, after performing the subsequent analyses without or with these cases, we found no significant effect on the pattern of results. Thus, we retained these cases in the final sample.

Attachment style profiles

On the basis of the initial agglomerative hierarchical cluster analyses and the *a priori* criteria, a three-cluster solution was found to be the most acceptable. On the one hand, the solution with two clusters explained less than 26% of variability in at least one of the ASQ dimensions. On the other hand, solutions with four to six clusters violated the principle of parsimony, because they included clusters that represented slight variations compared to the three most interpretable clusters and did not have a clear theoretical meaning. After establishing the most appropriate number of clusters, participants were clustered into three groups by *K*-means cluster analysis. Figure 1 shows the obtained attachment style profiles. The first cluster ($n = 112$; 42.75% of the sample) consisted of adolescents scoring high on confidence, but low on discomfort with closeness, relationships as secondary, need for approval, and preoccupation with relationships. The second cluster ($n = 70$; 26.72% of the

sample) was composed of adolescents who scored low on confidence, high on discomfort with closeness and relationships as secondary, and moderate on need for approval and preoccupation with relationships. The third cluster ($n = 80$; 30.53% of the sample) consisted of adolescents scoring low on confidence and relationships as secondary, moderately high on discomfort with closeness, and high on need for approval and preoccupation with relationships. Thus, we found, in sequence, profiles representing confidence, avoidance and anxious attachment styles.

The MANOVA computed on the grouping variables revealed a significant multivariate effect, Wilks' Lambda = .19, $F(10, 510) = 65.70$, $p < .001$, $\eta^2 = .56$, indicating that about 56% of the variability was accounted for by group differences among the three clusters. Also, subsequent univariate analyses of variance (ANOVAs) indicated that the three-cluster solution explained good percentages of variance for each variable (45% of variability in confidence, 34% in discomfort with closeness, 33% in relationships as secondary, 35% in need for approval, and 39% in preoccupation with relationships). Finally, the replicability procedure indicated that the three-cluster solution was the best for both of the two random subsamples, and that the agreement between the two solutions of the second subsample was .79, indicating a substantial level of reliability.

Associations of attachment style profiles with maltreatment variables and internalizing/externalizing problems

Due to too few cases reporting sexual abuse for each attachment style profile, particularly among confidently attached individuals where only 2 participants reported sexual abuse, we decided to exclude this variable in the following analyses because it is likely not valid to examine the associations of sexual abuse with the other key variables in this condition with so few cases. The MANCOVA on the maltreatment variables and internalizing/externalizing problems resulted in a significant multivariate effect of attachment

style profile, Wilks' Lambda = .60, $F(10, 508) = 14.62$, $p < .001$, $\eta^2 = .22$, after controlling for gender. As displayed in Table 3, follow-up analyses indicated significant adjusted group mean differences among the attachment style profiles for neglect, psychological abuse, physical abuse, and internalizing/externalizing problems. Pairwise comparisons ($p < .05$) revealed that the adolescents in the confidence attachment style profile scored lowest on internalizing/externalizing problems compared to the adolescents in the other attachment style profiles. Confidently attached youth also scored lower on neglect as well as on psychological and physical abuse than the adolescents in the avoidance attachment profile. Those with an avoidant attachment profile did not significantly differ on neglect or internalizing/externalizing problems compared to the adolescents in the anxious attachment style profile. Avoidantly attached youth also scored highest on psychological and physical abuse compared to the adolescents in the other attachment style profiles. Finally, adolescents in the anxious attachment style profile did not significantly differ from those with a confident attachment style on neglect and psychological or physical abuse.

The moderating role of attachment style profile in the relationship between maltreatment variables and internalizing/externalizing problems

Correlations between the main and control (gender) variables by attachment profile group are displayed in Table 4. We explored our research question about the moderating role of attachment style profiles in the relationship between maltreatment variables and internalizing/externalizing problems by conducting a three-group path analysis simultaneously comparing the identified attachment style profile groups. The tested model is presented in Figure 2, showing neglect, psychological abuse, and physical abuse having direct effects on internalizing and externalizing problems. Gender was allowed to predict the outcome variables and to correlate with the maltreatment indicators. Covariances among the maltreatment variables and between internalizing and externalizing problems were also

allowed.

An initial less restrictive model was fit so that all pathways were freely estimated across all the attachment style profile groups, except for the covariations among gender and each of the maltreatment variables that were constrained to be equal. This model had acceptable fit, $\chi^2(8) = 12.03, p = .15, CFI = .967; RMSEA = .076, SRMR = .039$. Next, a more restrictive model, where all the path coefficients linking maltreatment variables with internalizing and externalizing problems were set equal across the attachment style profile groups, was tested and compared with the initial model. This constrained version of the model had a significantly worse fit, $\chi^2(20) = 49.61, p = .0003, CFI = .757; RMSEA = .130, SRMR = .087, \Delta\chi^2(12) = 37.58, p < .001, \Delta CFI = -.210, \Delta RMSEA = .054$. Inspection of modification indices suggested releasing the following constraints: (a) the pathway between neglect and internalizing problems in the avoidance attachment style profile group, and (b) the pathways between physical abuse and internalizing problems across the three attachment style profile groups. This partially constrained model had acceptable fit that did not significantly differ compared with the initial model, $\chi^2(17) = 25.00, p = .09, CFI = .934; RMSEA = .073, SRMR = .069, \Delta\chi^2(9) = 12.97, p = .22, \Delta CFI = -.033, \Delta RMSEA = -.003$. Standardized coefficients of this preferable model are shown in Figure 2.

Across all the attachment style profiles, (a) neglect and physical abuse were significantly and positively associated with externalizing problems, and (b) psychological abuse was not significantly related to internalizing or externalizing problems. The other pathways were moderated by attachment style profile and showed significant associations with internalizing problems in at least one attachment style group. Specifically, greater neglect predicted ($p < .001$) greater internalizing symptoms in the avoidant attachment style profile group but not in the other groups ($p > .72$). Also, greater physical abuse predicted greater internalizing problems among anxiously attached youth ($p < .001$) but was unrelated

to internalizing symptoms in the confident and avoidant attachment style groups ($p > .06$). In summary, these results revealed that attachment style profiles moderated the relationships between maltreatment and internalizing problems, especially regarding the effects of neglect and physical abuse on internalizing symptoms, but not between maltreatment and externalizing symptoms. Also, gender was significantly associated only with internalizing problems, with females reporting higher levels of internalizing problems than males in the confident and in the avoidant attachment style groups but not in the anxious attachment style group.

Discussion

The main purpose of the study was to investigate how specific attachment style profiles moderate the relationships between different forms of maltreatment and internalizing and externalizing problems in a non-clinical sample of Italian adolescents. In reaching this goal, we initially identified adolescents' attachment style profiles by applying a person-oriented approach (Bergman & Trost, 2006). This permitted to better consider how individuals differ and develop in unique ways through distinguishing different subgroups of adolescents characterized by specific levels of the diverse attachment-related dimensions. Then, we examined how such profiles were associated with different forms of maltreatment and internalizing and externalizing problems. Except for some findings, a number of our hypotheses were supported.

As expected, and suggested by the literature on attachment (Brennan & Shaver, 1995; Fossati et al., 2003), we found that three configurations of attachment style best represented our adolescent sample when using the ASQ dimensions of attachment. Specifically, we identified confidence, avoidance, and anxious attachment styles. Adolescents with a confident attachment style profile were characterized by comfort with closeness and separateness. Adolescents with avoidant attachment style profile were characterized by avoiding both

closeness and expression of their emotions. Finally, adolescents with an anxious attachment profile were characterized by the desire for contact and fear of rejection while being dependent on others. Findings also indicated that the majority of our non-clinical Italian adolescent sample were classified as securely attached (42.75%). This fitted the results from studies using the Adult Attachment Interview (Main, Kaplan, & Cassidy, 1985, see also Cassibba, Sette, Bakermans-Kranenburg, & van Ijzendoorn, 2013, for a meta-analysis of Italian studies), which is usually recognized as the “gold standard” measure of attachment, and thus further validated our obtained profile solution, but also the generalizability of the three profiles usually found in the literature by using a self-report attachment measure.

Associations of attachment styles with experiences of maltreatment and internalizing/externalizing problems

Our findings also revealed associations between attachment style profiles and different forms of maltreatment and internalizing and externalizing problems. Consistent with prior findings (Lowell et al., 2014; Font & Berger, 2015), adolescents with a confident attachment style profile have significantly lower scores on internalizing and externalizing problems relative to those with an anxious or avoidant attachment style. Confidently attachment adolescents also have lower scores on psychological and physical abuse than those in the avoidance attachment profile. Moreover, adolescents in the avoidant attachment profile did not show significant differences on neglect as well as internalizing and externalizing problems compared to the adolescents in the anxious attachment style.

To some extent, these results are consistent with our expectations and with previous findings suggesting that insecure attachment styles seem to characterize neglected and emotionally abused individuals, who in turn exhibit more psychopathological outcomes (Erozkan, 2016; Taillieu, Brownridge, Sareen, & Afifi, 2016; Alink et al., 2009). It is important to note, however, that adolescents with an avoidant attachment profile showed

significantly higher scores on psychological and physical abuse than those in the anxious attachment style profile. This latter finding is in line with other studies reporting that a higher severity of abuse more strongly relates to avoidant attachment (Finzi et al., 2001; Finzi, Har-Even, Shnit, & Weizman, 2002). For example, as suggested by several researchers (e.g., Erozkhan, 2016; Unger & De Luca, 2014), children who have been subjected to physical abuse may become distant from others and have difficulties in developing trust, intimacy, and affection. When children experience frightening events with their caregivers, they develop fear, pain, anger and they may live in a constantly alert mood. In such cases, it is possible that these children will avoid their caregiver. Thus, it is possible that they develop a maladaptive attachment style that excludes the representation of unloving caregivers from their awareness. In this case, caregivers' violence arouses anger of children, who repress it in order to minimize their hurt and allow them to avoid further rejection that might be triggered by their attempts for contact (Finzi, Cohen, Sapir, & Weizman, 2000).

The moderating role of attachment styles between the associations of maltreatment and psychopathology

Regarding the moderating role of attachment in the links between different forms of maltreatment and internalizing and externalizing behaviors, results supported the possibility that the effects of maltreatment on problem outcomes may vary depending on individual's attachment style profile. Specifically, our findings showed a potential moderating effect of attachment profiles on the links of neglect and physical abuse with internalizing problems. We did not find any moderating effect when considering psychological abuse or externalizing problems.

These results suggest that a confident attachment style may mitigate the links among neglect and physical abuse and internalizing problems. Conversely, the adolescents with an avoidant attachment pattern, having received less parental affection and more hostility and

having experienced greater discomfort with closeness may show more internalizing psychopathology. This is consistent with prior evidence that children who have been subject to physical and emotional rejection, as well as hostility or coldness show more difficulties in developing trust, intimacy, and affection. As a consequence of these traumatic experiences, they appear to avoid relationships and are more prone to internalizing problems (Brumariu & Kerns, 2010). Moreover, as demonstrated by Manly, Kim, Rogosch and Cicchetti (2001), experiences of neglect render children more sensitive to the failures in their relationship in that they may blame themselves for the maltreatment they suffered, thereby reacting with increased internalized negative affect. Moreover, results showed that the association between physical abuse and internalizing problems may be particularly relevant among adolescents in the anxious attachment style profile. As is well known, experiences of physical abuse have serious effects in terms of the development of successive anxious, depressive and somatic difficulties. When this general process encounters individuals who have anxious attachment patterns, it can be amplified. In fact, according to Hazan and Shaver (1987), anxious attachment is characterized by the desire to be close with others and the worry of being abandoned. This desire for closeness and this concern to be abandoned can lead adolescents to interpret physical abuse events in an even more threatening and serious manner, thus increasing the chances of a consequent increase in internalizing problems. Furthermore, it should be noted that buffering effect of a confident attachment style may play an important role with regard to internalizing symptoms, but we did not find this effect regarding externalizing problems as conceptualized in this study (rule-breaking behavior and aggressive behavior). Probably, this result deserves further study considering other aspects related to the conceptualization of externalizing problems, such as, for example, overactive or impulsive behaviors. Finally, consistent with our expectation and other previous studies (e.g., Tambelli, Laghi, Odorisio & Notari, 2012; Hicks et.al, 2007), gender differences in internalizing

symptoms were found among adolescents in the confident and avoidant attachment style profiles. In particular, adolescent girls reported higher internalizing problems than boys. These differences were not found among adolescents in the anxious attachment profile. This attachment representation seems to be associated with such levels of anxiety, depression and somatic complaints that the role of gender is not significant.

Implication for Practice and Limitations

Taken together, results of this study support the importance of considering the intertwined relationships among attachment styles and adolescents' maltreatment history on increasing the probability of internalizing problems. Assessing the moderating role of attachment styles on the effects of maltreatment on psychopathological symptoms may improve interventions designed to reduce risk of depression or anxiety. Our study suggests doing this by working on adolescent attachment styles and patterns, and not according to a symptom-focused approach (as the APA clinical guidelines seem to suggest). This also has the great advantage of reducing the use of drugs, in contrast to the current trend provided by the pharmaceutical industries and pharmacological psychiatry. Furthermore, the literature presents several attachment-based interventions, easily usable and tested, that can be adequately implemented by operators in the field (see, for example, Bakermans-Kranenburg, van IJzendoorn, & Juffer, 2003; Juffer, Bakermans-Kranenburg, & van IJzendoorn, 2012). Generally, such interventions are characterized by a specific field of application, duration and effectiveness in relation to their characteristics. Those that could be more interesting, in relation to the results of this study, propose to work on the internal working models of insecure individuals to help them become "earned-secure" (Roisman, Padrón, Sroufe, & Egeland, 2002). The idea is that only by recognizing the influence of past experiences on the current situation, and understanding the reasons that led caregivers to behave in certain ways, individuals can avoid resorting to defense mechanisms that prevent them from having of

representations of relationships based on lived reality and not influenced by the ghosts of the past.

Our study may be also important in terms of prevention actions and applications to child custody. In the event of conflicting situations such as divorce or separations, which are associated, in many cases, even if not consciously, with forms of maltreatment of the involved children, our findings suggest the opportunity to entrust minors to parents with models of more secure attachment to prevent the onset of internalizing disorders. This could be one of the criteria to be adopted in choosing the custodial parent. Similarly, the secure attachment, as a protective factor, could be taken into account in the selection of adoptive families. Having to evaluate the potential parenting capacities of adoptive parents (in the impossibility of observing real parenting relationships), one could rely on the internal working models of future parents both to select couples that can facilitate the birth of new positive relationships with the minor, and to mitigate any potential negative effects of previous maltreatments that children or adolescents have encountered before leaving their families of origin. The same is true in the case of family custody, especially if one takes into account that the foster family should allow minors to “face” possible shortcomings in terms of development, including emotional development.

When trying to understand our findings and their implications, one must, finally, bear in mind the limitations of the study. Although results suggest that the effects of maltreatment on internalizing problems may vary depending on individual differences in adolescents’ attachment style profiles, the direction of the moderating effects has to be interpreted with caution due to the cross-sectional nature of this study. For example, it is plausible that psychopathology symptoms may influence the development of attachment styles over time in youth. Moreover, this study relied on adolescents’ retrospective self-reports which may be subjects to biases and recall errors. The reliance on self-reports may also inflate associations

due shared method variance, although this cannot explain the significant moderating effects found here. Another limitation associated with self-reports on the YSR is that responses to items tapping externalizing behaviors may be subjected to desirability biases (Rönnlund & Karlsson, 2010), causing participants to underestimate their own externalizing symptoms. Regardless, the inclusion of different measures of attachment styles and symptoms such as mother and father reports or interview-based measures could further strengthen studies on this topic. Furthermore, a methodological concern should be raised about the non-clinical nature of the sample. This implied having low levels of the different forms of maltreatment and internalizing and externalizing problems, limiting the generalizability of our study. If replicated on a clinical adolescent population, findings might more effectively suggest implications for treatment and child custody. However, the use of a non-clinical adolescent sample allowed us to establish the prospective moderating effect of attachment style profiles on the link between maltreatment and behavioral and emotional problems unconfounded by moderate or severe clinical treatment effects. Overall, further research is needed to examine the relative contribution of attachment styles and subtypes of maltreatment to determine internalizing and externalizing problems, preferably using both clinical and non-clinical populations, multi-informant data, and longitudinal designs.

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Table 1

Prevalence of adverse childhood experiences (as measured by CECA.Q), calculated as the percentage of participants exceeding the cut-off scores for moderate or marked levels.

Variable	Cut-off scores for moderate or marked level	% (N = 262)
1. Neglect (scored 8-40)	$\geq 22^a$	2.3
2. Psychological Abuse (scored 0-102)	There is no established cut-off	-
3. Physical Abuse (scored 0 or 1)	$\geq 1^a$	15.3
4. Sexual abuse (scored 0 or 1)	$\geq 1^a$	4.6

Note. CECA.Q = Childhood Experience of Care and Abuse Questionnaire.

^a See Bifulco et al., 2005.

Table 2

Means, standard deviations, skewness, kurtosis, and minimum/maximum values of standardized scores for the key study variables both in their original version and in their transformed version (N = 262).

Observed variable	Transformation	<i>M</i>	<i>SD</i>	Skewness	Kurtosis	Min. stand.	Max. stand.
1. Confidence in self and others (scored 8-48)	No	31.30	6.06	-0.17	0.26	-3.02	2.59
2. Discomfort with closeness (scored 10-60)	No	38.13	7.34	0.35	-0.11	-2.74	2.44
3. Relationships as secondary (scored 7-42)	No	16.59	5.86	0.37	-0.31	-1.64	3.14
4. Need for approval (scored 7-42)	No	23.15	6.07	0.13	0.00	-2.17	3.11
5. Preoccupation with relationships (scored 8-48)	No	30.45	6.94	-0.20	-0.17	-2.66	2.10
6. Neglect (scored 8-40)	No	11.78	3.80	1.43	2.28	-1.00	3.75
Neglect (scored 2.08-3.69)	Yes (base-e log)	2.42	0.29	0.71	-0.10	-1.19	2.90
7. Psychological abuse (scored 0-102)	No	2.50	4.67	3.03	10.37	-0.54	5.36
Psychological abuse (scored 0-4.63)	Yes (base-e log[y+1])	0.75	0.91	0.94	-0.15	-0.82	2.85
8. Physical abuse (scored 0 or 1)	No	0.15	0.36	1.95	1.85	-0.42	2.35
9. Sexual abuse (scored 0 or 1)	No	0.05	0.21	4.40	17.59	-0.22	4.56
10. Internalizing problems (scored 0-62)	No	17.22	9.67	0.66	-0.11	-1.78	3.04
11. Externalizing problems (scored 0-64)	No	12.57	7.03	0.98	1.87	-1.79	4.10
Externalizing problems (scored 0-8)	Yes (square root)	3.39	1.03	-0.19	0.72	-3.29	2.94

Note. Min. stand. = Minimum value of standardized score; Max. stand. = Maximum value of standardized score.

Table 3

Univariate analyses of covariance and pairwise comparisons for the three attachment profiles on the maltreatment variables and internalizing/externalizing problems.

	MANOVA-adjusted means by attachment style profile			<i>F</i> (2, 253)	η^2
	Confidence <i>n</i> = 112	Avoidance <i>n</i> = 70	Anxious <i>n</i> = 80		
Maltreatment variable					
Neglect (scored 2.08-3.69)	2.37 ^a	2.48 ^b	2.44 ^{ab}	3.78 [*]	.03
Psychological Abuse (scored 0-4.63)	0.65 ^a	1.03 ^b	0.63 ^a	4.33 [*]	.03
Physical Abuse (scored 0 or 1)	0.10 ^a	0.26 ^b	0.13 ^a	4.33 [*]	.03
Problems					
Internalizing (scored 0-62)	10.66 ^a	21.91 ^b	22.29 ^b	74.28 ^{***}	.37
Externalizing (scored 0-8)	3.08 ^a	3.60 ^b	3.65 ^b	9.72 ^{***}	.07

Note. A profile mean is significantly different from another mean if they have different superscripts.

* $p < .05$, ** $p < .01$, *** $p < .001$.

Table 4

Correlations for the main and control variables by attachment profile group.

	1.	2.	3.	4.	5.	6.
Confidence attachment group ($n = 112$)						
1. Neglect	-					
2. Psychological Abuse	.44***	-				
3. Physical Abuse	.06	.04	-			
4. Internalizing problems	.07	.19*	-.17	-		
5. Externalizing problems	.35***	.27**	.34***	.26**	-	
6. Gender	-.15	.13	-.19*	.37***	-.10	-
Avoidance attachment group ($n = 70$)						
1. Neglect	-					
2. Psychological Abuse	.56***	-				
3. Physical Abuse	.11	.17	-			
4. Internalizing problems	.44***	.37**	.08	-		
5. Externalizing problems	.36**	.28*	.14	.42***	-	
6. Gender	-.03	-.08	-.08	.37**	-.14	-
Anxious attachment group ($n = 80$)						
1. Neglect	-					
2. Psychological Abuse	.41***	-				
3. Physical Abuse	-.01	-.03	-			
4. Internalizing problems	.05	.04	.29*	-		
5. Externalizing problems	.19	.07	.28*	.28*	-	
6. Gender	.13	-.01	-.30**	.08	-.12	-

* $p < .05$, ** $p < .01$, *** $p < .001$.

Figure 1. Mean Z-scores for confidence, discomfort with closeness, relationships as secondary, need for approval, and preoccupation with relationships by the three attachment style profiles.

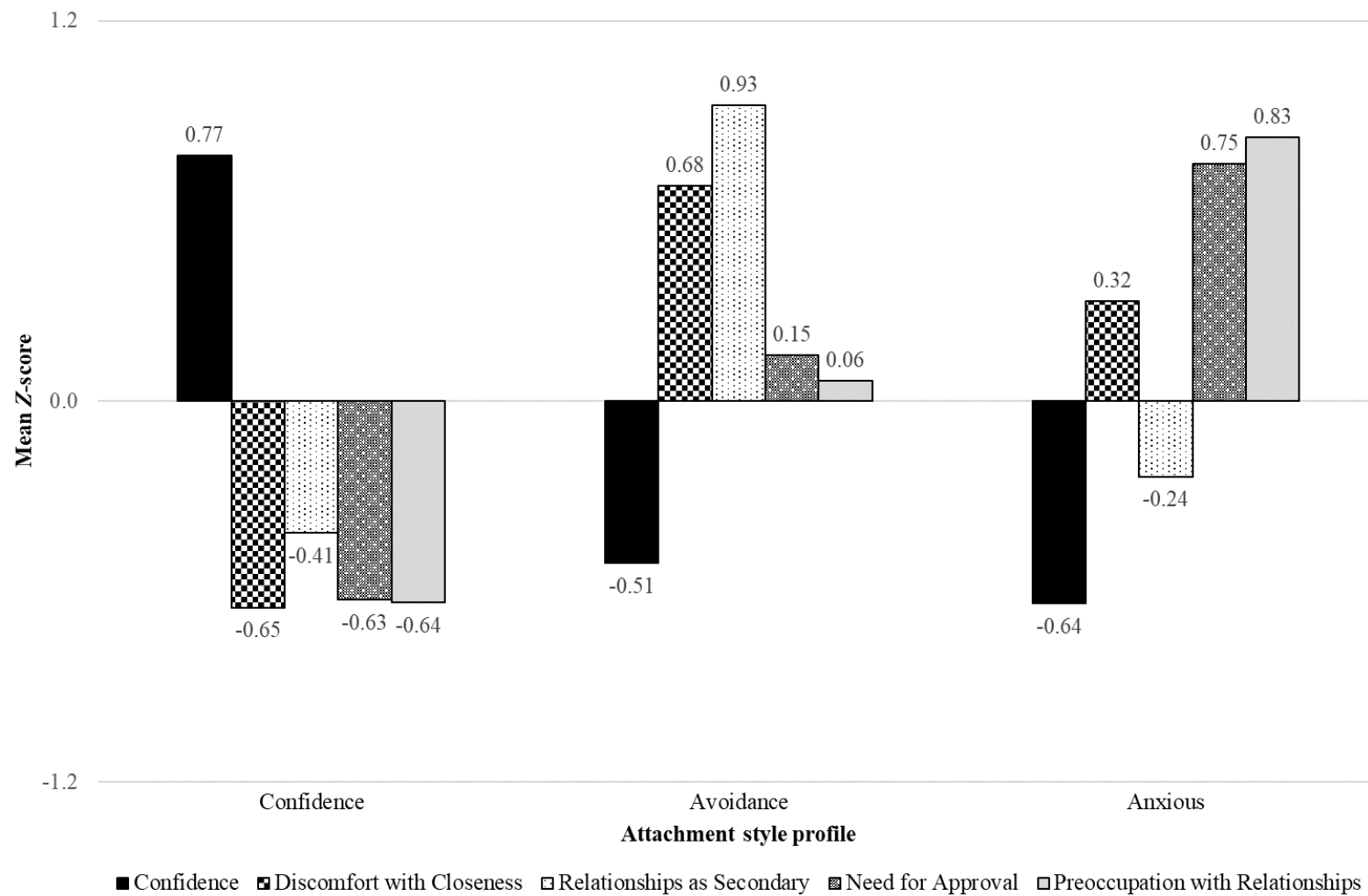


Figure 2. Estimated multiple-group path analysis model. Maximum likelihood standardized coefficients are shown. Conf = Confidence attachment style profile. Avo = Avoidance attachment style profile. Anx = Anxious attachment style profile. Attachment style profile in bold is significantly different from the others. Black solid lines represent similar significant pathways across the attachment style profiles, black dashed lines are similar nonsignificant pathways across the attachment style profiles, black dashed and dotted lines represent pathways moderated by attachment style profiles. Gender, as controlling variable, and related pathways are represented in light grey. All the covariances within independent and dependent variables as well as among independent and controlling variables were permitted but are not presented for reasons of parsimony. * $p < .05$, ** $p < .01$, *** $p < .001$.

