

# Role of Early Traumatic Life Events, Insecure Attachment Style and Callous-Unemotional Traits in Predicting Aggression in High School Students

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## Abstract

**Background:** Worldwide, aggression is one of the main death causes for people between the ages of 15 to 44. Understanding the risk factors may be critical to accurate aggression and treatment.

**Objectives:** This study aimed to examine the relation between early traumatic events, callous-unemotional traits and insecure attachment style with aggression in a sample of adolescent out-patient.

**Methods:** A sample of high school students (n=345) with a mean age of 16.62 (SD=0.81) years completed Boss and Perry Aggression Questionnaire (BPAQ), Early Trauma Inventory (ETI), Inventory of Callous-Unemotional (ICU) traits and revised adult attachment scale (RAAS). The obtained data were analyzed using Pearson correlation coefficient and multivariate regression analysis.

**Results:** Regression analysis revealed that 13% variance of aggression can be predicted by early traumatic events, insecure style of attachment and callous-unemotional traits.

**Conclusion:** Our findings provide further insight into the role of particular psychopathy traits, trauma and attachment in developing and maintaining aggression. Study implications and limitations are considered.

**Keywords:** Aggression, Callous-unemotional traits, Insecure attachment, Trauma

## 1. Background

Aggression is a personality feature which influenced by situational and psychological factors as well as genetic and biological factors, which play a major role in its occurrence and development. Therefore, it is difficult to give a precise and objective definition of aggression (1). Aggression first develops during childhood usually and is one of the most important factors which can cause children mental health problems (2). The factors that underlie aggression include genetic factors, fetal environment, rearing environment, biological factors, and mental disorders such as substance abuse, psychosis, depression, and personality disorders (1). Regarding biological factors, emerging evidence suggests that serotonergic system is a behavioral inhibitor system that plays an influential role in impulsivity and aggression. As consistent with existing literature, developmental factors also affect the incidence of aggression. On a related note, neglected or abused children, compared to control group, exhibit more delinquency, violence, criminality and aggression (3).

However, Baron and Richardson (4) pointed out the importance of aggression by defining it as a behavior intended to harm others and their properties, such a behavior will cause defensive and avoidance reactions from a victim. There is a variety of youth and adolescent aggression act including proactive action to harm or control versus reactive action to cope or protect; and whether they are

reflected in an indicative form of aggression or relational form (5). Moreover, researchers draw attention to the potential importance of aggression sexual differences, with boys showing higher aggression compared to girls. Of note, verbal/physical aggression is typical form in males, while females display more social/relational aggression (6). In boys, verbal aggression increases and physical aggression decreases with age (7). Furthermore, it has been reported that 15.6% of male adolescent and 0.4% of female adolescent were classified as "overtly aggressive" while 17.4% of girls and 2.0% of boys were reported to be "relationally aggressive" (6). Physical aggression is divided into two subtypes: proactive (instrumental, cold-blooded) that refers to intentional harmful behavior with the aim of achieving individual desires, and reactive (defensive, hot-blooded) that is offered in response to perceived provocations and abuses (8,2).

An important factor related to aggression is to offer a flattened emotional response to witnessing others suffering; more precisely, these people are indifferent toward negative consequences of their behavior. This is best characterized by callous-unemotional traits (2) known as one of the risk factors for physical aggression (8,9). Callous-unemotional traits have been investigated mainly in youth and it has three dimensions of callousness (lack of guilt, empathy and remorse), unemotional (lack of emotional expression) and uncaring (lack of concerns for others or individual performance) (10).

Numerous studies have demonstrated that both callousness and uncaring predict aggression in youth (11). Coyne & Thomas (12) acknowledged that indirect aggression had a stronger correlation with callousness characteristics. In young males, callous-unemotional traits are not only associated with proactive aggressive, but also with the negative affect that can exacerbate reactive aggression in the form of anger or irritability (8). The study done by White and colleagues (8) drew 377 women sample and demonstrate that callous-unemotional traits are correlated with proactive aggression.

A significant body of research demonstrates that the insecure attachment style- a key component in complex trauma- as an internalized active pattern of relations, provides the primary motivation for aggressive behavior (7). More specifically, these people exhibit fearful, conflicted, disoriented, anxious and other strange behaviors to cope with separation distress. Further, insecure attachment represents fears that generalize across situations and are durable over time. Insecure attachment represents feelings and thoughts related to anxiety and depression as well as anger and aggression toward people in general, not only primary caregivers (13). It has been well established that insecure attachment style has behavioral outcomes, particularly externalizing behavior such as criminality, aggression, oppositional defiant behaviors, and hostility. Relational and heightened aggression resulted from insecure attachment have been also observed in adolescents (7). For instance, some adolescents with insecure attachment have punishment-oriented behaviors toward their parents, and seek to militancy and humiliate them. Other behavior forms of adolescents with insecure attachment include exhibiting fear or having difficulty in communicating or interacting with parents (14).

An important factor in the development of insecure attachment is childhood maltreatment or abuse (15). Individuals with adverse and stressful experiences in childhood, such as abuse, neglect, and harsh parenting practices, tend more to exhibit aggressive behaviors (16). The devastating impact of traumatic experiences not only undermines child's immediate function but also has a negative impact on child's growth process and makes the child more vulnerable to mental illnesses (17). For example, among 510 adults, Rholes and colleagues reported that insecure attachment style mediates the relationship between early trauma and later externalizing behaviors (14) while Widom (1989) noted that 908 neglected or abused children, compared to 997 healthy control children, exhibit delinquency and violent criminal behaviors in adulthood (3).

The current research built on the limited body of literature, by investigating the role of early traumatic events, insecure attachment style and callous-

unemotional traits as predictors of aggression in adolescents.

## 2. Objectives

This study aimed to investigate the relationship between callous-unemotional traits (callousness, uncaring and unemotional), insecure attachment style and early traumatic events with aggression (Physical aggression, verbal aggression, anger, hostility) in high school students.

## 3. Methods

This cross sectional-descriptive was done in 2016. Correlation and stepwise regression analyses were conducted using SPSS for Windows, version 20. All participants completed Boss and Perry Aggression Questionnaire (BPAQ), Early Trauma Inventory (ETI), Inventory of Callous-Unemotional Traits (ICU) and revised adult attachment scale (RAAS).

370 male and female students studying in high schools in Shiraz in the educational year 2015-2016 (The Iranian year of 1394-1395), chosen via multistage random sampling, were participated in the questionnaire surveys. Four high schools (two boys and two girls' high school) were chosen randomly, two classes in each school were selected and finally, half of the students of each class were randomly chosen to participate. Boss and Perry Aggression Questionnaire (BPAQ), Early Trauma Inventory (ETI), Inventory of Callous-Unemotional (ICU) traits and revised adult attachment scale (RAAS) were administered to groups of students. 25 respondents were eliminated from the sample due to not completing the questionnaire accurately. Therefore, the final sample comprised of 345 students (54.8 female and 45.2 male) which is acceptable based on Cochran formula. The age range of the participants was 15 to 18 years, with an average (SD) of 16.62 (0.81). 36.8% of subjects were in 2<sup>nd</sup> grade, 45.2% in 3<sup>rd</sup> grade and 18% in 4<sup>th</sup> grade of high school. The average CGPA (Cumulative Grade Point Average) of students in the sample was 15.48, SD=2.52.

### Research Instruments

#### *Buss-Perry Aggression Questionnaire (AQ; Buss & Perry, 1992)*

A 29-item self-rating scale that is the gold-standard for measurement of aggression by means of four factors: physical aggression (9-item), verbal aggression (5-item), anger (7-item) and hostility (8-item). The answers are scored on 5-point Likert scale ranged from 1 (extremely uncharacteristic of me) to 5 (extremely characteristic of me), yielding a minimum score of 29 and a maximum score of 145 (18). Regarding the internal consistency, adequate indices were obtained for full scale and subscales in the study conducted in the United States; Cronbach's

$\alpha$  coefficients of 0.89 for the whole scale, 0.85 for physical aggression; 0.72 for verbal aggression; 0.83 for anger and 0.77 for hostility. With respect to scale reliability, test-retest reliability (nine weeks) for the subscales and total score ranged from  $\alpha = .72$  to  $\alpha = .80$  (19). Cronbach's  $\alpha$  in Iranian population was calculated to be 0.78 (20). In the current study, Cronbach's  $\alpha$  of the total scale was obtained 0.75.

#### **Early Trauma Inventory (ETI; Mehrabizade et al., 2011)**

ETI has 23-items, investigating traumas before age of 18. Participants are asked to answer Yes / No to each item, scoring 1 for Yes and 0 for No. Total score varies from 0 to 23. Adequate psychometric properties have been demonstrated for the scale in large samples in Iran; Mehrabizade et al (21) reported Cronbach's  $\alpha < 0.89$  ( $n=120$ ) and Cronbach's  $\alpha > 0.91$  to 0.93 ( $n=180$ ). In the current study, reliability using Cronbach's  $\alpha$  was 0.78.

#### **Inventory of Callous-Unemotional Traits (ICU; Frick, 2003)**

This is a 24-item self-, parent or teacher report questionnaire that assesses callous-unemotional traits. This measure is adapted from CU scale of the Antisocial Process Screening Device (22). Participants rate each item using a five-point Likert scale with responses ranging from 0 (not at all true) to 3 (definitely true) to evaluate callousness (11 items), uncaring (8 items) and unemotional (5 items) (10). The higher score represents the more severe callous-unemotional traits. ICU has shown enough internal consistency in a sample of 540 students aged 10-16, ( $\alpha > 0.66$ ) (23). The temporal stability and construct validity of ICU was assessed using child psychopathology scale-revised (CPSr), and it shows a moderate correlation with affective facet of psychopathology ( $r = 0.49$ ,  $P < 0.001$ ) (24). Cronbach's  $\alpha$  in Iranian population was calculated to be 0.70 (25). In the current study, we used the self-report version of the scale and the Cronbach's  $\alpha$  was 0.68 for total scale.

#### **Revised Adult Attachment Scale (RAAS; Collins & Read, 1990)**

The RAAS consists of 18 items, each rated on a 5-point scale ranging from 1= not at all characteristic to 5=very characteristic. RAAS developed in a sample of students in order to assess attachment style dimensions including close subscale (comfort with closeness and intimacy), depend subscale (comfort with depending on others, and anxiety subscale (worry about being rejected or unloved). Collins & Read (26) reported Cronbach's  $\alpha$  coefficient of 0.69 for close, 0.75 for depend and 0.72 for anxiety. Test-retest correlations for a 2-month period were 0.68 for close, 0.71 for depend, and 0.52 for anxiety (26). Cronbach's  $\alpha$  in Iranian population was calculated to be 0.68 (27). Cronbach's  $\alpha$  in the current sample were 0.71, 0.75 and 0.78 for close, depend and anxiety, respectively.

## **4. Results**

Table 1 summarizes the participant's characteristics both for the full sample, and male / female students separately, including means, SDs, and minimum /maximum scores on all measures. No significant differences were found between female and male students in aggression, CUT and traumatic life events, meanwhile, the results show that in comparison with female students, male students have experienced more insecure attachment style ( $M=1.90$ ,  $SD=0.36$ ). The results of student's t-test statistic indicate that there are significant differences between male and female participants in CGPA ( $p=0.008$ ), hostility ( $p=0.002$ ), callousness ( $p=0.009$ ) and insecure attachment style ( $p=0.00$ ).

Table 2 summarizes the results of bivariate analyses (Pearson correlations) to determine the relationships between variables. Table 2 shows that aggression has the most significant correlation with early traumatic events ( $r = .27$ ;  $p < .001$ ) and the least significant correlation with insecure attachment style ( $r = .16$ ;  $p < .001$ ). In addition, CGPA shows significant

**Table 1.** participant characteristics and descriptive statistics on main study variables

| variable                    | Full sample<br>(n=345) |       |       | Male<br>(n=156) |       | Female<br>(n=189) |       | P values |
|-----------------------------|------------------------|-------|-------|-----------------|-------|-------------------|-------|----------|
|                             | Range                  | M     | (SD)  | M               | (SD)  | M                 | (SD)  | P        |
| Age                         | 15yr-18yr              | 16.62 | 0.81  | 16.51           | 0.83  | 16.71             | 0.78  | 0.14     |
| CGPA                        | 11-20                  | 15.48 | 2.52  | 15.01           | 2.68  | 15.86             | 2.32  | 0.008    |
| Aggression                  | 41-138                 | 72.98 | 15.79 | 74.99           | 16.00 | 71.32             | 15.46 | 0.20     |
| Physical aggression         | 12-37                  | 23.46 | 4.85  | 23.80           | 4.57  | 23.17             | 5.08  | 0.31     |
| Verbal aggression           | 4-51                   | 12.19 | 5.01  | 12.93           | 4.17  | 11.57             | 5.55  | 0.82     |
| anger                       | 7-27                   | 15.23 | 4.22  | 14.85           | 4.20  | 21.02             | 6.16  | 0.91     |
| hostility                   | 10-71                  | 22.09 | 6.88  | 23.39           | 7.46  | 23.32             | 9.12  | 0.002    |
| CUI                         | 7-77                   | 23.67 | 8.61  | 24.09           | 7.98  | 23.32             | 9.12  | 0.73     |
| Callousness                 | 1-25                   | 7.90  | 4.40  | 8.25            | 3.79  | 7.61              | 4.85  | 0.009    |
| Uncaring                    | 0-24                   | 8.08  | 3.84  | 7.82            | 3.86  | 8.31              | 3.81  | 0.07     |
| unemotional                 | 0-56                   | 7.73  | 5.1   | 8.01            | 4.42  | 7.48              | 5.64  | 0.48     |
| Insecure attachment style   | 7-25                   | 16.54 | 3.52  | 17.58           | 2.89  | 15.68             | 3.76  | 0.00     |
| Early traumatic life events | 26-64                  | 41.40 | 4.20  | 41.14           | 3.54  | 41.61             | 4.69  | 0.22     |

Notes: yr= years; CGPA =Cumulative Grade Point Average; CUT=Callous-Unemotional Traits.

**Table 2.** Zero-order correlation between research variables (n=345)

| variables                   | 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      | 9      | 10    | 11   |
|-----------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|------|
| CGPA                        | -      |        |        |        |        |        |        |        |        |       |      |
| aggression                  | -0.02  | -      |        |        |        |        |        |        |        |       |      |
| Physical aggression         | 0.05   | 0.73** | -      |        |        |        |        |        |        |       |      |
| Verbal aggression           | -0.10  | 0.74** | 0.39** | -      |        |        |        |        |        |       |      |
| Anger                       | 0.10   | 0.65** | 0.33** | 0.38** | -      |        |        |        |        |       |      |
| hostility                   | -0.08  | 0.83** | 0.48** | 0.47** | 0.37** | -      |        |        |        |       |      |
| CUT                         | -0.03  | 0.17** | 0.16** | 0.18** | 0.21** | 0.01   | -      |        |        |       |      |
| Callousness                 | 0.02   | 0.17** | 0.16** | 0.16** | 0.22** | 0.02   | 0.64** | -      |        |       |      |
| Uncaring                    | -0.008 | 0.03   | -0.002 | 0.09   | 0.12*  | -0.07  | 0.57** | 0.16** | -      |       |      |
| unemotional                 | -0.07  | 0.09   | 0.11*  | 0.08   | 0.07   | 0.04   | 0.68** | 0.10   | 0.07   |       |      |
| Insecure attachment style   | -0.05  | 0.16** | 0.10*  | -0.08  | -0.07  | 0.20** | -0.09  | -0.08  | -0.11* | 0.07  | -    |
| Early traumatic life events | 0.18** | 0.27** | 0.32** | 0.19** | .04    | 0.23** | 0.05   | 0.23** | 0.008  | 0.11* | 0.06 |

\*\*p&lt;.001, \*p&lt;.05

**Table 3.** The results of stepwise regression in predicting aggression

| Dependent variable | Index Predictive variable   | R    | R <sup>2</sup> | F P             | Regression coefficients |          |                                    |                                    |                                    |
|--------------------|-----------------------------|------|----------------|-----------------|-------------------------|----------|------------------------------------|------------------------------------|------------------------------------|
|                    |                             |      |                |                 | R square change         | F change | 1                                  | 2                                  | 3                                  |
| Aggression         | Early traumatic life events | 0.27 | 0.07           | 27.44<br><0.001 | 0.07                    | 27.44    | $\beta=0.27$<br>$t=5.23$<br><0.001 |                                    |                                    |
|                    | Insecure attachment style   | 0.32 | 0.10           | 19.52<br><0.001 | 0.02                    | 10.92    | $\beta=0.27$<br>$t=5.26$<br><0.001 | $\beta=0.17$<br>$t=3.30$<br><0.001 |                                    |
|                    | Callous-unemotional traits  | 0.36 | 0.13           | 16.98<br><0.001 | 0.02                    | 10.63    | $\beta=0.26$<br>$t=5.15$<br><0.001 | $\beta=0.18$<br>$t=3.64$<br><0.001 | $\beta=0.16$<br>$t=3.26$<br><0.001 |

relationship only with early traumatic events ( $r = .18$ ;  $p < .001$ ). As can be seen from Table 2, Severity of aggression, callous-unemotional traits, insecure attachment style and early traumatic events were mild to moderately correlate with each other.

A series of regression analysis was conducted to examine the relationship between early traumatic life events, insecure attachment style and callous-unemotional traits as predictive variables and aggression as a criterion variable. One of the basic assumption of multiple regression analysis is independence of predictive variables or to put it in another word, the lack of correlation between the independent variables error, in next step we investigate this case by Durbin-Watson test. In sum, it can be said that if the value of test statistic was between 1.5 and 2.5, the independence of the observations can be accepted and perform the analysis. Since the results of Durbin-Watson test were equal to 2.03, the predictor variables are independent. Table 3 summarizes the result of linear regression analysis.

As Table 3 shows, early traumatic events, insecure attachment style and callousness-unemotional traits predicted the severity of aggression in linear regression analysis. More specifically, R and R<sup>2</sup> reported to be 0.36 and 0.13 respectively, meaning that 13% of the variance related to aggression can be explained by early traumatic events, insecure attachment style and callousness-unemotional traits. F for the multiple correlations calculated to be 16.98 ( $p < 0.001$ ).

As a final point, we tested the mediation hypothesis using regression, in which trauma affects aggression with the mediating role of attachment style. The results show that this mediating role is possible ( $\beta = 0.16$ ;  $p < 0.001$ ).

## 5. Discussion

To our knowledge, this is the first study to examine associations between specific risk factors and aggression in high school students. We sought to explore the predictive role of callous-unemotional traits, early traumatic experiences and insecure attachment style in aggression -suggested by prior research in adults- among outpatient male adolescents. Nevertheless, our nuanced findings support the importance of such an analysis and suggest that previous studies considering only broader dimensions of these constructs may have overgeneralized the nature of associations between variables.

In keeping with research literature (14,16,28-31), our hypothesis regarding the link between early traumatic experiences and aggression was generally supported. The present findings suggest that the students who reported high levels of childhood trauma had significantly higher aggression. This pattern of robust association between trauma and aggression is similar to the pattern of significant childhood trauma and lifetime aggression correlations that was previously found in a sample of prisoners (17). It has been found that physical abuse and



exposure to domestic violence is a prominent risk factor for intimate relation aggression in adulthood (32). In addition to physical abuse, the results reported by Yun, Ball & Lim (33) draw attention to the potential importance of neglect and found that neglect is a stronger predictor of delinquency and aggression, as well as involvement in drug/alcohol abuse (34) and criminality (35).

Consistent with prior research (8-11,36,37), the second finding is the demonstration of a role of callous-unemotional traits in predicting aggression. As previously mentioned, Callous-unemotional traits involve lack of empathy, emotional expression and lack of concerns for others. More specifically, decreased emotional reactivity and limited emotion expression are the predictors of clinically significant aggression. Moreover, lack of empathy may increase aggression in adolescents due to misunderstanding others and lack of ability to realize others feelings and motives, which may cause hostile attribution and lead to aggressive behaviors toward others.

Our findings also provide further support for the predictive role of insecure attachment in developing aggression (7,14,38-43). We interpreted this finding as indicating that it is possible that as secure attachment increases, experiences of aggression decreases or, alternatively, as experiences of aggression increases, secure attachment decreases. Thus, in keeping with research literature that aggression and parenting styles reciprocally effect on another (44), both directions of effectiveness could occur together. Underwood (45) asserts that adolescents with insecure attachment style are more vulnerable to threat in peer relations, and this may lead to developing active models of relationships that assign negative attributes towards others. Additionally, witnessing parental aggressive behavior may reinforce their aggressiveness.

While our findings are novel, some limitations are noteworthy. Firstly, the retrospective design and that the childhood trauma data were derived from a self-report questionnaire. Although the ETI has been shown to have high psychometric properties, future research might benefit from other methods of obtaining information about early childhood experiences. Secondly, we utilized concurrent self-report measures, future investigations should consider multi-method and longitudinal designs. Our high school female/male students sample was fairly homogenous, limiting generalizability. However, these patterns might extend to more specific aggression dimensions, like, rational aggression or peer relationship aggression in other samples, particularly, students in lower educational levels. Another limitation is that aggression is not all limited to individual and personality factors, policies and community level factors, since socioeconomic status, culture and social norms influence them as well.

A major strength of our study is the use of a

representative sample of the study population and use of reliable measures and careful assessments.

## 6. Conclusion

In summary, the current data support the view that aggression is associated with multiple factors. Researchers are urged to consider biological and developmental accounts when describing antecedents of aggression. It should be noted, however, that traumatic life events, callous-unemotional traits, and insecure attachment style together predict only 13% of the variance in aggression. Future studies should include additional variables in predictive models.

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None of the authors have any financial interests related to the material in the manuscript.

## Authors Contribution

Seyedeh Fatemeh Sajjadi was responsible for Analysis and interpretation of data, drafting the manuscript.

Sanaz Behbuei and Habibe Riyahi were responsible for Acquisition of data.

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## Conflicts of interest

The authors declare no potential conflicts of interest.

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