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Aggression in Adolescents: The Role of Mother-Child Attachment and Self-Esteem

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The abstract text reads: "Every year, adolescents' aggressive behavior in the world continues to increase, including in Yogyakarta, Indonesia. Teenagers' aggressive behavior in Yogyakarta leads to criminal acts resulting in physical sacrifices and death. The aggressive behavior of teenagers is known as *Klithih*. It develops and continues to increase every year, causing public anxiety and concern. This study aimed to examine the role of mother-child attachment and self-esteem against aggression. Aggression, mother's attachment, and self-esteem scales were deployed to collect data and were filled out by 730 high school students between 15 and 19 years old from twenty-three schools in five municipalities in Yogyakarta Province (M = 16.52, SD = 0.793, 310 male students and 420 female students). Descriptive statistics described research data by IBM SPSS 23 and structural equation modeling by AMOS v20 to test research hypotheses. The results of the study showed a good fit, indicating that self-esteem might enhance the effect of each mother's attachment style on aggression. Our study showed that insecure attachment positively and significantly affected aggression and negatively and significantly affected self-esteem. Furthermore, it also revealed that anxious attachment positively and significantly influenced aggression and negatively and significantly influenced self-esteem. Lastly, our finding revealed that self-esteem negatively and significantly affected aggression. These findings suggested that better mother's attachment and higher self-esteem in adolescents may lower the possibility of aggression, whereas insecure attachment, anxious attachment, and low self-esteem may increase the risk of aggression."

Keywords: adolescents; aggression; attachment; self-esteem; structural equation modeling

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Aggression in Adolescents: The Role of Mother-Child Attachment and Self-Esteem

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Abstract: In the present research, the exogenous and endogenous variables, partially or simultaneously, directly or indirectly, influenced aggression. The mediator variable (endogenous/self-esteem) mediated (indirectly) aggression in adolescents significantly compared to the exogenous variable (mother-child attachment) and the endogenous variable (self-esteem). The study participants were 730 high school students between 15 and 19 years old ($M = 16.52$, $SD = 0.793$), consisting of 310 male students and 420 female students. They were selected from twenty-three schools in five municipalities in Yogyakarta Province. Aggression, mother's attachment, and self-esteem scales were deployed to collect data. The data were analyzed using structural equation modeling. The results of the study showed a good fit, indicating that self-esteem might enhance the effect of each mother's attachment style on aggression. Our study showed that insecure attachment positively and significantly affected aggression and negatively and significantly affected self-esteem. Furthermore, it also revealed that anxious attachment positively and significantly influenced aggression and negatively and significantly influenced self-esteem. Lastly, our finding revealed that self-esteem negatively and significantly affected aggression. These findings suggested that better mother's attachment and higher self-esteem in adolescents may lower the possibility of aggression whereas insecure attachment, anxious attachment, and low self-esteem may increase the risk of aggression.

Keywords: Adolescents, Aggression, Attachment, Self-Esteem, Structural Equation Modeling

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1. Introduction

Aggression is a primitive behavior passed down from generation to generation from time immemorial, highly persistent that it is near impossible to be wiped out from earth completely, committed on purpose, directly and indirectly expressed through wrath [1], hostility, and physical, verbal, and psychological violence, irrespective of gender, residency, or state, hence extremely harmful for all life from the simplest to the most complex levels [2]–[6]. Simply put, it covers acts of verbal aggression such as calling names rudely, threatening, intimidating, snapping, and slandering [1], [4], as well as acts of physical aggression such as punching, kicking, shooting, or even killing [7]. The consequences resulted are negative thinking, damaged integrity and social relationship, disturbance to security, death, and mental disorders, such as failure in adapting, despair, depression, suicide, and alcoholism [7]–[12]. The development of this behavior has reached a fearful extent and bred a wide variety of social problems, thereby urging the search of solutions [11]. Many attempt to maintain security and avoid being afflicted with injury or any other effects [13].

Verbal aggression is directly and indirectly expressed through anger and feud, causing negative thinking, damaging integrity and social relationship, threatening security, and hurting the welfare of children, adolescents, and adults alike [1]. Physical and verbal aggression toward others takes the form of rage and animosity [6]. In China, 39.2% experienced medium levels of physical aggression [5]. Meanwhile, among Jakarta teenagers, 85.7% perpetrated aggression in the score range 68–106 [14]. Counted as aggression are aggressive behavior that causes physical wounds (physical aggression), verbal threats (verbal aggression), and showing anger, frustration, hostility, and suspicion to others [6]. In Russia, up to 80% of the adolescents committed verbal aggression [15]. Research in the U.S. showed that 22.6% of the adolescents engaged in physical fights [3]. Aggressive behavior is on the front line of the causes of global adolescent morbidity and mortality. As much as 5.5% mortality in adolescents is caused by aggressive behavior. A study in Spain found an average score for verbal aggression of 57.60% [16]. Individuals with low levels of self-control are highly potential to show aggressive behaviour [17].

In India, 46.04% experienced physical aggression [18]. Seventy-three percent of male adolescents in India showed moderate levels of aggressive behavior and thirty-two percent did high levels of aggressive behavior. It was further discovered that 57% of female adolescents had moderate levels of aggressive behavior and 18.5% did high levels of aggressive behaviour [19]. In Iran, it was found that the aggressive behavior in adolescents averaged a score of 63.61% [20]. The victim of aggression often develops suicidal thoughts due to the pressure that he/she is facing [21]. Aggression is stimulated by alcohol use [22], it is also linked to potential mental health issues [23]. Aggression is an act of threatening others or causing damage to objects [24]. It brings about signs of depression [25]. Weak self-control may lead to aggressive behavior [26]. Aggression is aimed to harm others, while it is undesirable [27]. Because it leaves injuries physically and verbally, it is better to avoid being the target [2]. Research in Indonesia showed that 11.9% of the adolescents demonstrated high levels of aggressive behavior and 75% did moderate levels of aggressive behaviour [28]. Aggression is a harsh behaviour from the simplest to the most complex levels [29]. It is a protective response to pressure and distress along with a sense of anger that is expressed by hurting others, intimidating, or taking dominance [4]. A study in Banda Aceh found that 81.48% of the teenagers showed aggressive behaviour [30].

Aggression is expressed by harsh behavior both physically and verbally, hence endangering human beings and other living beings and causing difficulties, damages to property, and pain. It includes calling unpleasant names and intimidating (verbal/psychological aggression) as well as kicking, hitting, shooting, and even killing (physical aggression) [7]. The perpetrators potentially use alcohol [31]. Most aggressive individuals fail at adapting both in family and at school [8]. This behavior may bring about negative morals [32]. Experiences of falling victim to physical aggression are highly likely to inspire aggressive behavior in the future [33].

Aggression that is directed toward peers may cause physical wounds, psychosocial and academic problems, and rocky relationships with peers [11]. The aim of this behavior is physical and psychological damage [10]. Those who are showing this behavior usually are drug and alcohol users [9]. Verbal aggression is insults that cause emotional and psychological problems as they relate to self-competence [34], [35]. Research in Indonesia with 2,681 adolescent subjects showed that adolescents committed physical and verbal aggression in many places, although the levels of aggression in rural areas were not as high as they were in other locations [36]. Aggression is physical, verbal, and psychological, hence leading to depression and even suicide [37]. It is a purposive act to hurt oneself, others, or the environment physically and verbally [38]. Verbal aggression is most frequently committed and experienced by teens. This behavior contributes to physical aggression, especially toward adolescents with emotional disorders [12].

Based on research results, levels of aggression are determined by a variety of factors: biological factor [39], parenting [40], parent attachment [40]–[42], socioeconomic factor

[43], modelling, conditioning, neurophysiological disorders, biochemical factor, environmental factor [24], peers' rejection and interaction between peers, antisocial behavior, stressful life events [44], low self-esteem [45]–[47], self-control [26], coping strategy [48], psychological factor and sociocultural factor [49].

A threatening situation stimulates someone to commit aggression [50]. Aggressiveness can be caused by individual biological characteristics [39], weak ability to control behaviour [51], parent attachment [42], and low self-control [52], [53]. According to the drive theory, aggression results from excessive frustration in response to a challenge to meet basic needs [44]. Families of low economic status have the potential for aggressive behavior [43]. Other factors include the presence of a role model, conditioning, neurophysiological disorders, biochemical factor, social factor, economic factor, and environmental factor [24]. Besides, child-parent attachment quality is also significantly related to aggressiveness [41]. Coping strategies have been insufficient, while coping behavior is one of the strategies used [48].

Aggression occurs when an individual feels a sense of frustration because his/her security is threatened [13]. Aggression is a natural instinct, occurring as an accumulation within one's self without any external stimulations [54]. It may also occur due to the interaction between biological, psychological, and sociocultural factors [49]. A low degree of warmth between the child and the parent also causes aggression in adolescents [55]. Aggression is also caused by poor self-control development, causing an individual's self-control to be weak [26]. Aggression is also a response of an individual to protect himself from provocation or certain challenges [4]. Secure attachment as learning experience has a role in low aggressiveness [40]. Experiencing physical aggression provides one a model to commit aggression him-/herself [33]. Primary affection in parenting creates emotional stability and a sense of safety, hence producing low levels of aggression [56].

1.1. Attachment and Aggression

It is essential to examine adolescent aggression and the factors associated with aggression. Previous studies found that family factors, such as, insecure attachment and anxious attachment are closely associated with aggressive behavior [41], [57]–[61]. Attachment is a quality mutualistic emotional bond between the infant and the caregiver that influences the infant's character development [62]–[64]. Attachment is divided into secure attachment and insecure attachment (anxious attachment and avoidant attachment) [62], [63]. Secure attachment between the child and the caregiver creates emotional stability, allows for good self-control ability development, encourages social interaction, develops self-esteem, gives strength against pressure, and prevents mental disorders and aggressive behavior [65]–[67].

Children with anxious attachment experience a non-responsive and inconsistent treatment in fulfilling their needs [68]. Those children learn not to express themselves and their needs, leading to a poor attachment, which eventually results in fear of others' rejection [62]. Children will have an insecure attachment (avoidant attachment) when they experience a treatment that consistently does not fulfill their needs [62]. The attachment quality of an individual with the parents tends to contribute significantly to the development of aggressive behavior [40], [41]. Dysfunctional anger and aggression are the core of insecure attachment [69], [70]. Children experience conflict between their need a close relationship and their wishes regarding other people's responses [64].

Previous studies showed that anxious attachment affects physical aggression and hostility more greatly than other types of insecure attachment [57]. A study on 388 high school students with a regression analysis technique found that attachment had an effective contribution to aggression at 16.5%. Insecure attachment had a significant effect on aggressive behavior in the form of physical aggression, verbal aggression, or hostility [57]. Learning experience with emotional attachments may reduce depression, stress, and other negative emotions [71], [72]. Insecure attachment causes children to behave negatively in expressing their emotions. They somehow become reclusive individuals; they

cannot depend on others, and their self-control on impulses is low [73]. All types of insecure attachment have a positive relationship with both physical and verbal aggression [58]. Insecure attachment significantly affects a child's ability to express his/her emotions, hence triggering aggressive behavior [61].

Therefore, the stronger the secure attachment with the parents the more likely the child avoids aggressive behavior [59]. Insecure attachment may strengthen the proactive aggression predisposition in males. The lower the secure attachment the higher the aggressive behavior reactivity [60]. Contrarily, strong secure attachment helps a child adapt to the environment, create harmonious relationships, and control his/her emotions [74]. Attachment contributes crucially to future behavior prediction [75]. Providing prime affection may create a child's emotional stability since it triggers a sense of security and comfort [56]. Individuals with insecure attachment have difficulties in controlling emotions and in trusting others and get anxious easily [76]. Other research results discovered that secure attachment is linked to low levels of aggressive behavior in children and to low levels of adolescent engagement in other dangerous behaviors [65], [66].

1.2. Attachment, Self-Esteem, and Aggression

Other research also found that the quality of child-parent attachment could influence self-esteem [68], [77]–[79] and later significantly influence aggressiveness [45]–[47], [80]–[83]. Some findings proved that secure attachment and insecure attachment as fundamental learning experiences have a significant effect on an individual's ability to conduct self-evaluation and control positive and negative behaviors, thereby useful for both him-/herself and his/her environment [68], [84], [85].

There are two factors at play in the development of self-esteem: reflected appraisals and social comparisons. It is presumed that there is a susceptibility to depression, drug use, and violence [86]. Individuals who manage to develop their self-esteem can make self-defense, be loved and accepted by others, show warm, responsive behavior, and have high self-efficacy [87], [88]. Individuals with high self-esteem, respect for values, and morals are competent and exhibit achievement in academic fields [85], [87]. They have a positive attitude toward themselves and others [89], good emotion-regulation, and perseverance [90]. Other studies found that adolescent aggression and antisocial behavior are expressions of low self-esteem; this is formed in the learning process with their parents [83]. Secure attachment is the most crucial determinant for stable self-esteem [77]. Individuals with high self-esteem are usually less aggressive, while individuals with low self-esteem show otherwise [81].

Some studies also showed that parenting and self-esteem are correlated with aggression [46], [80]. According to Ostrowsky [91], self-esteem is formed through a long process. Individuals with low self-esteem will protect themselves from a sense of being rejected, inferiority, and shame for failures, hence tending to show aggressiveness and violence toward others. Individuals with high self-esteem would not easily get stressed, being more confident in facing the environment's demand; hence, they can prevent pathological symptoms such as aggression [92]. Aggressiveness that is related to negative emotions, reactive-aggressiveness, and adaptive functions reflects criminal lifestyles and problematic, irresponsible, impulsive behaviors [93]. Adolescents with secure attachment tend to have higher self-esteem than those with insecure attachment (ambivalent). Self-esteem is negatively related to aggressive behavior [82], while insecure attachment and anxious attachment are related to unstable self-esteem [78]. The quality of secure attachment influences the development of self-esteem and significantly influences an individual in controlling his/her behavior [68].

Self-esteem and aggression are significantly correlated with each other [47]. Positive self-esteem has a negative relation with aggression without any criminal records [94]. Whether it be a positive or negative treatment, how a mother treats her child affects her attachment with the child, thus affecting the child's self-esteem and behavior [79], [95]. Other research also discovered that low self-esteem could increase peers' rejection and

trigger aggressive acts in adolescents at the high school level [45]–[47]. Self-esteem has a negative effect in women with or without criminal records [94]. Self-esteem was also found to mediate or to be negatively related to isolation and aggression in high school adolescents [96]. The warmth built with parents will inspire self-image about one's self and others that can be used as a guide to control behavior [84].

1.3. Present Study

The primary aim of the present study to examine the mediating role of self-esteem in the effect of mother's attachment styles on aggression among adolescents in Yogyakarta, Indonesia. Based on previous research (e.g., Gomez and McLaren [97]), we hypothesized that self-esteem would moderate the effect of mother's attachment styles (i.e., secure attachment, insecure attachment (avoidant attachment), and anxious attachment) on aggression. More specifically, each mother's attachment style a different effect on aggression and self-esteem. We believed that our study would provide valuable information regarding the role of mother-child attachment and self-esteem in adolescents' aggression.

2. Materials and Methods

2.1. Participants and Procedure

A total of 730 high school students aged 15- 19 years old ($M = 16.52$, $SD = 0.793$), comprising 310 male students and 420 female students, participated in the present study. The participants were selected from twenty-three schools in five municipalities in Yogyakarta Province (i.e., Bantul, Kulonprogo, Sleman, Wonosari, and Yogyakarta). This study obtained a research permit from Ahmad Dahlan University, the Yogyakarta provincial government, the Department of Education, and schools.

We asked school counselors to identify students for participation in our research. The participants were selected based on several criteria: grade XI students, living with parents, and having a mother who was at least a high school graduate, having a job, and having four biological children, maximum. Once the participants were selected, the researchers set the schedule for data collection. The researchers visited the schools and distributed the instruments to the students. In completing the instruments, the participants were assisted by six research assistants and twenty-three school counselors. Informed consent was obtained from the participants. We also explained the project's purpose and procedure. The participants were informed that their data and responses would be kept confidential. The data collection phase was carried out for two months. Each participant received a voucher valued IDR 50,000.00 for their participation.

2.2. Measures

2.2.1. Aggression

Adolescents aggression was measured by a 33 item Likert scale ($\alpha = 0.915$), designed based on the theory proposed by Baron and Neuman[98].The items covered eight forms of aggression, namely (A) direct active physical (B) direct passive physical (C) indirect active physical, (D) indirect passive physical, (E) direct active verbal, (F) direct passive verbal, (G) indirect active verbal, and (H) indirect passive verbal. Some of the items were "I will kick people who often make trouble" and "I will spread gossip about friends who often hurt others". The seven-point Likert scale ranged from 1 (very low intensity) to 7 (very high intensity). The total score reflected the intensity of aggression.

2.2.2. Mother's Attachment

Mother's attachment was assessed using 31 items designed based on the theory proposed by Ainsworth [63]. The scale consisted of three sub-scales to evaluate the intensity of mother-child attachment. The three sub-scales were (A) secure attachment ($\alpha = 0.957$), e.g. "The mother was a faithful and communicative listener", (B) insecure attachment ($\alpha = 0.726$), e.g., "The mother never believed in the reason given by her child", and (C) anxious

attachment ($\alpha = 0.786$), e.g. "The mother leaves her child in loneliness when facing problems". This scale was a seven-point Likert scale ranging from 1 (very low intensity) to 7 (very high intensity).

2.2.3. Self-Esteem

We assessed adolescents' self-esteem using a 35-item Likert scale ($\alpha = 0.953$), designed based on the theory by Baumesiter [99], Coopersmith [87], Dutton and Brown [100]. The indicators of self-esteem in this study were a) self-management, b) responsiveness and adaptiveness, c) self-esteem, d) having competence and achievement, e) having self-capacity, and f) value adherence. The seven-point Likert scale ranged from 1 (very low intensity) to 7 (very high intensity). Some of the items were "I dare to compete with friends", "I accept offers according to ability", and "I admit and apologize for breaking the rules". The total score reflected the self-esteem level; low intensity indicated low self-esteem, while high intensity indicated high self-esteem.

2.3. Data Analysis

In this study, the data were analyzed using structural equation modelling (SEM) with AMOS v20 Software to examine the validity of theoretical models and the relationship between variables. The model fit was assessed based on Goodness of Fit Index (GFI), where $GFI = 1.00$ indicated perfect fit and $GFI > 0.9$ indicated good fit, Adjusted GFI (AGFI), where AGFI close to 1.00 indicated good fit, Root Mean Square Error of Approximation (RMSEA), where $RMSEA < 0.05$ indicated good fit, Normed Fit Index (NFI) ($NFI \geq 0.90$), Comparative Fit Index (CFI) ($CFI \geq 0.90$), and Tucker-Lewis Index (TLI) ($TLI > 0.90$) [101]. A study should report at least three fit indices to gain a good or perfect fit model [101].

3. Results

3.1. Descriptive Statistics

The mean, standard deviation, minimum score, and maximum score are shown in Table 1. The distribution of the variables' scores is reported in Figure 1.

Table 1. Variables Descriptive Data

Variable	Mean	Std. Deviation	Minimum	Maximum
Aggression	130.24	34.910	53.0	216.0
Secure attachment	71.91	21.548	18.0	126.0
Insecure attachment	32.45	9.867	8.0	56.0
Anxious attachment	20.03	6.272	5.0	35.0
Self-esteem	140.66	39.233	53.0	234.0
N = 730				

This study found that most adolescents had a relatively high intensity of aggression (28.48%), rather low intensity of secure attachment (26.67%) and self-esteem (27.42%), and moderate intensity of anxious attachment (30.30%) and insecure attachment (27.88%). However, the variable scores were found slightly different in three categories (i.e., relatively high, somewhat low, and moderate).

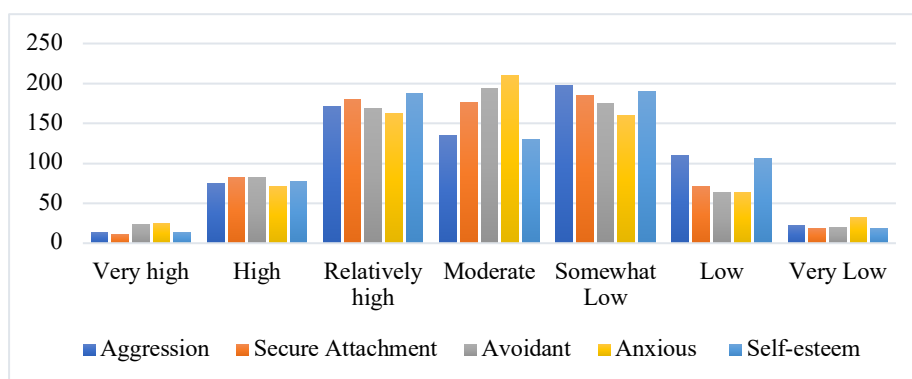


Figure 1. The distribution of scores of the variables

The correlation between variables is shown in Table 2. Secure attachment was found to be significantly and negatively correlated with aggression ($r = -.216, p < .001$) and positively and significantly correlated with self-esteem ($r = .421, p < .001$).

Table 2. Correlation between secure attachment, insecure attachment, anxious ambivalent attachment, self-esteem, and aggression

Variable	Aggression	Self-esteem
Secure attachment	-.216***	.421***
Insecure attachment	.141***	-.280***
Anxious attachment	.172***	-.340***
Self-esteem	-.402***	

Note: *** $p < .001$

In contrast, insecure attachment was found to be significantly and positively correlated with aggression ($r = .141, p < .001$) and negatively and significantly correlated with self-esteem ($r = -.280, p < .001$). Anxious attachment was positively correlated with aggression ($r = .172, p < .001$) and significantly and negatively correlated with self-esteem ($r = -.340, p < .001$). It was also found that self-esteem exhibited a significant, negative correlation with aggression ($r = -.402, p < .001$).

The role of secure attachment, insecure attachment, anxious attachment, and self-esteem in aggression have been analyzed. The data analysis results, as shown in Table 3, indicated different significant effects between variables. First, the results indicated that secure attachment had a negative effect on aggression ($R^2 = -.225, p < .001$) and a positive effect on self-esteem ($R^2 = .402, p < .001$). The results also revealed that insecure attachment had a positive effect on aggression ($R^2 = .147, p < .001$) and a negative effect on self-esteem ($R^2 = .267, p < .001$). Moreover, this study found that anxious attachment had a positive effect on aggression ($R^2 = .174, p < .001$) and a negative effect on self-esteem ($R^2 = .314, p < .001$). Another finding showed that self-esteem had a negative effect on aggression ($R^2 = .441, p < .001$).

Table 3. Correlation between secure attachment, insecure attachment, anxious attachment, and self-esteem and aggression

	Aggression			Self-esteem		
	R2	SE	t	R2	SE	t
Secure attachment	-.225***	.012	-17.693***	.421***	.024	17.853***
Insecure attachment	.148***	.009	15.018***	-.280***	.017	-16.168***
Anxious attachment	.174***	.011	15.312***	-.340***	.020	-16.945***
Self-esteem	-.441***	.021	-19.279***			

Note: *** $P < .001$

3.2. Mediating Effect of Self-Esteem

As displayed in Table 4, the analysis results showed that each type of attachment and self-esteem significantly affected aggression. Then, we conducted a one-way analysis to see the role of self-esteem as a mediator since it had fulfilled three conditions of mediator testing, namely (1) the independent variable had a significant effect on the hypothesized mediator; (2) the independent variable had a significant effect on the dependent variable; and (3) the mediator had a significant effect on the dependent variable [98].

Table 4. Mediating Effect of Self-esteem

	Aggression		
	Direct Effect	Indirect Effect	Total Effect
Secure attachment	-.225***	-.177***	-.402***
Insecure attachment	.148***	.118***	.265***
Anxious attachment	.174***	.138***	.312***

Note: ***p < .001

Figure 2 displays the final path model, and the hypothesized model showed a good fit model, which was proven by Goodness of Fit Index (GFI) = .972, Tucker Lewis Index (TLI) = .998, Comparative Fit Index (CFI) = .998, and Root Mean Square Error of Approximation (RMSEA) = .014 [101].

The analysis results showed that self-esteem, as a mediator, significantly increased the effect of each attachment style on aggression. The indirect effect of self-esteem on secure attachment was valued -0.177 (p > .001), and the total effect was -0.402 (p > .001). Then, the indirect effect of self-esteem on insecure attachment was valued 0.11 (p > .001), and the total effect was 0.265, P > .001. Lastly, the indirect effect of self-esteem on anxious attachment was valued 0.138 (p > .001), and the total effect was 0.312 (p > .001).

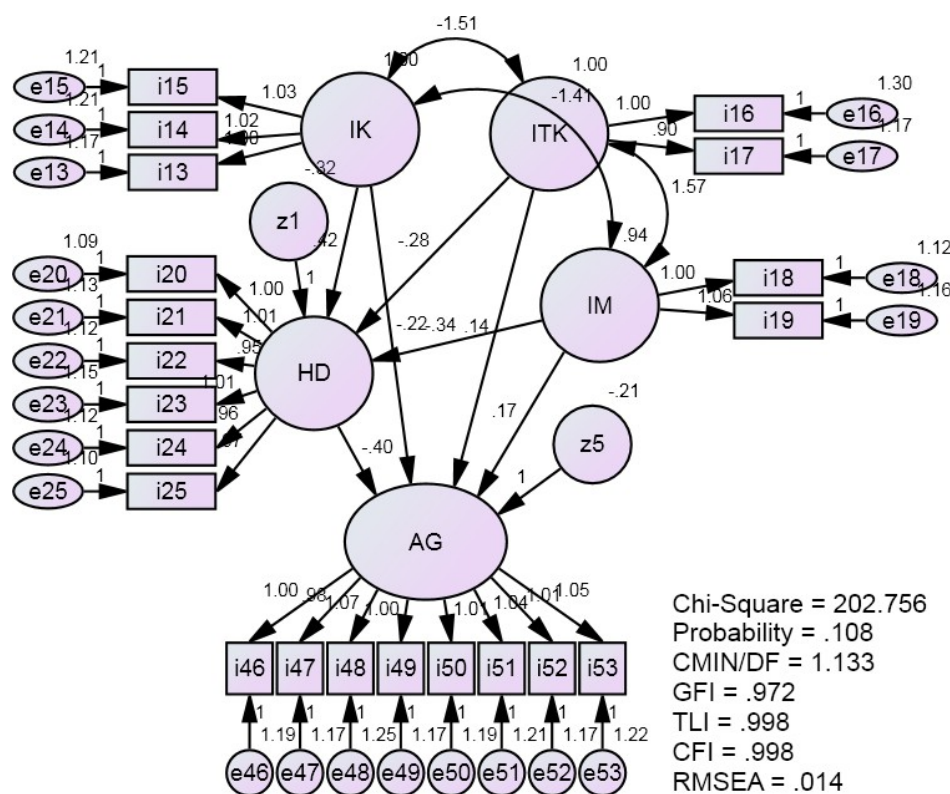


Figure 2. The final model paths
 Note: Secure attachment (IK), Insecure Attachment (ITK), Anxious Attachment (IM), Self-Esteem (HD), Aggression (AG)

4. Discussion

The study results showed that each mother's attachment style had a significant correlation with and effect on aggression. These findings suggested that a better attachment between the mother and the child could reduce the possibility of aggression in adolescents.

The study found that secure attachment negatively affected aggression, while insecure attachment and anxious attachment positively affected aggression. The study also showed that secure attachment had a greater significant effect on aggression than insecure and anxious attachment. These findings suggested that the mother's secure attachment could result in an adolescent's lower aggression. At the same time, insecure and anxious attachment would increase the risk of aggression. Previous studies also showed that insecure attachment negatively affected aggression.

Another finding of the study showed that secure attachment positively affected self-esteem, while insecure attachment and anxious attachment did negatively. These findings suggested that better mother's secure attachment could lead to higher self-esteem in adolescents. In contrast, insecure attachment and anxious attachment could lower adolescents' self-esteem. Adolescents who had secure attachment with their parents reported better self-esteem than those with insecure attachment [102], [103]. Another researcher also found that insecure attachment was associated negatively with self-esteem; this condition was caused by insecure and restless early parenting [104].

Our subsequent finding exhibited that self-esteem negatively affected aggression [104]. Our result indicated that high self-esteem could lead to lower aggression, and low self-esteem could increase aggression. This finding supports previous studies, which found that individuals with high self-esteem could respect themselves and others and admit and accept their mistakes.

This study found that self-esteem, as a mediating variable, could enhance the effect of each mother's attachment style on aggression. This research result proved that mother's attachment continues to develop since childhood, which forms self-esteem and affects an adolescent's aggressive behavior. This finding also suggested that mother's secure attachment and high self-esteem in adolescents helped prevent aggression. This study supports the previous research stating that self-esteem mediated the relationship between mother's attachment and aggressive behavior in adolescents [97], [105].

Besides, the study explained that a positive parenting process (intimacy, monitoring, and peer approval) was related to the level of self-esteem in adolescents as well as the level of aggression [106].

This study contributed to the literature on attachment. The relationships with primary educators are vital in determining children's emotional growth. Besides, our study also contributed to parenting practice by paying more attention to how mothers raise their children. It is essential to educate parents about building mother-child secure attachment to allow children to have emotional well-being in the future.

5. Conclusions

The present study is the first research in the Indonesian context that examined the role of self-esteem as a mediator for the effect of mother's attachment styles on aggression. The hypothesized model showed a good fit, indicating that self-esteem could enhance the effect of each mother's attachment style on aggression. Our study showed that each mother's attachment style (i.e., secure, insecure, and anxious attachment) significantly affected aggression. It was also found that each mother's attachment style significantly affected self-esteem. In addition, the present study showed that self-esteem negatively affected aggression. These findings suggested that better mother's attachment and higher self-esteem in adolescents could reduce the possibility of aggression whereas insecure attachment, anxious attachment, and low self-esteem would increase the risk of aggression.

The limitation of the study lies in the data collection method, in which case there was only one technique used. The results would be more accurate if various data collection methods were used. Considering that culture might influence aggression, the use of sample units distinguished based on culture may give a more significant contribution.

Supplementary Materials: Not applicable.

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Journal	Behavioral Sciences		
Manuscript Status	Pending major revisions		
Manuscript ID	behavsci-1698207		
Type	Article		
Recruiting Reviewers	no		
Title	Aggression in Adolescents: The Role of Mother-Child Attachment and Self-Esteem		
Manuscript	manuscript.docx manuscript.pdf		
Authors	Dr. Alif Muarifah *	alif.muarifah@pgpauad.uad.ac.id	ID Ahmad Dahlan...
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	Mrs. Fitriana Oktaviani	fitriana1808044052@webmail.uad.a c.id	ID Ahmad Dahlan...
Author Contributions	Conceptualization, Alif Muarifah; Data curation, Alif Muarifah, Nurul Hidayah and Fitriana Oktaviani; Formal analysis, Intan Hashimah Mohd Hashim, Nurul Hidayah and Fitriana Oktaviani; Investigation, Alif Muarifah, Riana Mashar and Intan Hashimah Mohd Hashim; Methodology, Alif Muarifah, Riana Mashar, Intan Hashimah Mohd Hashim and Nurul Hidayah; Validation, Alif Muarifah, Riana Mashar and Intan Hashimah Mohd Hashim; Visualization, Nurul Hidayah and Fitriana Oktaviani; Writing – original draft, Alif Muarifah; Writing – review & editing, Alif Muarifah, Riana Mashar, Intan Hashimah Mohd Hashim, Nurul Hidayah and Fitriana Oktaviani.		
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Journal Behavioral Sciences (ISSN 2076-328X)

Manuscript ID behavsci-1698207

Type Article

Title Aggression in Adolescents: The Role of Mother-Child Attachment and Self-Esteem

Authors Alif Muarifah * , Riana Mashar , Intan Hashimah Mohd Hashim , Nurul Hidayah , Fitriana Oktavian

Abstract In the present research, the exogenous and endogenous variables, partially or simultaneously, directly or indirectly, influenced aggression. The mediator variable (endogenous/self-esteem) mediated (indirectly) aggression in adolescents significantly compared to the exogenous variable (mother-child attachment) and the endogenous variable (self-esteem). The study participants were 730 high school students between 15 and 19 years old (M = 16.52, SD = 0.793), consisting of 310 male students and 420 female students. They were selected from twenty-three schools in five municipalities in Yogyakarta Province. Aggression, mother's attachment, and self-esteem scales were deployed to collect data. The data were analyzed using structural equation modeling. The results of the study showed a good fit, indicating that self-esteem might enhance the effect of each mother's attachment style on aggression. Our study showed that insecure attachment positively and significantly affected aggression and negatively and significantly affected self-esteem. Furthermore, it also revealed that anxious attachment positively and significantly influenced aggression and negatively and significantly influenced self-esteem. Lastly, our finding revealed that self-esteem negatively and significantly affected aggression. These findings suggested that better mother's attachment and higher self-esteem in adolescents may lower the possibility of aggression whereas insecure attachment, anxious attachment, and low self-esteem may increase the risk of aggression.

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Are the conclusions thoroughly supported by the results presented in the article or referenced in secondary literature?	()	()	(x)	()

Comments and Suggestions for Authors

In general, the manuscript is well structured and written, respecting the journal's rules. The topic is pertinent but not innovative, something that needs to be better explained and substantiated in the paper. Only in the conclusion, the authors explain that this is the first study carried out in Indonesia. I believe that this information should also appear in the introduction.

The introduction is well structured. Research objectives are clear. However, I believe that the discussion needs to be improved in the following aspects:

- Minor errors: page 8 line 368 the authors refer to "previous studies also show" - they should indicate which ones; also in line 381 they refer again to "This finding supports previous studies", to which studies refer.
- the limitations of the study should appear at the end of the discussion of the results, describing in more detail clues for future research
- although the authors reflect on some practical implications of their results, they seem insufficient and should be deepened.

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Journal **Behavioral Sciences** (ISSN 2076-328X)

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Type Article

Title **Aggression in Adolescents: The Role of Mother-Child Attachment and Self-Esteem**

Authors Alif Muarifah *, Riana Mashar, Intan Hashimah Mohd Hashim, Nurul Hidayah, Fitriana Oktaviani

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Author's Reply to the Review Report (Reviewer 2)

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Is the article adequately referenced?	(x)	()	()	()
Are the conclusions thoroughly supported by the results presented in the article or referenced in secondary literature?	(x)	()	()	()

Comments and Suggestions for Authors Valuable scientific paper confirming expected findings. Aim of the study was to examine the mediating role of self-esteem in the effect of mother's attachment styles on aggression among adolescents.

Remarks

1. First 2 sentences in the "Abstract" are not clear and must be corrected.
2. Aim and methods must be written in the "Abstract".
3. Section "2.3. Data analysis" needs to be supplemented by mentioning of descriptive statistics and correlation coefficient.
4. I suggest to change measurements in the Figure 1. The figure will be more valuable with percentages (%) presented.
5. The strength of correlation should be evaluated in the interpretation of correlation coefficients (rows 292-302).
6. What are differences between Table 2 and Table 3? The titles are the same. Please explain results of what analysis are presented in the Table 3. What is R2?
7. Question about p values in the rows 327-332. Are all p values really >0.001?
8. The locations of numbers in the Figure 2 are distorted.
9. The model is interesting and revealing some relationships. But the article readers needs to know more about factors in the model. It would be useful to explain variables i15-i53. What they are? What are z1 and z5?

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Are the conclusions thoroughly supported by the results presented in the article or referenced in secondary literature?	()	(x)	()	()

Comments and Suggestions for Authors

I am a bit worried about the originality of this article along with its contribution. Therefore, I suggest authors highlight their contributions. Also, this work requires background/history, which seems to have missing. Besides, I suggest authors Break Introduction into Introduction + Literature review.

I also suggest authors include some of the latest articles (2019-2022) in their Literature review.

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For empirical research, are the results clearly presented?	(x)	()	()	()
Is the article adequately referenced?	(x)	()	()	()
Are the conclusions thoroughly supported by the results presented in the article or referenced in secondary literature?	(x)	()	()	()

Comments and Suggestions for Authors

The document is quite well written. The authors contribute with another descriptive study about aggression in adolescents. The focus on self-esteem and mother-child attachment represents an interesting research with consequences for children. The paper is clear with a direct language for readers, easy to understand and useful for students in teacher education. The study provide enough information to be replicated and it will be useful for a meta-analysis study.

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4 Mei 2022

Dear Prof. Dr. Curavalea Diana Maria
 Assistant Editor of Behavioral Sciences

Greetings from Indonesia and wishing you a great day with happiness and healthy condition in this era COVID-19.

First of all, we would like to thank you for allowing us to submit our revised manuscript entitled Aggression in Adolescents: The Role of Mother-Child Attachment and Self-Esteem with Manuscript Number behavsci-1698207 to Behavioral Sciences. We really appreciate the time and effort that you and the reviewers have dedicated to providing valuable feedback on our manuscript. We are grateful to you and the reviewers for their insightful comments on our paper.

Furthermore, we have been revised the manuscript based on the reviewers' comments, suggestions, and remarks, such as more information in the abstract, introduction, literature review, method section, comprehensive improvement in results and discussion, and the brief treatment of limitations of the study. We have marked the revised manuscript with the Green color highlight for reviewer #1, the Blue color highlight for reviewer #2, the Yellow color highlight for reviewer #3, and Red color highlight for reviewer #4. Furthermore, we resume the revision in the table for responds to reviewers' comments, as follows:

Reviewer	Reviewer's Comment	Respond to Reviewer
1	<p>Introduction:</p> <p>In general, the manuscript is well structured and written, respecting the journal's rules. The topic is pertinent but not innovative, something that needs to be better explained and substantiated in the paper</p> <p>Only in the conclusion, the authors explain that this is the first study carried out in Indonesia. I believe that this information should also appear in the introduction</p>	<p>We have rearranged the introduction.</p> <p>We have written the first study carried out in Indonesia in the present study section.</p>
	<p>Discussion:</p> <p>The introduction is well structured. Research objectives are clear. However, I believe that the discussion needs to be improved in the following aspects:</p> <ul style="list-style-type: none"> - Minor errors: page 8 line 368 the authors refer to "previous studies also show" - they should indicate which ones; also in line 381 they refer again to "This finding supports previous studies", to which studies refer. 	<ul style="list-style-type: none"> - Page 8 line 368: Previous studies by Brodie et al. also showed that insecure attachment negatively affected aggression [57]. This study explains that high school students who have insecure attachments tend to do aggression in physical verbal and hostility [57]. - Page 9 line 381:

	<p>- the limitations of the study should appear at the end of the discussion of the results, describing in more detail clues for future research</p> <p>- although the authors reflect on some practical implications of their results, they seem insufficient and should be deepened.</p>	<p>This finding supports previous studies, which found that individuals with high self-esteem could respect themselves and others and admit and accept their mistakes [105].</p> <p>We have moved the limitation to the end of the discussion</p> <p>Future research can take advantage of cultural differences in each region in Indonesia and the differences in the causes of each form of aggression (verbal and physical). Therefore, it can provide more quality and detailed findings so that interventions or prevention in overcoming aggressive behavior in adolescents.</p>
2	<p>Comment:</p> <p>Valuable scientific paper confirming expected findings. Aim of the study was to examine the mediating role of self-esteem in the effect of mother's attachment styles on aggression among adolescents.</p> <p>Abstract:</p> <ol style="list-style-type: none"> 1. First 2 sentences in the "Abstract" are not clear and must be corrected. 2. Aim and methods must be written in the "Abstract". 	<ol style="list-style-type: none"> 1. Every year, adolescents' aggressive behavior in the world continues to increase, including in Yogyakarta. Adolescent aggressive behavior develops and leads to criminal acts that cause death (such as Klitih). See the opponent, but anyone can become the target of their aggressive actions. 2. Aim: This study aimed to examine the role of mother-child attachment and self-esteem against aggression. 3. Methods: Aggression, mother's attachment, and self-esteem scales were deployed to collect data and filled out by 730 high school students between 15 and 19 years old from twenty-three schools in five municipalities in Yogyakarta Province (M = 16.52, SD = 0.793, 310 male students and 420 female students). Descriptive statistics were used to describe research data by IBM SPSS 23 and structural equation modeling by AMOS v20 to test research hypotheses.
	<p>Method:</p> <ol style="list-style-type: none"> 1. Section "2.3. Data analysis" needs to be supplemented by mentioning of 	<p>In this study, the data were analyzed using statistics descriptive by IBM SPSS 23 to describe research data and structural</p>

<p>descriptive statistics and correlation coefficient.</p>	<p>equation modeling (SEM) with AMOS v20 Software to examine the validity of theoretical models and the relationship between variables. The strength of the variable correlation coefficient refers to Dancey and Reidy [89], which can be seen in Table 1.</p>
<p>Results:</p> <ol style="list-style-type: none"> 1. I suggest to change measurements in the Figure 1. The figure will be more valuable with percentages (%) presented. 2. The strength of correlation should be evaluated in the interpretation of correlation coefficients (rows 292-302). 3. What are differences between Table 2 and Table 3? The titles are the same. Please explain results of what analysis are presented in the Table 3. What is R2? 4. Question about p values in the rows 327-332. Are all p values really >0.001? 5. The locations of numbers in the Figure 2 are distorted. 6. The model is interesting and revealing some relationships. But the article readers needs to know more about factors in the model. It would be useful to explain variables i15-i53. What they are? What are z1 and z5? 	<ol style="list-style-type: none"> 1. Thank you, we have changed the measurement by calculating the percentage of the distribution of scores, the percentage in the figure we show. 2. We have written the interpretation of correlation coefficients 3. Table 2 shows the results of the correlation of variables. We have rearranged Table 3. R2 means path coefficient 4. There is a writing error. All p values should be <0.001 5. Thank you, we have fixed the location of figure 2 6. The following is a description of the code in the model figure: Standard error (e13 – e25; e46 – e53). Secure attachment indicators: warm (i13), responsive (i14), sensitive (i15). Insecure attachment indicators: skeptical (i16), submissive (i17). Anxiety attachment indicators: insensitive (i18), less involved (i19). Self-esteem indicators: self-regulation (i20), adaptive responsiveness (i21), self-assessment (i22), competence and achievement (i23), understanding self-capacity (i24), adherence to values (i25). Aggression indicators: direct physical active (i46), direct physical passive (i47), indirect physical active (i48), indirect physical passive (i49), direct verbal active (i50), direct verbal passive (i51), indirect verbal active (i52), passive indirect verbal (i53). This research is part of our significant research. z1 and z5 are latent variables of the whole model. So, we ask for permission to delete the figure.
<p>3</p>	<p>Introduction:</p>

	<p>I am a bit worried about the originality of this article along with its contribution. Therefore, I suggest authors highlight their contributions. Also, this work requires background/history; which seems to have missing.</p> <p>Besides, I suggest authors Break Introduction into Introduction + Literature review.</p> <p>I also suggest authors include some of the latest articles (2019-2022) in their Literature review</p>	<p>The latest data explains that aggressive behavior in the Special Region of Yogyakarta or called "Klitih" carried out by teenagers on the streets, has caused child casualties among members of the Regional People's Representative Council [32]. Klitih is an act of violence on the streets in the form of fights, by throwing stones, injuring, and even killing the victim, done to other people at random [33]. This requires special attention to find the right solution considering that there is an increase in sexual behavior by adolescents [34]. In 2022 the local police arrested 99 juvenile offenders (14-19 years old) [35]. Previous studies have explained that family resilience contributes to the prevention of klitih [36], which explains the vital role of the family. Besides, in Indonesia, the mother acts as the primary caregiver compared to the father, who acts as the breadwinner [37]. Therefore, the focus of this research focuses on mother-child attachment. In addition, personal factors are important to study so that adolescents have stable self-esteem they have prudence in taking actions [38].</p> <p>We have been divided introduction as follows:</p> <ol style="list-style-type: none"> 1. Introduction 2. Literature review <ol style="list-style-type: none"> 2.1. Attachment and Aggression 2.2. Attachment, Self-Esteem, and Aggression 2.3. Present Study
4	<p>Results:</p> <p>The document is quite well written. The authors contribute with another descriptive study about aggression in adolescents. The focus on self-esteem and mother-child attachment represents an interesting research with consequences for children. The paper is clear with a direct language for readers, easy to understand and useful for students in</p>	<p>Thank you very much for your appreciation.</p>

	teacher education. The study provide enough information to be replicated and it will be useful for a meta-analysis study.	
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Besides, all spelling and grammatical errors pointed out by the reviewers have been corrected and proofread by professional language editor. Lastly, we do hope that this article can be published in Behavioral Sciences to contribute our research results to your journal.

Once again, thank you very much for your cooperation, help, and kindness. We really appreciate your time and look forward to seeing your positive response.

Kind regards,

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Aggression in Adolescents: The Role of Mother-Child Attachment and Self-Esteem

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Abstract: Every year, adolescents' aggressive behavior in the world continues to increase, including in Yogyakarta, Indonesia. Teenagers' aggressive behavior in Yogyakarta leads to criminal acts resulting in physical sacrifices and death. The aggressive behavior of the teenager is known as "Klithih". It develops and continues to increase every year, so it causes public anxiety and concern. This study aims to examine the role of mother-child attachment and self-esteem against aggression. Aggression, mother's attachment, and self-esteem scales were deployed to collect data and filled out by 730 high school students between 15 and 19 years old from twenty-three schools in five municipalities in Yogyakarta Province (M = 16.52, SD = 0.793, 310 male students and 420 female students). Descriptive statistics describe research data by IBM SPSS 23 and structural equation modeling by AMOS v20 to test research hypotheses. The results of the study showed a good fit, indicating that self-esteem might enhance the effect of each mother's attachment style on aggression. Our study showed that insecure attachment positively and significantly affected aggression and negatively and significantly affected self-esteem. Furthermore, it also revealed that anxious attachment positively and significantly influenced aggression and negatively and significantly influenced self-esteem. Lastly, our finding revealed that self-esteem negatively and significantly affected aggression. These findings suggested that better mother's attachment and higher self-esteem in adolescents may lower the possibility of aggression whereas insecure attachment, anxious attachment, and low self-esteem may increase the risk of aggression.

Keywords: Adolescents; Aggression; Attachment; Self-Esteem; Structural Equation Modeling

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1. Introduction

Aggression is a primitive behavior passed down from generation to generation from time immemorial, highly persistent that it is near impossible to be wiped out from earth completely, committed on purpose, directly and indirectly expressed through wrath [1]. Aggression is expressed by harsh behavior both physically and verbally, hence endangering human beings and other living beings and causing difficulties, damages to property, and pain. Harsh behavior of aggression is from the simplest to the most complex levels [2]. Aggression is a purposive act to hurt oneself, others, or the environment physically and verbally [3]. Verbal aggression is most frequently committed and experienced by teens. This behavior contributes to physical aggression, especially toward adolescents with emotional disorders [4]. Verbal aggression is directly and indirectly expressed through anger and feud, causing negative thinking, damaging integrity and social relationship, threatening security, and hurting the welfare of children, adolescents, and adults

alike [1]. Acts of physical aggression such as punching, kicking, shooting, or even killing [5].

Aggression is linked to potential mental health issues [6]. It brings about signs of depression [7] and negative morals [8]. Weak self-control may lead to aggressive behavior [9]. Because it leaves injuries physically and verbally, it is better to avoid being the target [10]. Experiences of falling victim to physical aggression are highly likely to inspire aggressive behavior in the future [11]. The consequences resulted are negative thinking, damaged integrity and social relationship, disturbance to security, death, and mental disorders, such as failure in adapting, despair, depression, suicide, and alcoholism [4], [5], [12]–[15]. It is a protective response to pressure and distress along with a sense of anger that is expressed by hurting others, intimidating, or taking dominance [16]. Most aggressive individuals fail at adapting both in family and at school [12]. Aggression that is directed toward peers may cause physical wounds, psychosocial and academic problems, and rocky relationships with peers [15]. Verbal aggression is insults that cause emotional and psychological problems as they relate to self-competence [17], [18]. The victim of aggression often develops suicidal thoughts due to the pressure that he/she is facing [19].

Aggressive behavior is on the front line of the causes of global adolescent morbidity and mortality. As much as 5.5% mortality in adolescents is caused by aggressive behavior. Research in the U.S. showed that 22.6% of the adolescents engaged in physical fights [20]. A study in Spain found an average score for verbal aggression of 57.60% [21]. Individuals with low levels of self-control are highly potential to show aggressive behaviour [22]. In China, 39.2% experienced medium levels of physical aggression [23]. Meanwhile, among Jakarta teenagers, 85.7% perpetrated aggression in the score range 68–106 [24]. In Russia, up to 80% of the adolescents committed verbal aggression [25]. In India, 46.04% experienced physical aggression [26]. Seventy-three percent of male adolescents in India showed moderate levels of aggressive behavior and thirty-two percent did high levels of aggressive behavior. It was further discovered that 57% of female adolescents had moderate levels of aggressive behavior and 18.5% did high levels of aggressive behaviour [27]. In Iran, it was found that the aggressive behavior in adolescents averaged a score of 63.61% [28].

Several studies related to aggression have been documented in several countries where the results are in line with the results of research in Indonesia [29–31]. Research in Indonesia with 2,681 adolescent subjects showed that adolescents committed physical and verbal aggression in many places, although the levels of aggression in rural areas were not as high as they were in other locations [31]. Other research in Indonesia showed that 11.9% of the adolescents demonstrated high levels of aggressive behavior and 75% did moderate levels of aggressive behaviour [29]. A study in Banda Aceh found that 81.48% of the teenagers showed aggressive behaviour [30].

The latest data explains that aggressive behavior in the Special Region of Yogyakarta, called "*Klitih*," carried out by teenagers on the streets has caused child casualties from members of the Regional People's Representative Council [32]. *Klitih* is an act of violence on the streets in the form of fights, by throwing stones, injuring, and even killing the victim, done to other people at random [33]. This requires special attention to find the right solution considering that there is an increase in sexual behavior by adolescents [34]. In 2022 the local police arrested 99 juvenile offenders (14–19 years old) [35]. Previous studies have explained that family resilience contributes to the prevention of *Klitih* [36], which explains the vital role of the family. Besides, in Indonesia, the mother acts as the primary caregiver compared to the father, who serves as the breadwinner [37]. Therefore, the focus of this research focuses on mother-child attachment. In addition, personal factors are important to study so that adolescents have stable self-esteem they have prudence in acting [38].

2. Literature Review

2.1. Attachment and Aggression

It is essential to examine adolescent aggression and the factors associated with aggression. Previous studies found that family factors, such as, insecure attachment and anxious attachment are closely associated with aggressive behavior [39]–[41]. Attachment is a quality mutualistic emotional bond between the infant and the caregiver that influences the infant's character development [42]. Attachment is divided into secure attachment and insecure attachment (anxious attachment and avoidant attachment) [42]. Secure attachment between the child and the caregiver creates emotional stability, allows for good self-control ability development, encourages social interaction, develops self-esteem, gives strength against pressure, and prevents mental disorders and aggressive behavior [43]. Secure attachment as learning experience has a role in low aggressiveness [44]. Primary affection in parenting creates emotional stability and a sense of safety, hence producing low levels of aggression [45].

Children with anxious attachment experience a non-responsive and inconsistent treatment in fulfilling their needs [42]. Those children learn not to express themselves and their needs, leading to a poor attachment, which eventually results in fear of others' rejection [42]. Children will have an insecure attachment (avoidant attachment) when they experience a treatment that consistently does not fulfill their needs [42]. The attachment quality of an individual with the parents tends to contribute significantly to the development of aggressive behavior [46]. Dysfunctional anger and aggression are the core of insecure attachment [46], [47]. Children experience conflict between their need a close relationship and their wishes regarding other people's responses [48].

Previous studies showed that anxious attachment affects physical aggression and hostility more greatly than other types of insecure attachment [39]. A study on 388 high school students with a regression analysis technique found that attachment had an effective contribution to aggression at 16.5%. Insecure attachment had a significant effect on aggressive behavior in the form of physical aggression, verbal aggression, or hostility [39]. Learning experience with emotional attachments may reduce depression, stress, and other negative emotions [49], [50]. Insecure attachment causes children to behave negatively in expressing their emotions. They somehow become reclusive individuals; they cannot depend on others, and their self-control on impulses is low [51]. All types of insecure attachment have a positive relationship with both physical and verbal aggression [52]. Insecure attachment significantly affects a child's ability to express his/her emotions, hence triggering aggressive behavior [41].

Therefore, the stronger the secure attachment with the parents the more likely the child avoids aggressive behavior [40]. Insecure attachment may strengthen the proactive aggression predisposition in males. The lower the secure attachment the higher the aggressive behavior reactivity [53]. Contrarily, strong secure attachment helps a child adapt to the environment, create harmonious relationships, and control his/her emotions [54]. Attachment contributes crucially to future behavior prediction [55]. Providing prime affection may create a child's emotional stability since it triggers a sense of security and comfort [45]. Individuals with insecure attachment have difficulties in controlling emotions and in trusting others and get anxious easily [56]. Other research results discovered that secure attachment is linked to low levels of aggressive behavior in children and to low levels of adolescent engagement in other dangerous behaviors [43].

2.2. Attachment, Self-Esteem, and Aggression

Other research also found that the quality of child-parent attachment could influence self-esteem [57] and later significantly influence aggressiveness [58]. Some findings proved that secure attachment and insecure attachment as fundamental learning experiences have a significant effect on an individual's ability to conduct self-evaluation and control positive and negative behaviors, thereby useful for both him-/herself and his/her environment [59].

There are two factors at play in the development of self-esteem: reflected appraisals and social comparisons. It is presumed that there is a susceptibility to depression, drug use, and violence [60]. Individuals who manage to develop their self-esteem can make self-defense, be loved and accepted by others, show warm, responsive behavior, and have high self-efficacy [61], [62]. Individuals with high self-esteem, respect for values, and morals are competent and exhibit achievement in academic fields [63]. They have a positive attitude toward themselves and others [64], good emotion-regulation, and perseverance [65]. Other studies found that adolescent aggression and antisocial behavior are expressions of low self-esteem; this is formed in the learning process with their parents [66]. Secure attachment is the most crucial determinant for stable self-esteem [67]. Individuals with high self-esteem are usually less aggressive, while individuals with low self-esteem show otherwise [68].

Some studies also showed that parenting and self-esteem are correlated with aggression [69]. Self-esteem is formed through a long process [70]. Individuals with low self-esteem will protect themselves from a sense of being rejected, inferiority, and shame for failures, hence tending to show aggressiveness and violence toward others. Individuals with high self-esteem would not easily get stressed, being more confident in facing the environment's demand; hence, they can prevent pathological symptoms such as aggression [71]. Aggressiveness that is related to negative emotions, reactive-aggressiveness, and adaptive functions reflects criminal lifestyles and problematic, irresponsible, impulsive behaviors [72]. Adolescents with secure attachment tend to have higher self-esteem than those with insecure attachment (ambivalent). Self-esteem is negatively related to aggressive behavior [73], while insecure attachment and anxious attachment are related to unstable self-esteem [74]. The quality of secure attachment influences the development of self-esteem and significantly influences an individual in controlling his/her behavior [46].

Self-esteem and aggression are significantly correlated with each other [58]. Individuals with low self-esteem are prone to greater reactive aggression because of anger and hostility [75]. Whether it be a positive or negative treatment, how a mother treats her child affects her attachment with the child, thus affecting the child's self-esteem and behavior [57]. Other research also discovered that low self-esteem could increase peers' rejection and trigger aggressive acts in adolescents at the high school level [75]. Self-esteem has a negative effect in women with or without criminal records [76]. Self-esteem was also found to mediate or to be negatively related to isolation and aggression in high school adolescents [77]. The warmth built with parents will inspire self-image about one's self and others that can be used as a guide to control behavior [59].

2.3. Present Study

The primary aim of the present study to examine the mediating role of self-esteem in the effect of mother's attachment styles on aggression among adolescents in Yogyakarta, Indonesia. Based on previous research (e.g., Gomez and McLaren [78]), we hypothesized that self-esteem would moderate the effect of mother's attachment styles (i.e., secure attachment, insecure attachment (avoidant attachment), and anxious attachment) on aggression. So far, research on self-esteem as a mediation of the relationship between mother-child attachment and aggression has not been studied in Indonesia. More specifically, each mother's attachment style a different effect on aggression and self-esteem. We believed that our study would provide valuable information regarding the role of mother-child attachment and self-esteem in adolescents' aggression.

3. Materials and Methods

3.1. Participants and Procedure

A total of 730 high school students aged 15- 19 years old ($M = 16.52$, $SD = 0.793$), comprising 310 male students and 420 female students, participated in the present study.

The participants were selected from twenty-three schools in five municipalities in Yogyakarta Province (i.e., Bantul, Kulonprogo, Sleman, Wonosari, and Yogyakarta). This study obtained a research permit from Ahmad Dahlan University, the Yogyakarta provincial government, the Department of Education, and schools.

We asked school counselors to identify students for participation in our research. The participants were selected based on several criteria: grade XI students, living with parents, and having a mother who was at least a high school graduate, having a job, and having four biological children, maximum. Once the participants were selected, the researchers set the schedule for data collection. The researchers visited the schools and distributed the instruments to the students. In completing the instruments, the participants were assisted by six research assistants and twenty-three school counselors. Informed consent was obtained from the participants. We also explained the project's purpose and procedure. The participants were informed that their data and responses would be kept confidential. The data collection phase was carried out for two months. Each participant received a voucher valued IDR 50,000.00 for their participation.

3.2. Measures

3.2.1. Aggression

Adolescents aggression was measured by a 33 item Likert scale ($\alpha = 0.915$), designed based on the theory proposed by Baron and Neuman[79]. The items covered eight forms of aggression, namely (A) direct active physical (B) direct passive physical (C) indirect active physical, (D) indirect passive physical, (E) direct active verbal, (F) direct passive verbal, (G) indirect active verbal, and (H) indirect passive verbal. Some of the items were "I will kick people who often make trouble" and "I will spread gossip about friends who often hurt others". The seven-point Likert scale ranged from 1 (very low intensity) to 7 (very high intensity). The total score reflected the intensity of aggression.

2.2.2. Mother's Attachment

Mother's attachment was assessed using 31 items designed based on the theory proposed by Ainsworth [80]. The scale consisted of three sub-scales to evaluate the intensity of mother-child attachment. The three sub-scales were (A) secure attachment ($\alpha = 0.957$), e.g. "The mother was a faithful and communicative listener", (B) insecure attachment ($\alpha = 0.726$), e.g., "The mother never believed in the reason given by her child", and (C) anxious attachment ($\alpha = 0.786$), e.g. "The mother leaves her child in loneliness when facing problems". This scale was a seven-point Likert scale ranging from 1 (very low intensity) to 7 (very high intensity).

3.2.3. Self-Esteem

We assessed adolescents self-esteem using a 35-item Likert scale ($\alpha = 0.953$), designed based on the theory by Baumesiter [81], Coopersmith [61], Dutton and Brown [82]. The indicators of self-esteem in this study were a) self-management, b) responsiveness and adaptiveness, c) self-esteem, d) having competence and achievement, e) having self-capacity, and f) value adherence. The seven-point Likert scale ranged from 1 (very low intensity) to 7 (very high intensity). Some of the items were "I dare to compete with friends", "I accept offers according to ability", and "I admit and apologize for breaking the rules". The total score reflected the self-esteem level; low intensity indicated low self-esteem, while high intensity indicated high self-esteem.

3.3. Data Analysis

In this study, the data were analyzed using **statistics descriptive by IBM SPSS 23 to describe the research data and** structural equation modeling (SEM) with AMOS v20 Software to examine the validity of theoretical models and the relationship between variables. **The strength of the variable correlation coefficient refers to Dancey and Reidy [83], which**

can be seen in Table 1. The model fit was assessed based on Goodness of Fit Index (GFI), where GFI = 1.00 indicated perfect fit and GFI > 0.9 indicated good fit, Adjusted GFI (AGFI), where AGFI close to 1.00 indicated good fit, Root Mean Square Error of Approximation (RMSEA), where RMSEA < 0.05 indicated good fit, Normed Fit Index (NFI) (NFI ≥ 0.90), Comparative Fit Index (CFI) (CFI ≥ 0.90), and Tucker-Lewis Index (TLI) (TLI > 0.90) [84]. A study should report at least three fit indices to gain a good or perfect fit model [101].

Table 1. Interpretation of correlation coefficient strength

Correlation Coefficient	Interpretation
1	Perfect
0.70 – 0.99	Strong
0.40 – 0.699	Moderate
0.10 – 0.399	Weak
0	Zero

4. Results

4.1. Descriptive Statistics

The mean, standard deviation, minimum score, and maximum score are shown in Table 2. The distribution of the variables' scores is reported in Figure 1.

Table 2. Variables Descriptive Data

Variable	Mean	Std. Deviation	Minimum	Maximum
Aggression	130.24	34.910	53.0	216.0
Secure attachment	71.91	21.548	18.0	126.0
Insecure attachment	32.45	9.867	8.0	56.0
Anxious attachment	20.03	6.272	5.0	35.0
Self-esteem	140.66	39.233	53.0	234.0
N = 730				

This study found that most adolescents had a relatively high intensity of aggression (27.12%), rather low intensity of secure attachment (25.48%) and self-esteem (26.16%), and moderate intensity of anxious attachment (28.77%) and insecure attachment (26.58%). However, the variable scores were found slightly different in three categories (i.e., relatively high, somewhat low, and moderate).

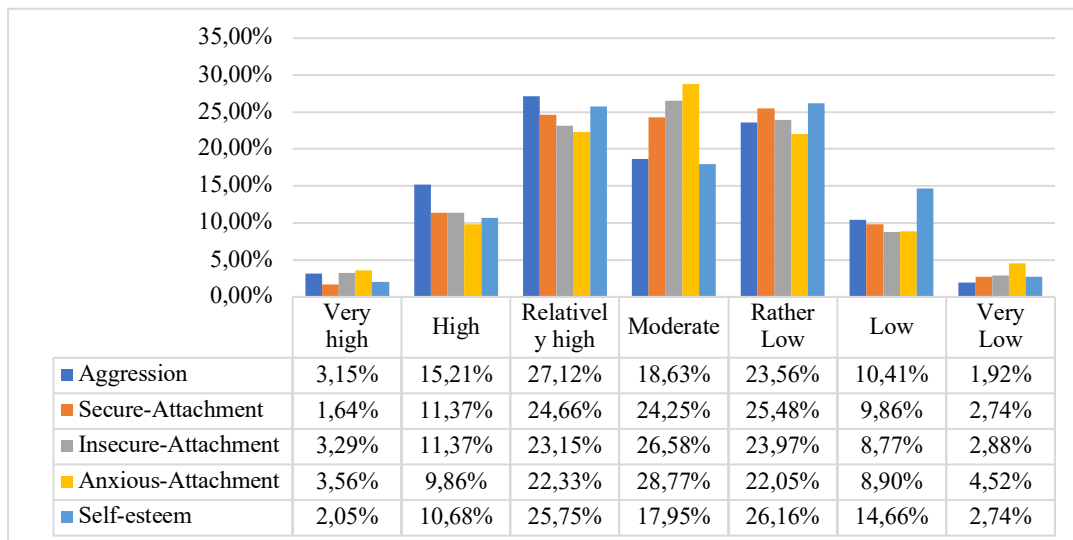


Figure 1. The distribution of scores of the variables.

The correlation between variables is shown in Table 3. Secure attachment was found to be significantly and negatively correlated with aggression ($r = -.216$, $p < .001$) and positively and significantly correlated with self-esteem ($r = .421$, $p < .001$). In contrast, insecure attachment was found to be significantly and positively correlated with aggression ($r = .141$, $p < .001$) and negatively and significantly correlated with self-esteem ($r = -.280$, $p < .001$). Anxious attachment was positively correlated with aggression ($r = .172$, $p < .001$) and significantly and negatively correlated with self-esteem ($r = -.340$, $p < .001$). It was also found that self-esteem exhibited a significant, negative correlation with aggression ($r = -.402$, $p < .001$). Referring to Dancy and Reidy [83], the results of correlation analysis show that each type of attachment has a weak correlation to aggression, and self-esteem has a moderate correlation to aggression. Secure attachment has a moderate correlation to self-esteem, while insecure attachment and anxious attachment have a weak correlation to self-esteem.

Table 3. Correlation between secure attachment, insecure attachment, anxious ambivalent attachment, self-esteem, and aggression.

Variable	Aggression	Self-esteem
Secure attachment	-.216***	.421***
Insecure attachment	.141***	-.280***
Anxious attachment	.172***	-.340***
Self-esteem	-.402***	

Note: *** $p < .001$

4.2. Hypothesis Analysis

The role of secure attachment, insecure attachment, anxious attachment, and self-esteem in aggression have been analyzed. The data analysis results, as shown in Table 4, indicated different significant effects between variables. First, the results indicated that secure attachment had a negative effect on aggression ($\beta = -.225$, $p < .001$) and a positive effect on self-esteem ($\beta = .402$, $p < .001$). The results also revealed that insecure attachment had a positive effect on aggression ($\beta = -.147$, $p < .001$) and a negative effect on self-esteem ($\beta = .267$, $p < .001$). Moreover, this study found that anxious attachment had a positive effect on aggression ($\beta = -.174$, $p < .001$) and a negative effect on self-esteem ($\beta = .314$, $p < .001$). Another finding showed that self-esteem had a negative effect on aggression ($R^2 = -.441$, $p < .001$).

Then, we conducted a one-way analysis to see the role of self-esteem as a mediator since it had fulfilled three conditions of mediator testing, namely (1) the independent variable had a significant effect on the hypothesized mediator; (2) the independent variable had a significant effect on the dependent variable; and (3) the mediator had a significant effect on the dependent variable [98]. The analysis results show that self-esteem as a mediator contributes to the relationship between each type of attachment and aggression. This is indicated by the difference in the number of direct effects and total effects.

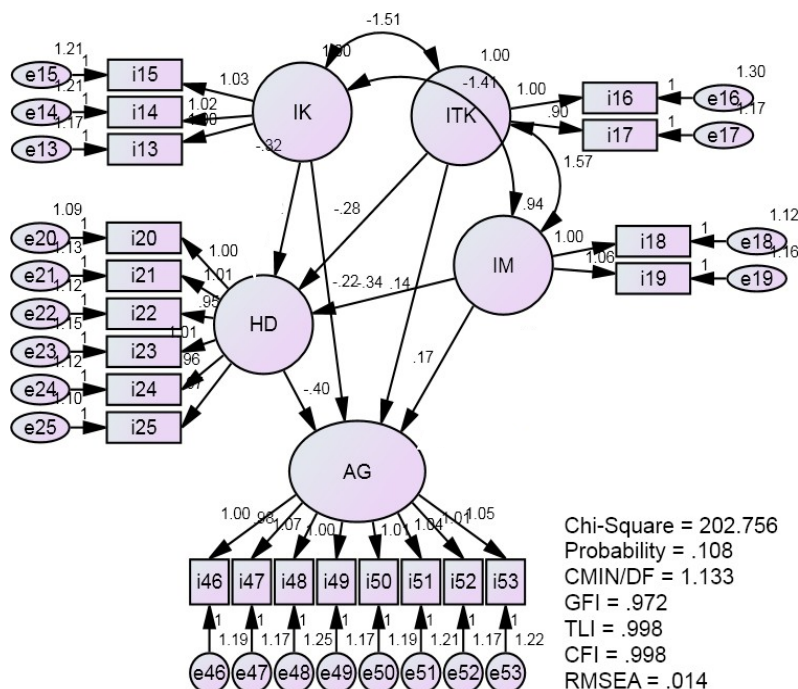
Table 4. The results of Hypothesis Analysis

Path	Coefficient (β)	P value
<i>Direct effect</i>		
Secure attachment -> self-esteem	0.402	0.000***
Insecure attachment -> self-esteem	-0.267	0.000***
Anxious attachment -> self-esteem	-0.314	0.000***
self-esteem -> aggression	-0.441	0.000***

Secure attachment -> aggression	-0.225	0.000***
Insecure attachment -> aggression	0.148	0.000***
Anxious attachment -> aggression	0.174	0.000***
Indirect effect		
Secure attachment -> self-esteem -> aggression	-0.177	0.000***
Insecure attachment -> self-esteem -> aggression	0.118	0.000***
Anxious attachment -> self-esteem -> aggression	0.138	0.000***
Total effect		
Secure attachment -> aggression	0.402	0.000***
Insecure attachment -> aggression	-0.267	0.000***
Anxious attachment -> aggression	-0.314	0.000***

Figure 2 displays the final path model, and the hypothesized model showed a good fit model, which was proven by Goodness of Fit Index (GFI) = .972, Tucker Lewis Index (TLI) = .998, Comparative Fit Index (CFI) = .998, and Root Mean Square Error of Approximation (RMSEA) = .014 [101].

The analysis results showed that self-esteem, as a mediator, significantly increased the effect of each attachment style on aggression. The indirect effect of self-esteem on secure attachment was valued -0.177 ($p < .001$), and the total effect was -0.402 ($p < .001$). Then, the indirect effect of self-esteem on insecure attachment was valued 0.11 ($p < .001$), and the total effect was 0.265, $p < .001$. Lastly, the indirect effect of self-esteem on anxious attachment was valued 0.138 ($p < .001$), and the total effect was 0.312 ($p < .001$).



Note: Secure attachment (IK), Insecure Attachment (ITK), Anxious Attachment (IM), Self-Esteem (HD), Aggression (AG). The error standard (e13 – e25; e46 – e53). The indicator of secure attachment: warm (i13), responsive (i14), sensitive (i15). The indicator of insecure attachment: skeptical (i16), submissive (i17). The indicator of anxious attachment: insensitive (i18), less involved (i19). The indicator of self-esteem: self-regulation (i20), adaptive responsiveness (i21), self-assessment (i22), competence and achievement (i23), understanding self-capacity (i24), adherence to values

(i25). Aggression indicators: direct physical active (i46), direct physical passive (i47), indirect physical active (i48), indirect physical passive (i49), direct verbal active (i50), direct verbal passive (i51), indirect verbal active (i52), passive indirect verbal (i53).

Figure 2. The final model paths.

4. Discussion

The study results showed that each mother's attachment style had a significant correlation with and effect on aggression. These findings suggested that a better attachment between the mother and the child could reduce the possibility of aggression in adolescents.

The study found that secure attachment negatively affected aggression, while insecure attachment and anxious attachment positively affected aggression. The study also showed that secure attachment had a greater significant effect on aggression than insecure and anxious attachment. These findings suggested that the mother's secure attachment could result in an adolescent's lower aggression. At the same time, insecure and anxious attachment would increase the risk of aggression. Previous studies by Brodie et al. also showed that insecure attachment negatively affected aggression [39]. This study explains that high school students with insecure attachments tend to do physical, verbal, and hostile aggression.

Another finding of the study showed that secure attachment positively affected self-esteem, while insecure attachment and anxious attachment did negatively. These findings suggested that better mother's secure attachment could lead to higher self-esteem in adolescents. In contrast, insecure attachment and anxious attachment could lower adolescents' self-esteem. Adolescents who had secure attachment with their parents reported better self-esteem than those with insecure attachment [85], [86]. Another researcher also found that insecure attachment was associated negatively with self-esteem; this condition was caused by insecure and restless early parenting [87].

Our subsequent finding exhibited that self-esteem negatively affected aggression [58]. Our result indicated that high self-esteem could lead to lower aggression, and low self-esteem could increase aggression. This finding supports previous studies, which found that individuals with high self-esteem could respect themselves and others and admit and accept their mistakes [88].

This study found that self-esteem, as a mediating variable, could enhance the effect of each mother's attachment style on aggression. This research result proved that mother's attachment continues to develop since childhood, which forms self-esteem and affects an adolescent's aggressive behavior. This finding also suggested that mother's secure attachment and high self-esteem in adolescents helped prevent aggression. This study supports the previous research stating that self-esteem mediated the relationship between mother's attachment and aggressive behavior in adolescents [78], [89].

Besides, the study explained that a positive parenting process (intimacy, monitoring, and peer approval) was related to the level of self-esteem in adolescents as well as the level of aggression [90].

This study contributed to the literature on preventing adolescent aggression, especially "Klitih" behavior in the Special Region of Yogyakarta. This study proves that mothers have an essential role in forming adolescent self-esteem and controlling aggressive behavior. This research can be used as literature to increase adolescent self-esteem through mother-child attachment. This study also reveals that several adolescents have low self-esteem and are judged to have insecure attachments and avoidant attachments. The relationships with primary educators are vital in determining children's emotional growth. Besides, our study also contributed to parenting practice by paying more attention to how mothers raise their children. It is essential to educate parents about building mother-child secure attachment to allow children to have emotional well-being in the future.

The limitation of the study lies in the data collection method, in which case there was only one technique used. The results would be more accurate if various data collection methods were used. Considering that culture might influence aggression, the use of sample units distinguished based on culture may give a more significant contribution. Therefore, future research can take advantage of cultural differences in each region in Indonesia and examine the different causes of each form of aggression (verbal and physical) to provide more prosperous and more detailed findings to prevent or overcome aggressive behavior in adolescents.

5. Conclusions

The present study is the first research in the Indonesian context that examined the role of self-esteem as a mediator for the effect of mother's attachment styles on aggression. The hypothesized model showed a good fit, indicating that self-esteem could enhance the effect of each mother's attachment style on aggression. Our study showed that each mother's attachment style (i.e., secure, insecure, and anxious attachment) significantly affected aggression. It was also found that each mother's attachment style significantly affected self-esteem. In addition, the present study showed that self-esteem negatively affected aggression. These findings suggested that better mother's attachment and higher self-esteem in adolescents could reduce the possibility of aggression whereas insecure attachment, anxious attachment, and low self-esteem would increase the risk of aggression.

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Aggression in Adolescents: The Role of Mother-Child Attachment and Self-Esteem

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Abstract



Article

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Abstract: Every year, adolescents' aggressive behavior in the world continues to increase, including in Yogyakarta, Indonesia. Teenagers' aggressive behavior in Yogyakarta leads to criminal acts resulting in physical sacrifices and death. The aggressive behavior of teenagers is known as *Klithih*. It develops and continues to increase every year, causing public anxiety and concern. This study aimed to examine the role of mother-child attachment and self-esteem against aggression. Aggression, mother's attachment, and self-esteem scales were deployed to collect data and were filled out by 730 high school students between 15 and 19 years old from twenty-three schools in five municipalities in Yogyakarta Province ($M = 16.52$, $SD = 0.793$, 310 male students and 420 female students). Descriptive statistics described research data by IBM SPSS 23 and structural equation modeling by AMOS v20 to test research hypotheses. The results of the study showed a good fit, indicating that self-esteem might enhance the effect of each mother's attachment style on aggression. Our study showed that insecure attachment positively and significantly affected aggression and negatively and significantly affected self-esteem. Furthermore, it also revealed that anxious attachment positively and significantly influenced aggression and negatively and significantly influenced self-esteem. Lastly, our finding revealed that self-esteem negatively and significantly affected aggression. These findings suggested that better mother's attachment and higher self-esteem in adolescents may lower the possibility of aggression, whereas insecure attachment, anxious attachment, and low self-esteem may increase the risk of aggression.

Keywords: adolescents; aggression; attachment; self-esteem; structural equation modeling



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1. Introduction

Aggression is a primitive behavior passed down from generation to generation from time immemorial, is persistent enough that it is near impossible wipe out completely, is committed on purpose, and is directly and indirectly expressed through wrath [1]. Aggression is expressed by harsh behavior both physically and verbally, hence endangering human beings and other living beings and causing difficulties, damages to property, and pain. Harsh behavior of aggression is from the simplest to the most complex levels [2]. Aggression is a purposive act to hurt oneself, others, or the environment physically and verbally [3]. Verbal aggression is most frequently committed and experienced by teenagers. This behavior contributes to physical aggression, especially toward adolescents with emotional disorders [4]. Verbal aggression is directly and indirectly expressed through anger and feud, causing negative thinking, damaging integrity and social relationships, threatening security, and hurting the welfare of children, adolescents, and adults [1]. Acts of physical aggression include punching, kicking, shooting, or even killing [5].

Aggression is linked to potential mental health issues [6]. It is linked to signs of depression [7] and negative morals [8]. Weak self-control may lead to aggressive behavior [9]. Because it causes injuries physically and verbally, it is better to avoid being the target of aggression [10]. Experiences of falling victim to physical aggression are highly likely to inspire aggressive behavior in the future [11]. The resulting consequences are negative thinking, damaged integrity and social relationships, disturbance to security, death, and mental disorders, such as failure in adapting, despair, depression, suicide, and alcoholism [4,5,12–15]. It is a protective response to pressure and distress along with a sense of anger that is expressed by hurting others, intimidating, or asserting dominance [16]. Most aggressive individuals fail at adapting both in their family and at school [12]. Aggression that is directed toward peers may cause physical wounds, psychosocial and academic problems, and strenuous relationships with peers [15]. Verbal aggression includes insults that cause emotional and psychological problems as they relate to self-competence [17,18]. The victim of aggression often develops suicidal thoughts due to the pressure that they are facing [19].

Aggressive behavior is on the front line of the causes of global adolescent morbidity and mortality. As much as 5.5% mortality in adolescents is caused by aggressive behavior. Research in the U.S. showed that 22.6% of adolescents have engaged in physical fights [20]. A study in Spain found an average score for verbal aggression of 57.60% [21]. Individuals with low levels of self-control are highly likely to show aggressive behavior [22]. In China, 39.2% experienced medium levels of physical aggression [23]. Meanwhile, among Jakarta teenagers, 85.7% perpetrated aggression in the score range 68–106 [24]. In Russia, up to 80% of adolescents committed verbal aggression [25]. In India, 46.04% experienced physical aggression [26]. Seventy-three percent of male *adolescents* in India showed moderate levels of aggressive behavior and thirty-two percent did high levels of aggressive behavior. It was further discovered that 57% of female adolescents had moderate levels of aggressive behavior and 18.5% did high levels of aggressive behavior [27]. In Iran, it was found that the aggressive behavior in adolescents averaged a score of 63.61% [28].

Several studies related to aggression have been documented in several countries where the results are in line with the results of research in Indonesia [29–31]. Research in Indonesia with 2681 adolescent subjects showed that adolescents committed physical and verbal aggression in many places, although the levels of aggression in rural areas were not as high as they were in other locations [31]. Other research in Indonesia showed that 11.9% of the adolescents demonstrated high levels of aggressive behavior and 75% did moderate levels of aggressive behavior [29]. A study in Banda Aceh found that 81.48% of the teenagers showed aggressive behavior [30].

The latest data explains that aggressive behavior in the Special Region of Yogyakarta, called *Klithih*, carried out by teenagers on the streets has caused child casualties from members of the Regional People's Representative Council [32]. *Klithih* is an act of violence on the streets in the form of fights, throwing stones, injuring, and even killing the victim, directed to other people at random [33]. This requires special attention to find the right solution considering that there has been an increase in sexual behavior by adolescents [34]. In 2022 the local police arrested 99 juvenile offenders (14–19 years old) [35]. Previous studies have explained that family resilience contributes to the prevention of *Klithih* [36], which explains the vital role of the family. Besides, in Indonesia, the mother acts as the primary caregiver compared with the father, who serves as the breadwinner [37]. Therefore, the focus of this research was on mother–child attachment. In addition, personal factors are important to study so that adolescents have stable self-esteem and prudence in acting [38].

2. Literature Review

2.1. Attachment and Aggression

It is essential to examine adolescent aggression and the factors associated with aggression. Previous studies found that family factors, such as insecure attachment and anxious attachment, are closely associated with aggressive behavior [39–41]. Attachment is a quality

comprising a mutual emotional bond between the infant and the caregiver that influences the infant's character development [42]. Attachment is divided into secure attachment and insecure attachment (anxious attachment and avoidant attachment) [42]. Secure attachment between the child and the caregiver creates emotional stability, allows for good self-control ability development, encourages social interaction, develops self-esteem, confers strength against pressure, and prevents mental disorders and aggressive behavior [43]. Secure attachment as a learning experience has a role in low aggressiveness [44]. Primary affection in parenting creates emotional stability and a sense of safety, hence producing low levels of aggression [45].

Children with anxious attachment experience non-responsive and inconsistent treatment in fulfillment of their needs [42]. Those children learn not to express themselves and their needs, leading to a poor attachment, which eventually results in fear of others' rejection [42]. Children will have an insecure attachment (avoidant attachment) when they experience a treatment that consistently does not fulfill their needs [42]. The attachment quality of an individual with the parents tends to contribute significantly to the development of aggressive behavior [46]. Dysfunctional anger and aggression are the core of insecure attachment [46,47]. Children experience conflict between their need for a close relationship and their wishes regarding other people's responses [48].

Previous studies showed that anxious attachment affects physical aggression and hostility more greatly than other types of insecure attachment [39]. A study on 388 high school students with a regression analysis technique found that attachment had an effective contribution to aggression of 16.5%. Insecure attachment had a significant effect on aggressive behavior in the form of physical aggression, verbal aggression, or hostility [39]. Learning experience with emotional attachments may reduce depression, stress, and other negative emotions [49,50]. Insecure attachment causes children to behave negatively in expressing their emotions. They somehow become reclusive individuals; they cannot depend on others, and their self-control against impulses is low [51]. All types of insecure attachment have a positive relationship with both physical and verbal aggression [52]. Insecure attachment significantly affects a child's ability to express his/her emotions, hence triggering aggressive behavior [41].

Therefore, the stronger the secure attachment with the parents, the more likely the child avoids aggressive behavior [40]. Insecure attachment may strengthen the proactive aggression predisposition in males. The lower the secure attachment, the higher the aggressive behavior reactivity [53]. Contrarily, strong secure attachment helps a child adapt to the environment, create harmonious relationships, and control their emotions [54]. Attachment contributes crucially to future behavior prediction [55]. Providing prime affection may create a child's emotional stability since it triggers a sense of security and comfort [45]. Individuals with insecure attachment have difficulties in controlling emotions and in trusting others and get anxious easily [56]. Other research results discovered that secure attachment is linked to low levels of aggressive behavior in children and to low levels of adolescent engagement in other dangerous behaviors [43].

2.2. Attachment, Self-Esteem, and Aggression

Other research also found that the quality of child-parent attachment could influence self-esteem [57] and later significantly influence aggressiveness [58]. Some findings proved that secure attachment and insecure attachment as fundamental learning experiences have a significant effect on an individual's ability to conduct self-evaluation and control positive and negative behaviors, thereby being useful for both the individual and their environment [59].

There are two factors at play in the development of self-esteem: reflected appraisals and social comparisons. It is presumed that there is a susceptibility to depression, drug use, and violence [60]. Individuals who manage to develop their self-esteem can defend themselves, be loved and accepted by others, show warm, responsive behavior, and have high self-efficacy [61,62]. Individuals with high self-esteem have respect for values, their

morals are competent, and they exhibit achievement in academic fields [63]. They have a positive attitude toward themselves and others [64], good emotional regulation, and perseverance [65]. Other studies found that adolescent aggression and antisocial behavior are expressions of low self-esteem; this is formed in the learning process with their parents [66]. Secure attachment is the most crucial determinant for stable self-esteem [67]. Individuals with high self-esteem are usually less aggressive, while individuals with low self-esteem show otherwise [68].

Some studies also showed that parenting and self-esteem are correlated with aggression [69]. Self-esteem is formed through a long process [70]. Individuals with low self-esteem will protect themselves from a sense of being rejected, inferiority, and shame for failures, hence tending to show aggressiveness and violence toward others. Individuals with high self-esteem do not easily become stressed, being more confident in facing the environment's demand; hence, they can prevent pathological symptoms such as aggression [71]. Aggressiveness that is related to negative emotions, reactive aggressiveness, and adaptive functions reflect criminal lifestyles and problematic, irresponsible, impulsive behaviors [72]. Adolescents with secure attachment tend to have higher self-esteem than those with insecure attachment (ambivalent). Self-esteem is negatively related to aggressive behavior [73], while insecure attachment and anxious attachment are related to unstable self-esteem [74]. The quality of secure attachment influences the development of self-esteem and significantly influences an individual in controlling their behavior [46].

Self-esteem and aggression are significantly correlated with each other [58]. Individuals with low self-esteem are prone to greater reactive aggression because of anger and hostility [75]. Whether it be a positive or negative treatment, how a mother treats her child affects her attachment with the child, thus affecting the child's self-esteem and behavior [57]. Other research also discovered that low self-esteem could increase peers' rejection and trigger aggressive acts in adolescents at the high school level [75]. Self-esteem has a negative effect in women with or without criminal records [76]. Self-esteem was also found to mediate or to be negatively related to isolation and aggression in high school adolescents [77]. The warmth built with parents will inspire self-image about one's self and others that can be used as a guide to control behavior [59].

2.3. Present Study

The primary aim of the present study was to examine the mediating role of self-esteem in the effect of mother's attachment styles on aggression among adolescents in Yogyakarta, Indonesia. Based on previous research (e.g., Gomez and McLaren [78]), we hypothesized that self-esteem would moderate the effect of mother's attachment styles (i.e., secure attachment, insecure attachment (avoidant attachment), and anxious attachment) on aggression. So far, research on self-esteem as a mediation of the relationship between mother-child attachment and aggression has not been studied in Indonesia. More specifically, each mother's attachment style has a different effect on aggression and self-esteem. We believed that our study would provide valuable information regarding the role of mother-child attachment and self-esteem in adolescents' aggression.

3. Materials and Methods

3.1. Participants and Procedure

A total of 730 high school students aged 15–19 years old ($M = 16.52$, $SD = 0.793$), comprising 310 male students and 420 female students, participated in the present study. The participants were selected from twenty-three schools in five municipalities in Yogyakarta Province (i.e., Bantul, Kulonprogo, Sleman, Wonosari, and Yogyakarta). This study obtained a research permit from Ahmad Dahlan University, the Yogyakarta provincial government, the Department of Education, and schools.

We asked school counselors to identify students for participation in our research. The participants were selected based on several criteria: grade XI students, living with parents, and having a mother who was at least a high school graduate, having a job, and having a

maximum of four biological children. Once the participants were selected, the researchers set the schedule for data collection. The researchers visited the schools and distributed the instruments to the students. In completing the instruments, the participants were assisted by six research assistants and twenty-three school counselors. Informed consent was obtained from the participants. We also explained the project's purpose and procedure. The participants were informed that their data and responses would be kept confidential. The data collection phase was carried out for two months. Each participant received a voucher valued IDR 50,000.00 for their participation.

3.2. Measures

3.2.1. Aggression

Adolescents' aggression was measured by a 33-item Likert scale ($\alpha = 0.915$), designed based on the theory proposed by Baron and Neuman [79]. The items covered eight forms of aggression, namely (A) direct active physical, (B) direct passive physical, (C) indirect active physical, (D) indirect passive physical, (E) direct active verbal, (F) direct passive verbal, (G) indirect active verbal, and (H) indirect passive verbal. Some of the items included, e.g., "I will kick people who often make trouble" and "I will spread gossip about friends who often hurt others". The seven-point Likert scale ranged from 1 (very low intensity) to 7 (very high intensity). The total score reflected the intensity of aggression.

3.2.2. Mother's Attachment

Mother's attachment was assessed using 31 items designed based on the theory proposed by Ainsworth [80]. The scale consisted of three sub-scales to evaluate the intensity of mother-child attachment. The three sub-scales were (A) secure attachment ($\alpha = 0.957$), e.g., "The mother was a faithful and communicative listener", (B) insecure attachment ($\alpha = 0.726$), e.g., "The mother never believed in the reason given by her child", and (C) anxious attachment ($\alpha = 0.786$), e.g., "The mother leaves her child in loneliness when facing problems". This scale was a seven-point Likert scale ranging from 1 (very low intensity) to 7 (very high intensity).

3.2.3. Self-Esteem

We assessed adolescents' self-esteem using a 35-item Likert scale ($\alpha = 0.953$), designed based on the theory by Baumesiter [81], Coopersmith [61], and Dutton and Brown [82]. The indicators of self-esteem in this study were (a) self-management, (b) responsiveness and adaptiveness, (c) self-esteem, (d) having competence and achievement, (e) having self-capacity, and (f) value adherence. The seven-point Likert scale ranged from 1 (very low intensity) to 7 (very high intensity). Some of the items included, e.g., "I dare to compete with friends", "I accept offers according to ability", and "I admit and apologize for breaking the rules". The total score reflected the self-esteem level; low intensity indicated low self-esteem, while high intensity indicated high self-esteem.

3.3. Data Analysis

In this study, the data were analyzed using descriptive statistics by IBM SPSS 23 to describe the research data and structural equation modeling (SEM) with AMOS v20 Software to examine the validity of theoretical models and the relationship between variables. The strength of the variable correlation coefficient refers to Dancey and Reidy [83], which can be seen in Table 1. The model fit was assessed based on Goodness of Fit Index (GFI), where $GFI = 1.00$ indicated perfect fit and $GFI > 0.9$ indicated a good fit, Adjusted GFI (AGFI), where AGFI close to 1.00 indicated a good fit, Root Mean Square Error of Approximation (RMSEA), where $RMSEA < 0.05$ indicated a good fit, Normed Fit Index (NFI) ($NFI \geq 0.90$), Comparative Fit Index (CFI) ($CFI \geq 0.90$), and Tucker-Lewis Index (TLI) ($TLI > 0.90$) [84]. A study should report at least three fit indices to gain a good or perfect fit model [85].

Table 1. Interpretation of correlation coefficient strength.

Correlation Coefficient	Interpretation
1	Perfect
0.70–0.99	Strong
0.40–0.699	Moderate
0.10–0.399	Weak
0	Zero

4. Results

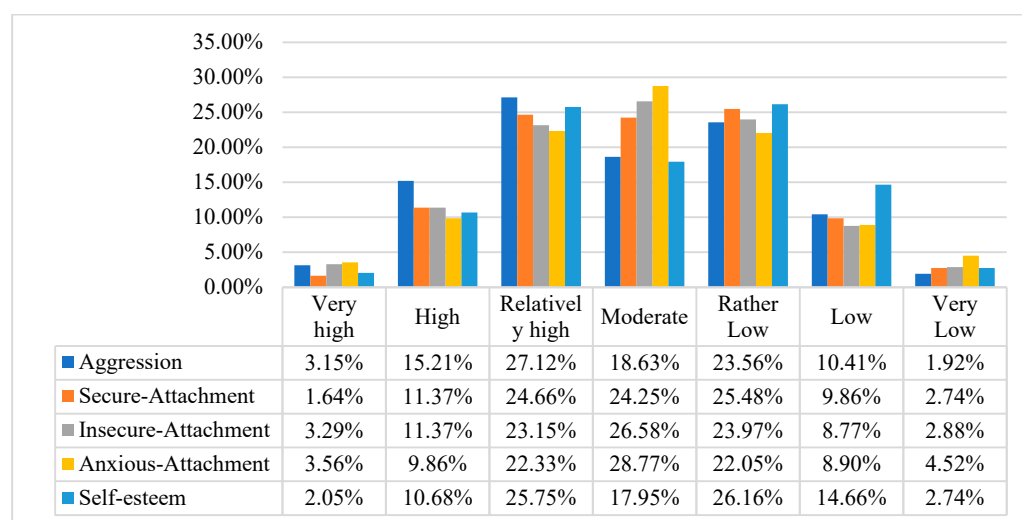
4.1. Descriptive Statistics

The mean, standard deviation, minimum score, and maximum score are shown in Table 2. The distribution of the variables' scores is reported in Figure 1.

Table 2. Variables' descriptive data.

Variable	Mean	Std. Deviation	Minimum	Maximum
Aggression	130.24	34.910	53.0	216.0
Secure attachment	71.91	21.548	18.0	126.0
Insecure attachment	32.45	9.867	8.0	56.0
Anxious attachment	20.03	6.272	5.0	35.0
Self-esteem	140.66	39.233	53.0	234.0
N = 730				

This study found that most adolescents had a relatively high intensity of aggression (27.12%), rather low intensity of secure attachment (25.48%) and self-esteem (26.16%), and moderate intensity of anxious attachment (28.77%) and insecure attachment (26.58%). However, the variable scores were found to be slightly different in three categories (i.e., relatively high, somewhat low, and moderate).

**Figure 1.** The distribution of scores of the variables.

The correlation between variables is shown in Table 3. Secure attachment was found to be significantly and negatively correlated with aggression ($r = -0.216, p < 0.001$) and positively and significantly correlated with self-esteem ($r = 0.421, p < 0.001$). In contrast, insecure attachment was found to be significantly and positively correlated with aggression ($r = 0.141, p < 0.001$) and negatively and significantly correlated with self-esteem ($r = -0.280, p < 0.001$). Anxious attachment was positively correlated with aggression

($r = 0.172, p < 0.001$) and significantly and negatively correlated with self-esteem ($r = -0.340, p < 0.001$). It was also found that self-esteem exhibited a significant, negative correlation with aggression ($r = -0.402, p < 0.001$). Referring to Dancey and Reidy [83], the results of correlation analysis showed that each type of attachment has a weak correlation to aggression, and self-esteem has a moderate correlation to aggression. Secure attachment has a moderate correlation to self-esteem, while insecure attachment and anxious attachment have a weak correlation to self-esteem.

Table 3. Correlation between secure attachment, insecure attachment, anxious ambivalent attachment, self-esteem, and aggression.

Variable	Aggression	Self-Esteem
Secure attachment	−0.216 ***	0.421 ***
Insecure attachment	0.141 ***	−0.280 ***
Anxious attachment	0.172 ***	−0.340 ***
Self-esteem	−0.402 ***	

Note: *** $p < 0.001$.

4.2. Hypothesis Analysis

The role of secure attachment, insecure attachment, anxious attachment, and self-esteem in aggression were analyzed. The data analysis results, as shown in Table 4, indicated different significant effects between variables. First, the results indicated that secure attachment had a negative effect on aggression ($\beta = -0.225, p < 0.001$) and a positive effect on self-esteem ($\beta = 0.402, p < 0.001$). The results also revealed that insecure attachment had a positive effect on aggression ($\beta = -0.147, p < 0.001$) and a negative effect on self-esteem ($\beta = 0.267, p < 0.001$). Moreover, this study found that anxious attachment had a positive effect on aggression ($\beta = -0.174, p < 0.001$) and a negative effect on self-esteem ($\beta = 0.314, p < 0.001$). Another finding showed that self-esteem had a negative effect on aggression ($R^2 = -0.441, p < 0.001$).

Table 4. The results of hypothesis analysis.

Path	Coefficient (β)	p -Value
Direct effect		
Secure attachment -> self-esteem	0.402	0.000 ***
Insecure attachment -> self-esteem	−0.267	0.000 ***
Anxious attachment -> self-esteem	−0.314	0.000 ***
self-esteem -> aggression	−0.441	0.000 ***
Secure attachment -> aggression	−0.225	0.000 ***
Insecure attachment -> aggression	0.148	0.000 ***
Anxious attachment -> aggression	0.174	0.000 ***
Indirect effect		
Secure attachment -> self-esteem -> aggression	−0.177	0.000 ***
Insecure attachment -> self-esteem -> aggression	0.118	0.000 ***
Anxious attachment -> self-esteem -> aggression	0.138	0.000 ***
Total effect		
Secure attachment -> aggression	−0.402	0.000 ***
Insecure attachment -> aggression	0.265	0.000 ***
Anxious attachment -> aggression	0.312	0.000 ***

Note: *** $p < 0.001$.

Then, we conducted a one-way analysis to see the role of self-esteem as a mediator since it had fulfilled three conditions of mediator testing, namely (1) the independent variable had a significant effect on the hypothesized mediator; (2) the independent variable had a significant effect on the dependent variable; and (3) the mediator had a significant

effect on the dependent variable [85]. The analysis results showed that self-esteem as a mediator contributes to the relationship between each type of attachment and aggression. This is indicated by the difference in the number of direct effects and total effects.

Figure 2 displays the final path model, and the hypothesized model showed a good fit model, which was proven by the Goodness of Fit Index (GFI) = 0.972, Tucker Lewis Index (TLI) = 0.998, Comparative Fit Index (CFI) = 0.998, and Root Mean Square Error of Approximation (RMSEA) = 0.014 [85].

The analysis results showed that self-esteem, as a mediator, significantly increased the effect of each attachment style on aggression. The indirect effect of self-esteem on secure attachment was valued as -0.177 ($p < 0.001$), and the total effect was -0.402 ($p < 0.001$). Then, the indirect effect of self-esteem on insecure attachment was valued as 0.118 ($p < 0.001$), and the total effect was 0.265 , $p < 0.001$. Lastly, the indirect effect of self-esteem on anxious attachment was valued as 0.138 ($p < 0.001$), and the total effect was 0.312 ($p < 0.001$).

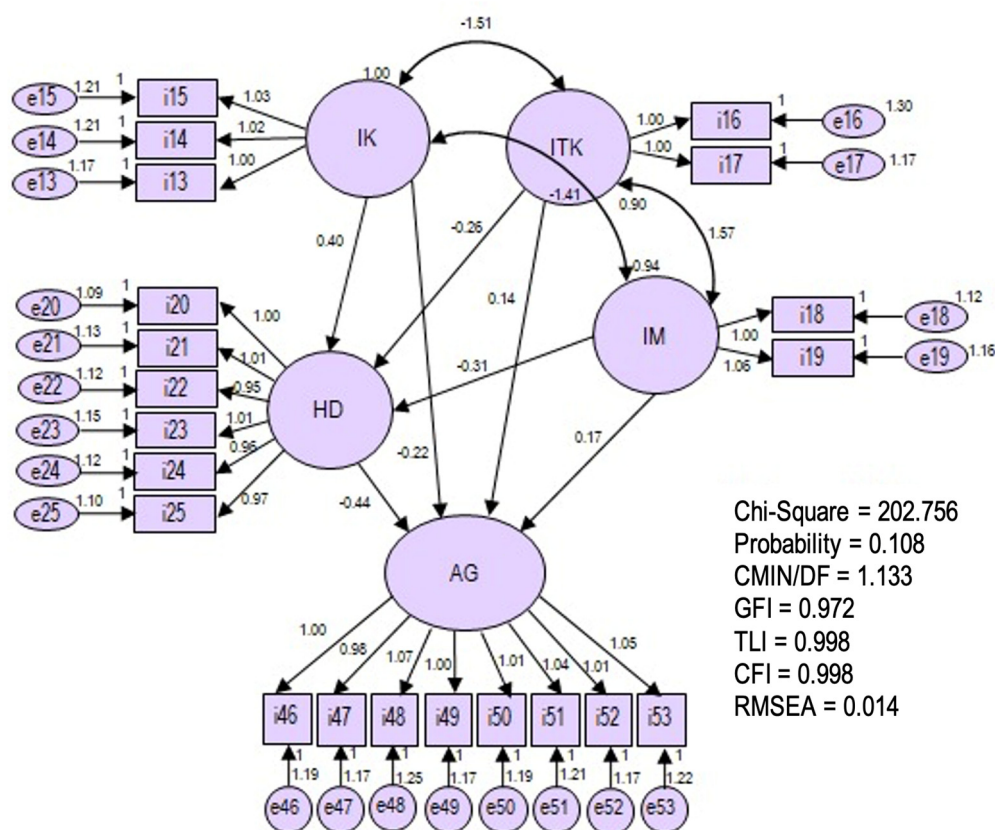


Figure 2. The final model paths. **Note:** Secure attachment (IK), Insecure Attachment (ITK), Anxious Attachment (IM), Self-Esteem (HD), Aggression (AG). The error standard (e13–e25; e46–e53). The indicator of secure attachment: warm (i13), responsive (i14), sensitive (i15). The indicator of insecure attachment: sceptical (i16), submissive (i17). The indicator of anxious attachment: insensitive (i18), less involved (i19). The indicator of self-esteem: self-regulation (i20), adaptive responsiveness (i21), self-assessment (i22), competence and achievement (i23), understanding self-capacity (i24), adherence to values (i25). Aggression indicators: direct physical active (i46), direct physical passive (i47), indirect physical active (i48), indirect physical passive (i49), direct verbal active (i50), direct verbal passive (i51), indirect verbal active (i52), passive indirect verbal (i53). The Minimum Sample Discrepancy Function Divided with degree of Freedom (CMIN/DF), Goodness of Fit Index (GFI), Tucker–Lewis Index (TLI), Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA).

5. Discussion

The study results showed that each mother's attachment style had a significant correlation with and effect on aggression. These findings suggested that a better attachment between the mother and the child could reduce the possibility of aggression in adolescents.

The study found that secure attachment negatively affected aggression, while insecure attachment and anxious attachment positively affected aggression. The study also showed that secure attachment had a greater significant effect on aggression than insecure and anxious attachment. These findings suggested that the mother's secure attachment could result in an adolescent's lower aggression. At the same time, insecure and anxious attachment would increase the risk of aggression. Previous studies by Brodie et al. also showed that insecure attachment negatively affected aggression [39]. This study explains that high school students with insecure attachments tend to do physical, verbal, and hostile aggression.

Another finding of the study showed that secure attachment positively affected self-esteem, while insecure attachment and anxious attachment did negatively. These findings suggested that better mother's secure attachment could lead to higher self-esteem in adolescents. In contrast, insecure attachment and anxious attachment could lower adolescents' self-esteem. Adolescents who had secure attachment with their parents reported better self-esteem than those with insecure attachment [86,87]. Another researcher also found that insecure attachment was negatively associated with self-esteem; this condition was caused by insecure and restless early parenting [88].

Our subsequent finding exhibited that self-esteem negatively affected aggression [58]. Our results indicated that high self-esteem could lead to lower aggression, and low self-esteem could increase aggression. These findings support previous studies, which found that individuals with high self-esteem could respect themselves and others and admit and accept their mistakes [89].

This study found that self-esteem, as a mediating variable, could enhance the effect of each mother's attachment style on aggression. This research result proved that mother's attachment continues to develop since childhood, which forms self-esteem and affects an adolescent's aggressive behavior. This finding also suggested that mother's secure attachment and high self-esteem in adolescents helped prevent aggression. This study supports the previous research stating that self-esteem mediated the relationship between mother's attachment and aggressive behavior in adolescents [78,90].

Besides, the study explained that a positive parenting process (intimacy, monitoring, and peer approval) was related to the level of self-esteem in adolescents as well as the level of aggression [91].

This study contributed to the literature on preventing adolescent aggression, especially "*Klitih*" behavior in the special region of Yogyakarta. This study proves that mothers have an essential role in forming adolescent self-esteem and controlling aggressive behavior. This research can be used as literature to increase adolescent self-esteem through mother-child attachment. This study also reveals that several adolescents have low self-esteem and are judged to have insecure attachments and avoidant attachments. The relationships with primary educators are vital in determining children's emotional growth. Besides, our study also contributed to parenting practice by paying more attention to how mothers raise their children. It is essential to educate parents about building secure mother-child attachment to allow children to have emotional well-being in the future.

The limitation of the study lies in the data collection method, in which case there was only one technique used. The results would be more accurate if various data collection methods were used. Considering that culture might influence aggression, the use of sample units distinguished based on culture may provide a more significant contribution. Therefore, future research can take advantage of cultural differences in each region in Indonesia and examine the different causes of each form of aggression (verbal and physical) to provide more prosperous and more detailed findings to prevent or overcome aggressive behavior in adolescents.

6. Conclusions

The present study is the first research in the Indonesian context that examined the role of self-esteem as a mediator for the effect of the mother's attachment styles on aggression. The hypothesized model showed a good fit, indicating that self-esteem could enhance the effect of each mother's attachment style on aggression. Our study showed that each mother's attachment style (i.e., secure, insecure, and anxious attachment) significantly affected aggression. It was also found that each mother's attachment style significantly affected self-esteem. In addition, the present study showed that self-esteem negatively affected aggression. These findings suggested that better mother's attachment and higher self-esteem in adolescents could reduce the possibility of aggression whereas insecure attachment, anxious attachment, and low self-esteem would increase the risk of aggression.

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Aggression in Adolescents: The Role of Mother-Child Attachment and Self-Esteem

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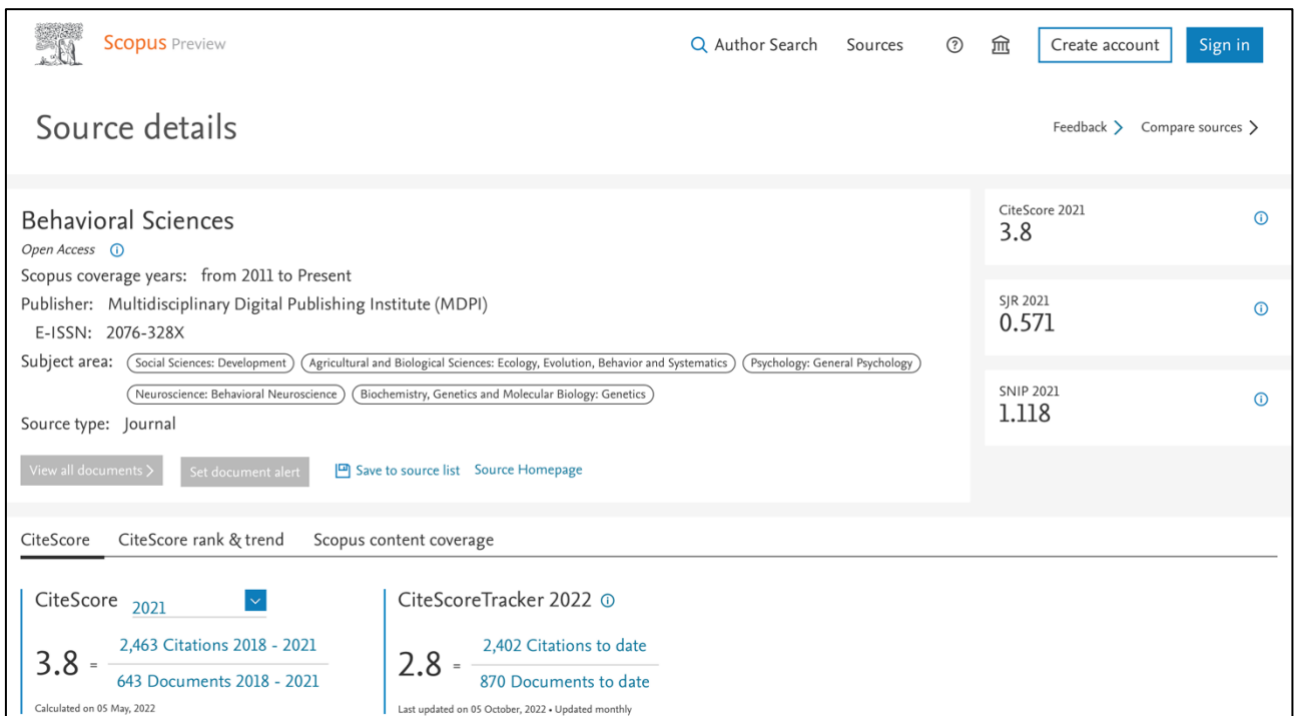
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