# It is illegal to post this copyrighted PDF on any website. Association Between Different Attachment Styles and Trends of Engagement in Violent Video Games: A Study Among Lebanese Male Adolescents

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#### ABSTRACT

**Objective:** To evaluate the association of different attachment styles with the exposure of Lebanese male adolescents to violent video games.

*Methods:* This cross-sectional survey study was conducted between October and December 2019 among 388 Lebanese male adolescents (aged 13–17 years) from 5 Lebanese schools. Participants answered questions regarding the 4 attachment styles (secure, preoccupied, fearful, and dismissing) and violent video game engagement.

**Results:** Dismissing attachment style ( $\beta = -1.389$ ) was significantly associated with less violent video gaming. Higher fearful attachment style ( $\beta = 2.981$ ) was significantly associated with more violent video gaming.

**Conclusions:** Adolescents with more insecure attachment styles were found to be more engaged in violent video games. Further research is needed on stress and empathy in association with these attachment styles to investigate whether they have an impact on violent gaming exposure. Future studies should focus on the type of video games and whether they require interaction with others.

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**I**ideo games, known electronic as interactive leisure activities, are mainly categorized into educational, entertainment, and violent games.<sup>1,2</sup> Violent video games are defined as those that depict intentional attempts by individuals who can be nonhuman, cartoon characters, real people, or anything in between to perpetrate harm on others.<sup>3</sup> Studies<sup>4,5</sup> have shown that more than 90% of American youth play video games, and more than 90% of those games contain depictions of violence. Due to increased exposure and popularity, videogaming is now considered one of the largest multimedia activities in the world.<sup>6</sup> Extensive research has examined the consequences of violent video gaming. It has been documented that exposure to violent video gaming triggers the development and manifestation of aggression associated with anger and impulsivity.<sup>7-9</sup> Some reviews of research on violent video games assert that widespread exposure of young people to violent games could have major societal consequences induced through aggressive thoughts and behaviors.<sup>10</sup> Other studies<sup>11-14</sup> have suggested that prolonged exposure to video gaming in general may have a detrimental impact on attention and ability to focus among users, with the possibility to evolve to a clinically relevant attentional deficit with worsened scholastic performance, defective memory function, and lower intelligence. In addition, playing violent video games may stimulate physiologic arousal and hostility, decrease the empathy manifested through helping others, and cause a desensitizing physiologic effect.<sup>15,16</sup>

Given the various detrimental consequences of violent video gaming, there are certain factors such as parental monitoring and secure attachment relationship with the parent at infancy that might be protective against exposure to violent video gaming.<sup>17</sup> Attachment styles have been conceptualized in different ways over the years. Bartholomew and Horowitz<sup>18</sup> defined 4 different attachment styles regarding the object of mental models (self or other) and the predominant feeling about that object (positive or negative). The 4 prototypical attachment styles derived from this model are secure, preoccupied, dismissing, and fearful. The latter 3 are recognized as insecure attachment styles.

Securely attached individuals feel they are worthy of love and are confident to ask for support or to support others.<sup>19</sup>

## It is illegal to post this copyri Clinical Points

- An association exists between different attachment styles and engagement in violent video games.
- The dismissing attachment style was associated with lower violent video gaming.
- The fearful attachment style was associated with higher violent video gaming.

Preoccupied individuals are more stressed and exhibit low self-esteem and hence approach their relationships while seeking approval from others.<sup>20</sup> Dismissive individuals tend to suppress their emotions and rely on themselves while prioritizing achievements over relationships. Lastly, fearful individuals view themselves as unworthy of support and exhibit high levels of distrust toward others.<sup>21</sup>

Establishment of secure attachment with a primary caregiver has direct implications for negotiating new tasks, actively exploring the environment, and dealing with issues of self-regulation, thus minimizing exposure to violent video gaming.<sup>22</sup> Research has found significant associations among different attachment styles and problematic use of the internet including video games.<sup>23–25</sup> However, scant literature has focused on the association between violent video games and different attachment styles. One study<sup>26</sup> found that individuals with avoidance attachment styles engaged less in video games with family, friends, and strangers on the internet and preferred playing alone, especially compared with individuals scoring high on a secure attachment style. Attachment styles have a strong influential effect on social interactions and emotional development, which determine the risk of dependence progression, problematic use of technology, and excessive exposure to video gaming and most likely those games that are violent.<sup>23,27,28</sup>

Although the effect of violent video games on players' aggression levels has been examined, 2 opposing views remain. Some studies correlated violent video games with increased aggression,<sup>29</sup> whereas others found minimal or no difference following exposure to these types of games.<sup>30</sup> However, widespread public concern regarding violent games reducing empathy in those who engage with them calls for further research on the topic, especially in regard to examining the factors associated with dependence on violent video gaming. Male adolescents have been shown to be the category of individuals most invested in violent video games.<sup>31</sup> Moreover, in Lebanon, there are no data regarding violent video gaming and its impact on attachment styles, particularly among children and adolescents. Hence, this study was conducted to evaluate the association between violent video gaming exposure and attachment styles among Lebanese male adolescents.

#### METHODS

#### **Study Design and Procedure**

This cross-sectional study enrolled 388 male students from 5 Lebanese schools between October and December

Table 1. Bivariate Analysis Taking the Violent Video Game Scale Score as the Dependent Variable

	Violent Video Game Score	
Variable	r	P Value <sup>a</sup>
Age	-0.085	.095
Household Crowding Index	-0.058	.262
Secure attachment style (attachment A)	-0.119	.030
Preoccupied attachment style (attachment B)	0.092	.096
Fearful attachment style (attachment C)	0.256	< .001
Dismissing attachment style (attachment D)	-0.145	.009
<sup>a</sup> Bolding indicates significance.		

2019. A list of the schools available in each Lebanese district was provided by the Ministry of Education and Higher Education. One school was chosen from each district using a simple randomization technique. The districts included Beirut (the capital), Mount Lebanon, North, Beqaa, and South. A list of students was obtained from the designated school, and all male students from grades 9-12 (aged 13-17 years) in each school were asked to participate. Students were allowed to fill out the questionnaires on a voluntary basis, and the survey was administered in classrooms to avoid parental influence. Survey researchers assume that children aged  $\geq 10$  years are capable of answering survey questions.<sup>32,33</sup> Subjects who refused to complete the questionnaire were excluded. Data were stripped from any personal identifying information to protect the students' privacy. The same methodology was used in a previous study.<sup>34</sup>

#### Minimal Sample Size Calculation

According to the G-power software and based on an effect size of f2 = 4%, an  $\alpha$  error of 5%, and a power of 80% and taking into consideration 4 factors to be entered in the multivariable analysis, the results showed that a minimal number of 304 was needed.

#### **Ethics Approval**

The study was approved by the ethics committee of Lebanese International University and the institutional boards of each school. Written informed consent was obtained from the parents of all students.

#### **Data Collection and Measures**

The self-administered questionnaire in Arabic was distributed in paper form. Before use, the questionnaire was translated into Arabic (process involving 2 independent translations, synthesis of the 2 translations, back translations, review of the final version, and pretesting). The questionnaire included 2 sections. The first section collected demographic information, including participants' age and the Household Crowding Index, which reflects the socioeconomic status of the family. The Household Crowding Index is calculated by dividing the number of persons living in the house by the number of rooms in the house, excluding the bathrooms and kitchen. The second section was dedicated to the assessment of attachment styles and violent video games.

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It is illeg at to post this copyrighted PD Table 2. Multivariable Analysis<sup>a</sup>

Linear Regression Taking the Violent Video Game Scale Score as the Dependent Variable

Variable	Unstandardized $\beta$	Standardized β	<i>P</i> Value <sup>b</sup>	95% CI	
				Lower Bound	Upper Bound
Age	-1.648	-0.100	.066	-3.408	0.112
Fearful attachment style (attachment C)	2.981	0.237	< .001	1.630	4.333
Dismissing attachment style (attachment D)	-1.389	-0.123	.025	-2.603	-0.176

<sup>a</sup>Variables entered in the model: age, Household Crowding Index, attachment style A, attachment style B, attachment style C, and attachment style D.

<sup>b</sup>Bolding indicates significance.

#### **Relationship Questionnaire**

This self-assessment measure of attachment behavior<sup>18</sup> consists of 4 short paragraphs, each describing 1 of 4 adult attachment styles. Style A corresponds to the secure attachment, style B to the preoccupied attachment, style C to the fearful attachment, and style D to the dismissing attachment. Each paragraph is rated on a 7-point scale (1 = strongly disagree to 7 = strongly agree), with higher scores indicating higher attachment style (Cronbach  $\alpha$  = 0.86).

### **Video Gaming**

The participants were asked about their 5 most-played games. The Video Game Questionnaire<sup>35</sup> assesses game use frequencies, degree of violent content (blood), and degree of violent images on a 7-point scale (1=participants seldom play video games, with no violent content or images; 7=participants often play video games with a lot of violent content and images). A Violent Video Game Scale was adapted for this study based on the Video Game Questionnaire. This scale reflects the frequency and intensity of violent video game exposure. The violence exposure score for each of the participants' 5 favorite games was computed by summing the violent content and graphics ratings and multiplying by the how-often rating. Higher scores indicate higher exposure to violent video games (Cronbach  $\alpha$ =0.939).

## **Statistical Analysis**

SPSS software version 25 was used to conduct data analysis. The normality of the Violent Video Game Scale score was verified via the skewness (0.731) and kurtosis (-0.3) values varying between -1 and  $+1.^{36}$  A bivariate analysis using the Pearson correlation test assessed the relationship between video games and attachment styles, age, and the Household Crowding Index. A stepwise linear regression was conducted, taking the Violent Video Game Scale score as the dependent variable. Independent variables entered in the final model were those that showed a P < .2 in the bivariate analysis for the elimination of confounding factors as much as possible. Significance was defined as P < .05.

## RESULTS

The mean  $\pm$  SD age of the participants was  $15.83 \pm 1.93$  years, and the Household Crowding Index of the participants

was  $1.39 \pm 1.59$ , with 72.1% having a low monthly income. The mean  $\pm$  SD Violent Video Game Scale score was  $41.47 \pm 24.16$ .

### **Bivariate Analysis**

Higher secure attachment style (r = -0.119) and dismissing attachment style (r = -0.145) were significantly associated with lower violent video game playing. Higher fearful attachment style was significantly associated with higher violent video game playing (r = 0.256) (Table 1).

## **Multivariable Analysis**

The results of the linear regression, taking the Violent Video Game Scale score as the dependent variable, showed that higher dismissing attachment style ( $\beta = -1.389$ ) was significantly associated with a lower Violent Video Game Scale score. Higher fearful attachment style ( $\beta = 2.981$ ) was significantly associated with a higher Violent Video Game Scale score (Table 2).

## DISCUSSION

This study investigated whether different attachment styles are associated with higher use of violent video games. There is scarce literature on the association between different attachment styles and violent video games, as most research has focused on video games in general.

The study findings suggest an association between different attachment styles and engagement in violent video games. The dismissing attachment style was associated with lower violent video game use, whereas the fearful attachment style was associated with higher use. Studies<sup>37</sup> have shown that dismissive individuals play video games in a manner similar to the way in which they behave in their daily lives, spending more time alone rather than socializing. Hence, further studies should assess whether their engagement in video games (even violent gaming) depends more on the genre or whether the game is an MMO (massive multiplayer online gaming). These individuals could be using MMOs to satisfy their social needs while maintaining a barrier within that socialization, or they could be using video games that are not MMOs to escape socializing altogether in their free time.38

Individuals with a fearful attachment style tend to feel unworthy of support and are distrustful of others, hence

## Akel et al **It is illegal to post this copyrighted PDF on any website.** they distance themselves. Their high engagement in violent and online video games give them a platform to experience

video games would be a way of coping with their emotions, or they may be immersing themselves in a world of their own wherein they escape reality and try to construct their identity through this creative platform.<sup>39</sup>

Contrary to our findings, a recent study<sup>26</sup> in Israel among 1,391 children and adolescents aged 9–15 years reported no differences in violent video game involvement between the 3 attachment patterns (secure, insecure-avoidant, and insecure-anxious). In many current video games, violent acts are not a choice made by players but rather are part of the rules of the game, thus explaining this finding.<sup>26</sup> The players need to follow the rules to play effectively and achieve optimal results. However, these games have prosocial aspects such as communication with other players, sharing, and helping, which are more self-directed and autonomous; hence, they allow more of the players' personalities to be expressed in the game.

Video games have evolved into complex interactive experiences wherein players can freely decide on different courses of action, which can result in completely different gaming experiences.<sup>40</sup> Within the same game, players can exhibit violent actions such as killing and eliminating other players, as well as prosocial behavior such as saving the life of other players or displaying cooperation, especially when they play together in teams or groups.<sup>41</sup> Hence, the creation of 2 separate variables, one reflecting nonviolent prosocial game content and the other reflecting violent content, is a better strategy to understand the association between attachment styles and exposure to violent video games.

The association between older age and lower use of violent video games trended to significance in the multivariable analysis. Similar results were found in previous research in which people in younger age groups showed the most engagement with violent video games in addition to increased time spent playing the game.<sup>42</sup> An explanation for this finding might be that younger individuals are still trying to determine the character traits they want to adopt, different characteristics and emotions.43

## **Limitations and Strengths**

This study had several limitations. There was a lack of focus on sex differences and the relation of sex to aggression, which might play an important role in one's exposure to violent video games. Moreover, the computed violent video game score did not allow for classification of the participants into low- or high-risk groups and did not reflect the total time spent on violent video gaming. It is also noteworthy that this was a cross-sectional study that did not account for different behaviors over a period of time, but rather the results were collected through self-questionnaire and are thus subject to information bias. One school was selected from each district, which may have produced a selection bias, and the sample size was not big enough to represent the whole country. Also, the scales used in the questionnaire are not validated. Finally, a residual confounding bias is also possible, since not all factors associated with violent video games were taken into consideration in this study. However, this study was able to show an association between different attachment styles and exposure to violent video games, a topic that not only is newly studied in Lebanon, but also is scarcely investigated in the literature, which focuses on video games in general rather than those that are violent.

## CONCLUSION

Our results showed that individuals who exhibited fearful attachment styles were more likely to engage in violent video games, whereas dismissive individuals were less likely to participate in violent video game use. Further research on stress and empathy in association with these attachment styles should be conducted to investigate whether these factors have an impact on violent gaming exposure. In addition, studies should also focus more on the type of video games and whether they require interaction with others.

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