

# SCREEN TIME AND AGGRESSION IN ADOLESCENTS: A MODERATING ROLE OF CONTENT-BASED MEDIA EXPOSURE

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## ABSTRACT

### OBJECTIVE

This study was designed to explore the relationship between excessive screen time, content-based media exposure, and aggression in adolescents. Another important aim was to examine the moderating role of content-based media exposure between screen time and aggression.

### STUDY DESIGN

A correlational cross-sectional research design was followed.

### PLACE AND DURATION OF STUDY

Public and private schools of Lahore (22 March 2022 to July 2022).

### METHOD

A non-probability convenient sample of 250 adolescents with an age range of 13 to 17 years was drawn from two public and two private schools and colleges in Lahore. The measures for data collection were the Screen-Time Addiction Questionnaire, Content-Based Media Exposure Scale, and The Aggression Scale are used to understand the strategic elements of how screen time shapes the world around adolescents that may lead to aggressive behaviours.

### RESULTS

The results of the Pearson product-moment correlation indicated screen time has a positive relationship with both anti-social ( $r=.32^* p<.05$ ) and neutral content ( $r=.37^* p<.05$ ) of media exposure. Similarly, anti-social media exposure has a significant positive relationship ( $r=.56^{**} p<.01$ ) with aggression. Violent and neutral content exposure has an inverse relationship ( $r=-.40^{**} p<.01$ ) with each other. Anti-social media exposure proved a significant positive ( $\beta=4.32, p<.05$ ) predictor of aggression. Furthermore, media exposure significantly moderates the relationship ( $1.98^{***} p<.001$ ).

### CONCLUSION

Mean scores showed that the present population spent more time on screens watching violent, anti-social content and scored high on aggression. Adolescents who spent more time watching antisocial/violent content scored high on aggression. Educators, parents, and content designers should keep this thing in mind for designing online content for the public, especially for children and adolescents.

### KEYWORDS

Adolescent; Aggression; Child; Parents; Screen Time; Schools.

## INTRODUCTION

From the TV screens to the huge billboard signs, the human brain is constantly being over-stimulated to consume impulsively. The internet has been the propagator which has already distributed all kinds of information to all parts of the world, making it easier for people far away to connect and be able to successfully bridge distances. However, most of the audiences present in the virtual world are young adolescents. With the unprecedented situation brought about by the global pandemic, the average time spent by an individual in the digital world for Zoom calls, remote learning, working from home, or connecting with loved ones; the overall consumption of screens has increased by unreal statistics. Out of the 7.753 billion people, roughly 6.648 billion people own a smartphone, which is about 83.96% of the total population.<sup>1</sup>

According to a 2019 report from the HHS Office of Population Affairs, the United States had 'almost 42 million adolescents between the ages of 10 and 19' and 'adolescents made up 12.8 percent of the population.'<sup>2</sup> Young adolescents, being a vulnerable population, usually undergo a phenomenon known as 'post-screen time anger.'<sup>3</sup> Over-stimulation causes kids to have poor focus and depletes their mental energy, which often leads to explosive behavior.<sup>1</sup> This very notion of what humans consume and how it alters them as individuals are covered under the realm of consumer psychology. The duration of the screen time and the content viewed during this time frame may be defined as what the young adolescents are consuming. The content may vary from social media, watching television, movies and playing games. Whereas, the resultant aggressiveness yielded from this over consumption of screen time may be viewed as a byproduct of this process sought for entertainment.<sup>4</sup>

The phenomenon of the relationship between screen time and the resultant aggressiveness is also supported by various theories. The observational learning theory highlights the fact that people learn behaviour by observing others, and by observing the reinforcements others receive around them.<sup>5</sup> Hence, when young adolescent observes his/her parents and/or elder siblings consuming excessive screen time, then it is likely that they will model this behavior and replicate it in their actions, this has also been proven to strain the parent-child relationship as the young adolescents revert to fulfill the attention and time that their parents fail to give them through engaging in various devices, communicating with their friends or reading the comments from their social media account on their pictures.



The theory of expectancies forms one of the fundamental bases for psychological addiction. Expectancies are the set of beliefs that people have regarding the outcome of the substance they consume. If people expect that there would be a positive outcome, they are more likely to consume that substance with respect if they expect a negative outcome. The theory of expectancies is coherent with the observational learning theory, in research from TreloarPadovano et al.<sup>6</sup> the outcome expectancies are first shaped vicariously (through observing other people) and then are reinforced through direct experience. Understanding it with respect to the variables, young adolescents when exposed to screens they escape the real world as they expect that using their devices would allow them to freshen their minds and be able to focus more. Thus, this way become addicted to screens as they expect positive outcomes through screening time.<sup>6</sup>

When young adolescents use smart phones, they are exposed to an unlimited virtual supply of both negative and positive social stimuli. Every notification on digital devices, whether it is a text message or a simple like on a picture, means there is potential for a positive social stimulus leading to a dopamine influx. In research from Harmon, it is revealed how 'brain scans illuminate the internal connection among the neurotransmitter, impulsiveness, and addiction.' Therefore, young adolescents get addicted to screen time to get the same dopamine influx.<sup>7</sup>

A correlational study was done to see if the time spent playing violent video games was in any way associated with aggressive behaviorism and if playing these different violent video games could help predict signs of aggressive behavior in late childhood. The research had a sample of 100 children (13.37 mean ages) who were asked to complete a diary while also playing video games throughout the week. The found results showed that playing any violent video games with themes of role-playing, action, fighting, and first-person shooting was positively related to aggression. But good predictors of aggressive behavior were only role-playing, and first-person video shooting games.<sup>8</sup>

The purpose of Latif's study was to find out how parents feel about how media violence impacts the conduct of their children. The data for this study were gathered in the Punjab province, from the cities of Multan, Faisalabad, and Lahore. Cultivation theory was used in the research. The analysis concluded that children primarily watch television and play computer games when they have time on their hands. Parents have also seen behavioral changes in their children, like if siblings fought after watching a violent movie. The findings also told how a strong correlation/link exists between the amount of time that is spent on media each day with a combative attitude. According to the report, parents should be wary of the media their siblings consume and how much time they devote to it.<sup>9</sup>

Although television is a massive social phenomenon that generates an undeniable influence of multiple social forces at play, there has been no formal empirical investigation on it in Pakistan. An article by Mashud discusses the impact of cartoon networks on school-aged children's aggressive conduct. Data were collected from 192 school-aged children (96 males and 96 girls) from four schools in the Sargodha district. Children spend more time watching cartoons and gaining a lot of information not only on the types of cartoon characters but also about the action, clothing, and names of practically all

significant cartoon characters, according to the findings. Their empirical data also revealed that younger, especially male children have embraced and enhanced violent behaviorism by watching cartoons on TV. Male youngsters preferred to fight comparatively more than females. Additionally, it was made known that a majority of male and female children fought inside their homes or outside their homes and that male children fought more with other children than female children.<sup>10</sup>

In another research, Anderson<sup>11</sup> explores and explains in immediate and long-term contexts that the effects of violent television watching, films, video games, and music has sufficient and unequivocal evidence to prove that media violence makes aggressive and violent behavior more possible. Short-term exposure to violent media creates physically and verbally aggressive conduct, along with aggressive thoughts and feelings. Recent large-scale longitudinal research has also found a connection between exposure to violent media in youth and later-life aggressiveness, like physical assault and spouse abuse. The long-term effects of media violence are learned processes. They result in very accessible, aggressive, and long-lasting scripts, interpretational schemas, beliefs that support aggression in social behavior, and desensitization. Prevention options recommended by this study comprise careful regulation of children's media consumption and use, supervision, and interpretation.

Another research rightfully explains that despite the dangers of increasing smartphone usage for maladaptive reasons, the connection between using smartphones and violence is still unknown. Previous findings are also unclear because of their focus on limited features of smartphone usage like screen time and dependence. As a result, the author looks to investigate the relationships between three major indices of smartphone use which are screen time, checking behaviors, addictive tendency, and multidimensional aggressiveness using objective measures like confrontation, anger, and hostility. It was discovered that smartphone checking, and its compulsive use only predicted hostility, using structural equation modeling. Objective and subjective measurements of screen time predicted no aspects of violence. These findings show that different indices of smartphone users have different effects on aggression, implying that excessive and compulsive checking of smartphones is problematic smartphone-use behavior that needs more targeted approaches to interventions in terms of hostility.<sup>12</sup>

Busch's aim was to study associations of screen time with the internet, video games, and television with health-related behaviors and outcomes in adolescents. Regression analyses were done on 2,425 Dutch adolescents, and the results showed screen time has a connection to bullying, "less physical activity, skipping school, alcohol use, and unhealthy eating habits." Compulsive and excessive screen time associated with psychosocial problems and being overweight and screen time were significant to adolescent health. The research looked at mental and physical health however, confounding evidence showed that increased screen time influenced aggressive behavior as well.<sup>13</sup>

The rationale of this study aims to explore the association between screen time and aggression in adolescents, considering the moderating role of content-based media exposure. Understanding this relationship is crucial as it can have varying effects, such as anti-social, neutral, or prosocial



outcomes. By investigating the interplay between screen time, content-based media exposure, and aggression, we can gain insights into the specific effects of different media content on adolescent behavior. This research will contribute to the development of evidence-based guidelines and interventions to promote positive media use and mitigate potential negative effects on adolescent aggression. In the digital era, everyone has some sort of exposure to screens, parents are often oblivious to what their children are consuming on the screens and it is often very late before they can do much as the child may have already adapted rebellious patterns of behavior, may have felt anxious as a withdrawal symptom from when they are not getting their desired screen-time, or may even brew negative thoughts in their minds when comparing themselves to others. To understand whether the screen time or the content of screen time leads to a certain type of behavior like prosocial or aggressive/antisocial.

### Objectives

Hence, the objectives of this research include:

- \* To determine the relationship between screen time and aggression in adolescents.
- \* To determine the role of exposure to violent media as a moderator in the relationship between screen time and aggression in adolescents.
- \* To determine the impact of exposure to violent media in adolescents on aggression.
- \* To determine the impact of increased screen time on aggression in adolescents.

### Hypotheses

- H1: There is likely to be a positive correlation between screen time and aggression in adolescents.
- H2: Content-based media exposure (anti-social and neutral) is a moderator of the relationship between screen time and aggression in adolescents.
- H3: Content-based media exposure is likely to be a predictor of aggression in adolescents.
- H4 Excessive screen time is likely to be a predictor of aggression in adolescents.

### METHOD

#### Research Design

The research followed a co-relational framework with a cross-sectional research design to study the relationship and its direction between screen time, exposure to violence, and aggression.

#### Study Population

A non-probability convenient sample of 250 adolescents aged between 13-17 years (Mean=15.5, SD=2.33) was drawn from two public and two private schools and colleges in Lahore Pakistan. The sample size was calculated with a G power analysis with 0.05 alpha level, 0.20, beta value, and  $r=0.02$ .

### Instruments/Tools

To measure screen time addiction, Katie Singer's "Screen Time Addiction Questionnaire<sup>14</sup> for All Ages" was used. This questionnaire has been adapted by Singer from a questionnaire at [www.zonein.ca](http://www.zonein.ca). The scale includes 7 items each of which measures an attitude in relation to screen time. For instance, the first question asks if one 'can't imagine going anywhere without your (my) mobile device', the scale then progresses to record the preferences of the respondents. For instance, item no. 6 places screen time in juxtaposition to homework, going to bed, and hanging out with family or friends. The scale records the responses as 'yes', but for the convenience of the respondents, they have been given the option to choose between 'yes' and 'no'. The total number of 'yeses' is recorded towards the end and three or more 'yeses' signal towards a likely screen-time addiction.

The second tool that was used to measure aggressive behavior was the 'Aggression Scale' from Orpinas and Frankowski in 2001.<sup>15</sup> The scale is based on 11 items, each of which measures a different expression of aggression. These items range from teasing students to threatening someone to hurt or hit them. This scale requires the respondents to recall the behavior of the person in question over the past week. The respondents then must rate the frequency of the item where the frequency ranges from 0 to 6 times or more. This frequency of aggressive behaviors relates to the degree of aggression in the respondent.

The third tool used to assess the impact of exposure to media, was named 'Content Based Media Exposure Scale' by Den Hamer et al.<sup>16</sup> It has 17 items that measure anti-social media exposure (8 items) and neutral content media exposure (9 items). The scales require permission before their usage, the owners were contacted, and their permission was sought. Both the tools were culturally free and thus the results yielded from them were generalisable as they are for all ages and for all adolescents and are not specific to a certain nation or culture. The additional demographics that were considered are age, gender, average screen time, educational background of parents, ethnicity, socio-economic status, and average screen time of parents as role models to their children.

### Procedure

After obtaining permission, the researchers went to the educational institutions with a survey package that included four sections. Section I thoroughly described the research objectives and gave a brief introduction of the researchers. It also collects the consent of both the child and the parent/guardian through an acknowledgment check box; section II included some basic demographic questions. Section III included the screen-time addiction scale, Content-Based Media Exposure Scale, and aggression scale. Section IV



concluded the survey form with a thank you note. The survey took less than 20 minutes to fill. The results of the questionnaire were collected and recorded in the SPSS software. Once the results were extracted, a codebook was prepared for the data, which were then fed into the SPSS software. Once the data were complete, the anomalies were identified and eliminated, and later the relevant tests, i.e., Pearson's correlation and the regression tests, were run. The output sheet was then extracted, and the results were analysed considering the hypotheses.

**Ethical Considerations**

Since the research sample was based on young adolescents between 13-17 years of age, informed consent of the parent/guardian along with the verbal assent of the child were taken. There was no deception as the form clearly mentioned that the objectives of the research were to measure screen time and the resulting behavioral issues in young adolescents. No personal data such as email address, phone number, etc. were collected from the participants, and thus, this ethical aspect was also taken care of. Section I ensured the anonymity of the participants and guaranteed the research participants that the information would not be misused.

**RESULTS**

**Table 1**  
**Demographic Characteristics of the Sample.**

Variables	Means (SD)	f (%)
Gender		
Boys		150(60)
Girls		100(40)
Age	15.5 (2.33)	
Grade	9(1.52)	
Private School		130(52)
Public school		120(48)
Average Screen time	5.00(2.40)	

Table 1 shows the demographic characteristics of the present sample. Both girls and boys from public and private schools and colleges participated in the study with an age range of 13 to 17 years (Mean= 15.5, SD=2.33). The mean average screen time is five hours, with a 2.40 standard deviation.

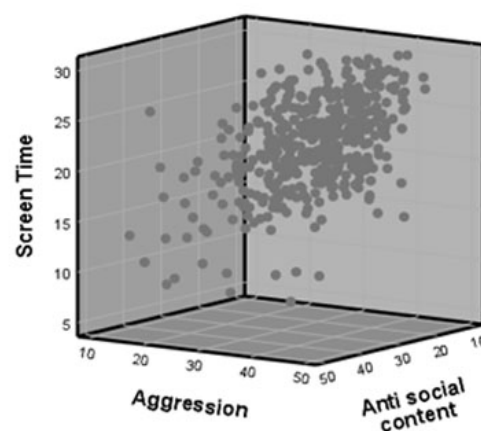
**Table 2**  
**Relationship between Screen time, Content-based Media Exposure, and Aggression in Adolescents (N=250)**

Variables	1	2	3	4
1. Screen time		.32*	.37*	.25
2. Anti-social content			-.40**	.56**
3. Neutral content				.12
4. Aggression				
Mean	5.31	2.83	2.30	40.15
SD	2.40	0.75	0.65	7.30

Note: \* p<.05, \*\* p<.01

Table 2 shows the results of Pearson product-moment correlation showing that screen time has a positive relationship with both anti-social and neutral content of media exposure. Similarly, anti-social media exposure has a significantly positive relationship with aggression. Violent and neutral content exposure has an inverse relationship with each other. Mean scores indicated that the present population spent more time on screens watching violent, anti-social content and scored high on aggression.

**Figure 1**  
**Three-D Scatter Plot showing the relationship between Screen Time, Aggression and Anti-social content (N=250).**



**Table 3**  
**Hierarchical Regression Analysis for Screen Time, Content-based Media Exposure Predicting Aggression in Adolescents (N=250).**

Variables	R <sup>2</sup>	B	T	P
Model 1	.35			
Age		.21	.43	.34
Gender		.25	.27	.23
School		.39	.50	.61
Model II	.38			
Screen Time		.31	1.45	.53
Model III	.39			
Antisocial ME		.34	4.32	.00
Neutral ME		.25	.52	.31

Note: \*p<.05, \*\*p<.01, \*\*\*p<.001, β = Standardized Coefficient, SE= Standard Error, ME=Media Exposure

Table 3 shows regression analysis for demographic variables, screen time, and content-based media exposure for aggression as the outcome variables All assumptions including error and multicollinearity found to be assumed as the Durbin-Watson value was between 1 and 3 in every regression analysis and values of tolerance exceeded 0.2. Assumption of linearity, outlier, and homoscedasticity was also found to be assumed. Results indicated demographic variables are not proven significant predictors to screen time. Anti-social media exposure proved a significant positive predictor of aggression.





**Table 4**  
**Indirect Effect of Content-based Media Exposure in the Relationship between Screen Time and Aggression in Adolescents (N=250).**

Variables	Aggression	
	B	SE
Screen Time	1.98***	.62

Table 4 describes moderation analysis with a Process carried out to investigate the moderating impact of content-based media exposure (Anti-social and Neutral) in the relationship between screen time and aggression in adolescents. The results indicated that media exposure significantly moderates the relationship. It means not the screen time, but the exposure content is related and a significant predictor of aggression in adolescents.

## DISCUSSION

The present research results indicated that screen time has no direct relationship with aggression in the present sample of adolescents, so the first and fourth hypotheses were not proven. However, the second and third hypotheses were accepted that content-based media exposure is proven as a significant moderator between screen time and aggression. Anti-social media exposure has a significant positive relationship with aggression.

Research both national and international supports the results of the present research as conducted with high school children concluded that there is a relationship between the time spent watching and/or playing violent video games and pro-violent attitudes which are hostile personalities who behave more aggressively, and less inclination towards forgiveness with poorer school performance. After controlling gender, screen time, violent beliefs, and attitudes, playing video games with violent content remained a significant predictor of physical aggression and violent behavior.<sup>17</sup>

Likewise, explains that media exposure affects children and their social development and that violent television contributes to children's aggressive behavior. Most studies say that playing violent video games can bring about similar harm. All the research she consulted points out that children who watched heavy fantasy violence shows such as Power Rangers watched them judge the apparently 'justified' act of aggression as being morally correct and were more prone to show signs of aggression as compared to children who did not watch these shows heavily. Lastly, she mentioned that television programming led to both short-term and long-term growth in children's aggressive behaviour and that screen experiences can reinforce aggressive scripts for a child in memory development.<sup>18</sup>

Grüsser in his research looks at how many adolescents' daily lives have become more dominated by computer gaming. Excessive online gaming has been explored in the popular press and in current scientific studies with this topic. The aim of his study was to highlight and figure out gaming's addictive potential and the link between excessive gaming and aggressive attitudes and conduct. A total of 7,069 gamers responded to two online questionnaires. Data found that 11.9% of participants (out of 840) met the diagnostic criteria for addiction because of their gaming habits, even after the shaky evidence linking violent conduct to excessive gaming in general<sup>25</sup>. Similarly, a study assessed the impact of media content and media use habits on aggression in adolescents. The aggression scores were comparatively higher in students who were exposed to violent media consumption ( $p < 0.001$ ). Hence, aggression scores are positively correlated with TV viewing, DVDs, films/movies, playing games on mobiles or PCs, surfing the internet, music, and total screen time. However, they were negatively correlated with people who played sports or read newspapers and books.<sup>19</sup>

Furthermore, Gentile builds on all previous research in three important ways: (a) by looking at verbal, relational, and physical aggression types, (b) by measuring media violence exposure (MVE) across three different types of media, and (c) by measuring MVE and aggressive/pro-social behaviors at two different points during a school year. Early in the school year, children's exposure to media violence was linked to more verbally hostile conduct, more relationally and physically aggressive behavior, and less pro-social behavior in the school year. Hostile attribution bias moderated this effect.<sup>20</sup>

Padilla-Walker in her current study looked at the long-term impacts of parental media monitoring on adolescent behavior, as well as indirect consequences like self-control and sympathy. 681 teenagers and their mothers from Northwestern and Mountain West cities in the United States took part in a study over 3 years ( $N = 681$ ; Mean age = 13.33,  $SD = 1.06$ ; 51% female; 73% European American, 9% African American, 17% Multi-Ethnic). The study revealed that restricted and active media monitoring were both indirectly linked to adolescents' pro-social behaviour, aggression, and externalizing behavior. Restrictive monitoring was maladaptive while active monitoring was adaptive.<sup>21</sup>

A systematic review of the association between screen time activities and aggressive behaviors was done with PubMed, Institute of Scientific Information (ISI), and Scopus. The first objective was to assess the association between screen time and violent behaviors and the second, was to assess heterogeneity and find sources of differences. Eleven studies targeted watching TV, 3 studies targeted playing on a computer, and video games, and 3 studies focused on video games only. Watching television was found to be associated with bullying and violence. Prior literature was searched which



comprised 5 articles (2 cross-sectional and 3 prospective cohort studies) and the results mentioned assessments of linear regression analysis or correlation evaluations between aggressive behavior and watching TV.<sup>22-24</sup>

In the future, more extensive studies with a larger sample size are required to evaluate aggression and its relationship with screen time among the Pakistani population more significantly. A better understanding of aggression could have been made if other factors affecting aggression were also studied. This research could have been better if participants from other countries were included, so that a better cultural comparison could have been drawn. Moreover, participants from different age groups could be examined to evaluate the relationship between screen time and aggression. Other factors of aggression, such as frustration, family structure, socioeconomic status, and surrounding environment, should also be studied to determine both antecedents and consequences.

Despite these limitations, this research is a positive step in this uncommon area of research for adolescents in Pakistan. The results from this study are based on the duration of screen time and on the type of content watched, including neutral and anti-social. Future studies being conducted in this domain may compare the type of content that may be more pro-social rather than neutral and its effects.

### Implications

This study has many implications for adolescents, parents, instructors, and clinicians. It will help families by educating and guiding them in raising their adolescents who spend most of their time on screen and help instructors by guiding their students to reduce resultant aggressive behaviours. The results indicate that there is a relationship between anti-social content exposure and aggression so it is important to educate adolescents and their parents to control screen time and its content so that interventions may be taken. Counseling sessions for adolescents and parents may be arranged regarding anger management, the focus of attention, and channelizing energies into more positive activities. Educational lectures and workshops on how screen time and health effects of exposure to content and possibly resulting in pathology, can also play a leading role in decreasing the time in watching aggressive content. At the government level, checks and balances could be imposed on the content of social media to reduce the chances of unhealthy, aggressive practices. Moreover, this study will help researchers as well who are interested in studying anger, and its relationship with screen time, especially in Pakistani culture.

### CONCLUSION

The present research was conducted to study aggression because of excessive screen time and content-based media exposure in the light of results and analysis. This study concludes that Pakistani adolescents are experiencing

aggression that is linked to the usage of screen devices and exposure to media violence as suggested by the moderation analysis conducted in this research. This relationship is because of the type of content viewed and not particularly due to the amount of screen time.

### REFERENCES

1. Corneille RA. Unplug from your distractions: The effects of smartphone screen time interventions on self-regulation and procrastination [thesis]. [Tilburg]: Tilburg University. Communication and Cognition; 2022.
2. America's diverse adolescents [Internet]. U.S. Department of Health & Human Services; [cited 10 November 2022]. Available from: <https://opa.hhs.gov/adolescent-health/adolescent-health-data/americas-diverse-adolescents>
3. Garg A. Post-screen-time anger & frustration in Kids [Internet]. Allina Health; 2021 [cited 10 November 2022]. Available from: <https://www.allinahealth.org/healthsetgo/prevent/post-screen-time-anger-frustration-in-kids>
4. Webster NA Common-School Dictionary of the English Language. BoD—Books on Demand; 2022 Jun 5.
5. Huesmann LR. The impact of electronic media violence: scientific theory and research. *J Adolesc Health*. 2007; 41 ( 6 S u p p l 1 ) : S 6 - S 1 3 . doi:10.1016/j.jadohealth.2007.09.005
6. Carson V, Pickett W, Janssen I. Screen time and risk behaviors in 10- to 16-year-old Canadian youth. *Prev Med*. 2011; 52 ( 2 ) : 9 9 - 1 0 3 . doi:10.1016/j.ypmed.2010.07.005
7. TreloarPadovano H, Janssen T, Sokolovsky A, Jackson KM. The Altered Course of Learning: How Alcohol Outcome Expectancies Are Shaped by First Drinking Experiences. *Psychol Sci*. 2020; 31 ( 1 2 ) : 1 5 7 3 - 1 5 8 4 . doi:10.1177/0956797620959006
8. Harmon K. Dopamine determines impulsive behavior [Internet]. *Scientific American*; 2010 [cited 10 November 2022]. Available from: <https://www.scientificamerican.com/article/dopamine-impulsive-addiction/>
9. Ashraf M. Violent video games and their relation to aggressive behaviour in late childhood in Pakistan. *International Journal of Cyber Behavior, Psychology and Learning*. 2020; 10 ( 3 ) : 4 7 - 5 9 . doi:10.4018/ijcbpl.2020070104
10. Latif F, Adnan M, Abid S. Media violence and siblings' aggressive behavior: Parents' perception in Pakistan. *Pakistan Social Sciences Review*. 2020;4(2):203–17. doi:10.35484/pssr.2020(4-ii)17
11. Mahsud MN, Yaser N, Rawan B. The effects of TV cartoon network on the Aggressive behavior of school going child. *Global Media Journal*. 2009;2(1).



12. Altalib H, Abū SulaymānA, Altalib O. Parent-child Relations : a Guide to Raising Children [Internet]. Parent-child Relations: a Guide to Raising Children. Washington, District Of Columbia; London: International Institute of Islamic Thought; 2013. Available from: <https://iiit.org/wp-content/uploads/Parent-Child-Relations.pdf>
13. Gibbs G. Using assessment strategically to change the way students learn. In Brown S. and GlasnerA. (eds), Assessment matters in higher education: choosing and using diverse approaches. Buckingham: SHRE and Open University Press;1999.
14. Anderson CA, Berkowitz L, Donnerstein E, et al. The Influence of Media Violence on Youth. *PsycholSci Public Interest*. 2003;4(3):81-110. doi:10.1111/j.1529-1006.2003.pspi\_1433.x
15. Busch V, Manders LA, de Leeuw JR. Screen time associated with health behaviors and outcomes in adolescents. *Am J Health Behav*. 2013; 37(6) : 819 - 830. doi:10.5993/AJHB.37.6.11
16. Orpinas P, Frankowski R. The Aggression Scale: A self-report measure of aggressive behavior for young adolescents. *Journal of Early Adolescence*. 2001;21:50–67. doi: 10.1177/0272431601021001003.
17. Den Hamer AH, Konijn EA, Plaisier XS, Keijer MG, Krabbendam L, Bushman BJ. The Content-based Media Exposure scale (C-ME): Development and validation, computers in human behavior. *Computers in Human Behavior*. 2017; 72(C) : 549 - 557. doi: 10.1016/j.chb.2017.02.050, 10.1016/j.chb.2017.02.050
18. Wilson BJ. Media Violence and Aggression in Youth. In: Calvert SL, Wilson BJ (eds), *The Handbook of Children, Media, and Development*. Chichester, UK: Wiley-Blackwell; 2008. p. 237–67.
19. Grüsser SM, Thalemann R, Griffiths MD. Excessive computer game playing: evidence for addiction and aggression?. *CyberpsycholBehav*. 2007;10(2):290-292. doi:10.1089/cpb.2006.9956
20. Akçay D, Akçay BD. Effect of media content and media use habits on aggressive behaviors in the adolescents. *The European Research Journal*. 2019;5(3):433–9. doi:10.18621/eurj.395892
21. Gentile DA, Coyne S, Walsh DA. Media violence, physical aggression, and relational aggression in school age children: a short-term longitudinal study. *Aggress Behav*. 2011;37(2):193-206. doi:10.1002/ab.20380
22. Padilla-Walker LM, Coyne SM, Collier KM. Longitudinal relations between parental media monitoring and adolescent aggression, prosocial behavior, and externalizing problems. *J Adolesc*. 2016;46:86-97. doi:10.1016/j.adolescence.2015.11.002
23. Lissak G. Adverse physiological and psychological effects of screen time on children and adolescents: Literature review and case study. *Environ Res*. 2018;164:149-157. doi:10.1016/j.envres.2018.01.015
24. Keikha M, Qorbani M, Tabaee MSK, Djalalinia S, Kelishadi R. Screen Time Activities and Aggressive Behaviors Among Children and Adolescents: A Systematic Review. *Int J Prev Med*. 2020;11:59. Published 2020 May 19. doi:10.4103/ijpvm.IJPVM\_71\_20

**AUTHOR(S) CONTRIBUTION / UNDERTAKING FORM**

Sr. #	Author(s) Name	Author(s) Affiliation	Contribution	Signature
1.	Dr Saima Majeed	Associate Professor, department of Psychology, Forman Christian College (A Chartered University)	Conceived the idea of the study, made the study plan, collect data, and analyze it. Write the manuscript and review for publication.	