

SCREEN TIME, AGGRESSION AND ADHD SYMPTOMS IN SCHOOL GOING CHILDREN

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Abstract

The study was carried out to explore the relationship between screen time, aggression and ADHD symptoms in school going children. It was hypothesized that there is likely to be positive relationship between screen time and aggression in school-going children. It was also hypothesized that there is likely to be positive relationship between screen time and hyperactivity in school-going children. It was hypothesized that there is likely to be a significant gender difference among variables. Through Convenient sampling technique, data was collected from school going children (N=120) with age range of 9 to 15 (M=17.18, SD=.81) from different schools of Punjab. Aggression scale by Orpinas and Frankowski (2001) and ADHD scale by Conners (1997) were used to measure the study variables. For analysis, Pearson moment correlation, independent sample t-test and ANOVA were used. The results of the present study found significant positive relationship between screen time, aggression and hyperactivity in school going children. Significant gender difference was not found in any of the study variables. Findings of the study will be helpful in prevailing awareness among parents regarding their children's activity on screen time and will be helpful in providing psychological interventions to the students with ADHD symptoms.

1.1 Screen and screen time

“A screen is flat surface on which a picture or series of pictures is projected or reflected.” There are many types of screen and are their use is common among children. The children have access to different screens such as television in their bed rooms (Chaput et al., 2014), and computer base video games that can provoke aggressive violent behavior in children (Chuang & Chen, 2007). The other most common devices available to children are mobile phones (Leitgeb, 2008). The screen time increase with electronic devices highly impacts the children psychological health. The screen time is about to see anything through screen. The device can be computer, DVD, TV, mobile etc. According to Australian government rules the toddlers and pre-school children need to keep away from screen time, because more screen time can leads them to involve in less out home activities, eventually impact their physical and cognitive health. The government suggest no screen time until two years of age and only two hours for five year old children (Sweetser et al., 2012). The increase in screen time not only increase the psychological but also cause issues like aggressive behavior, breaking of rules, somatic complaints and sleep issues. The sleep play mediating role in ADHD and aggression issues because playing games leads sleep issues and lack of sleep cause irritability and hyperactivity symptoms. The reduction in screen time leads reduction in behavioral issues (Guerrero et al., 2019).

Active screen time is about use of cognition and physical activity in order to play games and doing homework. The active gaming increase the academic performance, reduce behavioral issues in class and reduce absent rate from school. The passive screen time is passively see TV or anything or any other device. Very few shows are beneficial for students and they learn less from TV (Spence & Feng, 2010). The children eat less healthy food such as sugar base things in front of television and not eat fruits and vegetables (Friedrich et al., 2014).

1.2 Aggression

Aggression is a behavior in which a person processes the hostile nature of the situation inwardly. It is the reaction of behavior, verbal, facial, bodily to the situation. It is the experience in which one person communicated verbally and bodily. When a person is in the situation of anger, he may be increasing his heart beat, blood pressure and also enhance the level of adrenalin and noradrenalin (Wilkowski & Robinson, 2008). Aggression is response to stressful situations and there is other two types of anger. The first one is called state anger occur as emotional response and stay for short time while trait anger is long term and based on conflicts (Saleem et al., 2013).

1.3 Attention Deficit Hyperactive Disorder

ADHD is neurodevelopmental disorder affects eleven percent children in school age. The major symptoms of ADHD are as follows:

- Inattention
- Impulsivity:
- Often interrupts others
- Hyperactivity
- Seems to be in constant motion; runs or climbs, at times with no apparent goal except motion.
- The reduction in hyperactivity symptoms help them to become more social and cooperative. The children with ADHD involve them into abrupt physical movements but mostly sports activity improve their health. They are more involve in physical activity as compared to autism spectrum disorder. A bigger challenge face by them is less availability of sports activity on major platforms. The children with ADHD are also involve in the long screen time and excessive video games playing. (Tandon et al., n.d.).

1.4 Hypotheses of the study

It was hypothesized that,

- H1: There would likely to be positive relationship between screen time and aggression children.
- H2: There is likely to be positive relationship between screen time and ADHD in children.
- H3: Screen time would likely to predict ADHD symptoms and aggression in children.
- H4: There will be demographic differences in Screen time, ADHD symptoms and aggression among children.

Method

2.1 Research Design and sampling

Correlational research design was used to study the relationship between screen time, attention deficit/hyperactivity symptoms and aggression. Convenient sampling technique was used to gather information from the participants. A sample of children (N=120) took part from public sector schools. All the participants compiled their middle and matric degree at the time of the data collection and were between the age of 9 to 15 (M=17.18, SD=.81).

2.2 The Aggression Scale

This scale developed by Orpinas and Frankowski (2001). The final Aggression Scale has 11 items. There were two subscales of the scale 1) Verbal and physical aggression 2) Anger. In this scale, participant indicates his behavior that was shown in previous 7 days. Participant rate his behavior from 0 to 6 or more times in a week. The total or sum of the responses indicates the aggressive behavior of the participant ranged from 0 to 66. The reliability of the scales was .88.

1.3 Conners-Wells Adolescents Scale

The scale was developed by Conners (1997). The CASS: Short is a 27 items self-report instrument got from the CASS: Long (Conners et al., 1997). The items for the CASS: Short were the most elevated stacking items of the CASS: Long and make up three variables with six items each: conduct issues (high scorers demonstrate a probability to disrupt guidelines and to take part in solitary exercises), cognitive/ intellectual issues (high scorers show having issues coordinating and wrapping up jobs), and hyperactivity issues (high scorers show experiencing issues standing by or doing likewise task for extremely long). The CASS: Short likewise incorporates a 12-items ADHD list used to evaluate plausible ADHD. Four-point Likert-type scales are utilized, going from 0 = false by any means to 3 = especially evident. The reliability of the scale was .87.

Results

3.1 Psychometric Properties of the Scales

The psychometric properties of the scales were checked and showed in table 1.

Table 1

Descriptive statistics and Reliability Coefficient of screen time, aggression and ADHD symptoms (N=120)

Variables	K	M	SD	α	Ranges		^a Skewness	^b Kurtosis
					Actual	Potential		
Aggression scale	11	88.60	12.18	.80	0-53	0-66	.637	.045
Physical and Verbal Aggression	9	13.32	10.35	.50	0-42	0-54	.724	-.152
Inattention	9	7.87	4.93	.75	0-26	0-27	1.32	.615
Hyperactivity	6	7.55	4.08	.67	0-16	0-18	0.35	-1.07
Impulsivity	3	3.22	2.40	.60	0-9	0-9	.603	-.502
CARS-R index	12	13.71	5.84	.67	1-27	0-36	-.047	-.283

Note: K= Number of items; M= Mean; SD= Standard Deviation; α= Alpha; ^a=Standard Error; a = Standard error of Skewness = 0.19; b=Standard Error of

Table 1 shows psychometric properties, descriptive statistics and reliability coefficient of screen time, aggression and ADHD symptoms. The symbol k indicates number of items in each scale respectively.

The hypotheses proposed that there is a negative relationship of perceived ST on weekdays and ST on weekends with impulsivity moreover there also exists a positive relationship of ST on weekdays, aggression and inattention with impulsivity of children. Pearson product moment correlation was used to analyze the proposed relationship. The results of the analysis are represented in table 2.

4.2.1 Table |

Pearson Product Moment Correlation between Demographic Characteristics, Screen time, ADHD symptoms and Aggression in Children (N=120)

Variables	1	2	3	4	5	6	7	8	9	10
1.Age	-	.046	.796***	-.089	-.139	-.162	-.172	.055	-.178	.151
2.Siblings	-	-	-.004	-.015	.001	.034	.012	-.026	.132	-.105
3.Class	-	-	-	-.090	-.181*	-.178	-.123	.076	-.143	.222*
4.Personal Account	-	-	-	-	-.024	.036	-.074	-.111	-.099	-.155
5.Screen Time Weekdays	-	-	-	-	-	.324***	.359***	-.069	.369***	-.058
6.Screen Time Weekends	-	-	-	-	-	-	.183*	.053	.369***	-.098
7.Agression Scale	-	-	-	-	-	-	-	.318***	.486***	.158
8.Inattention	-	-	-	-	-	-	-	-	.220	.435***
9.Hyperactivity	-	-	-	-	-	-	-	-	-	-.018
10.Impulsivity	-	-	-	-	-	-	-	-	-	-

Note: ADHD= attention deficit hyperactive disorder, ***p<0.001, **p<0.01, *p<0.05

Table 2 shows result the highlighted that ST (screen time) on weekends, and ST on weekdays has no significant relationship with impulsivity. Moreover ST (screen time) on weekends, and ST on weekdays also had significant positive relationship with aggression scale and hyperactivity. Findings also showed that ST (screen time) on weekends, and ST on weekdays had no significant relationship with inattention.

The hypotheses proposed that there were significant differences among Boys and Girls screen time on weekdays and screen time on weekends. It was assessed through independent sample t-test and the results are in table 3.

Table 3

Mean, standard deviation and t-value of ST on weekdays and screen time on weekend among boys and girls (N=120).

Variables	Boys (n= 60)		Girls (n=60)		t (118)	P	95% CI		Cohen's d
	M	SD	M	SD			LL	UL	
Screen time weekdays	4.04	3.08	3.68	3.05	.607	.545	-.810	1.54	.12
Screen time weekends	7.01	6.11	6.0	6.07	1.16	.245	-.700	2.72	.35
Aggression Scale	18.78	13.16	16.32	13.07	1.11	.268	-1.91	6.81	.20
CADSRV	33.33	13.20	31.42	13.10	.820	.414	-2.71	6.54	.13

Note: *P<.05, **P<.01, ***P<.001

Table 3 shows mean, standard deviation and t-value for boys and girls screen time weekdays, screen time weekends, aggression and CADSRV. Results indicates non-significant mean differences on screen time weekdays with $t(118) = .607, p > .05$. The finding shows that there is no significant difference among boys score ($M = 4.04, p > .05$) and female score ($M = 3.68, p > .05$) on screen time weekdays. In the same way there is non-significant mean difference screen time with weekends with $t(118) = 1.16, p > .05$. The finding shows that there is no significant difference among the boys score ($M = 7.01, p > .05$) and girls score ($M = 6.0, p > .05$). As well as aggression with $t(118) = 1.11, p > .05$. The result show that there is no significant difference among boys scores ($M = 18.78$) and girls score ($M = 16.32, p > .05$) and CADSRV with $t(118) = .820, p > .05$. The indication of the result there is no significant difference among boys score ($M = 33.33, p > .05$) and girls scores ($M = 31.42, p > .05$) between boys and girls.

To find out the prediction of Aggression Scale from Screen time weekdays and screen time weekends, linear regression was performed and the results were shown in table 4.

Table 4

Regression analysis to Assess Prediction of Aggression Scale from Screen time weekdays and screen time weekends (N=120)

Variables	Aggression Scale	
	β	ΔR^2
Screen Time Weekdays	.359***	1.21***
Screen Time Weekends	.466	.025

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

Table 4 showed that screen time weekdays was significant and positive predictor of aggression scale. Table showed that screen time weekends was negative predictor of aggression.

In order to assess the difference of class, inattention, hyperactivity and impulsivity One-Way ANOVA was run and results were shown in table 5.

Table 5

Mean Standard deviation and One-way Analysis of Variance among inattention,

hyperactivity and impulsivity

Variables	Primary		Middle		Matric		F	η^2	Post-Hoc
	M	SD	M	SD	M	SD			
Inattention	1.10	1.33	-1.10	1.13	.450	1.31	1.2	0.02	3>1>2
Hyperactivity	3.91	1.05	-3.91	1.05	-2.72	1.03	6.8*	0.10	1>2>3
Impulsivity	-1.23	.640	1.23	.640	1.64	.628	3.4	0.05	3>2>1

Table 5 showed mean, standard deviation and *F*-value for inattention, hyperactivity and impulsivity across different levels of class. Results indicated significant mean differences across different levels of class on self-esteem with $F(2,117) = 6.8, p < .05$. findings revealed that primary, middle and matric students with higher hyperactivity as compared to having their educational class. Result indicated non-significant mean differences across different the level of educational class on impulsivity and inattention

Discussion

The aim of the present study was to check the relationship between screen time, aggression and ADHD symptoms in school going children. When children use excessive media and spend their most of the time in using screen time they became addictive and ignore their surroundings. This also made them aggressive and hyperactive. The relation of screen time and aggression is also found in our study. To results revealed that there is a positive correlation between screen time and aggression in school going children. The physical impact of screen time includes sleep disturbance, hypertension, weight gain, cholesterol issues, bones density issues, stress management issues.

The results also showed that screen time was correlated with physical and verbal aggression in children. It showed that there was a relationship between aggressions and other behaviors with screen time with reference of television was explored. The results reveled that mostly children involve in physical aggression due to excessive screen time, while children spend most of their time with families were less involved in aggressive behavior. The children with high screen time were more indulge in violet behaviors and aggression (Keikha et al., 2020).

The use of social media like use of computer and facebook enhance anger issues in children. Similarly the same correlation is found in the present study that facebook use was correlated with anger in school going children. It includes anger issues, less social interaction, issues in communication such as communicating in order to make new relationships, emotional management issues, lack of attention and inability to meet deadlines of work (Twenge & Campbell, 2018).

The results of the present study also showed that there was a correlation between screen time and hyperactivity that linked with ADHD children with severe condition were less indulge in physical and suffered from number of physical illness as well. Children with ADHD have more screen time despite of monitoring and restriction from parents. The increase in television use ad excessive video game playing is common among ADHD children (Hassan, 2018). Calm behavior of youngsters that briefly guardians accomplish and appreciate by presenting them to screens later on takes type of a storm by exasperating social interruptions for example hyperactivity, consideration shortfall, touchiness, oppositional and savage inclinations as well as taking care of, social correspondence and rest issues (Shafqat, 2018).

Screen time also make children hyperactive. They became aggressive and indulge in destructive activities. The results are consistent with the results of the previous studies of Pakistan that also supported the relationship between screen time and and its negative effects in behavior (Ishtiaq et al., 2021). Children who spend more time in using smartphone or other screen methods suffer from many psychological problems (Tariq et al., 2019). The results showed that while on spending the days on screen the content highly impact the behavior as violent behavior exposure on screen increase the behavioral issues in children and involve them delinquent behaviors (Lissak, 2018).

In the present study results of association between hyperactivity and screen time showed that social media use create the same craving like craving of drugs and the symptoms like ADHD due to increase in screen time cause misdiagnosis of disorder in children. This also highlighted that reduction in screen time reduce the hyperactivity symptoms. Computer use increase violent behavior irrespective of video gaming and TV use. The video games seem the cause of aggressive behavior in girls but not among the boys. So research shows video games and TV can enhance the violence behavior in young children (Janssen et al., 2012).

The present research showed correlation of screen time with hyperactivity that is a symptom of ADHD. The research was conducted to determine the screen time in attention deficit hyperactive disorder and autism spectrum disorder children. Screen time was high among the ADHD group as compared to ASD group of children. (Hill et al., 2020). Kids with ADHD were likewise answered to appreciate TV more and have more prominent contribution in TV related exercises, and to appreciate perusing less and be less associated with perusing related exercises.

Be that as it may, there were no indicative gathering contrasts in reports of week by week perusing, and week after week perusing was inconsequential to TV seeing in kids with ADHD. Likewise there is a connection between TV survey and ADHD not perceived in past research and famous editorial and propose that exploration on kids with ADHD's TV use ought to think about natural and formative settings (Acevedo-Polakovich et al., 2007).

The findings revealed that when children involve in the screen time. their behavioral issues such as anger, aggression outbursts and in-attention, depression and anxiety showing high level of screen time is associated with ADHD. The study recommends to reduce screen time less than sixty minutes for pre scholars and take in to account the gender role for intervention plan with reference of gender and screen time (Xie et al., 2020).

The use of screen time is high among ADHD children. The radio-active exposure through phone through head increase the ADHD symptoms. The research shows that children who reduce the mobile phone use also reported reduction in ADHD like symptoms depicting the need to reduce the mobile phone use in children. The results suggest that openness to radioactive waves with expanded ADHD manifestation hazard with synchronous openness to lead, and that radioactive wave openness alone might frail or no impact on ADHD side effects, i.e., a joined or agreeable harmful activity of RF and lead on the creating cerebrum. Further investigations are expected to affirm this theoretical system (Byun et al., 2013).

Because of exorbitant screen time, kids are turning out to be more hyperactive and experiencing issues in consideration and concentration. Explores likewise uncovers that extreme screen time additionally presents learning and memory issues in youngsters that will influence their scholarly exhibition in the future. Consistent utilization of cell phones and TV lessened social cooperation and family connection. More than 2 hours spent per day of screen time diminishes thinking capacity and intellectual working (Farooq & Bashir, 2021).

The results of the present study showed that screen time on weekdays predicted aggression in students. They were more aggressive towards others and showed destructive activities. These results are consistent with the result of previous researches that screen time generates behavioral problems in students it includes sleeplessness, aggression and others(Guerrero et al., 2019). The results are also consistent with the work of Keikha et al. (2020) that aggressive behavior has been increased in children and adolescents in world. According to their findings children showed violent behavioral and verbal behavior towards other when they spend most of their time in screen activities. The excessive use of screen time leads children mentally instable and results in anger and other behavioral problems (Kowalski, 2016). Similarly the results of the present study also showed that screen time predicted ADHD in students. Researches also concluded that students who use excessive tv, mobile and other things were more prone to indulge in ADHD (Lissak, 2018).

The results also showed that there was no gender difference in screen time, aggression and ADHD symptoms. The boys and girls spend equally time on screen and there is no difference among their activities (Hawi & Rupert, 2015). Similarly there is no gender difference has been found in aggression. It meant that that no gender contrasts in detailed actual reported; and mental and actual hostility watched out for co-happen (Denise & Kimberly 2003). The results also showed no gender difference in ADHD scale. All boys and girls are same on hyperactivity, inattention and impulsivity. In term of educational level, there was only difference has been found in only students of primary middle and matric class. These students were only showed the symptoms of hyperactivity. They were not inattentive and impulsive.

In short, the findings of this study indicated that there was a correlation of screen time, aggression and impulsivity in school going children.

5.1 Conclusions

This was the complete audit on affiliation screen time movement and forceful practices among children and youths. The discoveries proposed that youngsters and teenagers who share the vast majority of their time for watching of TV are at more serious danger for fierce practices including physical and verbal aggression, anger and bully. The became aggressive because they spent most of their time in watching Facebook, using computer and playing violent games.

Although there is no association was found in the present study between screen time and inattention but there was seen a positive correlation between screen time and impulsivity symptom. So we can say that screen time enhance the hyperactivity in children and make them prone to ADHD.

5.2 Limitations

- The current study was carried out only on a small group of school going children and others who belong to different areas were excluded.
- The study carried out only limited age group student. Those who were other aged were not studied.

5.3 Suggestions

- Students from all over Pakistan should be studied.
- Cohort study should be conducted for reliable results.
- Indigenous tools should be developed and used so that cultural affect might be reduced.
- Qualitative in depth study should be carried out in order to have complete understanding of the screen time.

5.4 Implications

- The findings of the study used as an addition in research literature.
- The results of the present study are useful in prevailing awareness among parents regarding their children's activity on screen time.
- The results will be helpful in providing psychological interventions to the ADHD childrens.
- The results will also be useful for future research and will be helpful in decreasing the screen time effects from the society

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