

ORIGINAL RESEARCH

Internet Addiction as a Precursor for Cyber and Displaced Aggression: A Survey Study on Pakistani Youth

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Main Points

- 34% of Pakistani youth is severely or moderately addicted to internet misuse.
- Internet addiction is significantly and positively associated with cyber aggression and displaced aggression.
- Internet addiction, cyber aggression, angry rumination, and displaced aggression vary with gender, and internet obsession is higher in males than in females.
- It is recommended that parents and teachers should be involved in counseling of negative internet-addicted youngsters and should be encouraged to develop other positive interests and in outdoor activities.

Abstract

This study aimed to examine the association of internet addiction with cyber aggression and displaced aggression among 513 (173 boys and 338 girls) Pakistani preteens and teenagers. The participants were randomly selected to complete a survey based on validated instruments, internet addiction test, cyber aggression questionnaire for adolescent, and displaced aggression questionnaire. Pearson's correlation coefficients, one-way analysis of variance, and independent sample t-test were run to scrutinize hypothesis using Statistical Package for Social Sciences version 20 (IBM SPSS Corp.; Armonk, NY, USA). The results revealed that 34% of the youth was severely or moderately addicted to internet misuse. Furthermore, findings demonstrated that internet addiction is significantly and positively associated with cyber aggression and displaced aggression. Results also highlighted that internet addiction, cyber aggression, angry rumination, and displaced aggression vary with sex, and internet obsession is higher in boys than in girls. Implications of these results were discussed and some recommendations suggested.

Keywords: Internet addiction, cyber aggression, displaced aggression, preteens and teenagers, angry rumination, revenge planning

Introduction

In Pakistan, the use of internet as a mode of communication started in the early 1990s, and since then the industry of information and communication technology is among the most rapidly progressing industries in the country. In 2012, Pakistan was at the top 20th position in the world in terms of internet users (Stats I. L., 2019). Internet world statistics has reported that the number of people using the internet in Pakistan in 2017 was 44,608,065, which was approximately 22% of the population (Stats,

2019). In April 2019, the number of broadband users rose to 69,577,621, which makes up 33% of the population (Authority, 2019) and established Pakistan at the 27th position for global internet usage (Pak-wired, 2019).

Google carried a survey to highlight trends of digital media consumption among the 7 metropolitan cities of Pakistan and found approximately 70% of the people usually log on to internet sites for recreational purposes. Furthermore, it found that an average of 2.5 hours on working days and 3.5 hours on

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weekends are spent by online users on internet surfing. A major reason for internet penetration in the country is the huge competition in the internet service provider and telecommunication market. The easy availability of Wi-Fi (Chaudhari et al. 2015) and the accessibility of smartphones at cheap rates has caused an exponential increase in mobile internet users (Pakwired, 2019).

With the rise in internet use, the federal investigation agency (FIA) confessed that delinquencies related to the internet are also on the rise in Pakistan. The statistics have shown that an acceleration in internet users has influenced cybercrime either directly or indirectly (Shakeel, 2018). Similarly, with the rise of the internet's availability, internet addiction issues have also been reported subsequently (Ahmer & Tanzil, 2018).

There is no single definition of internet addiction, and different scholars have discussed internet addiction in different ways (Huang et al., 2014). However, it is simply defined as the failure to manage the utilization of the internet, which results in societal and emotive difficulties in a person's family and professional life (Pontes et al., 2015). Problematic internet use is now considered to be a behavioral addiction resulting in the development of severe mental health problems, such as self-harming behavior, anxieties, excessive alcoholic consumption, attention deficit hyperactivity disorder, resentment, social obsessions, sleep disorder (Snyder, 2016), repetitive neck and back pain, long-term serious health problems (Flisher, 2010), deskbound lifestyle, obesity and related diseases (Healy et al., 2010), and social isolation (Koyuncu, et al., 2014). Teenagers, during puberty, are emotionally and socially highly unstable, and internet addiction can cause serious health issues (Hur, 2006) as well as the development of antisocial and aggressive behavior (Martínez-Ferrer et al., 2018; Lim et al., 2015).

Studies have reported several dimensions of aggressive personality, such as development of narcissism and self-esteem issues (Bushman & Baumeister, 1998); engagement in verbal and physical aggression; resentment and acrimony (Buss & Perry, 1992); anger expression (Spielberger, et al., 1995); cyberbullying and cyber aggression (Stodt & Wegmann, 2016) can be initiated from exposure to harmful internet posts (Anderson & Bushman, 2001); and can be influenced by sex (Bettencourt & Miller, 1996), parenting practices (Siddiqui et al., 2018) or excessive internet indulgence (Lim et al., 2015). Furthermore, most of the studies and questionnaires are based on the measurement of direct aggression (that is, retaliation toward the provoking agent), and agitators for the development of displaced aggression need further investigations.

This study aimed to review the influences of internet addiction on cyber aggression among Pakistani youth. Furthermore, it explores the impact of internet addiction on some other forms of aggression, such as displaced aggression and its affective (angry rumination) and cognitive (revenge planning) components. Corcoran et al. (2015) defined cyber aggression as the use of media or electronic devices to harm others, especially when anonymity is maintained and when it is difficult to identify the culprit. The consequences of cyber aggression are more severe than face-to-face aggression, as it can occur at any time of the day and can be disseminated immediately to many people (Álvarez-García et al., 2015).

Anger rumination is defined as rage or negative reflection as a primary and effective component as a result from the provoca-

tion of others (Denson et al., 2006). Denson et al. (2006) have defined revenge planning as a cognitive component that refers to a tendency to hold a grudge for a prior provocation and plan for retaliation. Furthermore, displaced aggression occurs when a person is incited to retaliate against the original provocateur and subsequently show aggression against an innocent target (Denson et al., 2006).

This study further explored patterns and census of internet users among Pakistani youth and influences of age, sex, and parents' profession on the development of internet addiction and aggression.

Literature Review

Review of the related literature has come up with discrepancies of consequences associated with internet or social media use, and there are no universal findings akin to internet use. Advocates of internet and social media use believe that it is positively associated with an individual's wellbeing, social connections (Ahn & Shin, 2013), enhancement in mental health (Silva et al., 2005), improvement in academic achievements (Siddiqui et al., 2020), source for development of 21st century skills (Pirani & Hussain, 2019), source of satisfaction of psychological needs (Siddiqui et al., 2020), and nurtures communication, research, discovery, collaborations (May & Abreh, 2017), augmentation of satisfaction (Maulana, 2016), and increases motivation and competence (Edward et al., 2018).

However, many studies have highlighted the negative outcomes of excessive internet use, such anxiety, depression, (Akin & Iskender, 2011), negative influences on quality of life (Cheng & Li, 2014), development of direct aggression (Martínez-Ferrer et al., 2018; Lim et al., 2015) amplification of passive and displaced aggression, immature defense mechanism, denial (Waqas et al., 2016), pervasiveness of cyber aggression (Machimbarrena et al., 2018), marital dissatisfaction (Ahlstrom et al., 2012), and loneliness (Koyuncu et al., 2014).

Glaser et al. (2018) investigated the affiliation between mental health and the use of social media and revealed that social media use for social networking indirectly affects anxiety and depression adversely if mediated by internet addiction. However, if social media is used to communicate or for contacting existing relationships or offline social capital, it augments mental health and suppresses negative consequences.

Stodt and Wegmann (2016) discussed the outcomes of training related to internet literacy along with the impact of age, conscientiousness on patterns of cyberbullying, and internet addiction. Conclusions indicated that lower self-regulative skills have a profound effect on internet addiction symptoms and cyberbullying. The negative usage of internet is more associated with younger and less conscientious children. A significant relationship between internet addiction and cyberbullying was also established in this study. Machimbarrena et al. (2018) supported the outcomes of Stodt and Wegmann (2016) and in their cross-sectional study of 3,212 Spanish participants predicted internet-associated risks and found that the most prevalent risk associated with internet use is cyberbullying and victimization, and the strongest association between 2 risks are online grooming-cyber bullying and cyberbullying-sexting. In continuation to this, Nartgün

and Cicioğlu (2015) investigated the influence of problematic internet usage on cyberbullying behavior among 314 male and 249 female vocational school students in Turkey. The analysis revealed that the amount of time spent online and patterns of internet activities are responsible for cyberbullying among the participants. Martínez-Ferrer et al. (2018) supported the findings of previous studies and studied the problematic use of internet social networking sites on 1,952 youngsters from Spain. Girls and children aged between 14 and 16 years were more involved in problematic usage. Furthermore, youngsters' involvement in these problematic usages were influencing the development of aggressive behavior. Children aged between 11 and 14 years with higher problematic usage were at higher levels of explicit verbal and social victimization. Their study highlighted that the mala fide use of internet, peer aggression, and victimization are correlated. A study by Lim et al. (2015) has also proved a linear association between internet obsession and aggression disorder. Furthermore, clinical scales indicated partial or full mediating effects of anxiety, depression, conduct, cognitive problems, and hyperactivity scale.

Ahmer and Tanzil (2018) have determined the frequency of internet addiction among undergraduate medical students of Karachi, Pakistan, and found significant differences among behavioral patterns of internet-addicted and non-addicted pupils. Furthermore, a high percentage of students (85%) had internet addiction; however, the level of addiction varied. In a continuation to this, Waqas et al. (2016) in a cross-sectional study conducted with medical students at Lahore, Pakistan, found that problematic internet usage is positively associated with the development of aggression, projections disputed behavior, and immature ego defense mechanism among medical students.

Yudes et al. (2018) in a cross-cultural study in Spain, Colombia, and Uruguay with 2,653 youngsters (aged between 10 and 18 years) revealed that more youngsters between 10 and 14 years of age from Spain were involved in cyberbullying. The data from Colombia indicated more profiles were part of assistance to bullying. A relationship between cyber victimization, cyberbullying, and problematic use of the internet was established. The researchers have recommended some of the suggestions to normalize this behavior.

Research Methodology

In this study, survey was conducted for data collection, and quantitative analysis techniques were applied for hypothesis testing. The study model was designed to identify frequency of internet addiction in Pakistan's culture and its impact on different forms of social behaviors. The sample was drawn from preteens and teenagers (9-19 years) using the internet or mobile phones for communication or other purposes. More than 1,000 youngsters of in this age group were contacted for voluntary involvement in the project and were sent the link of Google forms to gather data. Some data were collected physically on hard copies. The questionnaire comprised a demographic part and questions related to internet addiction, cyber aggression, and displaced aggression. Demographic information included sex, age, and father's and mother's professions. A total of 513 questionnaires were returned, which were used for hypothesis testing. The demographics of the participants are shown in Table 1.

Table 1.

*Age * Sex Cross Tabulation*

		Sex		Prefer not to say	Total
		Male	Female		
Age	9.00	1	2	0	3
	10.00	2	4	0	6
	11.00	1	3	0	4
	12.00	1	4	1	6
	13.00	4	3	0	7
	14.00	7	15	0	22
	15.00	17	29	0	46
	16.00	31	100	0	131
	17.00	22	91	1	114
	18.00	40	51	0	91
	19.00	47	36	0	83
Total		173	338	2	513

Analysis and Interpretations

Instruments Used and Factor Analysis

The researchers followed 3 different instruments for establishing relationships and testing hypotheses.

Internet Addiction Test: It includes 20 questions with 6 points on Likert scale (0=does not apply, 1=rarely, 2=occasionally, 3=frequently, 4=often, 5=always) and is a reliable and valid measure of addictive internet use developed by Dr. Kimberly Young (1998). A total of 19 questions of the internet addiction questionnaire were adopted without any amendment; however, 1 question was replaced by the researcher on the basis of the observation and trends in the local context.

Cyber Aggression Questionnaire for Adolescent (CYBA): Developed by Álvarez-García et al. (2015), it is a self-report questionnaire including 18 items, each of which describes aggression conducted through a mobile phone or the internet using a Likert-type scale with 4 options (1=never, 2=rarely, 3=often, and 4=always).

Displaced Aggression Questionnaire: This was developed by Denson et al. (2006) and used for measurement of displaced aggression. This questionnaire is designed to measure displaced aggression in a 3-factor construct (angry rumination, revenge planning, and tendency to displace aggression) using 31 questions with 7 points on Likert scale (1=extremely uncharacteristic of me, 7=extremely characteristic of me).

Reliabilities and validities were established before applying inferential statistics tools. The internet addiction test and cyber aggression questionnaire were used without factor analysis; however, the displaced aggression questionnaire tool was run for factor analysis before further testing. The results of factor analysis and factor loadings are shown in Table 2.

Reliability and Validity of Instruments

Reliabilities of instruments are confirmed through Cronbach's alpha value using Statistical Package for Social Sciences (SPSS) ver-

Table 2.
Confirmatory Factor Analysis

	1	2	3
Angry Rumination	0.684		0.157
Angry Rumination	0.654		0.129
Angry Rumination	00.745	0.133	0.165
Angry Rumination	00.688	0.195	
Angry Rumination	00.679	0.136	
Angry Rumination	00.653	0.249	
Angry Rumination	00.660	0.225	0.144
Angry Rumination	00.599	0.171	0.163
Angry Rumination	00.673	0.168	0.157
Angry Rumination	00.715	0.158	0.144
Revenge Planning	00.396	0.533	0.146
Revenge Planning	00.222	0.760	
Revenge Planning	00.404	0.576	0.135
Revenge Planning	00.319	0.496	
Revenge Planning	00.365	0.628	0.186
Revenge Planning		0.633	0.121
Revenge Planning		0.669	0.186
Revenge Planning	00.166	0.718	0.156
Revenge Planning	00.191	0.695	0.146
Revenge Planning	00.149	0.622	0.171
Revenge Planning		0.497	0.209
Displaced Aggression	00.141	0.112	0.765
Displaced Aggression	00.173	0.108	0.786
Displaced Aggression	00.118		0.753
Displaced Aggression	00.241	0.225	0.653
Displaced Aggression		0.123	0.758
Displaced Aggression		0.172	0.634
Displaced Aggression	00.133	0.152	0.740
Displaced Aggression	00.175	0.212	0.479
Displaced Aggression	00.139	0.191	0.585
Displaced Aggression	00.103	0.247	0.274

Extraction Method: Principal Component Analysis
Rotation Method: Varimax with Kaiser Normalization
a. Rotation converged in 5 iterations

sion 20 (IBM SPSS Corp.; Armonk, NY, USA). All the instruments were reliable as Cronbach's alpha was greater than 0.5 (Cronbach, 1951) (Table 3). Construct validity was measured through composite reliability and heterotrait-monotrait ratio of correlations (HTMT) to ensure the instruments' convergent validity and discriminant validity respectively. Instrument's convergent validity was established as values of composite reliability were greater than 0.6 (Tseng et al., 2006) (Table 3). Discriminant validity was proven as HTMT values were below 0.90 (Henseler et al., 2015) (Table 4).

Influences of Demographics and Variables on Aggression

The findings of the internet addiction test showed that 10 (2%)

Table 3.
Reliability and Convergent Validity of the Instrument

Reliabilities	No. of items	Cronbach's Alpha (From PLS)	Composite Reliability
Internet Addiction	20	0.868	0.866
Cyber Aggression	18	0.806	0.798
Angry Rumination	10	0.889	0.886
Revenge Planning	11	0.878	0.872
Displaced Aggression	10	0.869	0.863

PLS: partial least squares

participants were severely obsessed and were using the internet exceedingly. A total of 166 (32%) participants were regarded as moderately internet-addicted; however, 332 (64%) have a lower level of internet addiction. Finally, 5 (1%) participants were not in any category of internet addiction.

To establish the relationship between internet addiction, cyber aggression, angry rumination, revenge planning, and displaced aggression; Pearson's correlation test was run using SPSS version 20 at a significant value of 0.01 (Table 5). A significant positive correlation is observed that showed a strong correlation among the variables.

To gage the influence of sex on internet addiction, cyber aggression, angry rumination, revenge planning, and displaced aggression; the independent sample t-test was run at p-value <5. A total of 511 participants' data were analyzed as 2 participants did not disclose their sex. The Levene's test of equality for equal variances was used for analysis and interpretations. A significant difference in terms of internet addiction, cyber aggression, revenge planning, and displaced aggression was observed ($p < 0.05$). Furthermore, analysis of the mean values revealed that displaced aggression was intense in female participants, whereas internet addiction, cyber aggression, and revenge planning were profound among male youngsters.

To find out the influence of age on addictions and aggressions, the researchers applied one-way analysis of variance to check relationships at a p-value <0.05. Findings revealed no significant difference among the participants; and hence, it is concluded that age had no impact on internet addiction, cyber aggression, and revenge planning patterns.

Ethical Considerations

The researchers followed basic principles of ethical consideration and American Psychological Association's (APA) ethics code when students were involved and participated voluntarily in the study. They were informed of purpose, incentives, potential risks, discomforts, or adverse effects of the study and of their right to withdraw at any time. The participants were assured of voluntariness, privacy, and anonymity. Prior to data collection, a consent form was given to each participant along with the complete description for the nature of the research study and researcher's assurance to remove the data at the end of the thesis. Participants were further assured verbally that their identity will be kept confidential.

Table 4.
Discriminant Validity (HTMT)

	Angry Rumination	Cyber Aggression	Displaced Aggression	Internet Addiction	Revenge Planning
Angry Rumination					
Cyber Aggression	0.200				
Displaced Aggression	0.460	0.317			
Internet Addiction	0.451	0.382	0.374		
Revenge Planning	0.585	0.471	0.543	0.413	
HTMT: heterotrait-monotrait ratio of correlations					

Table 5.
Correlations (Internet Addiction, Cyber Aggression, and Displaced Aggression)

	1	2	3	4	5
Internet Addiction (1)	1	0.335**	0.396**	0.361**	0.327**
Cyber Aggression (2)		1	0.170**	0.421**	0.274**
Angry Rumination (3)			1	0.522**	0.407**
Revenge Planning (4)				1	0.477**
Displaced Aggression (5)					1
Correlation is significant at the 0.01 level (2-tailed)**					

The study maintained ethical standards with the goal to promote the pursuit of knowledge and truth without falsifying data. Analysis and interpretation of data were conducted with ethical considerations honestly, with no prejudice or bias toward any particular member. Wherever intellectual property was addressed, it was cited and referred using APA 7 style. The study did not harm the living or dead physically or psychologically. This study had beneficiaries such as teachers, students, curriculum developers, evaluators, educators, and was not harmful to any pupil or group.

Results

Internet Addiction Predicts Patterns of Cyber Aggression and Displaced Aggression

Findings from the internet addiction test showed that 10 (2%) participants were severely addicted and were excessively using the internet; 166 (32%) participants were regarded as moderately internet-addicted; and 332 (64%) had a low level of internet addiction. Finally, 5 (1%) participants were not in any category of internet addiction. Therefore, we concluded that 98% of youngsters were accustomed to the internet, which is critically tremendous. These findings supported the recommendations of Ahmer and Tanzil (2018) who found that 85% of the pupils from Karachi had different levels of internet addiction.

Ostovar et al. (2016) and Hwang et al. (2014) have reported direct influences of internet addiction on the development of aggression, anxieties, depression, loneliness, and other forms of antisocial behavior. Waqas et al. (2016) also reported that obsessions related to internet use were positively associated with the rise in displacement and passive aggression. Furthermore, Cheng and Li (2014) found that internet addiction prevalence was inversely associated with the quality of life as reflected by both subjective (life satisfaction) and objective (quality of environmental con-

ditions) indicators. There were also recommendations showing that addiction toward online games negatively affects marital satisfaction (Ahlstrom et al., 2012).

Literature has shown that internet addiction can act as a precursor toward developing different forms of antisocial behaviors, and these attitudes act as a mediator in the development of other psychological and health-related issues among victims of aggression (Yu & Chao, 2016) affecting their performance and resulting in poor academic achievements, frequent absenteeism, and school behavioral dilemmas (Wright, 2015). Findings of this study have also proven that the rise in internet-addicted behavior is positively associated with the development of cyber aggression, anger, revenge planning, and tendency to displace aggression on weak culprits. Furthermore, many studies have come up with the conclusion that a constant rise in aggressive behavior among youngsters increases the tendency toward delinquencies and can be irreversible if not intervened at early stages (Loeber et al., 2003). FIA (2019) has also reported rise in cybercrimes with increase in internet's availability and use. Thus, it can be concluded that internet addiction is one of the preeminent provocateurs of aggression development and criminal convictions.

Impact of Age on Internet Use and Aggression

Previous studies have demonstrated that young adults or teenagers frequently use the internet more than any other age group, for recreation or socializing with friends and strangers (Valkenburg & Peter, 2011). Stold and Wegmann (2016) further noticed that negative use of the internet was associated more with younger and less conscientious children. However, in this study, in contrast to the previous literature, no influence of age on internet addiction was observed. Data were collected from preteens and teenagers; therefore, no differences in patterns were observed owing to fewer variations in age. It is recom-

mended to replicate the study with variations in age groups to make it a comparative one.

Influence of Sex on Internet Addiction, Cyber Aggression, and Displaced Aggression

The highlights of the previous studies indicated that addictive internet use was sex-sensitive, and obsession with internet was lesser in women than in men (Ostovar et al., 2016) similar to studies conducted by Adiele and Olatokun (2014). Even in Pakistan, greater addiction was observed among male participants (Waqas et al., 2016). However, several studies have reported that sex does not predict internet addiction (Ha and Hwang, 2014; Yadav et al., 2013), and some studies have suggested that women's habits of internet addiction are as intense as men's (Bai et al., 2001; Ahmer & Tanzil, 2018). Findings of this study are in continuance with the literature findings of Ostovar et al. (2016), Adiele and Olatokun (2014), and Waqas et al. (2016) and in contrast to the findings of Ahmer and Tanzil (2018), Ha and Hwang (2014), and Yadav et al. (2013), where in the Pakistani context, male addiction to internet was as profound as the female participants. Furthermore, the influence of sex on the development of cyber aggression, angry rumination, and displaced aggression has been established where significant differences are obtained from independent sample t-test. Findings revealed that the level of cyber aggression and revenge planning was higher among the male participants, whereas displaced aggression level was found to be greater in female participants. Displaced aggression occurs when a person is provoked and unable to retaliate against the original provocateur and subsequently acts out aggressively against a seemingly innocent target (Dollard et al., 1939). It is culturally embedded in the Pakistani context that men are preferred over women, and women are the victim of gender biases and disadvantages. Furthermore, limited education, less employment, and provisions of restricted resources for women results in the prevalence of psychological morbidity (Qadir et al., 2011). Thus, the development of higher level of displaced aggression can possibly be associated with fewer chances of aggression shedding on provocateurs and might result in the shedding of feelings on innocent targets such as kids, animals, or servants.

Discussion

Education is an important tool to dissipate knowledge about the consequences of internet and social media addiction. People should be encouraged to promote their offline relationships and use social media to build stronger bonding with existing relationships. Nowland et al. (2018) reported bidirectional relationships between internet social use and loneliness, and it varies with the intention to spend time on the internet. When the internet is used to enhance existing relationships and create stronger bonding among social connections, it is recommended for reducing alienation. However, when same technologies are used to escape the social world, an emotional state of isolation is increased. Glaser et al. (2018) also mentioned that the use of the internet or social media is healthy for the mind if used to connect with existing relationships; but if it exceeds the limits of usage leading to obsession, it can negatively influence behavior and develop into anxieties and depressions.

Grubbes et al. (2015) have predicted that as the use of the internet continues to rise, it is necessary to provide support services and treatments for internet addictions to overcome negative consequences.

Ming et al. (2019) have suggested that mental wellbeing, social media addiction, and self-esteem may be associated with narcissistic behavior. To help avoid unhealthy narcissistic behavior, an individual should eliminate social media addiction by participating in more healthy activities like sports, playing musical instruments, joining a book club, and so on.

It is suggested that virtual social networks should be developed for reflections to educate youngsters about the importance of relationships on social networking sites (Parlangeli et al., 2019).

Stold and Wegmann (2016) recommended that teachers should be responsible regarding internet literacy to reduce the students' engagement with negative consequences of the cyber world. Furthermore, it is suggested that self-regulated behavior should be enhanced by providing proper training to youngsters to help them stay away from negative content and to ramify positive outcomes.

It is recommended that parents and teachers should be involved in counseling internet-addicted youngsters with negative interests, who should be encouraged to develop other positive interests and outdoor activities.

Parenting practices are influencers of the development of aggression (Siddiqui et al., 2018). It is necessary to reflect and develop child-rearing practices that will ensure improvement in behavior and reduction in aggression and antisocial activities.

Limitations and Directions/Suggestions for Future Research

A self-reported questionnaire was used for data collection as an efficient and economically cost-effective method; however, it was considered not ideal because the resulting data may be inaccurate owing to problems with recall. It is recommended to use multiple measures for each construct to ensure more reliable results. Although in this study, correlations were proven, psychological and sociological instigators and phenomena were not explored. Imitations of behavior as suggested by Bandura (1977) or social acceptance of aggression as a suggestion by Berkowitz (1967) can be the possible reasons of higher levels of aggression among teenagers; however, further studies are needed to surface realities.

Bai et al. (2001) have suggested that the biological reason for the development of addictions is the release of a neurochemical called dopamine; however, the fundamental and biological reasons for development of aggression require further exploration.

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