A 3- YEAR COHORT STUDY OF INTERNET USE AND PARENT-CHILD RELATIONSHIP AMONG SENIOR SECONDARY SCHOOL STUDENTS

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ABSTRACT
The advent and expansion of the internet have revolutionized education systems, aided in universal access to education, and transformed traditional teaching. However, disparities in internet use persist based on a variety of factors, including gender. Also, the internet is used by the students for different purposes classified as curricular educational, extra-curricular educational, social, and recreational use in this study. Moreover, little is understood about the impacts of intensified internet use on the parent-child relationship which consists of different attributes viz. affection, intimacy, companionship, guidance, enhancement of the worth, guidance, and satisfaction. The data was collected using a cohort study survey design from students in senior secondary school who were recruited using a stratified sampling technique and a self-constructed questionnaire in two stages (2018 and 2021; $N_1 = 394$, $N_2 = 376$). The findings reveal a disparity in pattern and intensity of internet use among males and females and across phases. Furthermore, the parent-child connection differed significantly by gender and phase. Female students were found to have better parent-child relations than male pupils. Also, the parent-child relationship is degraded over time. Moreover, the intensity of internet use was negatively correlated with the parent-child relationship.
Keywords: Internet use, parent-child relationship, India, senior secondary school students, cohort study

INTRODUCTION

Recent advancements in information technology have opened up new avenues for educational study. Education is a critical factor in determining social and economic growth (Katz, 2001; Pritchard & Jones, 1996; Psacharopoulos, 1988). Education has altered as a result of new technologies and ideologies. Technology has given incredibly low-cost access to knowledge and has eroded all barriers leading to free or open-source software movements. Worldwide, there are 4.66 billion active internet users, or 59.5 percent of the world's population, with a 7.3 percent increase in a year (Datareportal, 2021).

Internet use in India

The number of internet users in India is second only to China (*Internet usage in India - statistics & facts*, n.d.). However, they account for only 41% of the national population (World Bank, n.d.). As of January 2021, there are 6.24 million people are using the internet often, representing 45.0 percent of the nation's total population, representing an 8.2 percent increase annually (Datareportal, 2021, pp. 17–18). 96.3 percent of internet users aged 16 to 64 have smartphones, 56.4 percent have laptops, and 23.1 percent have tablets (2021, p. 21). Mobile phones were the primary means of internet access for most of India's digital population. (*Internet usage in India - statistics & facts*, n.d.). An average Indian internet user spends 6 hours 36 minutes every day on the internet (2021, p. 22). The advancement of India's technological and infrastructural development has contributed to an increase in Internet

speed, with the average download speed of a mobile internet connection increasing 12.7 percent year on year to 12.91 MBps and the average download speed of a fixed internet connection increasing 27.9 percent year on year to 53.90 MBps (2021, p. 27). The age range of Indian internet users, however, was between 20 and 29, with a somewhat greater percentage coming from rural regions.

Gendered digital divide

In India, male internet users outweigh female internet users. Indian females are 15% less likely than males to possess a mobile phone and 33% less inclined to mobile internet services utility (Carboni et al., 2021). In India, the gendered digital divide is frequently the result of a threefold disadvantage for women. First, there is a digital divide between rural and urban areas, with rural broadband penetration at just 29 percent compared to the national average of 51 percent. Second, there is a digital gap between households depending on income. Finally, intra-household discrimination prohibits women from having equal access to digital devices in the home, widening the gender-based digital gap (2021). In rural hinterlands, the digital gender gap expanded significantly more than in metropolitan cities.

Role of the internet in learning

The widespread use of the internet is a defining feature of the information era, and more children and adolescents are receiving access to it. MOOCs (Massive Open Online Courses) on sites such as Coursera, Udemy, EdX, and SWAYAM have all brought classroom courses to students' doorsteps and enabled students to make realistic choices about their education. These initiatives have helped to eliminate the disparity in student accessibility based on socioeconomic and geographic origins. The historical nationwide lockdown during a pandemic has also aided the growth of such efforts and the rising importance of technology in education.

The flip side

The use of the internet has opened up new avenues for information access and has proven to be a reliable alternative to classrooms in adverse times. However, there are certain concerns in society related to increased internet utility. Students' social behavior and psychological health may suffer as a result of frequent internet use. Research performed in the USA found that 59 percent of parents of 8 to 17-years-olds considered that too much online activity can lead children to alienate from other people, and 41 percent reported that children who use the internet excessively tend to exhibit antisocial conduct (Turow & Nir, 2000).

Usage of the internet has been linked to greater loneliness and depression, according to Kraut et al. (1998), who also explained the internet paradox by pointing out that online connections are more likely to be of lesser quality than in-person ones. However, the follow-up investigations discovered no link to depression or loneliness (Kraut et al., 2002). They explained these inconsistencies by pointing to modifications in the online environment, such as the growing internet utility and the rise in the availability of online communication tools. The positive impact of internet use on loneliness and sadness has also been demonstrated in a few previous research (Shaw & Gant, 2002; White et al., 1999). Several studies have looked at the connection between aggressiveness and the use of the internet. A study regarding online gaming (Williams & Skoric, 2005) demonstrated that playing online games has no discernible direct influence on aggressiveness, whereas another study (Slater et al., 2003) demonstrated bi-directional causal relationships between violent media content and aggressiveness.

Concern exists that children and teenagers may start to favor online communication over the in-person connection (Griffiths, 2000). Kraut et al. (1998) stated that online communication is less effective than face-to-face interaction, as there is a risk that the emotional health of children and teenagers engaging mainly in internet communication may degrade. Maladaptive cognition, which occurs when people prefer using the internet for communication, may also lead to pathological internet usage, which can lead to undesirable behaviors including scholastic failure, family conflict, and employment abandonment (Davis, 2001). According to a cross-sectional study conducted to test this theory, those who had unfavorable cognition, such as the desire for social advantages offered online, were more inclined to exhibit negative conduct, including skipping classes or social gatherings. (Caplan, 2002).

Pathological internet usage, often known as internet addiction disorder (IAD), is a compulsive-impulsive spectrum condition that comprises five main forms of addiction.: “information overload (compulsive web surfing); computer addiction to programming or game playing; compulsions to online auctions; gambling or trading; and cyber-sexual relationship addictions” (K. Young, 1998a, 1998b). Mental health issues and personality features like psychoticism and introversion coexist with IAD. The internet provides a discrete forum for individuals to address inadequacies in their lives, such as impairments, poor family dynamics, a lack of companionship, and frustration with their appearance (Huang et al., 2010). Internet addicts frequently establish fictitious online personas that they emotionally connect to, preferring online interactions to social relationships in the real world (Whang & Chang, 2004; K. Young, 1998a). Online gaming, pornography, and gambling, especially among young male adolescents

for whom these activities have a greater behavioral and cognitive salience, offer the delights of control and perceived fluidity of identity, as well as give relief from dysphoric moods and negative impacts (K. Kim et al., 2006; Leung, 2004). IAD can also result in significant psychological issues including depression, sleep disturbances, anxiety, and alcohol and substance abuse (Bakken et al., 2009). Moreover, these conditions tend to prevail lifetime (Black et al., 1999).

Internet use and parent-child relationship

The parent-child relationship is critical to our understanding of both good and detrimental online experiences for children. We perceive children's internet use as the outcome of a complex interaction between their preferences, competencies, parental or caretaker mediation, and the cultures in which they thrive. The connection between regionally based value ecologies and technology development influences how children and their parents interact with the internet and with one another with this medium (Kirwil, 2009). A large body of research suggests that how parents "control, supervise, or interpret (media) content" (Warren, 2001, p. 212) can affect how their children interact with the internet. Most teenagers will struggle to balance time spent on gaming and networking without adequate regulation and parent involvement (Huang et al., 2010). According to Problem Behavior Theory, problematic family dynamics, explicitly those between parents and teenagers, have a major role in the establishment and development of teenagers' internet addiction (De Leo & Wulfert, 2013; Yen et al., 2008). Teenagers sharing a good bonding with their parents have greater social competence and fewer behavioral difficulties (Schneider et al., 2001), whereas teenagers sharing adverse relationships with their parents have various behavioral problems including drug misuse and anti-social conduct (Laursen et al., 1998). A vast number of empirical research have found a negative link between parent-child relationships and adolescent internet addiction (Cheng et al., 2021; Deng et al., 2013; Liu et al., 2013; Zhang et al., 2011; Zhu et al., 2015), whereas parent-child conflicts enhance adolescent internet addiction risk (Deng et al., 2013; Yen et al., 2007). Similar findings have been repeated in investigations on video game addiction (Y. H. Kim et al., 2007; Kwon et al., 2011).

According to a study conducted among Taiwanese high school students, loneliness served as a mediating factor between the parent-child relationship and smartphone addiction, which in turn had a negative impact on both. The degree of loneliness associated with smartphone addiction was also shown to be moderated by self-efficacy (Cheng et al., 2021). While parental overcontrol moderated the mediating effects of parent-child relationships, Gong et al. (2022) observed that adolescents had a stronger inclination toward smartphone addiction when their parents used smartphones excessively. Furthermore, several longitudinal pieces of research have suggested that the parent-child connection may be a critical antecedent of teenage internet addiction. According to Szwedo et al. (2011), dysfunctional mother-teen connections predict adolescents' eventual preference for online contact and increased chance of starting a friendship with someone encountered online. According to Kong and Lim (2012), the parent-child connection predicted cyber delinquency adversely. As a result, existing research has repeatedly demonstrated that adolescents with poor parent-child relationships are more likely to become internet addicts.

Summary of literature

While the aforementioned studies have provided some insight into the linkages between internet use and parent-child relationships, further research—specifically in the Indian context—is still required. Three major shortcomings in the related area have been discussed as follows.

First of all, very few pieces of research have looked at the causative linkages; the majority were cross-sectional and case studies, which makes it challenging to find causal relationships. We must explicitly analyze the causal links to have a meaningful conversation about the impacts of internet usage (Shklovski et al., 2006).

Second, children and teenagers were rarely included in studies. However, because of their underdeveloped cognitive and social capabilities, probably, children and adolescents are more negatively impacted by internet use than adults. Children might not be able to manage internet conversation well since they cannot see the person they are connecting to.

Third, very few researchers have looked at the causal linkages that go the other way. It has been noted that there may be causal links between psychological factors and internet use, although these assertions are based on cross-sectional data (Amichai-Hamburger & Ben-Artzi, 2003). The impacts of internet usage on psychological and social variables are also significant, even though the effects of psychological and social variables on internet use typically receive greater attention.

Present study

As described in the preceding section, the research regarding the association between internet use and the parent-child relationship is prevalent. The majority of the earlier studies have emphasized that internet use affects the

parent-child relationship, whereas recent studies have also discussed how the parent-child relationship affects the internet use of children. Some of these studies have also emphasized that there is a bi-directional causal relationship between internet use and the parent-child relationship. It should not be overlooked that the usage of internet technology may become troublesome and even dangerous, resulting in hazards such as addiction. Furthermore, online technologies are becoming more popular in schools, and students must be able to successfully integrate internet technologies into their education. As a result, the ability of a parent's behavior and connection with their kid to influence a student's use of technology for educational reasons should not be overlooked. However, the majority of such studies have been conducted in Europe, China and the Americas where the internet was introduced much earlier as compared to India and the majority of the populations residing in these regions are accessing the internet. In contrast, the development of the internet and its popularity among citizens is still flourishing in India. Also, studies regarding the relationship between internet use and parent-child relationships are scarce and such studies would have not produced any reliable results.

Therefore, through this study, the researchers aimed to answer the following exploratory questions: (a) What are the patterns of internet use (location of internet use, device used to access the internet, time of internet use, purpose of internet use) among the students? (b) For what duration do the students use the internet for different purposes? (c) Are there any statistically significant differences in internet use between the male and female students as suggested by the literature? (d) What are the differences in the intensity of internet use among the students in 2018 and 2021? (e) What is the quality of relationship that students are having with their parents? (f) Are there any significant differences in parent-child relations between male and female students? (g) What are the differences in the parent-child relationship among students in 2018 and 2021? (h) How do the durations of internet use among students for different purposes correlate to different aspects of their relations with their parents?

METHODS AND INSTRUMENTS

Research design

The present study adopted a cohort longitudinal survey design to study the internet use and parent-children relationship among senior secondary school students in the Himachal Pradesh state of India. The population of the study remains the same i.e. senior secondary school students, but different samples of participants representing the same population have been studied in 2018 and 2021.

Sampling

The sample was recruited using a stratified random sampling technique. In the first stratum, the two districts, namely Mandi and Dharamshala, were recruited using a simple random technique. At the second stratum, five schools from each district were selected using a simple random technique. All the students studying at these ten schools and using the internet (647 in 2018 and 584 in 2021) were asked to fill up the questionnaire and get filled passive consent from their parents and return them within two days. However, only 425 (65.7%) and 406 (69.52%) duly-filled questionnaires were returned in 2018 and 2021 respectively. Those who did not return the questionnaire were because they were mostly absent on the designated day or their parents have not provided their consent. The questionnaires with careless responses, the same responses for each item, or consistent extreme values were eliminated (Meade & Craig, 2012). The final sample size for the first phase (n_1) of the study was 394, and that for the second phase (n_2) was 376. Out of these 394 and 376 respondents, 229 and 212 were males whereas 165 and 164 were females respectively.

Measures

Purposes of internet use were classified as curricular educational, extra-curricular educational, social and recreational. Curricular educational purposes include internet use for completing assignments, taking online lectures, watching conceptual videos regarding curricula, taking mock tests, browsing notes, and other activities that directly deal with their current education. Meanwhile, extra-curricular educational purposes of internet use include browsing documents and articles, watching videos, and attempting mock tests and practice sets for any specific purpose regarding educational career including upcoming examinations and competitions. On the other hand, the social use of the internet includes mail, instant messaging, social networking activities performed on social networking and professional networking sites, personal conversations, teleconferencing, video-conferencing, and other such activities. The recreational use of the internet includes watching movies, listening to music, playing games, and other such activities. The responses regarding time consumed per day for each of these purposes were received on a 6-point scale varying from 0 to 1 hour to 5 to 6 hours, whereas responses regarding overall time consumed per day over the internet were received on a 9-point scale ranging from 0 to 1 hour to 8 to 9 hours.

The parent-child connection was evaluated using seven items developed by Furman and Buhrmester (1985) and amended by Bao et al. (2014). These items examine important aspects of the parent-child connection such as affection, intimacy, companionship, guidance, worth enhancement, conflict (reverse-coded), and satisfaction. On a 5-point scale ranging from 1 (not at all true) to 5, participants must indicate how truthful the statements are (very true). The total score for parent-child connection was determined by the mean score of all items. The higher the score, the better the relationship.

Instrument

The self-constructed questionnaire contained three sections. The first section of the questionnaire gathered demographic information. The second section gathered information about students' internet use, including their average amount of time spent on the internet for curricular educational, extra-curricular education, and social and recreational purposes. The third section of the questionnaire gathered information about their relationship with their parents. The questionnaire was self-constructed and was standardized through a pilot study administered to over 93 participants from the schools that were excluded from the main study. Based on responses received in the pilot study, item discrimination index and difficulty ratio were calculated and items with low discriminating power and high difficulty ratio were eliminated. The face validity and content validity were established through consultation with domain experts and reliability was established using the test-retest method (r = .762).

Data analysis

For analyzing the data in the present study, frequency and percentage distribution, mean, standard deviation, Student's t-test, and Kendall's τ_c were used. Data were analyzed using Microsoft Excel 2007.

FINDINGS

Demographic profile of respondents

Table 1 shows the demographic profile of the samples. As shown, male students in the survey accounted for 58.12% while female students accounted for 41.88% of the respondents in the initial phase. Whereas, male students accounted for 56.38% while female students accounted for 43.62% of the total respondents in the final phase. Students aged 16 accounted for 24.37% and 22.07% in the initial and final phases respectively; aged 17 accounted for 45.94% and 46.28% respectively; aged 18 accounted for 29.69% and 31.65% in the initial and final phases respectively. Students from mathematics stream constituted 27.41% and 28.19%; biology stream constituted 24.87% and 23.14%; commerce stream constituted 30.71% and 32.98%; humanities stream constituted 17.01% and 15.69% respectively.

Table 1: Demographic profile of respondents

Variable	Value	First phase (2018) (n_1 = 394)		Second phase (2021) (n_2 = 376)	
		Frequency	Percent	Frequency	Percent
Gender	Male	229	58.12	212	56.38
	Female	165	41.88	164	43.62
Age	16	96	24.37	83	22.07
	17	181	45.94	174	46.28
	18	117	29.69	119	31.65
Stream	Mathematics	108	27.41	106	28.19
	Biology	98	24.87	87	23.14
	Commerce	121	30.71	124	32.98
	Humanities	67	17.01	59	15.69

Patterns of the internet use

Table 2 represents the responses of the participating students in terms of their internet use. 160 (69.87%) of the male and 112 (67.88%) of the female responders in the first phase whereas 212 (100%) and 164 (100%) of the female responders in the second phase affirmed that the internet facility was available at their home. However, only 80 (34.93%) males and 35 (21.21%) females were using the internet in their homes in the first phase, whereas all of the participants in phase two were accessing the internet from their homes in the second phase. It suggests the increased use of the internet at the home. On the other hand, 148 (64.63%) and 59 (35.76%) of the male and female participants respectively were accessing the internet at their schools in the first phase increased to 198 (93.40%) and 160 (97.56%) respectively in the second phase. Furthermore, 103 (44.98%) and 89 (53.94%) of the male and female respondents respectively were accessing the internet from other locations in the first phase which was substantially reduced to 34 (16.04%) and 31 (14.62%) respectively in the second phase.

Table 2: Distribution of responses regarding the pattern of internet use

Variable	Value	First phase (2018) (n_1 = 394)		Second phase (2021) (n_2 = 376)	
		Male (n_{11} =229)	Female (n_{12} = 165)	Male (n_{21} = 212)	Female (n_{22} = 164)
		Frequency (Percent)	Frequency (Percent)	Frequency (Percent)	Frequency (Percent)
Availability of internet at home	Available	160 (69.87%)	112 (67.88%)	212 (100%)	164 (100%)
	Unavailable	69 (30.13%)	53 (32.12%)	0 (0%)	0 (0%)
Place of internet use	Home	80 (34.93%)	35 (21.21%)	212 (100%)	164 (100%)
	School	148 (64.63%)	59 (35.76%)	198 (93.40%)	160 (97.56%)
	Others	103 (44.98%)	89 (53.94%)	34 (16.04%)	31 (14.62%)
Device used for internet access	Desktop	162 (70.74%)	73 (44.24%)	201 (94.81%)	161 (98.17%)
	Laptop	38 (16.59%)	12 (7.27%)	44 (20.75%)	28 (17.07%)
	Smartphone	79 (34.50%)	47 (28.48%)	212 (100%)	164 (100%)
Nature of device used at home	Personal	42 (18.34%)	11 (6.67%)	167 (78.77%)	43 (26.22%)
	Shared	38 (16.59%)	24 (14.55%)	45 (21.23%)	121 (73.78%)

Internet access through desktops increased significantly as only 162 (70.74%) males and 73 (44.24%) females were using a desktop to access the internet in the first phase rose to 201 (94.81%) and 161 (98.17%) respectively in the second phase of the study. On contrary, the use of a laptop for internet access has seen almost no change as 38 (16.59%) and 12 (7.27%) males and females were using it in the first phase and compared to 44 (20.75%) and 28 (17.07%) respectively in the second phase. Moreover, there was a drastic change in the use of smartphones for accessing the internet as all the participants were using them to access the internet in the second phase of the study as compared to 79 (34.50%) males and 47 (28.48%) females were using smartphones in the first phase of the study. During the first phase of the study, only 42 (18.34%) of the males and 11 (6.67%) of the females were using personal devices to access the internet that rose to 167 (78.77%) males and 43 (26.22%) females during the second phase. It is also evident that the use of personal devices was increased at a higher pace among males than females.

Moreover, as demonstrated in Table 3, the use of the internet was mainly constrained to early morning (20.09%), duration of school hours (64.63%), immediately after school (23.58%) and evening (31.88%) for males, whereas during school (35.76%), immediately after school (37.58%) and evening (24.85%) for the females in the first phase. Whereas in the second phase, the use of the internet seen a spike in the early morning (79.72% as compared to 20.09% for males and 19.51% as compared to 4.85% for females) and late night hours (76.42% as compared to 5.24% for males and 25.61% as compared to 3.64% for females). This increase in internet use in the early morning and late night has been observed to a greater extent among males as compared to females. During the initial phase of the study, the internet was mainly used for curricular education (86.46% males and 83.03% females), socialization (89.96% males and 92.73% females) and recreational use (99.13% males and 97.58% females), whereas during the second phase, the internet is accessed for all the four purposes almost equally, as the use of the internet for the extra-curricular educational purpose has almost doubled (from 44.98% to 79.25% for males and from 44.85% to 86.58% for females) during the period.

Table 3: Distribution of responses regarding time and purpose of internet use

Variable	Value	First phase (2018) (n_1 = 394)		Second phase (2021) (n_2 = 376)	
		Male (n_{11} =229)	Female (n_{12} = 165)	Male (n_{21} = 212)	Female (n_{22} = 164)
		Frequency (Percent)	Frequency (Percent)	Frequency (Percent)	Frequency (Percent)
Time of internet use	Early morning	46 (20.09%)	8 (4.85%)	169 (79.72%)	32 (19.51%)
	During school	148 (64.63%)	59 (35.76%)	104 (49.06%)	21 (12.80%)
	Immediately after school	54 (23.58%)	62 (37.58%)	208 (98.11%)	112 (68.29%)
	Evening	73 (31.88%)	41 (24.85%)	204 (96.23%)	156 (95.12%)
	Late night	12 (5.24%)	6 (3.64%)	162 (76.42%)	42 (25.61%)
Purpose of internet use	Curricular education	198 (86.46%)	137 (83.03%)	212 (100%)	164 (100%)
	Extra-curricular education	103 (44.98%)	74 (44.85%)	168 (79.25%)	142 (86.58%)
	Socialization	206 (89.96%)	153 (92.73%)	210 (99.06%)	157 (95.73%)
	Recreation	227 (99.13%)	161 (97.58%)	211 (99.53%)	162 (98.78%)

The intensity of internet use for different purposes

Table 4 demonstrates the separately calculated means and standard deviations for the intensity of internet use for different purposes, viz. curricular educational, extra-curricular educational, social, and recreational purposes. It indicates that during the first phase, the internet was mainly accessed for recreational purposes (2.05 hours per day) followed by social (1.75 hours per day) and curricular educational (1.67 hours per day) purposes. The intensity of internet access for extra-curricular educational purposes (0.78 hours per day) was quite low. During the second phase, the internet was mainly accessed for curricular educational purposes (4.51 hours per day) followed by social (2.98 hours per day), recreational (2.82 hours per day), and extra-curricular educational purposes (2.56 hours per day). The intensity of internet use for extra-curricular educational purposes (2.46 hours per day) has drastically increased over time. Moreover, the overall intensity of internet use was found to be 3.45 hours per day during the initial phase and 4.89 hours per day during the final phase of the study.

Table 4: Descriptive statistics regarding the intensity of internet use for different purposes

Purpose	Subgroups	First phase (2018) (n_1 = 394)		Second phase (2021) (n_2 = 376)	
		Mean	Standard deviation	Mean	Standard deviation
Curricular Educational	Male	1.70	1.46	4.57	1.05
	Female	1.62	1.42	4.43	1.19
	Total	1.67	1.44	4.51	1.11
Extra-curricular Educational	Male	0.82	1.31	2.27	1.55
	Female	0.73	1.10	2.70	1.45
	Total	0.78	1.23	2.46	1.52
Social	Male	1.76	1.43	3.16	1.51
	Female	1.73	1.40	2.75	1.33
	Total	1.75	1.41	2.98	1.45
Recreational	Male	2.00	1.42	3.26	1.60
	Female	2.11	1.35	2.24	1.36
	Total	2.05	1.39	2.82	1.58
Overall	Male	4.02	1.85	5.37	1.81
	Female	2.66	1.46	4.27	1.60
	Total	3.45	1.82	4.89	1.80

Differences in internet use between the male and female students

For finding whether there are any significant differences between male and female students in terms of internet use for different purposes, Student's t-test for independent groups was employed. The findings of the tests have been summarized as shown in Table 5. The table demonstrates the existence of a significant difference between the groups in terms of intensity of overall internet use in the first phase. It implies that the intensity of internet use among males (m = 4.02, SD = 1.85) was significantly more than among female students (m = 2.66, SD = 1.46). However, the differences in intensity of internet use for different purposes individually were not significant. On the other hand, during the final phase of the study, the intensity of internet use for curricular educational purposes was found to be not significant. However, the male students (m = 2.27, SD = 1.55) tends to use internet less intensely for extra-curricular education in comparison to female students (m = 2.70, SD = 1.45). Whereas, male students use internet more intensely for social (m_m = 3.16, SD_m = 1.51, m_f = 2.75, SD_f = 1.33) and recreational (m_m = 3.26, SD_m = 1.60, m_f = 2.24, SD_f = 1.36) purposes than their counterparts. Also, the male students (m = 5.37, SD = 1.81) use internet more intensely than females (m = 4.27, SD = 1.60) in terms of overall use.

Table 5: Comparison of purposes of internet use between male and female students

Purposes of internet usage	First phase (2018)			Second phase (2021)		
	Male (N = 229) Mean (SD)	Female (N = 165) Mean (SD)	t-value	Male (N = 212) Mean (SD)	Female (N = 164) Mean (SD)	t-value
Curricular educational	1.70 (1.46)	1.62 (1.42)	0.556 (NS)	4.57 (1.05)	4.43 (1.19)	1.170 (NS)
Extra-curricular educational	0.82 (1.31)	0.73 (1.10)	0.751 (NS)	2.27 (1.55)	2.70 (1.45)	-2.691[b]
Social	1.76 (1.43)	1.73 (1.40)	0.204 (NS)	3.16 (1.51)	2.75 (1.33)	2.728[b]
Recreational	2.00 (1.42)	2.11 (1.35)	-0.738 (NS)	3.26 (1.60)	2.24 (1.36)	6.644[a]
Overall	4.02 (1.85)	2.66 (1.46)	8.132[a]	5.37 (1.81)	4.27 (1.60)	6.173[a]

Differences in the intensity of internet use among the students across phases

For calculating whether there are any statistically significant differences among the students in the two phases of the study conducted in 2018 and 2021 respectively, we have again employed Student's t-test for independent groups. As table 6 demonstrates, there is a statistically significant increase in the intensity of internet use for curricular educational purpose among males (m_I = 1.70, SD_I = 1.46, m_{II} = 4.57, SD_{II} = 1.05), females (m_I = 1.62, SD_I = 1.42, m_{II} = 4.43, SD_{II} = 1.19) and all the respondents (m_I = 1.67, SD_I = 1.44, m_{II} = 4.51, SD_{II} = 1.11). Also, there is a statistically significant increase in the intensity of using internet for extra-curricular educational purpose among males (m_I = 0.82, SD_I = 1.31, m_{II} = 2.27, SD_{II} = 1.55), females (m_I = 0.73, SD_I = 1.10, m_{II} = 2.70, SD_{II} = 1.45) and for overall participants (m_I = 0.78, SD_I = 1.23, m_{II} = 2.46, SD_{II} = 1.52). Similarly, there is a statistically significant increase in intensity of internet use for socializing among males (m_I = 1.76, SD_I = 1.43, m_{II} = 3.16, SD_{II} = 1.51), females (m_I = 1.73, SD_I = 1.40, m_{II} = 2.75, SD_{II} = 1.33) and overall participants (m_I = 1.75, SD_I = 1.41, m_{II} = 2.98, SD_{II} = 1.45). Moreover, there is a statistically significant increase in intensity of internet use for recreational purposes among males (m_I = 2.00, SD_I = 1.42, m_{II} = 3.26, SD_{II} = 1.60) and overall participants (m_I = 2.05, SD_I = 1.39, m_{II} = 2.82, SD_{II} = 1.58), however the difference among the females (m_I = 2.11, SD_I = 1.35, m_{II} = 2.24, SD_{II} = 1.36) in the two phases was not found to be statistically significant. The intensity of overall internet use was found to be significantly increased across the phases among males (m_I = 4.02, SD_I = 1.85, m_{II} = 5.37, SD_{II} = 1.81), females (m_I = 2.66, SD_I = 1.46, m_{II} = 4.27, SD_{II} = 1.60) and all participants (m_I = 3.45, SD_I = 1.82, m_{II} = 4.89, SD_{II} = 1.80) unanimously.

Table 6: Comparison of purposes of internet use across phases

Purposes of internet usage		First phase (2018) (n_1 = 394) Mean (SD)	Second phase (2021) (n_2 = 376) Mean (SD)	t-value
Curricular educational	**Males**	1.70 (1.46)	4.57 (1.05)	23.800[a]
	Females	1.62 (1.42)	4.43 (1.19)	19.471[a]
	Total	1.67 (1.44)	4.51 (1.11)	30.504[a]
	Males	0.82 (1.31)	2.27 (1.55)	10.694[a]

Extra-curricular educational	**Females**	0.73 (1.10)	2.70 (1.45)	13.832[a]
	Total	0.78 (1.23)	2.46 (1.52)	16.816[a]
Social	**Males**	1.76 (1.43)	3.16 (1.51)	10.003[a]
	Females	1.73 (1.40)	2.75 (1.33)	6.788[a]
	Total	1.75 (1.41)	2.98 (1.45)	11.971[a]
Recreational	**Males**	2.00 (1.42)	3.26 (1.60)	8.748[a]
	Females	2.11 (1.35)	2.24 (1.36)	0.922 (NS)
	Total	2.05 (1.39)	2.82 (1.58)	7.177[a]
Overall	**Males**	4.02 (1.85)	5.37 (1.81)	7.766[a]
	Females	2.66 (1.46)	4.27 (1.60)	9.497[a]
	Total	3.45 (1.82)	4.89 (1.80)	11.021[a]

Notes: [a] significant at .001 level; NS not significant

Quality of parent-child relationship

The quality of the parent-child relationship was measured through the combination of attributes. The scores obtained for each attribute were collected on a 5-point scale. As depicted in Table 7, the difference in mean scores of all the attributes was very small as it varies between 3.00 and 3.81 during the first phase. However, in the second phase, the scores seem to drop off as the mean scores were ranging between 2.75 and 3.60. The affection among males seems to be depreciated over time as it drops from 3.32 to 3.05 among males, 3.66 to 3.45 among females, and 3.46 to 3.22 for all the participants during the initial and final phases respectively. Similarly, the mean scores of perceived intimacy with parents also dropped from 3.48 to 2.75 among males, 3.73 to 3.15 among females, and 3.59 to 2.93 among all the respondents during the initial and final phases respectively. The companionship also appears to be withered as the mean scores drop from 3.61 to 3.16 among males, 3.81 to 3.41 among females, and 3.69 to 3.19 among all the participants. Also, the decrease in mean scores regarding guidance suggests the perceived level of guidance provided by the parents to students as they decreased from 3.64 to 2.87 among males, 3.75 to 3.36 among females, and 3.68 to 3.09 among all the participants of the study in the initial and final phase respectively.

Moreover, the perceived worth among the students also seems to be slumped as the mean scores among males (3.48 and 3.15), females (3.70 and 3.60), and overall participants (3.57 and 3.35) were slightly reduced. Also, the satisfaction level among students regarding their relationships with parents seems to have deteriorated in an almost similar manner among the males (3.22 and 2.83), females (3.56 and 3.01), and all the participating respondents (3.36 and 2.90) across the two phases of the study. However, the mean scores of conflict (that were reverse coded) also decreased which shows the increase in conflicts as the mean scores dropped for males (from 3.00 to 2.87), females (from 3.12 to 2.93), and all the respondents (from 3.05 to 2.89) during the two phases respectively. As a result of the decrease in mean scores regarding all the attributes the overall mean scores regarding the parent-child relationship among the participants suggests a slightly negative shift in the quality of their relationship as the mean scores decreased from 3.39 to 2.93 for males, 3.62 to 3.27 for females and 3.49 to 3.08 for all the respondents.

Table 7: Descriptive statistics regarding different attributes of the parent-child relationship

Attributes	**Subgroups**	**First phase (2018) (n_1 = 394)**		**Second phase (2021) (n_2 = 376)**	
		Mean	**Standard deviation**	**Mean**	**Standard deviation**
Affection	**Male**	3.32	1.17	3.05	1.25
	Female	3.66	1.11	3.45	1.20
	Total	3.46	1.15	3.22	1.24
Intimacy	**Male**	3.48	1.09	2.75	1.17
	Female	3.73	1.07	3.15	1.20
	Total	3.59	1.09	2.93	1.20
Companionship	**Male**	3.61	1.13	3.16	1.51
	Female	3.81	1.06	3.41	1.19
	Total	3.69	1.10	3.19	1.21
Guidance	**Male**	3.64	1.12	2.87	1.23
	Female	3.75	1.06	3.36	1.17
	Total	3.68	1.10	3.09	1.23
Enhancement of worth	**Male**	3.48	1.15	3.15	1.25
	Female	3.70	1.13	3.60	1.17
	Total	3.57	1.14	3.35	1.23
	Male	3.00	1.30	2.87	1.27

Conflict (Reverse coded)	**Female**	3.12	1.26	2.93	1.22
	Total	3.05	1.28	2.89	1.25
Satisfaction	**Male**	3.22	1.27	2.83	1.24
	Female	3.56	1.23	3.01	1.28
	Total	3.36	1.26	2.90	1.26
Overall	**Male**	3.39	1.19	2.93	1.23
	Female	3.62	1.15	3.27	1.22
	Total	3.49	1.18	3.08	1.24

Differences in parent-child relations between male and female students

For finding the differences in parent-child relations between male and female students and to establish whether these differences are statistically significant or not, the researchers have employed Student's t-test for independent groups.

Table 8: Comparison of purposes of internet usage and the parent-child relationship within phases

Aspects of the parent-child relationship	First phase (2018)			Second phase (2021)		
	Male (N = 229) Mean (SD)	Female (N = 165) Mean (SD)	t-value	Male (N = 212) Mean (SD)	Female (N = 164) Mean (SD)	t-value
Affection	3.32 (1.17)	3.66 (1.11)	2.932[b]	3.05 (1.25)	3.45 (1.20)	3.122[b]
Intimacy	3.48 (1.09)	3.73 (1.07)	2.283[c]	2.75 (1.17)	3.15 (1.20)	3.266[b]
Companionship	3.61 (1.13)	3.81 (1.06)	1.772 (NS)	3.01 (1.19)	3.41 (1.19)	3.179[a]
Guidance	3.64 (1.12)	3.75 (1.06)	0.965 (NS)	2.87 (1.23)	3.36 (1.17)	4.253[a]
Enhancement of worth	3.48 (1.15)	3.70 (1.13)	1.826 (NS)	3.15 (1.25)	3.60 (1.17)	3.540[a]
Conflict (Reverse-coded)	3.00 (1.30)	3.12 (1.26)	0.925 (NS)	2.87 (1.27)	2.93 (1.22)	0.454 (NS)
Satisfaction	3.22 (1.27)	3.56 (1.23)	2.659[b]	2.83 (1.24)	3.01 (1.28)	1.381 (NS)
Overall	3.39 (1.19)	3.62 (1.15)	4.958[a]	2.93 (1.23)	3.27 (1.22)	7.011[a]

Notes: [a] significant at .001 level; [b] significant at .01 level; [c] significant at .05 level; NS not significant

From the data provided in table 8 showing the results of these tests, we can comprehend that the differences between the two groups are statistically significant for affection (m_m = 3.32, SD_m = 1.17, m_f = 3.66, SD_f = 1.11), intimacy (m_m = 3.48, SD_m = 1.09, m_f = 3.61, SD_f = 1.13), satisfaction (m_m = 3.22, SD_m = 1.27, m_f = 3.56, SD_f = 1.23) and overall relationship (m_m = 3.39, SD_m = 1.19, m_f = 3.62, SD_f = 1.15) during phase I whereas for affection (m_m = 3.05, SD_m = 1.25, m_f = 3.45, SD_f = 1.20), intimacy (m_m = 2.75, SD_m = 1.17, m_f = 3.15, SD_f = 1.20), companionship (m_m = 3.01, SD_m = 1.19, m_f = 3.41, SD_f = 1.19), guidance (m_m = 2.87, SD_m = 1.23, m_f = 3.36, SD_f = 1.17), enhancement of worth (m_m = 3.15, SD_m = 1.25, m_f = 3.60, SD_f = 1.17), and overall relationship (m_m = 2.93, SD_m = 1.23, m_f = 3.27, SD_f = 1.22) during phase II. It is also significant that all of these differences indicate female students have better relationships with their parents in contrast to male students.

Differences in the parent-child relationship across phases

The Student's t-test was employed to find whether the differences in mean scores regarding the attributes of the parent-child relationship were statistically significant or not. The results of these tests are tabulated as shown in table 9.

Table 9: Comparison of parent-child relationship across phases

Aspects of the parent-child relationship		First phase (2018) ($n_1 = 394$) Mean (SD)	Second phase (2021) ($n_2 = 376$) Mean (SD)	t-value
Affection	Males	3.32 (1.17)	3.05 (1.25)	2.365[c]
	Females	3.66 (1.11)	3.45 (1.20)	1.693 (NS)
	Total	3.46 (1.15)	3.22 (1.24)	2.797[b]
Intimacy	Males	3.48 (1.09)	2.75 (1.17)	6.767[a]
	Females	3.73 (1.07)	3.15 (1.20)	4.629[a]
	Total	3.59 (1.09)	2.93 (1.20)	7.984[a]
Companionship	Males	3.61 (1.13)	3.01 (1.19)	5.355[a]
	Females	3.81 (1.06)	3.41 (1.19)	3.191[b]
	Total	3.69 (1.10)	3.19 (1.21)	6.053[a]
Guidance	Males	3.64 (1.12)	2.87 (1.23)	6.851[a]
	Females	3.75 (1.06)	3.36 (1.17)	2.706[b]
	Total	3.68 (1.10)	3.09 (1.23)	6.847[a]
Enhancement of worth	Males	3.48 (1.15)	3.15 (1.25)	2.927[b]
	Females	3.70 (1.13)	3.60 (1.17)	0.786 (NS)
	Total	3.57 (1.14)	3.35 (1.23)	2.715[b]
Conflict (Reverse-coded)	Males	3.00 (1.30)	2.87 (1.27)	1.077 (NS)
	Females	3.12 (1.26)	2.93 (1.22)	1.422 (NS)
	Total	3.05 (1.28)	2.89 (1.25)	1.784 (NS)
Satisfaction	Males	3.22 (1.27)	2.83 (1.24)	3.294[b]
	Females	3.56 (1.23)	3.01 (1.28)	3.983[a]
	Total	3.36 (1.26)	2.90 (1.26)	5.025[a]
Overall	Males	3.39 (1.19)	2.93 (1.23)	10.517[a]
	Females	3.62 (1.15)	3.27 (1.22)	6.997[a]
	Total	3.49 (1.18)	3.08 (1.24)	12.313[a]

Notes: [a] significant at .001 level; [b] significant at .01 level; [c] significant at .05 level; NS not significant

The results demonstrate that the difference in affection across the phases of the study among males ($m_I = 3.32$, $SD_I = 1.17$, $m_{II} = 3.05$, $SD_{II} = 1.25$), and all participants ($m_I = 3.46$, $SD_I = 1.15$, $m_{II} = 3.22$, $SD_{II} = 1.24$) are statistically significant whereas the difference among females ($m_I = 3.66$, $SD_I = 1.11$, $m_{II} = 3.45$, $SD_{II} = 1.20$) is not significant. It means that the affection seems to be declined among the males and all participants over time. The differences in mean scores regarding intimacy are decreased across the phases signifying perceived decrease in intimacy between child and parents similarly among males ($m_I = 3.48$, $SD_I = 1.09$, $m_{II} = 2.75$, $SD_{II} = 1.17$), females ($m_I = 3.73$, $SD_I = 1.07$, $m_{II} = 3.15$, $SD_{II} = 1.20$) and all participants ($m_I = 3.59$, $SD_I = 1.09$, $m_{II} = 2.93$, $SD_{II} = 1.20$). Similarly, the differences in mean scores regarding companionship also declined across the phases indicating deterioration in companionship between child and their parents likewise among males ($m_I = 3.61$, $SD_I = 1.13$, $m_{II} = 3.01$, $SD_{II} = 1.19$), females ($m_I = 3.81$, $SD_I = 1.06$, $m_{II} = 3.41$, $SD_{II} = 1.19$), and all respondents ($m_I = 3.69$, $SD_I = 1.10$, $m_{II} = 3.19$, $SD_{II} = 1.21$). When it comes to guidance a similar trend is established indicating the withering of guidance in parent-child relationship across phases in parallel among the males ($m_I = 3.64$, $SD_I = 1.12$, $m_{II} = 2.87$, $SD_{II} = 1.23$), females ($m_I = 3.75$, $SD_I = 1.06$, $m_{II} = 3.36$, $SD_{II} = 1.17$) and all participants ($m_I = 3.68$, $SD_I = 1.10$, $m_{II} = 3.09$, $SD_{II} = 1.23$).

However, in terms of enhancement of worth, the mean scores reveal that there is a decrease in worth among male ($m_I = 3.48$, $SD_I = 1.15$, $m_{II} = 3.15$, $SD_{II} = 1.25$) and overall participants ($m_I = 3.57$, $SD_I = 1.14$, $m_{II} = 3.35$, $SD_{II} = 1.23$) while among females ($m_I = 3.70$, $SD_I = 1.13$, $m_{II} = 3.60$, $SD_{II} = 1.17$), no statistically significant difference was observed. The mean scores regarding conflict among the child and parents are not statistically different indicating there is no change in conflict over the period either for males ($m_I = 3.48$, $SD_I = 1.09$, $m_{II} = 2.75$, $SD_{II} = 1.17$), females ($m_I = 3.48$, $SD_I = 1.09$, $m_{II} = 2.75$, $SD_{II} = 1.17$) or all participants ($m_I = 3.48$, $SD_I = 1.09$, $m_{II} = 2.75$, $SD_{II} = 1.17$). The mean scores regarding satisfaction level entails that the satisfaction level among the students has also deceased over time as the mean scores have seen a statistically significant drop in a similar manner among males ($m_I = 3.22$, $SD_I = 1.27$, $m_{II} = 2.83$, $SD_{II} = 1.24$), females ($m_I = 3.56$, $SD_I = 1.26$, $m_{II} = 3.01$, $SD_{II} = 1.28$) and all participants ($m_I = 3.36$, $SD_I = 1.26$, $m_{II} = 2.90$, $SD_{II} = 1.26$) respectively. As we can see the majority of the aspects have seen significant downgrading of parent-child relationship among students across phases, the overall relationship scores also confirms the fact as the mean scores among males ($m_I = 3.39$, $SD_I = 1.19$, $m_{II} = 2.93$, $SD_{II} = 1.23$), females ($m_I = 3.62$, $SD_I = 1.15$, $m_{II} = 3.27$, $SD_{II} = 1.22$) and all participants ($m_I = 3.49$, $SD_I = 1.18$, $m_{II} = 3.08$, $SD_{II} = 1.24$) have all decreased over time.

Correlations between durations of internet use for different purposes among students and different aspects of their relationship with their parents

The correlation between the duration of internet use and their relationships with their parents was calculated for each purpose of internet use and each aspect of parent child-relationship. Since the data regarding both the variables were measured on the ordinal level and there was a significant number of ties along with the unequal number of levels for each variable (as the intensity of internet use was measured on a 6-point scale for each purpose and the 9-point scale for overall internet use, and the 5-point scale for relationship) therefore, Kendall's Tau-c (τ_c) was calculated. The coefficients have been tabulated in Table 9 for the first and second phases of the study, and all the results were found to be significant at $\alpha = .05$ with $p < .05$. From Table 10, it is evident that there is a negative correlation ($\tau_{cI} = 0.539$, $\tau_{cII} = 0.559$) among the dimensions of the two variables. Also, the correlation coefficients were found to be almost similar in both phases indicating the reliability of the tool.

Table 10: Correlations between purposes of internet use and different aspects of the parent-child relationship in phase I (N_1=394) and phase II (N_2=376)

Aspects of the parent-child relationship	Purposes of internet use				
	Curricular educational	Extra-curricular educational	Social	Recreational	Overall
Affection	- 0.227 - 0.281	- 0.313 - 0.293	- 0.394 - 0.421	- 0.789 - 0.776	- 0.473 - 0.503
Intimacy	- 0.203 - 0.178	- 0.324 - 0.359	- 0.219 - 0.264	- 0.643 - 0.617	- 0.438 - 0.458
Companionship	- 0.197 - 0.214	- 0.254 - 0.207	- 0.417 - 0.493	- 0.526 - 0.574	- 0.501 - 0.569
Guidance	- 0.183 - 0.241	- 0.362 - 0.319	- 0.491 - 0.531	- 0.537 - 0.598	- 0.497 - 0.537
Enhancement of worth	- 0.243 - 0.234	- 0.324 - 0.297	- 0.367 - 0.403	- 0.732 - 0.702	- 0.591 - 0.618
Conflict (Reverse-coded)	- 0.217 - 0.234	- 0.298 - 0.276	- 0.642 - 0.694	- 0.771 - 0.736	- 0.653 - 0.672
Satisfaction	- 0.173 - 0.249	- 0.264 - 0.295	- 0.649 - 0.627	- 0.683 - 0.664	- 0.618 - 0.621
Overall	- 0.192 - 0.208	- 0.299 - 0.306	- 0.454 - 0.497	- 0.686 - 0.673	- 0.539 - 0.559

The results signify that strong correlations ($\tau_{cI} = 0.686$, $\tau_{cII} = 0.673$) exist between the recreational use of the internet and the parent-child relationship among the participants. Internet use for social purposes ($\tau_{cI} = 0.454$, $\tau_{cII} = 0.497$) is found to be moderately correlated to the parent-child relationship among them. Whereas the use of internet for extra-curricular educational purposes ($\tau_{cI} = 0.299$, $\tau_{cII} = 0.306$) and curricular educational purposes ($\tau_{cI} = 0.192$, $\tau_{cII} = 0.208$) demonstrate weak correlations with participants' and their parents' relationship. Similarly, the correlations of internet use with conflict ($\tau_{cI} = 0.653$, $\tau_{cII} = 0.672$), satisfaction ($\tau_{cI} = 0.618$, $\tau_{cII} = 0.621$) and enhancement of worth ($\tau_{cI} = 0.591$, $\tau_{cII} = 0.618$) are found to be strong, whereas, that of affection ($\tau_{cI} = 0.473$, $\tau_{cII} = 0.503$), intimacy ($\tau_{cI} = 0.438$, $\tau_{cII} = 0.458$), companionship ($\tau_{cI} = 0.501$, $\tau_{cII} = 0.569$) and guidance ($\tau_{cI} = 0.497$, $\tau_{cII} = 0.537$) are found to be moderate.

DISCUSSION

According to the literature, given that excessive internet use to the point that it interferes with functioning is a key symptom of addiction (Beard & Wolf, 2001; Griffiths, 2005; Kraut et al., 1998; K. Young, 1998a), there is a substantial correlation between the amount of time spent online every day and internet addiction. Excessive

internet usage causes sleeping issues, extreme exhaustion, employment and academic performance problems, bodily issues, relational issues associated with the overuse of computers, and online addiction (K. S. Young, 1999). Excessive internet use, on the other hand, does not result in internet addiction in every person. Overuse of the internet might be an element of risk for developing internet addiction. Thus, overuse of the internet that impairs functioning is a distinguishing criterion for addiction (Savci & Aysan, 2017a). The purpose of using the internet is more crucial than how long you use it. Internet users, both those addicted to it and those who are not, utilize the internet for a variety of reasons (S. Kim & Kim, 2002). Internet addicts browse websites with pornographic content, play computer games, watch movies, listen to music, and chat through the internet; non-addicts utilize the internet for acculturation and communication. As a result, the motives for using the internet help better explain the relationship between the amount of time spent online and internet addiction. As a result, it can be inferred that a child who uses the internet for a longer time is more prone to internet addiction than a child who uses the internet for a shorter time. Furthermore, it can be deduced that a child who uses the internet for recreational purposes is more prone to internet addiction than a child who uses the internet for socializing and communication. According to the current study, male students are more likely than female pupils to develop an internet addiction, and the likelihood of internet addiction increases with time.

Individuals from generations before the internet preferred actual social contexts to cope with bad emotions. Today, however, virtual surroundings are regarded as an alternative coping strategy. In this regard, the internet provides a new socializing option: virtual socialization (Ogel, 2014). As they assist the individual in isolating from issues and conflicts, virtual environments are viewed as safe havens for fleeing from everyday life stress and bad emotions. As a result, the likelihood of the person developing an addiction to the internet or engaging in problematic, pathological, compulsive, or obsessive internet use increases. In this scenario, technology addictions erode social connectivity (Savci & Aysan, 2017b). Negative affection lengthens the time spent on the internet. Negative affection may also lead to internet addiction by raising the total amount of time per day spent online. However, every person who uses the internet cannot be deemed to have negative affection. An internet addict, on the other hand, is anticipated to have negative feelings (Griffiths, 2005; K. Young, 1998a). The diagnosis of internet addiction includes negative affection (Savci & Aysan, 2017a). Following previous research, the current study finds that affection is adversely associated with the length of time spent online. Higher internet usage also corresponds with lowering parental intimacy, as it is impacted by the increased propensity of alienation from social contexts and proximity to virtual environments, which also diminishes companionship and increases conflict between children and their parents.

Teaching children to regulate their emotions, thoughts, and behaviors is one of the parents' most important roles for their kids to develop self-control (Finkenauer et al., 2005). They must also demonstrate that they have considerable value and are unique to them. Adolescence, specifically, complicates both favorable and unfavorable interactions between parents and children (Hafen & Laursen, 2009). Furthermore, it must be noted that a child's future might be adversely impacted by poor family relationship management during a time of abrupt changes in the family system. Nowadays, children may share less information with their parents and expose themselves to greater risk as a consequence of the parental efforts to protect their children or to retain them under charge for any reason (Cetinkaya & Sutku, 2016; Christakis et al., 2011; Hawk et al., 2009; Segatto & Dal Ben, 2013). Individual acts of parents to shield their children from potential harm are becoming increasingly crucial as internet technologies improve. As a result, parents must maintain a balanced approach to their children and avoid putting them in circumstances over which they have no control. Furthermore, achieving such a balance may have a good impact on young people's satisfaction with their relationship with their parents and their education through the use of technology. Additionally, parents must possess the wisdom and competence to nurture their kids, who have been born into the digital age, against the problems of this milieu and advise them on how to respond to it (Cetinkaya, 2019).

Overall internet usage, regardless of the reason, had a detrimental effect on the penchant for using the internet. According to Davis' (2001) 'cognitive-behavioral model of pathological internet use,' an internet usage experience or psychopathology might lead to incorrect cognition, such as a propensity for using the internet. Takahira et al. (2008) presented a causal relationship wherein using the internet promotes one's affinity for online communication, which was following the causal relationship anticipated by this model (2001). However, they found a probable link in the opposite direction: kids who appreciate online over offline interactions make use of the internet for whatever purpose they can. Internet usage among children often rises as a result of their choice of online over offline activities. Due to this vicious cycle, routine internet use may turn pathological, leading to undesirable behaviors like failing classes and avoiding events. However, the use of the internet may not necessarily have a harmful influence on kids' social skills and psychological health. Positive effects have also been demonstrated (McKenna & Bargh, 2000). Internet usage might therefore affect a child's social life in both negative and beneficial ways. As

a result, just forbidding or restricting internet use would not always have positive effects. A better strategy would be to devise ways for mitigating negative consequences while encouraging positive ones.

IMPLICATIONS

This study broadens the corpus of knowledge on internet use. It also verifies and expands upon prior findings. The findings establish a link between internet use and parent-child relationships in the Indian setting. It gives insights and underscores the growing concerns over teenagers' uncontrolled internet use. To preserve a balance between the actual and virtual worlds, teachers, educators, parents, technology developers, and politicians must all play an equal role. The study's findings also indicate the critical need for curricular and pedagogical innovation to reduce internet use.

LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

The purpose of this article is to enhance knowledge of the link between internet use and parent-child relationships. A small number of studies on the subject have been conducted, and they all used nearly distinct dimensions of the variables internationally, however, there is a scarcity of such data in the Indian context. The current study does, however, have certain drawbacks. The proposed questionnaire has demonstrated potential reliability and validity; nevertheless, it has to be further validated by extending its application to different situations. One of the primary limitations of the current study, which may be used to compare internet users to non-internet users, is the lack of a control group. Furthermore, qualitative investigations with a big enough sample size might provide some novel findings. Furthermore, qualitative investigations with a big enough sample size might provide some interesting discoveries. Furthermore, the current study only looked at group differences and correlations; however, future research might look at the moderating and mediating impacts of other characteristics such as group culture and peer pressure. The bidirectional causation between internet use and parent-child relationships may also be investigated. Furthermore, while the current study solely collects data from kids, parents may be added in future studies.

REFERENCES

Amichai-Hamburger, Y., & Ben-Artzi, E. (2003). Loneliness and internet use. *Computers in Human Behavior*, *19*(1), 71–80.

Bakken, I., Wenzel, H., Gotestam, K., Johansson, A., & Oren, A. (2009). Internet addiction among Norwegian adults: a stratified probability sample study. *Scandinavian Jurnal of Psychology*, *50*(2), 121–127. https://doi.org/10.1111/j.1467-9450.2008.00685.x

Bao, Z., Li, D., Zhang, W., Wang, Y., Sun, W., & Zhao, L. (2014). Cumulative ecological risk and adolescents' academic and social competence: The compensatory and moderating effects of sense of responsibility to parents. *Psychological Development and Education*, *30*, 482–495.

Beard, K., & Wolf, E. (2001). Modification in the proposed diagnostic criteria for internet addiction. *Cyber Psychology and Behavior*, *4*(3), 377–383.

Black, D. W., Belsare, G., & Schlosser, S. (1999). Clinical features, psychiatric comorbidity, and health-related quality of life in persons reporting compulsive computer use behavior. *The Journal of Clinical Psychiatry*, *60*(12), 839–844. https://doi.org/https://doi.org/10.4088/jcp.v60n1206

Caplan, S. (2002). Problematic internet use and psychosocial well-being: development of a theory-based cognitive-behavioral measurement instrument. *Computers in Human Behavior*, *18*(5), 553–575.

Carboni, I., Jeffrie, N., Lindsey, D., Shanahan, M., & Sibthorpe, C. (2021). *GSMA Connected Women*. https://www.gsma.com/r/wp-content/uploads/2021/06/The-Mobile-Gender-Gap-Report-2021.pdf

Cetinkaya, L. (2019). The relationship between perceived parental control and internet addiction: A cross-sectional study among adolescents. *Contemporary Educational Technology*, *10*(1), 55–74. https://doi.org/10.30935/cet.512531

Cetinkaya, L., & Sutku, S. S. (2016). Parent's restrictions on their children's use of information technologies and their reasons. *Turkish Online Journal of Qualitative Inquiry*, *7*(1), 18–36. https://doi.org/10.17569/tojqi.58102

Cheng, Y.-C., Yang, T.-A., & Lee, J.-C. (2021). The Relationship between Smartphone Addiction, Parent–Child Relationship, Loneliness and Self-Efficacy among Senior High School Students in Taiwan. *Sustainability*, *13*(16).

Christakis, D. A., Moreno, M. M., Jelenchick, L., Myaing, M. T., & Zhou, C. (2011). Problematic internet usage in US college students: a pilot study. *BMC Medicine*, *9*(77). https://doi.org/10.1186/1741-7015-9-77

Datareportal. (2021). *Digital in India: All the Statistics You Need in 2021*. Global Digital Insights. https://datareportal.com/reports/digital-2021-india

Davis, R. (2001). A cognitive behavioral model of pathological internet use. *Computers in Human Behavior*, *17*(2), 187–195.

De Leo, J. A., & Wulfert, E. (2013). Problematic internet use and other risky behaviors in college students: An

application of problem-behavior theory. *Psychology of Addictive Bahaviors*, *27*(1), 133–141.
Deng, L., Fang, X., & Yan, J. (2013). The relationship between interparental relationship and adolescents' internet addiction. *Chinese Journal of Special Education*, *9*, 71–77.
Finkenauer, C., Engels, R. C. M. E., & Baumeister, R. F. (2005). Parenting behavior and adolescent behavioral emotional problems: the role of self-control. *International Journal of Behavioral Development*, *29*(1), 58–69. https://doi.org/10.1080/01650250444000333
Furman, W., & Buhrmester, D. (1985). Children's perceptions of the personal relations in their social networks. *Developmental Psychology*, *21*, 1016–1024.
Gong, J., Zhou, Y., Wang, Y., Liang, Z., Hao, J., Su, L., Wang, T., Du, X., Zhou, Y., & Wang, Y. (2022). How parental smartphone addiction affects adolescent smartphone addiction: The effect of the parent-child relationship and parental bonding. *Journal of Affective Disorders*, *307*, 271–277. https://doi.org/10.1016/J.JAD.2022.04.014
Griffiths, M. (2000). Does internet and computer "addiction" exist? Some case study evidence. *Cyber Psychology and Behavior*, *3*(2), 211–218.
Griffiths, M. (2005). A "components" model of addiction within a biopsychosocial framework. *Journal of Substance Use*, *10*(4), 191–197. https://doi.org/10.1080/14659890500114359
Hafen, C. A., & Laursen, B. (2009). More problems and less support: Early adolescent adjustment forecasts changes in perceived support from parents. *Journal of Family Psychology*, *23*(2), 193–202. https://doi.org/10.1037/a0015077
Hawk, S. T., Keijsers, L., Hale, W., & Meeus, W. (2009). Mind your own business! Longitudinal relations between perceived privacy invasion and adolescent-parent conflict. *Journal of Family Psychology*, *23*(4), 511–520. https://doi.org/10.1037/a0015426
Huang, X., Zhang, H., Mengchen, L., Jinan, W., Ying, Z., & Ran, T. (2010). Mental health, personality, and parental rearing styles of adolescents with internet addiction disorder. *Cyberpsychology, Behavior, and Social Networking*, *13*(4), 401–406. https://doi.org/10.1089/cyber.2009.0222
Internet usage in India - statistics & facts. (n.d.). Statista. Retrieved January 26, 2022, from https://www.statista.com/topics/2157/internet-usage-in-india/#dossierKeyfigures
Katz, R. (2001). Campus chams tackle heavies. *Times Higher Education Supplement*.
Kim, K., Ryu, E., Chon, M., Yeun, E., Choi, S., Seo, J., & Nam, B. (2006). Internet addiction in Korean adolescents and its relation to depression and suicidal ideation: a questionnaire survey. *International Journal of Nursing Studies*, *43*(2), 185–192. https://doi.org/10.1016/j.ijnurstu.2005.02.005
Kim, S., & Kim, R. (2002). Study of internet addiction: status, causes, and remedies - focusing on the alienation factor. *International Journal of Human Ecology*, *3*(1), 1–19.
Kim, Y. H., Son, H. M., Yong, Y. O., Cho, Y. R., & Lee, N. Y. (2007). Relation between internet game addiction in elementary school students and student's perception of parent-child attachment. *Journal of Korean Academy of Child Health Nursing*, *13*(4), 383–389.
Kirwil, L. (2009). Parental mediation of children's internet use in different European countries. *Journal of Children and Media*, *3*(4), 394–409.
Kong, J., & Lim, J. (2012). The longitudinal influence of parent-child relationships and depression on cyber delinquency in south Korean adolescents: A latent growth curve model. *Children and Youth Services Review*, *34*(5), 908–913.
Kraut, R., Kieslar, S., Boneva, B., Cummings, J., Helgeson, V., & Crawford, A. (2002). Internet paradox revisited. *Journal of Social Issues*, *58*(1), 49–74.
Kraut, R., Lundmark, V., Patterson, M., Kieslar, S., Mukhopadhyay, T., & Scherlis, W. (1998). Internet paradox: a social technology that reduces social involvement and psychological well-being? *American Psychologist*, *53*(9), 1017–1031.
Kwon, J. H., Chung, C. S., & Lee, J. (2011). The effects of escape from self and interpersonal relationship on the pathological use of internet games. *Community Mental Health Journal*, *47*, 113–121.
Laursen, B., Coy, K. C., & Collins, W. A. (1998). Reconsidering changes in parent-child conflict across adolescence: A meta-analysis. *Child Development*, *69*, 817–832.
Leung, L. (2004). Net-generation attributes and seductive properties of the internet as predictors of online activities and internet addiction. *Cyberpsychology and Behavior*, *7*(3), 333–348. https://doi.org/10.1089/1094931041291303
Liu, Q., Fang, X., Zhou, Z., Zhang, J., & Deng, L. (2013). Perceived parent-adolescent relationship, perceived parental online behaviors and pathological internet use among adolescents: Gender-specific differences. *PLoS One*, *8*(9), e75642.
McKenna, K., & Bargh, J. (2000). Plan 9 from cyberspace: the implications of the internet for personality and social psychology. *Personality and Social Psychology Review*, *4*(1), 57–75.
Meade, A. W., & Craig, S. B. (2012). Identifying careless responses in survey data. *Psychological Methods*, *17*(3), 437–455.

Ogel, K. (2014). Internet Bağımlılığı ve Diğer Teknolojik Bağımlılıkla basa cikmak. In *Çocuk ve Ergen Ruh Sağlığı ve Hastalıkları*.

Pritchard, A. L., & Jones, D. R. (1996). Global learning. *Open Learning Australia*.

Psacharopoulos, G. (1988). Education and development: A review. *The World Bank Research Observer*, *3*(1), 99–116. https://doi.org/https://doi.org/10.1093/wbro/3.1.99

Savci, M., & Aysan, F. (2017a). Social-emotional model of internet addiction. *Psychiatry and Clinical Psychopharmacology*, *27*(4), 349–358. https://doi.org/10.1080/24750573.2017.1367552

Savci, M., & Aysan, F. (2017b). Technological addictions and social connectedness: predictor effect of internet addiction, social media addiction, digital game addiction and smartphone addiction on social connectedness. *Dusunen Adam The Journal of Psychiatry and Neurological Sciences*, *30*, 202–216. https://doi.org/10.5350/DAJPN2017300304

Schneider, B. H., Atkinson, L., & Tardif, C. (2001). Child-parent attachment and children's peer relations: A quantitative review. *Developmental Psychology*, *37*(1), 86–100.

Segatto, B., & Dal Ben, A. (2013). The family digital divide: Self-taught adolescents and difficulties in parental control. *Italian Journal of Sociology of Education*, *5*(1), 101–118. https://doi.org/10.14658/pupj-ijse-2013-1-6

Shaw, L. H., & Gant, L. M. (2002). In defense of the internet: the relationship between internet communication and depression, loneliness, self-esteem, and perceived social support. *Cyber Psychology and Behavior*, *5*(2), 57–71.

Shklovski, I., Kiesler, S., & Kraut, R. (2006). The internet and social interaction: a meta-analysis and critique of studies, 1995-2003. In R. Kraut, M. Brynin, & S. Kieslar (Eds.), *Computers, Phones, and the Internet: Domesticating Information Technology* (pp. 251–264). Oxford University Press.

Slater, M., Henry, K., Swaim, R., & Anderson, L. (2003). Violent media content and aggressiveness in adolescents: a downward spiral model. *Communication Research*, *30*(6), 713–736.

Szwedo, D. E., Mikami, A. Y., & Allen, J. P. (2011). Qualities of peer relations on social networking websites: Predictions from negative mother-teen interactions. *Journal of Research on Adolescence*, *21*, 595–607.

Takahira, M., Ando, R., & Sakamoto, A. (2008). Effect of internet use on depression, loneliness, aggression, and preference for internet communication: a panel study with 10- to 12-year old children in Japan. *International Journal of Web Based Communities*, *4*(3), 302–318.

Turow, J., & Nir, L. (2000). "The internet and the family 2000: the view from parents the view from kids." In *The Anneberg Public Policy Center's Report Series. No. 33*. http://www.annenbergpublicpolicycenter.org/04_info_society/family/finalrepor_fam.pdf

Warren, R. (2001). In words and deeds: Parental involvement and mediation of children's television viewing. *Journal of Family Communication*, *1*(4), 211–231.

Whang, L., & Chang, G. (2004). Lifestyles of virtual world residents: Living in the online game "Lineage." *Cyber Psychology and Behavior*, *7*(5), 592–600. https://doi.org/10.1089/cpb.2004.7.592

White, H., McConnell, E., Clipp, E., Bynum, L., Teague, C., Navas, L., Craven, S., & Halbrecht, H. (1999). Surfing the net in later life: a review of the literature and pilot study of computer use and quality of life. *The Journal of Applied Gerontology*, *18*(3), 358–378.

Williams, D., & Skoric, M. (2005). Internet fantasy violence: a test of aggression in an online game. *Communication Monographs*, *72*(2), 217–233.

World Bank. (n.d.). *Individuals using the Internet (% of population)*. Retrieved January 26, 2022, from https://data.worldbank.org/indicator/IT.NET.USER.ZS?view=map

Yen, J. Y., C.F., Y., Chen, C. C., Chen, S. H., & Ko, C. H. (2007). Family factors of internet addiction and substance use experience in Taiwanese adolescents. *Cyber Psychology and Behavior*, *10*(3), 323–329.

Yen, J. Y., Ko, C. H., Yen, C. F., Chen, S. H., Chung, W. L., & Chen, C. C. (2008). Psychiatric symptoms in adolescents with internet addiction: Comparison with substance use. *Psychiatry and Clinical Neurosciences*, *62*, 9–16.

Young, K. (1998a). *Caught in the net: how to recognize the signs of internet addiction and a winning strategy for recovery*. John Wiley and Sons.

Young, K. (1998b). Internet addiction: The emergence of a new clinical disorder. *Cyber Psychology and Behavior*, *1*(3), 237–244. http://www.netaddiction.com/articles/newdisorder.pdf

Young, K. S. (1999). Internet addiction: symptoms, evaluation and treatment. In L. VandeCreek & T. L. Jackson (Eds.), *Innovations in Clinical Practice (Volume 17)* (pp. 19–31). Professional Resource Press.

Zhang, J., Liu, Q., Deng, Y., Fang, X., Liu, Z., & Lan, J. (2011). Parents-adolescents relations and adolescent's internet addiction: The mediation effect of loneliness. *Psychological Development and Education*, *6*, 641–647.

Zhu, J., Zhang, W., Yu, C., & Bao, Z. (2015). Early adolescent internet game addiction in context: How parents, school, and peers impact youth. *Computers in Human Behavior*, *50*, 159–168.

