

Prevalence and Family Dynamics of Internet Addiction Among Pre-Teens, Teenagers, and Adults in Bangladesh

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ABSTRACT

Internet addiction in Bangladesh has become a pervasive effect, and the government is concerned about its impacts on families. The present study will investigate internet addiction among pre-teenagers, teenagers, and adults in Bangladesh and associated family dynamics. The objective of the present research study has been to examine the prevalence of internet addiction among pre-teens, teenagers, and adults in Bangladesh. Such analyses will be focused on age-specific differences in the prevalence and characteristics of internet addiction. Next, the study will explore the relationship between internet addiction and the quality of family communication and closeness. Finally, this paper will attempt to discuss possible gender differences in internet addiction for a comprehensive understanding of the phenomenon. This will be a cross-sectional study, using data through survey-based methods from 956 participants in three Bangladeshi administrative divisions. For this purpose, a multi-stage cluster sampling technique will be utilized to ensure representative samples are achieved. The self-administered questionnaires will cover the pattern of internet use, symptoms of internet addiction, and family dynamics. The study shall add to the growing understanding of the prevalence and influence of internet addiction on family relations in Bangladesh. This will detail the differences in age and gender to inform strategies for healthy internet use and family bonding.

Keywords

Internet addiction, pre-teens and teenagers, adults, family dynamics, Bangladesh, internet use patterns, family communication.

1. INTRODUCTION

It is no longer possible to deny that the internet at present forms part of everyday life and has fully revolutionized communication, and information access, among other forms of entertainment for people all over the world. During the last decade, internet usage in Bangladesh developed a steep growth pattern, largely within its younger population. While this new digital landscape offers a huge number of benefits, the question of excessive internet use and potential addiction is at the forefront. [1]. This research in essence is supposed to deal with the study of internet addiction in Bangladesh concerning prevalence among different age groups: preteens, teenagers, and adults, including family dynamics. The digital environment for families in Bangladesh is peculiarly challenging at this time in history[6]. While the Internet can connect families, foster learning, and offer entertainment, it can also become a source of isolation and conflict within the household. Pre-teens, teens, and adults use the internet differently, and their vulnerability to addiction does vary across these groups. This can affect family communication patterns that may impact family closeness and dynamics.

This research delves into these complexities by addressing the following key questions:

1. **Prevalence:** To what extent is internet addiction present among pre-teens, teenagers, and adults in Bangladesh?
2. **Age Differences:** Do levels of internet addiction vary significantly across these age groups?
3. **Family Dynamics:** How does internet addiction, if present, impact communication and relationships within Bangladeshi families?
4. **Gender Differences:** Are there potential variations in internet addiction prevalence or its impact on family dynamics based on gender?

Investigating these questions in a wider age range than earlier studies will provide more detailed insights into generational differences in online use habits and possible addiction levels among the people of Bangladesh. Analysis by gender provides a full picture of the phenomenon.

Results from this study may be useful in several ways to several stakeholders. Parents and teachers may learn from the findings about the potential internet-related risks and formulate strategies to encourage healthy internet habits among family members [6]. Policymakers can use the findings in designing programs that pursue responsible utilization of the internet in the strengthening of family bonds in the digital era. This introduction sets the platform for your research on the growth of internet usage in Bangladesh, and possible addiction, focusing on age groups, and family dynamics. It should also include a statement on research questions and how the findings will be useful to all parties concerned.

2. PREVIOUS WORK

	Purpose of the work	Major findings
[1]	Therefore, this paper intends to estimate the extent of internet addiction among young adults in Bangladesh and explores the associated factors.	The major findings of the article are that 27.1% of young adults in Bangladesh were addicted to the Internet. More than 3 hours a day spent on the internet, living away from family, and having a detached family relationship correlated with internet

		addiction. Smokers were also more likely to be addicted to the internet.
[2]	The present study has focused on mobile phone usage among rural Bangladeshi high school students. The present study has some possible physical problems such as headaches, stress, and sleep disturbances associated with phone use. They have studied the number of students using phones, brand preferences, and type of activities covered by using phone-for instance internet games, and social media-and since when the students are using the phones.	More than 60% of rural Bangladeshi high school students owned a mobile phone; the use of which was, for some, related to headaches, neck pain, sleep problems, and stress. Most parents monitored phone use, but this study would suggest that more stringent controls may be required to help mitigate these potential negative impacts.
[3]	This study investigates the link between internet addiction and sleep quality in Bangladeshi medical students. It goes beyond this primary objective by also exploring social and behavioral factors like living arrangements, habits, and physical activity that might influence sleep quality in this population. This broader approach aims to provide a more complete picture of sleep quality among medical students.	This present research has concluded that an alarming prevalence of poor sleep, nearly 70%, was recorded among Bangladeshi medical students. That could be further debated because internet addiction was established to be a potential contributor, whereby the subjects with moderate and serious addictive stages are more vulnerable to experiencing poor sleep. However, other significant factors identified in the research including living arrangements, smoking habits, bedtime hygiene (brushing teeth), and physical activity revealed a complex interplay of factors affecting sleep quality in this population.
[4]	The purpose of this work is to explore the prevalence of	Graduate students have unique risk factors for PIU because they have

	problematic internet use (PIU) and its association with psychological distress among graduate students in Bangladesh. The authors also examine socio-demographic and behavioral factors that correlate with PIU. They argue that PIU is a serious issue and that more research is needed to understand it.	easy access to the Internet, freedom of choice concerning online activities, and also a wish to meet developmental needs through the Internet, such as identity/career exploration. All these factors put together make them a particularly susceptible population to PIU.
[5]	This research aims to examine problematic internet use (PIU) among Bangladeshi youth and adults during the COVID-19 pandemic. The researchers are particularly interested in understanding how factors like demographics, lifestyles, and online activities are associated with PIU. They want to see if people who use the internet more for certain things, like gaming or social media, are more likely to experience problematic internet use.	A Bangladeshi study identified several factors linked to problematic internet use (PIU) among youth and adults during COVID-19. They were more vulnerable to younger adults with higher education (18-25 years). Among lifestyle factors, reduced physical activity, neglect of housekeeping work, and an increase in screen time due to browsing contributed. The types of online activities also played a role; these included video gaming, social media, and recreational viewing, such as movies or TV. Curiously, while previous studies in Bangladesh have found PIU related to male gender, lower socio-economic status, smoking, and poor academic performance, this study found no significant association with these factors.
[6]	This research will examine how the use of Facebook by teenagers in Bangladesh influences family relationships. While teenagers increasingly use social networking sites to	The reason is the destructive effect on the relationship between teenagers and their parents due to the use of Facebook. Teenagers, especially the older school-going ones in the

	<p>communicate information with friends and peers, they are seemingly less open to their parents, which causes a communication gap. The paper will analyze the behavior of teenagers on Facebook through questionnaires, the Apriori algorithm, and the opinions of their parents or teachers. The research focused on the usage of Facebook in Bangladesh in comparison with other countries to understand the social and relational effects of the same on teenagers and family bonds.</p>	<p>English medium, were cocky towards their parents and sought more support from friends on Facebook. The excessive use of Facebook added to negative comments directed at parents created a sense of detachment within the family system. They felt that parents were getting disconnected from their children, and this might influence the wards in their studies and behavior. This therefore suggests that a balance in the use of social media is needed as well as improved communication between teenagers and parents.</p>
[7]	<p>The present study contributes to two aspects: the prevalence and school-level factors associated with internet addiction. First, the establishment of prevalence identifies the scope of the problem in this population and will, therefore, enable proper targeting of interventions and resource allocation. Second, the identification of school-level factors that are associated with addiction transcends mere problem documentation into an explanation; it opens ways into the "why" by exploring influences stemming from the school environment and allows the elaboration of effective preventive measures and intervention strategies fitted to schools.</p>	<p>A study conducted in Bangladesh also looked at internet addiction among adolescents. It showed that more than 64% of the students surveyed were at a moderate stage of addiction, while 2.5% were severe addicts. Surprisingly enough, according to the study, male students, students with a feeling of loneliness, students who did not engage in outdoor games, and students studying Bengali at a medium level were more likely to be internet addicts.</p>

[8]	<p>The purpose of this work was to investigate adolescent problematic internet use (PIU) and its associated socio-demographics, internet use behaviors, and parental mediation role among Bangladeshi high school students.</p>	<p>This study on PIU among adolescents in Bangladesh reported that one in four adolescents had problematic internet use. Lower achievement, less education of parents, and working mothers, and high frequency and duration of internet use were some of the factors related to PIU. While highly involved parents were found to be related to PIU, certain parental control methods, such as restrictions or monitoring, were less influential</p>
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Available studies in Bangladesh have information on internet utilization and its consequences among young people, but none on family dynamics. For example, studies like the one on "Mobile Phone Use among Rural High School Students (10-15 Years) in Understanding the Physical and Psychological Health Impacts" do not discuss the aspect of family dynamics at all [2]. For example, internet addiction research among young adults, ages 18-26 years, looked at sleep quality among medical students, narrowing to a specific age bracket and outcome, while failing to study family relationships [3]. While the PIU literature mentions such factors that predict it, like age, education, lifestyle behavior, and various online activities, not all have specifically looked into the social implications for families [4, 5]. Correspondingly, the study on Facebook use and family bond weakening in teenagers points out that technology can impact family interaction and closeness; however, this research is restricted by age group and platform, so generalization is limited [2]. Another paper investigated internet addiction within the 19-35 age group, describing this phenomenon without investigating its association with the relations within the family circle in general [5]. Further, a single study on PIU during the pandemic among Bangladeshi aged between 18-50 years alone discussed its relationship with lifestyle factors but not family dynamics [5]. Lastly, another researched adolescent internet addiction in Bangladesh, represents an advanced understanding of PIU than that of the previous studies [4]. However, the proposed study goes beyond this, as the design will involve socio-demographic characteristics and relations with parents. In the study mentioned above, the question was only about parental mediation being a possible factor of influence. Although such studies bring valuable knowledge, there is still a gap in knowing how internet addiction across a wider age range from preteens to adults influences family dynamics in Bangladesh. Our proposed research would fill this gap by attempting to find deeper associations between internet addiction and family relationships.

3. METHODS

3.1 Study design and tools

Data Collection for Young Adults

Young adults aged 19-35 years and Bangladeshi high school students in Dhaka, Chittagong, and Sylhet were used to determine the level of internet addiction between the periods of January to April 2018, using a validated Bengali version of Young's 20-item Internet Addiction Scale [1]. The questionnaire was piloted; the results showed that it is clear and works well. The participants' behavioral factors, including internet use patterns, device usage, and purpose of use, as well as participants' sociodemographic characteristics, such as age, sex, occupation, living situation, income, and personality, were measured. For young adults, family dynamics questions were also added. Cut-off scores on the addiction scale classified participants into average users and internet addicts, defined as 20-49 and ≥ 50 points, respectively [1].

Data Collection for High School Students

Data collection in high school students through an online survey with purposive sampling; the participants were invited by the researcher for the study. This support and clarification regarding the study were done through video calls or phone calls. Also, it was ensured that all participants knew what was included in the survey. Electronic informed consent including procedures and eligibility criteria of the study was obtained from all students before the survey. Inclusion criteria involved participants of Bangladeshi origin and currently residing within Bangladesh. Participation was voluntary and with no remuneration. Researchers also excluded those participants who had any form of history of physical or mental illness as well as substance addiction. Both studies were carried out ethically and with prior informed consent from all participants [3].

3.2 Sample size

A single population proportion formula derived the appropriate sample size. Previous studies in different places had varied estimates of the prevalence of internet addiction from 18% approximately [10,11]. Using this estimate and assuming a margin of error of 5%, we came up with a minimum sample size of 227. Since our estimation could face some clustering or other design effects that could affect the precision of our estimate, the sample size was inflated to a final sample size of 956.

3.3 Sampling and data collection

Two separate studies were conducted to investigate internet addiction among pre-teens, teenagers, and young adults people in Bangladesh.

The first study involved a multistage, clustered sampling plan where they enlisted a total of 454 young adult internet users, with ages ranging from 19-35 years in three administrative divisions of Bangladesh. One district was randomly selected in each division from 28. Two subdistricts were randomly selected in each district. The participants completed a self-administered two-part questionnaire that measured sociodemographic information and internet addiction with the use of Young's 20-item test.

A cross-sectional online design was used in the second study, targeting Bangladeshi high school students aged 10-16 years.

The sample consisted of 502 pre-teens and teenagers who answered the online survey between September 1, 2021, and October 16, 2021, through Google Forms. After briefing on the purpose of the study, eligibility criteria, procedures, and electronic informed consent, these participants were asked to answer a self-administered questionnaire on the degree of internet addiction, status of mental health, and sociodemographic background.

3.4 Statistical analysis

Young Adults: The data were reviewed for completeness and consistency. Data management and statistical analysis were performed using IBM SPSS, version 23. Descriptive statistics are presented as frequencies and proportions. The Chi-square tests of significance were conducted to assess the level of association between independent variables and the outcome variable. Those variables found to be significantly associated in chi-square analyses were further subjected to multiple logistic regression analyses in order to establish the strength of associations. A significance level of less than 0.05 was considered statistically significant.

School-Going Adolescents: Data processing and analysis utilized Microsoft Excel 2016 and IBM SPSS (version 25.0). Respondent characteristics were analyzed with descriptive statistics. The Chi-square test evaluated potential variations in respondents' internet addiction and loneliness status (yes/no) based on other variables. Binary logistic regression analysis with a 95% confidence interval was employed to investigate the relationships between risk factors and psychometric measures (e.g., internet addiction and loneliness). Statistical significance was determined at $p \leq 0.05$.

3.5 Ethics approval and consent to participate

The study had ethics guidelines throughout. A research protocol for young adults aged 19-35 years was approved by the Ethics Review Committee of North South University, reference number: 0013/2018. All participants were informed about the purpose and nature of the study, and only those who gave written consent were enrolled in this study.

In addition, for the data gathered from school-attending students, the research protocol has been cleared by the Research Ethics Committee, University of Asia Pacific, Dhaka, Bangladesh. The study has been performed in compliance with the principles stated in the Declaration of Helsinki. Informed electronic consent has been received from all participants prior to their participation.

4. RESULTS

A total of 956 participants were categorized into three age groups: pre-teens (10-13 years old) (Figure 1), teenagers (14-16 years old) (Figure. 2), and young adults (19-35 years old) (Figure. 3). Among pre-teens ($n=71$), 60 (85.71%) were identified as internet addicts (Figure. 1). Among the teenagers, also a high level of internet addiction was recorded that is 384 out of 431, accounting for 89.33% showing addictive behaviors. Figure 2 Young adult's habits were different; the same figure of addiction, in this case, included only 27.03% of the subjects Figure 3. The tendencies of internet addiction have pointed to a disturbing trend in pre-teens and teenagers

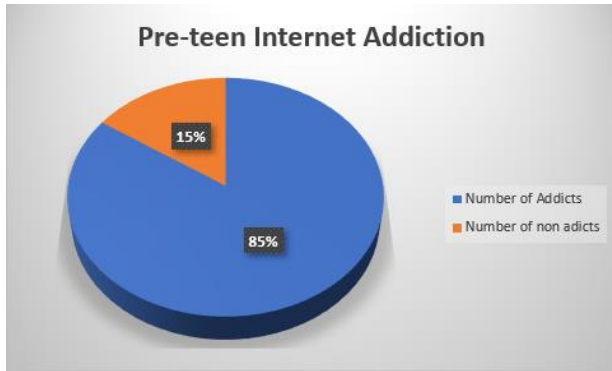


Fig 1: Pre-teen Internet Addiction

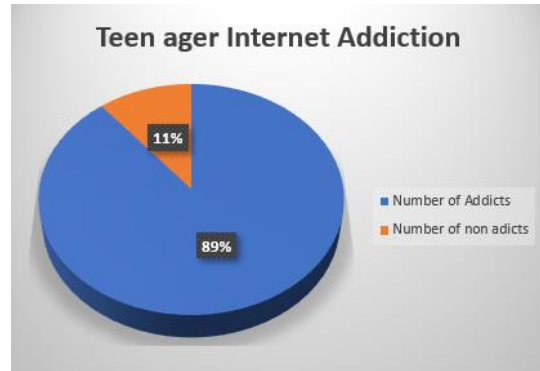


Fig 2: Teenager Internet Addiction

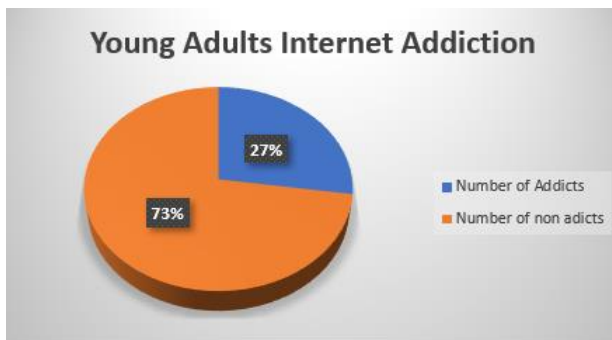


Fig 3: Young Adults Internet Addiction

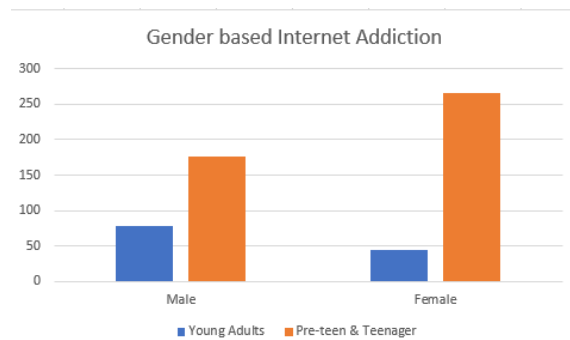


Fig 4: Gender based Internet Addiction

Analyzing internet addiction across genders and age groups, Figure. 4 reflects a pattern congruent with past literature. In this regard, both male and female pre-teens and teenagers had higher rates of addiction as compared to young adults. Also, the trend may also suggest a greater addictiveness of the internet among pre-teen and teenage females (n=266) than males in these age groups.

Table 1[9] Family relationship detachment and internet overuse

Variables with categories	Total(n=908)	Percent
Family relationship detachment		
No	420	92.5%
Yes	34	7.5%
Overuse of the Internet among family members		
No	321	70.7%
Yes	133	29.3%

Associations between Family Dynamics and internet use of Young Adults As can be seen from Table 1, there is an apparent association between family relationship detachment and internet overuse. Most respondents reported no family detachment and no internet overuse within their families, at 92.5% and 70.7%, respectively. On the other hand, a considerably higher percentage reported internet overuse at 29.3% compared with those who reported experiencing detachment at 7.5%. Considering that a big majority of participants reported no internet overuse, meaning healthy internet habits within most families, it would be reasonable to consider that a positive family dynamic might act as a protective factor against internet overuse.

Table 2 [9] Prevalence of internet addiction in families and individuals

Living status	Total(n=502)	Percent	Internet addiction	Percent
With family	391	78%	338	86.45%
Without family	111	22%	105	94.6%

Based on Table 2, pre-teens and teenagers are analyzed by their living situation in relation to internet addiction; indeed, a high prevalence in all kinds of families living arrangements was noted. Most of them lived with families, 78% (n=391), with 86.45% (n=338) showing addiction. Conversely, a higher

percentage of those who are not living with families showed addiction at 94.6% (n=105). It would also imply that internet addiction is not solely determined by the dynamics within one's family. On the contrary, one could assume that growing internet addiction contributes to worsening relations with one's family and relatives. Excessive preoccupation with online activities could result in withdrawal from communication with family members inside the same house; this can, in turn, lead to clashes and alienation.

Table 3[1] Prevalence of internet addiction in place of residence

Place of residence	Total(n=454)	Percent
Rural	44	9.7%
Semi-urban	74	16.3%
Urban	336	74%

As represented in Table 3, the distribution is biased toward urban areas, comprising a high percentage of 74%. The percentage representation of young adults living in rural and semi-urban areas stands at 9.7% and 16.3%, respectively. While this distribution aids in the capturing of useful insight pertaining to internet addiction among urban young adults, this needs to be regarded as a limitation. The nature of the sample used in this study is not balanced across all the types of housing, which affects the generalizability of the findings. Such results cannot reflect the experiences and challenges that young adults in rural or semi-urban areas face. Other studies with geographically diverse samples are also needed to understand Internet addiction in different living environments.

Table 4[9] Prevalence of Internet addiction in the residence area

Residence area	Total(n=502)	Percent	Internet addiction	Percent
Urban	464	92%	411	88.6%
Rural	38	8%	32	84.21%

Table 4 shows that the sample of pre-teen and teenagers in this study is heavily biased toward urban regions, as an overwhelming portion of them, 92%, come from there. So, this could become a very valid Urban bias. Although the geographical setting was different, an alarmingly high percentage of respondents became victims of Internet addiction. Interestingly, 88.6% of urban pre-teens and teenagers and 84.2% of their rural counterparts suffered from Internet addiction. Although this observation could have suggested that internet addiction might be a pervasive problem regardless of the residence type, limitations should be considered. Since only a small sample size was considered from the rural population, accounting for just 8% of the respondents, it would not be appropriate to draw any conclusion on the prevalence rate of internet addiction from rural areas.

In both Table 3 and Table 4 analyses, the distribution of participants in this study leans heavily toward an urban bias. It can be said that an overwhelming portion of the youths who are young adults and pre-teens/teenagers live in urban settings; this is in sharp contrast to the contribution from the rural and semi-urban representations. Though this distribution gives valuable insights into internet addiction among urban young people, this should therefore be a limitation. The lack of representation in all types of residences calls for concern on generalizability.

Table 5[9] Prevalence of Internet Addiction in internet use pattern

Internet use pattern	Total (n=502)	Percent	Internet addiction	Percent
Desktop	49	9.76%	45	91.84%
Laptop	60	11.95%	54	90%
Smartphone	346	68.93%	298	86.13%
TV	47	9.36%	46	97.87%

From Table 5, the internet access devices of pre-teen and teen respondents in this study are highly inclined toward using smartphones, at 68.93%. In a comparative sense, this dominance is even stronger among those with internet addiction, with 86.13% percent. Desktops and laptops are far down, indicating that a generational shift has taken place toward mobile phones for internet access. Interestingly, with respect to using the internet via TV, this is still quite rare, being about 9%; however, more of those with addiction use TV than the general population does. This pattern deserves further research in order to understand if specific content types or viewing habits on TV might contribute to internet addiction in pre-teens and teenagers.

Table 6[1] Prevalence of Internet addiction in device used

Device used to use the internet	Total(n=454)	Percent
Computer	48	10.6%
Mobile phone	302	66.5%
Both	104	22.9%

As shown in Table 6, device use by young adults is dominated using mobile phones, at 66.5%, in comparison with computers at 10.6%. Interestingly, 22.9% of respondents use both devices, which underlines that the need for internet access can vary depending on the situation or task. The trend in this pattern suggests that the mobile internet is gaining more importance for young adults and that computers remain relevant for more specific tasks being undertaken online. Examining devices used for access across age groups, it is possible to notice a certain prevalence of smartphones and a

potential generational shift. Indeed, pre-teens and teenagers predominantly use mobile access at 68.93%, while young adults are more inclined towards computers-10.6% at 66.5%. Surprisingly enough, TV does not play a greater role in accessing the internet across both groups since its usage turns out quite rare, around 9%. This pattern deserves more detailed analysis, while the fact that young adults have 22.9% dual users suggests that their internet needs may be more context-dependent. These results emphasize the growing relevance of mobile internet for all age groups, while also recognizing that computers continue to remain relevant at least for young adults to access other online activities.

Table 7[1] Prevalence of internet addiction in most use apps or website

Most use apps/website	Total(n=454)	Percent
Social	247	54.4
Mailing	89	19.6
Online video	68	15
Internet gaming	34	7.5
Other	16	3.5

Table 7 presents the distribution of the most used applications and websites in this study by young adults. Social media platforms are the most prominent applications, with more than half of the participants having it as their main use or 54.4%. It is followed by e-mail services at 19.6% and online video platforms at 15.0%. This gives good insight into the online behavior of young adults. However, a consideration of limitation is that the "Other" category, constituting 3.5%, might include further applications and websites not explicitly noted in this category.

Table 8[9] Prevalence of Internet addiction in our daily activities

Internet use	Total (n=502)	Percent	Internet addiction (n=443)	Percent
Education	76	15.14%	64	84.21%
Games	164	32.67%	157	95.73%
Movie	25	4.98%	21	84.00%
Social media	204	40.64%	188	92.16%
Others	33	6.57%	13	39.39%

In Table 8, it is observed that online gaming in the study comprised 32.67%, followed by social media comprising 40.64%, and educational purposes comprising 15.14% of the population. Of most of the activities, the percentage of internet

addiction was abnormally higher, ranging from 84% movies to as high as 95.7% games. The "Others," representing unspecified usages of the internet, were associated with internet addiction at a rate of only 39.39%. Table 6 also summarizes the prevalence of preteen and teen use of Internet activities and their associated risks of possible addiction. Further analysis of the "Others" may still reveal other online behaviors with distinctive addictive profiles.

Data from Table 7, representing young adults, and Table 8, representing the pre-teen/teenagers group, provide some interesting insights into the pattern of internet use and its possible addiction risks. While the young adults in Table 7 above were predominantly into social media at 54.4%, in Table 8, pre-teens and teenagers were distributed rather closely, online gaming leading the pack at 32.67%, with social media coming in close at 40.64%. Already, this points out the possibility that as the years go by and young people grow in age into their teenage years, the focus may be shifting to gaming.

A concerning similarity across both tables is the high prevalence of internet addiction associated with most online activities. The percentage with addiction for both groups varied from a worrying low of 84%, for movies, to a high of 95.7%, for games, in the case of the group identified as pre-teens/teenagers. This points toward a potential vulnerability of young people toward internet addiction, irrespective of the nature of their specific activity.

An interesting deviation is, however, found in the "Others" category: though the category appears in both tables, its relation to internet addiction in pre-teen/teenagers is very low compared to young adults, at 39.39% in Table 8. This may further indicate that young adults are more engaged in a variety of online behaviors that may be addictive and not captured by the pre-defined categories in either table. Further research into the activities that the "Others" category includes, especially among young adults, would be of importance and could give further insight into these alternative online behaviors and their addictive potential.

Overall, these tables indicate the prevalence of internet use among young people and possible risks in selected activities. These tables also indicate that a more detailed understanding of Internet addiction is necessary for different age groups and various usages of the Internet.

5. DISCUSSION

The present study investigated the prevalence of IA among school-going pre-teens, teenagers, and young adults from different locations in Bangladesh. The results of this study reflect a complex interplay between age, residence, and internet use patterns in young people, which has important implications for the understanding of the prevalence and nature of internet addiction.

Our findings revealed a concerningly high overall prevalence of IA: 85% for pre-teens, 89% for teenagers, and 27.1% for young adults[Figure 1, Figure 2, Figure 3]. The young adult rate aligns with a previous Bangladeshi study. Still, it is lower than those reported in some Middle Eastern, European, and Asian countries such as Jordan: 29.9% [12], India: 58.34% [15], China: 43.9% [14], and British 48% [16]. In contrast, it is higher compared to rates obtained in studies among Taiwanese samples at 17.4% [1], and Iran 20% [13]. Males at 31.58% were significantly more susceptible to IA than females at 21.74% [1] as reiterated by trends obtained in other studies [1]. This may

be because males are more fascinated by internet content such as pornography, and game browsing.

Furthermore, more significant online involvement significantly contributed to IA, thus proving that internet use becomes problematic if not regulated [1]. At the same time, living with family offered more support and therefore became a protective factor against addiction. Our analysis showed that living arrangements are an important factor, with a higher rate of IA among those who experience detachment in family relationships. This is reflected in previous studies suggesting that breakdowns in close relationships result in poor mental health and addictive behaviors [1].

The strong urban bias in the sample population suggests that a number of caution needs to be taken while generalizing findings to larger populations. As much as internet addiction seems to pervade both rural and urban settings, the relatively smaller sample size used for rural participants does not allow conclusive statements to be made with regard to the extent and effect of the phenomenon in these settings. Future research should strive to make balanced geographical representations in order to understand the phenomenon well across different living environments.

The device usage data suggests a shift in the dependence on smartphones to access the internet across all age groups. Dominance among these younger age brackets portends a probable shift in online behavior and communication patterns. While the computer will perhaps still be relevant for certain uses, the portability and accessibility of smartphones have found them a place as the default device for engaging in internet-related activities.

A very high prevalence of internet addiction was alarmingly observed among all types of online activities, especially online gaming across the pre-teen and teen groups. This result again points to the importance of the need for targeted interventions among this population group. Probably due to the heterogeneity of activities defining addictive behaviors, "other" was considered unspecified use of the internet and found to be the least influential category of use on internet addiction.

Whereas the pattern of internet use among young adults was dominated by social media, pre-teens/teenagers were dominated by online gaming. The differing trends in development for internet usage between these two age groups make understanding of age-related differences in internet use important, thus framing prevention and intervention programs.

The present research, therefore, identifies the interaction of a complex nature between the variables: age, residence, device use, and internet addiction in youths. Consequently, the findings suggest that future research will go a long way in explaining those specific online activities and contexts that contribute to addictive behavior. Further research, by addressing certain limitations of the current study, such as urban bias, will be better placed to throw light on internet addiction and its impacts across diverse populations.

6. CONCLUSION

This study, therefore, has depicted that the internet does influence the lives of Bangladeshi youth, especially in terms of shaping social interaction and behaviors. The prevalence of internet addiction, as stated, is quite high among different age groups, with a higher proportion in the urban areas of the country. The dominance of smartphones in net surfing has raised the need for mobile phone-based interventions.

Whereas the study demonstrates such a complex interaction of factors that influence internet addiction, further research into the mechanisms and elaboration of effective prevention and intervention strategies is needed. The bridging of the digital divide and assurance of equal access to mental health institutions go hand in hand with preventing the adverse outcomes of excessive internet use.

By repute, such understanding could enable policymakers, educators, and health professionals to develop focused interventions and work collaboratively to establish a healthy digital environment for the young generation.

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