

Demographical and Contextual Correlates of Internet Addiction for Non-Clinical Adolescents

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Abstract

Internet is a significant revolution of this modern century and becomes an essential part of our daily routine. However, excessive use of internet now becomes an addiction which is called “Internet Addiction”, and in young generation this addiction gives rise to wellbeing deterioration. In the context of aforesaid, this retrospective research made its’ effort to ascertain the demographical and contextual factors associated with internet addiction among school going adolescents. The demographical characteristics includes gender, family type, inhabitation and socio-economic status, whereas the contextual factor covers internet related aspects namely purpose to use internet, device used for internet, preferred time to use internet. The sample was comprised of 182 non-clinical adolescents with internet addict falling within the age range of 15 to 17 years from various schools situated in Rajasthan state through purposive sampling technique. This study adopted correlational research design. All demographical and contextual aspects were obtained by using Internet Information Index (III), which was developed for obtaining information. To ascertain the prevalence of internet addiction, Young’s Internet Addiction Test developed by Kimberly S. Young in 1998 was used. Obtained data was analysed using chi square analysis. Results divulged insignificant association of IA level (High & Low) with demographical factors (Except family type for gender, inhabitation and socio-economic status), whereas, with contextual aspects (except time, with purpose and device) it is found to be significant for school going adolescents. In a nutshell, the present study is significant in terms of addressing contextual factors rather than demographical factors are more prominent to determine level of internet addiction for India adolescents, hence recommended to focus on these factors in preventive measures of internet addiction.

Keywords: Internet Addiction, family type, gender, Inhabitation, Socio-Economic Status, Time, Purpose and Device.

1. Introduction

In new age India, despite of tremendous development in the area of health, economic, scientific, infrastructure and technological sectors, excessive or problematic use of internet is recognized as essential health concern across all age and social groups. Internet users’ population worldwide had increased penetration rate of 58.8%. For India the rate of internet penetration to be 40.9% of the population, which represents 24.3% of internet users in Asia (Internet World Stats, 2019).

Studies such as Aboujaoude et al.,(2006) and Wang et al., (2012) have shed light on internet addiction as a cause of public health concern and related to poor lifestyle patterns among adolescents, respectively. It is important to note that internet addiction is not just limited to gaming and social media use, but can also include other activities such as online shopping and entertainment. As adolescents are still in the process of developing and maturing, excessive internet use can have lasting effects on their overall wellbeing. It is crucial to recognize the potential negative impacts of internet addiction on adolescents and to take steps to promote

healthy internet habits. This can include setting limits on internet use, encouraging offline activities and social interactions, and promoting a healthy lifestyle.

Internet addiction disorder (IAD) is characterized by excessive and problematic internet use that interferes with an individual's daily life. This can lead to neglecting basic needs such as hunger and sleep, experiencing withdrawal symptoms when not using the internet, and displaying negative behaviors such as anger, fatigue, and social isolation. Like other behavioral disorders, internet addiction is marked by a progressive loss of control over one's ability to regulate and limit internet use. This can lead to negative consequences such as poor academic or work performance, strained relationships with friends and family, and even physical health problems.

It is important to note that while internet addiction is not officially recognized as a mental disorder in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), it is still a cause for concern and can have significant impacts on an individual's wellbeing. Treatment for internet addiction can involve therapy, support groups, and developing healthy habits and coping mechanisms.

Common psychosocial and physical symptoms and signs that could indicate the presence of IA for adolescents. Psychosocial symptoms may include spending excessive amounts of time on the screen, lying about computer or video game use, social withdrawal, dropping out of other social groups, and being irritable while offline. These symptoms suggest that the adolescent may be experiencing negative effects on their social life and emotional wellbeing due to excessive internet use. Physical symptoms may include falling asleep in school, carpal tunnel syndrome, insomnia, poor nutrition, poor personal hygiene, headaches, back pain, neck pain, and vision problems such as dry eyes. These symptoms suggest that the adolescent may be experiencing negative effects on their physical health due to excessive internet use.

Additionally, the presence of these symptoms alone does not necessarily indicate the presence of IA, as some of these symptoms can also be caused by other factors. However, if an adolescent is experiencing a combination of these symptoms and they are having a negative impact on their daily life, it may be worth considering whether they have a problematic relationship with the internet and seeking professional help if necessary. Hence, it would be valuable to conduct research studies on internet addiction among school adolescents in the Indian context. There are likely cultural and environmental factors unique to India that may influence the development of problematic internet use among adolescents, and understanding these factors could help inform prevention and treatment efforts.

IA is a complex phenomenon that results from the interplay of multiple factors. Some potential factors that could be explored in the Indian context include:

- Societal and cultural factors: This could include the influence of family and peer expectations, cultural norms around technology use, and societal attitudes towards mental health.
- Personal factors: This could include individual characteristics such as age, gender, personality traits, and mental health status.
- Environmental factors: This could include access to technology, availability of support networks, and exposure to online content.
- Psychological factors: This could include emotional regulation difficulties, coping styles, and self-esteem.
- Behavioral factors: This could include patterns of technology use, including frequency, duration, and content.

By exploring these and other factors, researchers can gain a better understanding of the complex nature of internet addiction among Indian school adolescents, and develop interventions that are tailored to the unique needs of this population.

As regard to multivariate factors of IA, there is vast empirical evidence established the role of demographical and contextual factors for IA (Kumari, et al., 2022; Jain et al., 2020; Yasuma et al., 2019), however most are limited to international platform. Yasuma et al., (2019) reported higher internet users reside in the large cities as compared to the small. In the study of Shoghli et

al., (2018) the internet addiction was observed to be lower in married participants compared to the single participants, however, no significant correlation was seen between gender, age groups, parental earnings, and nationality. For gender, Younes et al., (2016) revealed a significant difference between the IA prevalence rates of males and females. As far income is concerned, Jackson et al., (2007) scrutinized the use of Internet in the low-income households, the results displayed that children belonging to the low-income group use the Internet primarily for the source of entertainment. Alongside demographical factors, Contextual Factors which covers factors like time, device, and purpose has been also explored in area of research. Such as, Domoff et al., (2019) reported strongest evidences regarding the impact of excessive mobile device use and sleep outcomes. According to this review, the device used to easily access the internet is most commonly mobile phones that results in musculoskeletal pain outcomes such as headaches and migraines followed by vision problems. Additionally, it is reported that higher use of mobile phone and laptops results in lower back pain and neck pain. To add Shi, et al., (2019) explored using internet for gaming leads to a negative impact on lives of adolescent and young adults. Likewise, in study of Wada, et. Al. (2019) the effects of using devices to use internet and longer screen time was found to have a negative health outcome in terms of obesity due to the decrease in physical activity. Moreover, significant predictors of Internet addiction were analyzed to be; less sleeping hours, using the Internet in midnight and using internet for entertainment, communication, social networking, texting, and downloading media files purposes (Abdel-Salam et al., 2019; Goel et al., 2013; Ayatollahi, Ayatollahi, Bahrololoomi, 2010; Holtz and Appel, 2010). Additionally, Chak and Leung (2004) evaluated that individual displaying internet addiction use internet frequently both in terms of frequency and duration of time of internet use. In population survey conducted by De Bell, and Chapman, (2006), males were reported to be more likely to use the Internet for gaming, shopping and news purposes. However females are likely to use the Internet for email, and studying purposes.

Since plethora of studies is centered to western countries, scarcity of information regarding factors associated with IA has been realized to be explored for Indian context. Furthermore, looking towards limitation of a single investigation the present study was restricted over demographical and contextual factors of IA. The present study was aimed to analyse the association of demographical and contextual factors with level of IA for non-clinical Indian adolescents. The objectives framed for the present study were-

Objectives

- a) To study the association of internet addiction level with demographical factors for school going adolescents.
- b) To study the association of internet addiction level with contextual factors for school going adolescents with IA.

2. Research Method

- **Sample** -The whole sample comprised of total 182 Internet addict adolescents with age range of age group of 15 to 17 years. Purposive (Non-probability) sampling technique was used to select the sample. Inclusion and exclusion criteria to select the sample was described as below-

Inclusion Criteria:

- ✓ Adolescents with between the age of 15 years to 17 years.
- ✓ Adolescent indulging in various activities on Internet for at least last 6 months.
- ✓ Adolescents who scored 40 or above on the measure of internet addiction (YIAT).
- ✓ Apparently healthy students, who had given verbal informed consent

Exclusion Criteria:

- ✓ Adolescents who scored below 40 on the measure of internet addiction (YIAT).
- ✓ Refused to involve in the study.
- ✓ Students under medication for any psychiatric illness, absent during the study period, incompletely filled questionnaire, lack of interest, and not willing to give verbal informed consent.

Table 1
Sample Profile Based on Young's Internet Addiction Test (YIAT)

<i>YIAT</i>	<i>Groups</i>	<i>Frequency (f)</i>	<i>Percent (%)</i>
<i>IA Level</i>	<i>Low</i>	<i>131</i>	<i>72</i>
	<i>High</i>	<i>51</i>	<i>28</i>
	<i>Total</i>	<i>182</i>	<i>100</i>

Operational definition of the variables under study

The operational definition of all the studied independent and dependent variables are as follow-

- ***Adolescent:*** In the present study students between the age ranges from 15 to 18, studying in different schools situated in Rajasthan state were considered as adolescents.
- ***Internet Addiction:*** Internet addiction (IA) refers to the extent a person indulges in various activities on the internet, which limits their daily normal functioning in different domains. In the present study the level of internet addiction was determined with the help of Young's Internet Addiction Test developed by Young (1998).
- ***Demographical factors:*** Factors associated with internet addict such as gender, Inhabitation, SES, family type etc.
- ***Contextual factors:*** Factors associated with internet usage such as purpose, device and time to use internet were considered as contextual factors.

3. Research Type

The present research is correlation study

Main Outcome Measures

- ***Internet Information Index:*** Internet Information Schedule consists of those items which provide detailed information related to participants personal and demographical information such as (Name, Sex, Age, Area of Residence, School, Class and SES as well as their contextual aspects related to internet usage like purpose of using the internet (Education, entertainment, communication & Others), device (Mbl/Tab & PC/Lap) they use for internet access, preference of Time either day or night of using internet etc.
- ***Young's Internet Addiction Test (YIAT):*** To assess the internet addiction, Young's Internet Addiction Test (YIAT) was used. YIAT is originally developed by Young in 1998. This test comprises of 20 statements based on diagnostic criteria of pathological gambling described in DSM-IV-TR (American Psychiatric Association, 2000). Psychometric properties include internal consistency and concurrent validity of YIAT-20 is analyzed satisfactory (Widyanto, and Mcmurran, 2004). This is a five point scale. For each item, a graded response against six options i.e. Does not apply, Rarely, Occasionally, Frequently, Often and always are score as 0, 1, 2, 3, 4 and 5 respectively. The minimum score is 20 while the maximum is 100; the higher the score, the greater the level of Internet addiction. The level of internet addiction is segregated into 3 categories which is described as following-
 - Average online user*** - A score of 20-39 is labelled as an average online user (characterized as individual who have complete control over his/her usage).
 - Low Internet Addict*** - A score of 40-69 considered as problematic Internet User (signify frequent problems due to Internet usage).

- iii. **Highly internet addict** - A score of 70-100 means highly internet addict (the Internet is causing significant problems).

4. Research Procedure

To constitute the sample, first of all the list of various Sr. Secondary schools was made, and then each was visited in order to take formal permission from respective administrator and to decide the availability of target group as per inclusion criteria. Total 182 adolescents from various Sr. Secondary Schools were selected as a sample through purposive sampling technique. The sample was selected under two stages. At the initial stage, adolescents those using internet since at least last 6 months were administered on Young's Internet Addiction Test (YIAT) and in next stage adolescents those scored 40 and above on YIAS were selected as final sample. Before including any participates in this study they were oriented with the purpose of the present research and then their consent was taken into consideration. The demographic and contextual information of the participants was obtained on internet information index (III). The selected sample was administered on Youth Self-Report TM (2001).

5. Statistical Analysis

Data was analysed under both descriptive (Frequency and percentage by different demographical & contextual characteristics) and inferential statistical analysis (*Chi-square analysis*) with the help of Statistical Package for Social Sciences (SPSS) by using version 22.0 (Windows, 2010). The computed p values were less than 0.05 and 0.01 respective to each analysis was determined to be statistically significant.

Result

The present study dealt with various factors covered under demographical characteristics (gender, family type, socio-economic status), contextual characteristics (Device, Purpose & Time to use internet), for the sample of school adolescents identified with IA (n=182). Data obtained on these studied variables are dealt under both descriptive and inferential analysis by employing SPSS (Version 22). Results obtained under descriptive (Frequency and percentage) and inferential analysis (x2) for analysing the association of level of IA (Low & High) with both demographical and contextual factors are described as following captions-

For Demographical Factors

Frequency and percentage by different demographical (Table 2) characteristics of the selected sample (N=182), is described below-

Table 2
Sample Profile Based on Demographical Characteristics

<i>Demographical Characteristics</i>	<i>Groups</i>	<i>Freq (f)</i>	<i>Perc (%)</i>
<i>Gender</i>	<i>Male</i>	<i>96</i>	<i>53</i>
	<i>Female</i>	<i>86</i>	<i>47</i>
	<i>Total</i>	<i>182</i>	<i>100</i>
<i>Inhabitanace</i>	<i>Rural</i>	<i>47</i>	<i>26</i>
	<i>Urban</i>	<i>135</i>	<i>74</i>
	<i>Total</i>	<i>182</i>	<i>100</i>

SES	Low	37	20
	Middle	87	48
	High	58	32
	Total	182	100
Family Type	Nuclear	122	67
	Joint	60	33
	Total	182	100

Table 2 revealed the sample profile based on their demographical characteristics. The age of sample was found to be between 15 years to 17 years with the mean age being 16.2. The sample includes 96 male and 86 female. For social economic status the frequency was found to be 37, 87 and 58 for low, middle and high SES group respectively, and for family type it was found as 122 & 60 for joint or nuclear respectively. With regards to their Inhabitanace, it is found as 47 and 135 for rural and urban area respectively.

Table 3

Summary of Chi Square Analysis for Association of Demographical Characteristics with IA Level

Demographical Characteristics	Groups	Low IA N=131 f (%)	High IA N=51 f (%)	Total N=182 f (%)	Chi Square χ^2	df	p
Gender	Male	67 (37)	29 (16)	96 (53)	0.481	1	0.49 ^{NS}
	Female	64 (35)	22 (12)	86 (47)			
Inhabitanace	Rural	39 (21)	8 (4)	47 (26)	3.8	1	0.05 ^{NS}
	Urban	92 (51)	43 (24)	135 (74)			
SES	Low	29 (16)	8 (4)	37 (20)	4.22	2	0.12 ^{NS}
	Middle	66 (36)	21 (12)	87 (48)			
	Hgh	36 (20)	22 (12)	58 (32)			
Family Type	Nuclear	82 (45)	40 (22)	122 (67)	4.166	1	0.04*
	Joint	49 (27)	11 (6)	60 (33)			

*p<0.05, **p<0.01, ^{NS}Not Significant

Figure 1
Graphical Representation Showing Association of Demographical Characteristics with IA Level

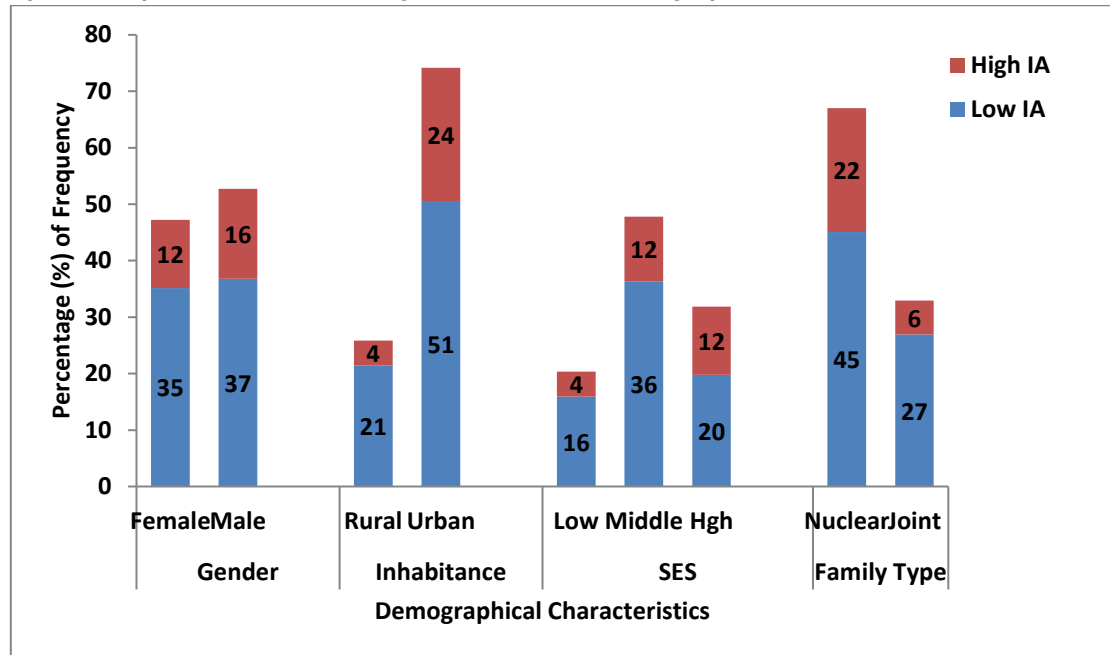


Table 3 presents the Chi-square analysis for association of IA level with demographical factors disclosed the finding to be as significant only for family type ($\chi^2 = 4.16$, $df=1$, $n=182$, $p<.05$), whereas for gender ($\chi^2 = .481$, $df=1$, $n=182$, $p>.05$), socio-economic-status ($\chi^2 = 4.22$, $df=2$, $n=182$, $p>.05$), and Inhabitation ($\chi^2 = 3.8$, $df=1$, $n=182$, $p>.05$), it is evaluated as insignificant for Non-clinical adolescents with IA.

The significant result for family type divulged that to live in nuclear or joint family has an impact on ones level of IA. More precisely there is a likelihood of adolescents to be highly internet addict living in nuclear family rather than those living in joint family. Additionally, the insignificant result for gender, Inhabitation and SES identified that the level of internet addiction is not associated with gender criteria of adolescents, living in rural or urban, and from which social background they belong to. Hence, it can be concluded that these demographical factors except family type does not determine the level of internet addiction among adolescents identified with IA.

To concise, present finding highlighted significant association of IA only with family type, whereas insignificant with gender, Inhabitation and socio-economic status (**Table 2**), association of demographical characteristics with level of IA, has not been comprehensively substantiated.

For Contextual Factors

Frequency and percentage by different contextual (Table 3) characteristics of the selected sample ($N=182$), is described below-

Table 4
Sample Profile Based on Contextual Characteristics

<i>Contextual Characteristic</i>	<i>Groups</i>	<i>Frequency (f)</i>	<i>Percent (%)</i>
<i>Purpose</i>	<i>Aca</i>	48	27
	<i>Ent</i>	46	25

	<i>Com</i>	46	25
	<i>Others</i>	42	23
	<i>Total</i>	182	100
<i>Device</i>	<i>Mbl/Tab</i>	105	58
	<i>PC/Lap</i>	77	42
	<i>Total</i>	182	100
<i>Time</i>	<i>Day</i>	87	48
	<i>Night</i>	95	52
	<i>Total</i>	182	100

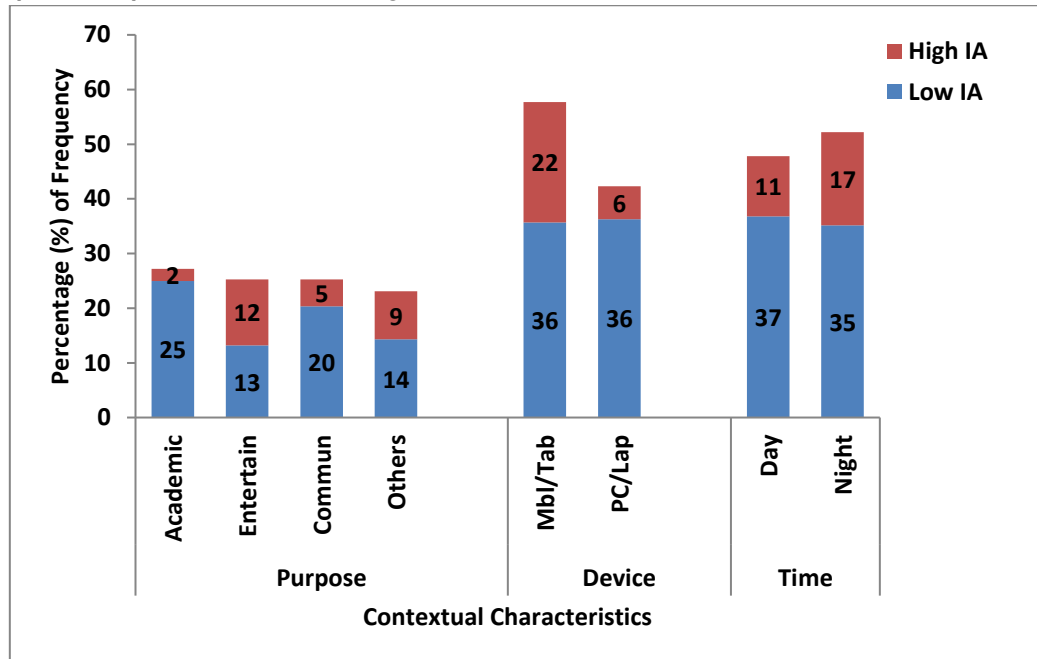
Table 4 presents the contextual characteristics of the present sample of adolescents with IA. On the basis of obtained scores on Young's Internet Addiction Test (YIAT) of Internet addiction, 72% and 28 % reported to be low and high internet addictions, respectively. Accordingly, in their purpose to use internet 27, 25 and 25 % participants reported their preference to use internet for academics, entertainment and communication respectively. Whereas, 23 % have reported their purpose for different usage such as shopping, banking etc. For device the distribution of sample was found to be 58 and 42 % for using mobile phones/tablet and PC/laptops, respectively. In regards to preferred time to use internet, 48 % adolescents reported that they used it in the day time. While 52 % said their dominating time to use internet was during night.

Table 5
Summary of Chi Square Analysis for Association of Contextual Characteristics with IA Level

Contextual Characteristics	Groups	Low IA N=131 f (%)	High IA N=51 f (%)	Total N=182 f (%)	Chi Square x ²	df	p
Purpose	Academic	44 (24)	4 (2)	48 (26)	21.91	3	0.01**
	Entertainment	24 (13)	22 (12)	46 (25)			
	Communication	37 (20)	9 (5)	46 (25)			
	Others	26 (14)	16 (9)	42 (23)			
Device	Mbl/Tab	65 (36)	40 (22)	105 (58)	12.48	1	0.01**
	PC/Lap	66 (36)	11 (6)	77 (42)			
Time	Day	67 (37)	20 (11)	87 (48)	2.09	1	0.148^{NS}
	Night	64 (35)	31 (17)	95 (52)			

*p<0.05, **p<0.01, ^{NS}Not Significant.

Figure 2
Graphical Representation Showing Association of Contextual Characteristics with IA Level



Chi-square analysis (Table 5) found evidence for the association of contextual characteristics with the level of internet addiction, as revealed that level of IA is significantly associated with purpose ($\chi^2=21.91$, $df=3$, $n=182$, $p<.01$) and device ($\chi^2=12.48$, $df=1$, $n=182$, $p<.01$), however time ($\chi^2= 2.09$, $df=1$, $n=182$, $p>.05$) for using internet is verified as insignificant for the sample of school going internet addict adolescents ($n=182$). To be more precise school adolescents with IA, those using internet for entertainment purpose other than academics, communication or other usage or activities including baking, shopping etc., and using device like mobile and tablet rather than PC and laptop are more likely to be high in their level of internet addiction. Moreover, the insignificant result for time revealed that level of internet addiction is not associated with whether ones involvement in internet activities either during day or night time for the school adolescents with IA.

Since except for time, chi-square (χ^2) analysis reflected the significant association of IA with purpose and device to use internet (**Table 5**), the association of contextual characteristics with level of IA, has been comprehensively corroborated in the present study.

6. Discussion

IA implies to a problematic use of internet that causes problems in a person's functioning or interferes with their life and well-being. Problematic use does not apply a number of hours of internet usage. However, the individuals must experience conflict or disturbance in functioning to indicate a clinically significant problem with internet usage. The vast literature substantiated that extreme dependency on internet increases the likelihood of physical problems (Güzel et al., 2018), psychological health risk (Nesi and Prinstein, 2015; Choi et al., 2019), social risks (Salubi et al., 2019), academic deterioration (Patel et al. 2018), and health and competency risk Domoff et al., (2019). Recognizing the adversity of IA for future generation, in the present study effort has been made to analyze the association of demographical and contextual factors with IA for this population.

Association of Demographical Factors with Level of IA

In regard to demographical factors the present study revealed that association of family type is significant as presenting higher frequency of high IA for those who reside in nuclear family.

However other demographical factors are not substantiated as significantly associated with same phenomenon of high IA for the school going adolescents with IA (**Table 3**).

Parallel to the present finding, demographical factors are highlighted in various studies. Such as Kumari, et al., (2022) reported gender as a significant predictor of IA. More precisely the male students were found to be significantly higher as compared to female. Consistently, Jain et al., (2020) disclosed same result.

Further, Shoghli et al., (2018) to the single participants. Nonetheless, non significant correlation was seen between gender, age groups, parental earnings, and nationality. Furthermore, a recent study by Potembska et al., (2019), discovered that individuals living in the rural areas identified as Internet addicts. Nevertheless, inhabitation accompanied by gender, it was found that males living in the rural areas were prone to display the above-mentioned symptoms, whereas females residing in the rural areas displayed severe neurotic disorders. While area wise difference was examined, Yasuma et al., (2019) revealed that the Internet usage scores were significantly higher in the large cities as compared to the small municipalities. Overall these findings in literature with support from present finding cast light on the prominence of demographical factors over internet addiction, which should not be evaded while explaining IA.

Association of Contextual Factors with Level of IA

In relation to association of contextual factors includes purpose, device and time with IA for the school going adolescents, except for time factor, the present finding corroborated evidence for the association of purpose and device are significantly associated with high level of internet addiction (**Table 5**). To elaborate, the association reflects the higher frequency of high IA, for those using internet for entertainment purpose other than academics, communication or other activities such as banking, shopping etc., and using device like mobile and tablet rather than PC and laptop for the present sample of school going adolescents. Apart from these two contextual factors, time is analyzed to be insignificant. Hence it can be concluded that high level of internet addiction is not associated with ones involvement in internet activities either during day or night time for the school adolescents with IA.

Correspondence to the current finding regarding association between contextual factors and IA, in the recent study of Abdel-Salam et al., (2019), in which as compared to other devices such as laptop or tablet, mobile phone was reported as the most preferred device to access the internet by students. Additionally the significant predictors of IA were found to be, less than 6 hours to sleep, midnight is a preferred time for surfing the internet and using it mostly for entertainment purpose. In another study by Goel et al. (2013), it was found that the purpose of using the internet is significantly different for internet addict students as they reported to be indulging more in social networking, chatting, and downloading media files and using the internet during evening and night.

While describing the relationship between purpose and IA the present study revealed that using internet for entertainment purpose is significantly more pronounced among adolescents with high IA.

Regarding academic purpose to use internet, Singh, et al., (2023) identified 20 studies and found many uses of Smartphone for the academic purpose that can help us to understand how to make best use of this technology for academic purpose. Likewise Shi et al., (2019), reported that among adolescent and young adults using internet for gaming (for entertain) is an arising issue, which leads to a negative impact on their lives. Additionally, consistent with the present result for purpose, a recent study by Haroon et al., (2019), on the medical students of Pakistan, reported that students are more likely to visit social media applications followed by other individuals visiting pages related to news information. As far as device is concerned, it was seen that students preferably use mobile phone for internet usage as it is easily accessible compared to laptop, computer and other devices. For time factor, the present finding analyzed no significant association of IA with the preferred time to use internet either during day or night. However incongruous to the present finding in study of Abdel-Salam et al. (2019) and Goel et al., (2013), it was found that most

of the addicts preferred evening and night time to surf the internet. To add in literature, the present study verified the association of contextual factors with IA among school going adolescents involved in internet activities.

Taken together, in the support of available literature the present finding addressed the significant association of IA with contextual factors (Purpose, device and time to use internet) among school going adolescents. The significance of present finding reflects in terms of highlighting some of prominent factors of IA for non-clinical Indian adolescents. However, the present results are limited to only Rajasthan state and school going of adolescents. Hence, recommended more future investigations in similar context to reach out the firm conclusion for same regard.

Conclusion: The present finding highlighted the significant association of IA with demographical and (Purpose, and Device), and contextual factors (Purpose, device and time to use internet) among non-clinical Indian adolescents of Rajasthan.

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