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Assessment of nomophobia, behavioural problems and academic achievement among the students of the selected higher secondary school at Hooghly, West Bengal

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Abstract

A descriptive study was undertaken to assess nomophobia, behavioural problems and academic achievement. 107 students were selected through stratified random sampling. Socio-demographic data were collected semi-structured questionnaire, standardized tools NMP-Q and SDQ used to assess the nomophobia and behavioural problems. Academic achievement assessed by record analysis. The study findings revealed, 69% severe, 26% moderate and 5% mild level of nomophobia, 60% abnormal and 26% borderline behavioural problems, 14% excellent, 36% very good, 40% good and 10% poor result in last board examination. 6% excellent, 30% very good, 28% good and 36% poor result in recent examination. Statistically significant association ($t=5.61, p<0.05$) was found between nomophobia and total difficulties score, nomophobia and last board examination ($t=7.30, p<0.05$), nomophobia and recent examination ($t=4.74, p<0.05$). There were significant association found between nomophobia with age ($0.009 < 0.05$), father's occupation ($0.01 < 0.05$), mother's occupation ($0.04 < 0.05$), monthly family income ($0.04 < 0.05$), duration of smart phone use ($0.03 < 0.05$), hours spent on mobile phone per day ($0.003 < 0.05$) which were calculated by Fisher-Freeman-Halton exact test.

Keywords: Nomophobia, behavioural problems, academic achievement

Introduction

The most important part of our life in present time is a smart phone in our hand. The use of mobile phone is increasing day by day. Nowadays from children to elderly, everyone is pinned to their mobile phone. Due to the availability of vast range of information and entertainment, people's dependency on smartphone has become like an addiction at present time. Mobiles are not merely used nowadays for calling or messaging but also for a variety of things like social media, entertainment, e-commerce and many more. Nowadays everyone is connected to their cell phone all the time. While we may dismiss this as an expected behaviour in the present day, the truth is that it has profound behavioural and social implications. Mobile addiction is a real question and a matter of great concern. It affects our health, behaviour, studies, work and daily life. Smartphones are made for our amenities. If we had been to investigate the high-quality consequences of cellular phones, we might discover that they have the primary ability to connect people from all over the world no matter where they might be. As they are easy to carry and economically accessible to all classes of people, communication has become very much easy. Not only that mobile phones nowadays are a big source of entertainment where anyone can get access to whatever we wish to see with one touch on the screen. For relaxation we can have entertainment sites, gaming platforms and social media platforms. Thus, it is a very easy medium of passing time. Apart from entertainment and communication mobile phones can very easily do our everyday chores like bill payment, ticket booking, cab booking, storing memories.

We have to admit that life without mobile phones is impossible in the present world. But no matter what, we cannot ignore the underline negative effect which comes along with the smartphone. Primarily, the most vital negative effect of smartphone is addiction. Maximum number of adolescents, teenagers and youth have been found to be excessively addicted to their phones. This addiction is to such extent that it results in Nomophobia which is a kind of

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phobia which occurs of being out of cell phone contact. This results in depression, anxiety and other mental disorders. The obsessiveness with the image on social media and virtual interactions has reduced a child's normal daily life interactions. This has resulted in a increased feeling of anxiety, insecurity and loneliness. In students, especially teenager's mobile phones create huge amount of distraction where they constantly surf on the internet and continuously check on notification and updates. This results in a huge setback on the academic performance of a student specially who is in a higher class or is going to give board examination.

Nomophobia refers to the fear or anxiety of being unable to access or communicate through a mobile device due to its absence. The term literally translates to "no mobile phone phobia" and represents the fear of being separated from one's mobile phone. When individuals find themselves in situations where there is no network coverage, insufficient balance or battery, they experience psychological and physical distress. People who exhibit nomophobic behaviours often feel anxious when they forget to bring their mobile phones, when their battery dies, or when they have no network signal. This state of anxiety negatively impacts their ability to concentrate on daily activities. Although nomophobia has not yet been included in the current DSM-V, it has been suggested to be classified as a "specific phobia" based on the definitions provided in the DSM-IV. Nomophobia not only affects individuals mentally but also hampers their social relationships, as they may be physically present but mentally absent. Excessive dependence on mobile phones can also lead to work-related issues if individuals cannot resist the urge to constantly check their phones or answer calls while at work. Uncontrolled use of mobile technology can potentially result in the development of technological addiction, manifesting as nomophobic behavioural patterns. Nomophobia, which can be described as the "fear of being without mobile phone contact" (Royal Mail Group, 2008), remains a topic that has not been thoroughly explored. The relationship between mobile phone usage, students' well-being, and academic performance can be considered complex and intricate ^[1].

Students with severe nomophobia reported weak academic performance because of increased anxiety, stress and depression. As per the general statement given by students regarding the main reason for using smart phones, was, to call family members, using internet for academics and for social networking. However mobile phones which were to be a part of academic and emergency use, resulted in increased dependency on mobiles, which ultimately led to addiction. This became an alarming sign for the public and health care professionals as well as academic institutions.

Nomophobia is a recent mental distress which has been proposed as a specific phobia based on definitions given in DSM-IV. It is a novel type of phobia which is a recent trend in this digital age. It developed as a disorder due to the instantaneous communication and gratification of smartphones which create addictive behaviour ^[2].

The term 'Nomophobia' has been coined by UK Post-Office, UK Based Research Organisation and has commissioned YouGov to study the level of anxiety suffered by mobile phone users. It is an abbreviation for "No-mobile-phone phobia". Nomophobia leads to low self-esteem where individual looks for assurance in the usage of mobile phones. It is a phobia which occurs at a very high

rate among young people who are school and college going. It is followed by people who are in their early youths. It leads to emergence of mental disorders like social anxiety, social phobia and panic disorder ^[1].

Nomophobia was first studied by King, Valenca and Bardi, in which it was described as a disorder of the modern world. In their studies, they made a comprehensive definition: "The feelings of discomfort or anxiety experienced by individuals when they are unable to use their mobile phones or utilize the affordances these devices provide". American Psychiatric Association (APA) evaluated nomophobia as a situational phobia and suggested to list it under a "specific phobia" ^[3].

A study carried out in United Kingdom shows that 58% of men and 47% of women suffer this phobia. In such cases the persons who were surveyed sighted that keeping in touch with friends or family was the main reason that they got anxious when they could not use their mobile phones ^[1].

One study conducted in India in 2019 for the age group of 16-24, it was found that they have been using phones for the last 2 years and daily spent 6 or more hours in using the phone ^[4].

Mobile phones are invented and introduced to make human life easier, but the same mobile phone becomes a source of deterioration of human health. We usually make aware our children from time to time to keep away their mobiles. The addiction is to such extent that children throw tantrums if they are not given access to mobile phones. Moreover, parents who are both working usually give smartphones to keep up the communication with their children and sometimes it becomes a matter of trying to pacify the child. However, this same tantrum appeasing technique to keep the child under control leads to disastrous consequences.

A study was conducted to find out the effect of depression on smartphone addiction in middle eastern countries in the year 2018. This study was conducted through a questionnaire distributed by social media. The results showed an alarming positive correlation between smartphone addiction and depression. The rate of depression was found to be higher among teenagers and young adults.5 One survey conducted in a high school in Beijing in the year 2017, it was found that among 220 students, the mobile phone users among high school students was 17.95%. This percentage of students used mobile phone as a main tool of social communication where the excessively relied on their phones to develop a relationship among themselves. However, this addiction had caused significant social and psychological damage where this percentage of students were victims of loneliness ^[6].

Adolescents belong to the age group where there is scope for growth and development. They have the potential to become a bright future of the nation. Adolescents worldwide are getting mesmerised by information technology and are getting dependent on it. This dependency is leading to addiction. So, there is an acute need to explore the severity of the disorder and effects of it among the adolescents.

Since few studies have been conducted on impact of nomophobia on behavioural problems and academic achievement in a students' life. So, the researcher felt the need to conduct the present study.

Statement of the problem

Assessment of nomophobia, behavioural problems and academic achievement among the students of the selected higher secondary school at Hooghly, West Bengal

Purpose of the study

The purpose of the study is to prepare a video-assisted teaching program on Alzheimer's disease which will improve the knowledge of the adults to identify early signs of Alzheimer's disease, take care of their family members with the disease, prevent further progression of the disease.

Objective of the study

1. To assess the nomophobia among the H.S. students
2. To detect the behavioural problems among the H.S. students
3. To evaluate the academic achievement among the H.S. students
4. To identify the association between nomophobia and behavioural problems among the H.S. students
5. To determine the association between nomophobia and academic achievement among the H.S. students
6. To find out the association between the level of nomophobia among the H.S. students with the selected socio-demographic variables

Materials and Methods

Descriptive research design was conducted applying quantitative research approach, among 107 students of class XI using smart phone for 1 year or more of the selected higher secondary school, Dwarhatta Rajeswari Institution, Hooghly, West Bengal who meet the inclusion & exclusion criteria. Sample were selected via stratified random sampling.

Variables of this study was Socio-demographic variables including Age, gender, educational qualification of father, educational qualification of mother, occupation of father, occupation of mother, monthly family income, type of family, availability of pocket money, duration of smart phone use, hours of spend on mobile phone per day. Research variable was nomophobia, behavioural problems, academic achievement among the H.S. students.

Semi-structured questionnaire on socio-demographic information consisted of 11 item was represented as Tool-I. Tool-II Standardized nomophobia questionnaire (NMP-Q) was developed by Yildirim, & Correia, (2015). This questionnaire consists of 20 items on four areas like inability to retrieve information, giving up convenience, inability to communicate, losing connectedness. This tool is 7-point liker scale (strongly disagree 1 to Strongly agree 7). Minimum possible score 20 absence of nomophobia, 21-59 mild level, 60-99 moderate level, 100-140 severe level nomophobia. Tool-III Standardized strengths and difficulties questionnaire (SDQ) developed by Goodman. This tool consists of 25 items with some positive and negative items. These 25 items are divided between 5 (five) scales. The response options of each questionnaire not true 0, somewhat true 1, certainly true 2. Total difficulties score is generated by summing scores from all the scales except the prosocial scale. So, the minimum score is 0 and maximum score is 40. Another part of tool SDQ impact scale. So total score is (0-60) [Total difficulties score (40) + Prosocial Scale (10) + SDQ impact scale (10)]. Scoring for total difficulties normal 0-15, borderline 16-19, abnormal 20-40, prosocial normal 6-10, borderline 5 abnormal 0-4, Impact score normal 0, borderline 1, abnormal 2-10. Tool IV Record analysis to be done to collect academic

achievement related data. There are two component of record analysis these are Result of last board examination, Result of recent examination. Scoring excellent ($\geq 75\%$), Very good ($\geq 60\% - < 75\%$), Good ($\geq 50\% - < 60\%$), Poor ($\geq 40\% - < 50\%$). Cronbach's alpha method had been applied for reliability of the tools and the reliability coefficients were 0.80 for NMPQ tool and 0.81 for SDQ tool.

Investigator had gone through in depth of research and non-research literature and also sought the opinion of the expert in the related field. The tool was submitted along with objectives of the study. Given the tool to 10 experts for validation on the basis of criteria checklist. Content validity of Socio-demographic tool calculated by using scale content validity index (S-CVI). Tool was modified according to their suggestions and consultation with guide.

Ethical clearance was taken from The Institutional Ethics Committee, IPGME&R Research Oversight Committee, SSKM Hospital, Kolkata – 700020 and Informed consent and assent were taken from participant's parents.

Administrative approval was obtained from The principal (officiating), College of Nursing, Institute of Psychiatry - COE, Kolkata – 700025, The Officer of Special Duty (OSD) Nursing, Department of Health and Family Welfare, Government of West Bengal, Swasthya Bhavan, Sector -V, Salt Lake City, Kolkata- 700091, The respective authorities of selected high schools.

The formal permission was obtained from the head master of the selected school. Final study was conducted at Dwarhatta Rajeswari Institution, Hooghly, Haripal on 19.01.2023 and 20.02.2023. Randomly selected the participant from each strata disproportionately by using lottery method. Self-introduction was given by the investigator and rapport was established with the students on the first day of data collection. Purpose of the study was explained. Informed consent and assent were obtained from the parents before starting the study. At first socio-demographic proforma was administered followed by tool-II and tool-III. Confidentiality and anonymity were maintained. After that collected the result of last examination and recent examination by record analysis of school.

Results and Discussion

Findings related to nomophobia among the H.S. students

Table 1: Frequency and percentage distribution of H.S. students according to their level of nomophobia n=107

Level of nomophobia	Frequency	Percentage
Absence		
20	Nil	-
Mild		
21-59	5	5%
Moderate		
60-99	28	26%
Severe		
100-140	74	69%

Data presented in table 1 shows that no students had absence of nomophobia, 5% students had mild level of nomophobia, 26% students had moderate level of nomophobia and 69% students had severe level of nomophobia.

Section III

Findings related to behavioural problems among the H.S. students.

Table 2: Total difficulties score and domain wise frequency and percentage distribution of the H.S. students in terms of behavioural problems according to grade n=107

Behavioural problems scale			
Domains	Grade	Frequency	Percentage
Total difficulties	Normal (0-15)	15	14%
	Borderline (16-19)	28	26%
	Abnormal (20-40)	64	60%
Emotional problems	Normal (0-5)	37	35%
	Borderline (6)	23	21%
	Abnormal (7-10)	47	44%
Conduct problems	Normal (0-3)	49	46%
	Borderline (4)	29	27%
	Abnormal (5-20)	29	27%
Hyperactivity	Normal (0-5)	30	28%
	Borderline (6)	19	18%
	Abnormal (7-10)	58	54%
Peer problems	Normal (0-3)	33	31%
	Borderline (4-5)	39	36%
	Abnormal (6-10)	35	33%
Prosocial	Normal (6-10)	100	93%
	Borderline (5)	04	04%
	Abnormal (0-4)	03	03%
Impact	Normal (0)	107	100%
	Borderline (1)	Nil	-
	Abnormal (2-10)	Nil	-

*It is a multi-response table; more than one behavioural problem was presented among students.

Data presented in the table 2 shows that; in total difficulties score 14% students had normal and 26% had borderline, 60% had abnormal behavioural problems. Data also present domain wise behavioural problems like 35% students had normal, 21% had borderline and 44% had abnormal emotional problems. 46% students had normal, 27% had borderline, 27% had abnormal conduct problems. 28% students had normal, 18% had borderline, 54% had

abnormal hyperactivity. 31% students had normal, 36% had borderline, 33% had abnormal peer problems. 93% students had normal, 4% had borderline, 3% had abnormal prosocial. 100% students had normal, nobody had borderline and abnormal impact.

Section IV: Findings related to academic achievement among the H.S. students

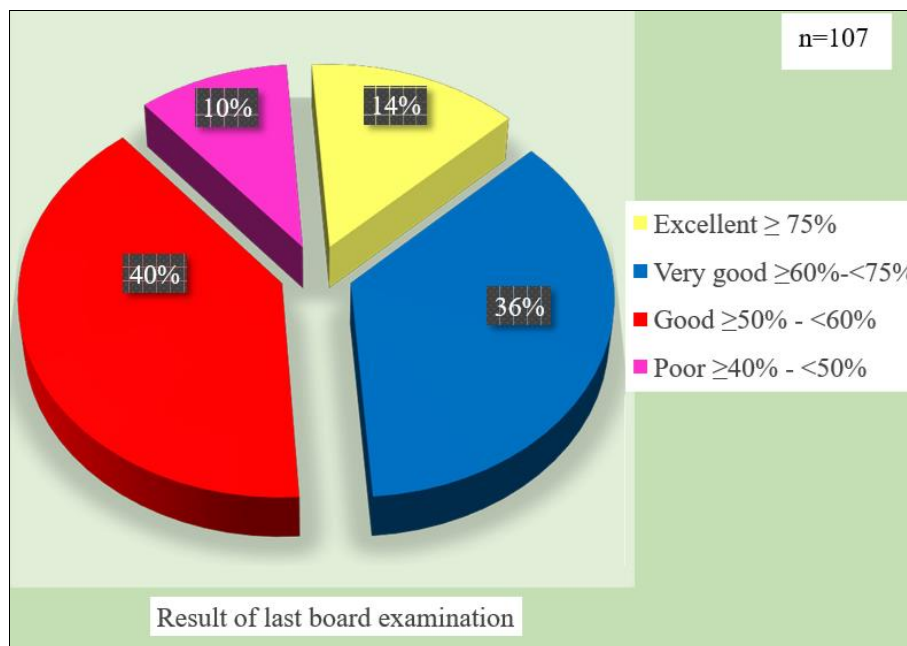


Fig 1: Splitted pie diagram showing percentage distribution of the H.S. students in terms of last board examination according to grade

Data presented in figure 1 shows that, 14% students had excellent (≥75%), 36% students had very good (≥ 60% - < 75%), 40% students had good (≥50% - < 60%) and 10%

students had poor (≥ 40% - < 50%) result in last board examination.

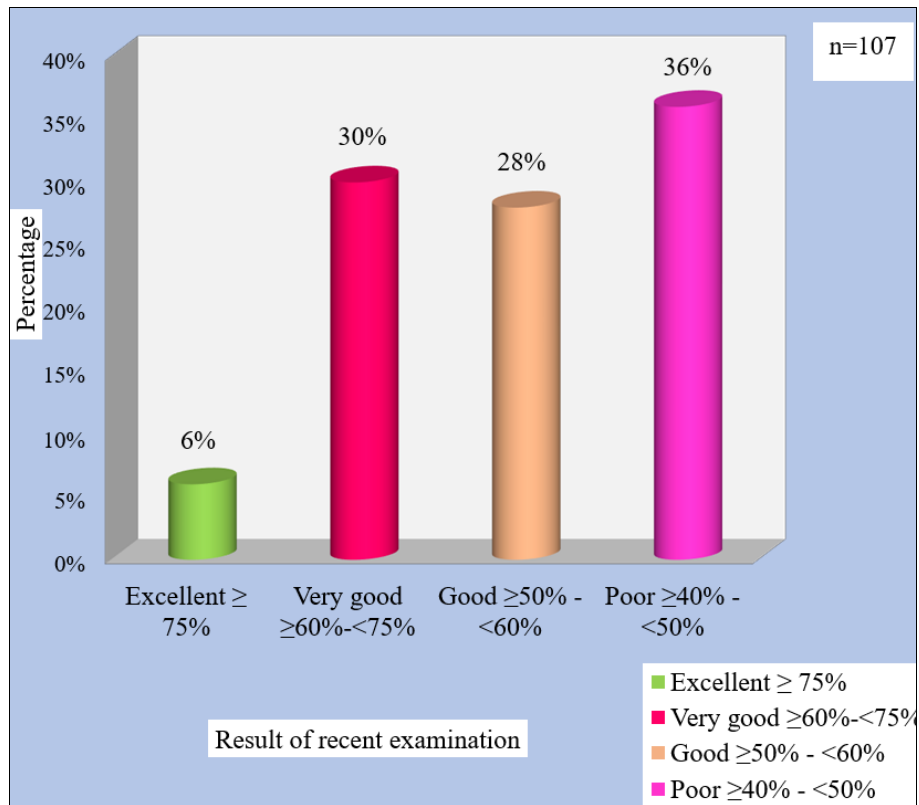


Fig 2: Cylindrical bar diagram showing percentage distribution of the H.S. students in terms of recent examination according to grade

Data presented in figure 2 shows that, 6% students had excellent ($\geq 75\%$), 30% students had very good ($\geq 60\% - < 75\%$), 28% students had good ($\geq 50\% - < 60\%$) and 36% students had poor ($\geq 40\% - < 50\%$) result in recent examination.

Section V: Findings related to association between nomophobia and behavioural problems among the H.S. students

H01

There is no significant association between nomophobia and behavioural problems among the H.S. students at 0.05 level of significance

H1

There is significant association between nomophobia and behavioural problems among the H.S. students at 0.05 level of significance

Table 3: Mean, standard deviation (SD), correlation-coefficient and “t” value between nomophobia and behavioural problems among the H.S. students n= 107

Variables	Mean	SD	Correlation coefficient (r)	Related “t” value
Nomophobia	110.40	26.84	-	-
Total difficulty score	20.91	5.63	0.48	5.61*
Emotional problem scale	6.05	2.24	0.42	4.74*
Conduct problem scale	3.77	1.20	0.36	3.97*
Hyperactivity scale	6.50	2.23	0.30	3.24*
Peer problem scale	4.59	1.99	0.18	1.88
Prosocial scale	9.07	1.58	0.37	4.08*

*significant at $p < 0.05$, $t = 1.98$ at $df 106$; not significant $p > 0.05$

Data presented in table 3 shows calculated value of mean, standard deviation of nomophobia and total difficulties score and domain wise behavioural problems. Depending on the obtained nomophobia score, mean and standard deviation were 110.40 and 26.84. The obtained mean and standard deviation of total difficulties were 20.91 and 5.63. Association between nomophobia and total difficulties calculated by Pearson’s correlation coefficient which was 0.48 that indicated moderate positive association between the nomophobia and behavioural problem and related “t” value 5.61 which is statistically significant at 0.05 level. So, the research hypothesis H1 was accepted and null hypothesis was rejected. The obtained mean of different domain like emotional problems, conduct problems,

hyperactivity, peer problems, prosocial were 6.05, 3.77, 6.50, 4.59, 9.07. The standard deviations of each domain respectively were 2.24, 1.20, 2.23, 1.99, 1.58. Association between nomophobia and domain wise behavioural problems calculated by Pearson’s correlation coefficient which were 0.42, 0.36, 0.30, 0.18, 0.37; that gives interpretations of moderate positive, moderate positive, moderate positive, weak positive and moderate positive association between nomophobia and behavioural problems. Here related “t” values in emotional problem, conduct problem, hyperactivity, pro social domains were 4.74, 3.97, 3.24, 4.08 respectively which were more than table value (1.98) at $df 106$, $p < 0.05$. Related “t” value in peer problem

was 1.88 which were less than table value (1.98) at df 106, $p > 0.05$.

Hence it is concluded that, there was significant association between nomophobia and behavioural problems among the students at 0.05 level. So, nomophobia and behavioural problems of H.S. students were dependent on each other, when nomophobia increases then behavioural problems also increases or vice versa.

Section VI: Findings related to association between

Table 4: Mean, standard deviation, correlation-coefficient and “t” value between nomophobia and academic achievement among the H.S. students n= 107

Variables	Mean	SD	Correlation coefficient (r)	Related “t” value
Nomophobia	110.40	26.84	-	-
Last board examination	61.83	12.40	-0.58	7.30*
Recent examination	54.91	12.64	-0.42	4.74*

*Significant at $p < 0.05$, $t = 1.98$ at df 106

Data presented in table 4 shows calculated value of mean, standard deviation of nomophobia and academic achievement. Depending on the obtain nomophobia score mean and standard deviation were 110.40 and 26.84. The obtain mean of last board examination and recent examination were 61.83 and 54.91. The standard deviations were 12.40 and 12.64. Association between nomophobia and last board examination, recent examination was calculated by Pearson’s correlation coefficient which were -0.58, -0.42; respectively both gives interpretations of strong negative and moderate negative association that indicates inversely association between the variables and related “t” values 7.30 and 4.74 were more than table value (1.98) at df 106, $P < 0.05$. So, the research hypothesis H1 was accepted and null hypothesis was rejected. Hence it was conducted that, there was significant association between nomophobia and academic achievement among the students at 0.05 level. So, nomophobia and academic achievement of higher secondary students are inversely proportionate to each other, when nomophobia increases academic performance decreases.

Findings related to nomophobia of the H.S. students

The present study findings revealed that most of students 69% (n=107) had severe level of nomophobia, 26% students had moderate level of nomophobia, 5% students had mild level of nomophobia and nobody had absence of nomophobia

Findings related to behavioural problems of the H.S. students

The present study finding revealed that in total difficulties score most students 60% (n=107) had abnormal, 14% had normal and 26% had borderline behavioural problems. In terms of domain wise students had normal, borderline and abnormal behavioural problems like 35% had normal, 21% had borderline and 44% had abnormal emotional problems. 46% had normal, 27% had borderline and abnormal conduct problems. 28% had normal, 18% had borderline, majority 54% had abnormal hyperactivity. 31% had normal, 36% had borderline, 33% had abnormal peer problems. Most students 93% had normal, 4% had borderline, 3% had abnormal prosocial. Maximum students 100% had normal impact score.

nomophobia and academic achievement among the H.S. students

H02: There is no significant association between nomophobia and academic achievement among the H.S. students at 0.05 level of significance

H2: There is significant association between nomophobia and academic achievement among the H.S. students at 0.05 level of significance.

Findings related to academic achievement of the H.S. students

The present study finding revealed that 40% (n=107) students had good and 10% students had poor result in last board examination. Findings also stated the results in recent examination where 36% students had poor and 6% students had excellent score

Findings related to association between nomophobia and behavioural problems among the H.S. students

Association between nomophobia and total difficulties score calculated by Pearson’s correlation coefficient which was 0.48 that indicated moderate positive association between the nomophobia and behavioural problem and related “t” value 5.61 which is statistically significant at 0.05 level.

Association between nomophobia and domain wise behavioural problems calculated by Pearson’s correlation coefficient which were 0.42, 0.36, 0.30, 0.18, 0.37; that gives interpretations of moderate positive, moderate positive, moderate positive, week positive and moderate positive association between nomophobia and behavioural problems. Here related “t” values in emotional problem, conduct problem, hyperactivity, prosocial domains were 4.74, 3.97, 3.24, 4.08 which were more than table value (1.98) at df 106, $P < 0.05$.

Findings related to association between nomophobia and academic achievement among the H.S. students

Association between nomophobia and last examination and recent examination was calculated by Pearson’s correlation coefficient which were -0.58, -0.42; both gives interpretations of strong negative and moderate negative association that indicates inverse association between the variables, and related “t” values 7.30 and 4.74 were more than table value (1.98) at df 106, $p < 0.05$.

Findings related to association between the level of nomophobia among the students with the selected socio-demographic variables

There was statistically significant association found between nomophobia with selected socio-demographic variables like age (0.009 <0.05), occupation of father (0.01<0.05), occupation of mother (0.04<0.05), monthly family income (0.04<0.05), duration of smart phone use in year (0.03<0.05), hours spent on mobile phone per day

(0.003<0.05). No significant association was found between nomophobia and gender, educational qualification of father, educational qualification of mother, types of family.

Discussion

Discussion was made in relation to major variables of the study.

Discussion in relation to nomophobia

After analyzing the data of the present study, it has been revealed that 100% of the adolescents had nomophobia. Among them 5% had mild level of nomophobia, 26% of adolescents had moderate level of nomophobia, and 69% had severe level of nomophobia.

A study result supported by Kigoto W *et al.* [7] in 2021, found that 96.4% of students reported moderate to severe levels of nomophobia while only 3.6% reported no nomophobia.

The present study is consistent with another study conducted by Kumar KA *et al.* [8] in 2021, where the prevalence of nomophobia was 100%. 65.9% of the students had a moderate nomophobia.

Discussion in relation to behavioural problems

Present study revealed that, in total difficulties score 14% students had normal and 26% had borderline, 60% had abnormal behavioural problems. Data also presented domain wise behavioural problems like 35% students had normal, 21% had borderline and 44% had abnormal emotional problems. 46% students had normal, 27% had borderline, 27% had abnormal conduct problems. 28% students had normal, 18% had borderline, 54% had abnormal hyperactivity. 31% students had normal, 36% had borderline, 33% had abnormal peer problems. 93% students had normal, 4% had borderline, 3% had abnormal prosocial. 100% students had normal, nobody had borderline and abnormal impact.

A similar study conducted by Kafle T *et al.* [9] 2019 found that the prevalence of total (overall) behavioural problem was among 35.0% adolescents. While classifying then, it was found that 13.3% were affected by emotional disorder, 11.20% from conduct problem, 7.2% from hyperactivity/inattention, 4.99% from peer relationship problem and 2.1% from prosocial activities.

Another study result is consistent with a study conducted Nath S *et al.* [10] in year 2022 the study revealed that 23.1% children having emotional problem, 43.4% peer problems, 25.6% conduct problem, 23.1% emotional problem and 11.1% hyperactivity problems.

A study result supported by Kuscu TD *et al.* [11] in the year 2020 among the adolescents conduct problems, total difficulties, hyperactivity and social problems were of predictors of nomophobia.

Discussion in relation to academic achievement

In present study 14% students had excellent ($\geq 75\%$), 36% students had very good ($\geq 60\%$ - $<75\%$), 40% students had good ($\geq 50\%$ - $<60\%$) and 10% students had poor ($\geq 40\%$ - $<50\%$) result in last board examination.

6% students had excellent ($\geq 75\%$), 30% students had very good ($\geq 60\%$ - $<75\%$), 28% had students good ($\geq 50\%$ - $<60\%$) and 36% students had poor ($\geq 40\%$ - $<50\%$) result in recent examination.

The present study consistent with other study conducted by Prasad M *et al.* [12] in 2016, was done with the aim to assess the academic performance of students. The results showed that about 39.5% students agreed that they scored low marks in professional exams if they spend more times on phone.

The study is consistent with a study which was conducted by Aman T *et al.* [13] in 2014, and found out of 308 students' academic performance of 53% students was affected and 69% believed that they were distracted from the surroundings.

Discussion in relation to association between nomophobia and behavioural problems

In present study finding it is revealed that there was moderate positive association (0.48) between the nomophobia and behavioural problems in total difficulty score. Findings also showed that there was moderate positive association (0.42, 0.36, 0.30, 0.37) between nomophobia and behavioural problems in emotional problem, conduct problem, hyper activity and prosocial domains. There was also weak positive (0.18) association between nomophobia and behavioural problems in peer problem domain.

The study result is supported by a study which was conducted by Basu S *et al.* [14] in December 2016 to May 2017. The results revealed that most of the students (87.1%) reported, regular usage of mobile internet facility. The study concluded that, with increasing adoption of smart phones there was an addiction – like behavior that was evolving as a public health problem.

The study result is consistent with a study which was conducted by Daniyal M *et al.* [15] in 2022 and found that highest significant association between excess use of cell phones and negative effects on physical and mental health wellbeing.

Discussion in relation to association between nomophobia and academic achievement

Present study finding revealed that there was strong negative (-0.58) association between nomophobia and last board examination. Moderate negative (-0.42) association between nomophobia and recent examination indicates inverse association between the variables and related "t" values 7.30 and 4.74 were more than table value (1.98) at df 106, $P < 0.05$. So, nomophobia and academic achievement of higher secondary students are inversely proportionate to each other, when nomophobia increases academic performance decreases.

A similar finding observed in a study conducted by Essel HB *et al.* [16] in the year 2021 showed significance association between academic achievement and the level of nomophobia.

The findings were supported by a study conducted by Qutishat M *et al.* [17] descriptive correlational study which gives support to present study findings and found that students with severe nomophobia reported weak academic performance.

Discussion in relation to association between nomophobia and socio-demographic variables

The present study findings revealed that there was significant association between nomophobia and socio-demographic variables such as age, occupation of father, occupation of mother, monthly family income, duration of

smart phone use in year, hours spent on mobile phone per day. Where obtain p value of age (0.009 <0.05), occupation of father (0.01<0.05), occupation of mother (0.04<0.05), monthly family income (0.04<0.05), duration of smart phone use in year (0.03<0.05), hours spent on mobile phone per day (0.003<0.05) which was significant at less than 0.05. There was no significant association found between nomophobia and gender, educational qualification of father, educational qualification of mother, types of family.

The study result is consistent with a study conducted by Tolan CO *et al.* [18] in 2021, result found that there was significant association between nomophobia and sociodemographic variables such as gender (2.14, $p < .05$), daily smart phone checking frequency, daily internet usage on smartphones (6.05, $p < .001$), duration of daily internet usage on smartphone (4.86, $p < .001$).

Another study result is consistent with a study conducted by Mallya NV *et al.* [19] in 2018, result revealed that significant association between gender and nomophobia ($P = 0.003$) and also between perceived smartphone addiction and nomophobia ($P = 0.0001$).

The present study consistent with other study conducted by Colak M *et al.* [20] in 2020, as a result of this study, it was found that the nomophobia level of the students not association according to of the variables gender, overall grade point average, parents' educational level.

Conclusion

Study finding revealed that most of the students had severe level of nomophobia and abnormal behaviour in total difficulties score. There was statistically significant association between nomophobia and behavioural problems in positive direction. That indicate nomophobia and behavioural problems are vice versa to each other, when nomophobia increase behavioural problems will be increased. Less than half of students had good result in last board examination and poor result in recent examination. There was statistically significant association between nomophobia and academic achievement in negative direction. That indicate nomophobia and academic achievement of higher secondary students are inversely proportionate to each other, when nomophobia increase academic performance will be decreased. There was statistically significant association found between nomophobia with selected socio-demographic variables like age, occupation of father, occupation of mother, monthly family income, duration of smart phone use in year, hours spent on mobile phone per day. So, it can be concluded that mobile dependency may be high in adolescent age group, if the father is employed and mother is working, if the family with higher socio-economic condition, if the students are using mobile phone for long years and daily usages of that phone for long time, maybe they are prone to develop nomophobia.

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