



A PILOT STUDY TO ASSESS THE EFFECTIVENESS OF SELF- INSTRUCTIONAL MODULE OF KNOWLEDGE AND ATTITUDE REGARDING MOBILE PHONE ADDICTION AMONG ADOLESCENTS AT SELECTED SCHOOLS IN DELHI

¹Deepa Gupta¹, ²Preeti Chouhan

¹Research Scholar, Department of Nursing, Shri JYT University, Jhunjhunu, Rajasthan, India

²Research Guide, Department of Nursing, Shri JYT University, Jhunjhunu, Rajasthan, India

Abstract

The present study aimed to assess the level of knowledge and attitude regarding mobile phone addiction among adolescence at selected schools in Delhi. This study adopted a quantitative evaluative research approach using a pre-experimental one-group pre-test and post-test design to assess the effectiveness of a self-instructional module on knowledge and attitude regarding mobile phone addiction among adolescents in selected schools in Delhi. A total of 40 adolescents were selected through a non-probability convenience sampling technique for pilot study. The study included demographic variables such as age, gender, educational level, type of family, religion, and monthly family income. Data were collected using a structured questionnaire consisting of demographic information, knowledge questions, and an attitude scale. The major results of the study are as follows: The majority of the participants (42.5%) belonged to the 16–18 years age group, while male and female participants were equally represented (50% each). Most participants were studying in the 7th standard (30%), belonged to nuclear families (52.5%), were Hindus (55%), and had a monthly family income of less than ₹20,000 (37.5%). The analysis showed that age ($\chi^2 = 10.373$, $p = 0.0346$), educational level ($\chi^2 = 9.514$, $p = 0.0232$), and religion ($\chi^2 = 9.926$, $p = 0.007$) had statistically significant associations with adolescents' knowledge regarding mobile phone addiction. However, gender, family system, and family income had no significant association with knowledge ($p > 0.05$). Statistically no significant association was found between adolescents' attitude regarding mobile phone addiction with any of the selected demographic variables, including age, gender, educational level, family system, religion, and family income ($p > 0.05$). A statistically significant association was observed between knowledge and attitude regarding mobile phone addiction ($\chi^2 = 13.67$, $p = 0.00843$). Adolescents with better knowledge demonstrated more appropriate attitudes toward mobile phone addiction than those with lower knowledge levels.

Key words- Assess, knowledge, attitude, self-instructional module, mobile phone addiction.

Introduction

The Internet facilitates various activities, including electronic commerce, information dissemination, intercultural communication, expressive support, & leisure (Kraut et al., 1998; Morahan-Martin, 1999; Scherer, 1997). Smartphones merge Internet and mobile phone functionalities, providing distinct services. Age-related differences in smartphone usage exist, with younger users engaging in multimedia consumption, social interaction, and information seeking, whereas older users prioritize video communication with distant family and recreational gaming. Smartphones' mobility and accessibility enable seamless usage.¹ Mobile phones offer numerous benefits, including effortless wireless access to email, instant messaging, multimedia, and office applications. Additional features include a complete keyboard for easy email composition. The widespread availability of smart devices in Gulf markets, coupled with their appeal to all age groups, has led to increased adoption. Mobile phones have become indispensable tools for various services, replacing computers for some and serving as primary entertainment platforms for others. However, their popularity has also raised concerns about economic status symbolism and potential psychological and social implications.²

Objectives of the Study

1. To assess the level of knowledge regarding mobile phone addiction among adolescence at selected schools in Delhi
2. To assess the attitude of adolescence regarding mobile phone addiction at selected schools in Delhi
3. To develop and construction of self-instructional module regarding mobile phone addiction among adolescence at selected schools in Delhi
4. To assess the effectiveness of self-instructional module regarding mobile phone addiction among adolescence at selected schools in Delhi
5. To determine the association between knowledge and attitude of adolescence regarding mobile phone addiction at selected schools in Delhi
6. To determine the association between knowledge of adolescence regarding mobile phone addiction at selected schools in Delhi with Selected Demographic Variables
7. To determine the association between attitude of adolescence regarding mobile phone addiction at selected schools in Delhi with Selected Demographic Variables

RESEARCH METHODOLOGY

Research Approach- Quantitative Method (Evaluative Research Approach)

Research- Design- Pre-experimental pre-test and post-test research design

Research- Setting- Selected schools in Delhi

Sample- Adolescence at selected schools in Delhi

Sample size for pilot study- 40

Sampling Techniques- Non probability Convenience Sampling Techniques

Variables under study

Dependent Variable- Knowledge and attitude of adolescence regarding mobile phone addiction

Independent Variable- Self-instructional module on mobile phone addiction

Socio -Demographic Variables- Age, Gender, Educational level. Type of family, Religion, Monthly income of the family

Tools for data collection-

Section I: Demographic data

Section II: Consist of structured question to assess the knowledge of Adolescence of regarding mobile phone addiction.

Section III: Consist of structured question to assess the attitude of Adolescence of regarding mobile phone addiction.

Methods of data collection-

Pre-test: Participants' baseline knowledge and attitude towards mobile phone addiction is measured before the intervention.

Intervention: Participants are then provided with the self-instructional module designed to improve understanding and attitudes related to mobile phone addiction.

Post-test: After the intervention, the same measures are taken again to assess any changes.

RESULTS

Table 1: Frequency distribution of demographic parameters of subjects

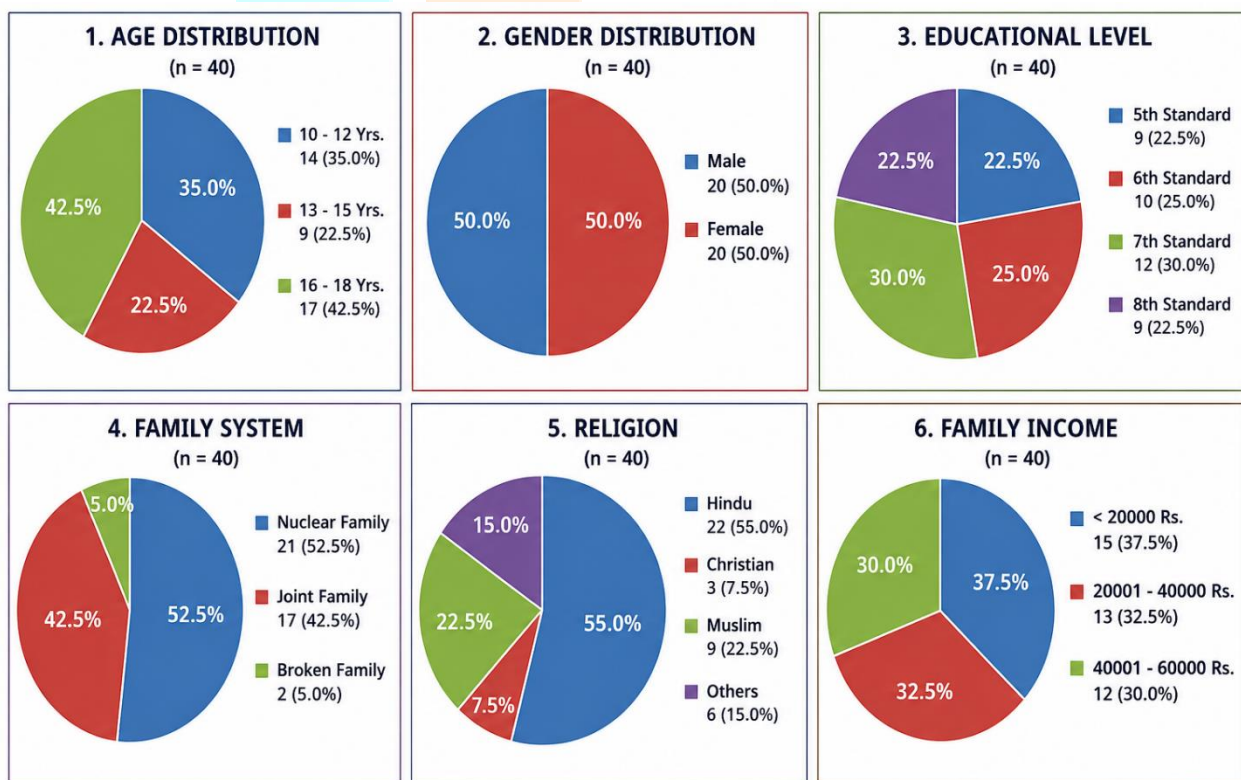
Variables		n = 40	In %
Age	10 - 12 Yrs.	14	35.0%
	13 - 15 Yrs.	9	22.5%
	16 - 18 Yrs.	17	42.5%
Gender	Male	20	50.0%
	Female	20	50.0%
Educational Level	5th Standard	9	22.5%
	6th Standard	10	25.0%
	7th Standard	12	30.0%
	8th Standard	9	22.5%
Family System	Nuclear Family	21	52.5%
	Joint Family	17	42.5%
	Broken Family	2	5.0%
Religion	Hindu	22	55.0%
	Christian	3	7.5%
	Muslim	9	22.5%
	Others	6	15.0%
Family Income	< 20000 Rs.	15	37.5%
	20001 - 40000 Rs.	13	32.5%
	40001 - 60000 Rs.	12	30.0%

Table 1 presents the frequency and percentage distribution of the demographic characteristics of the 40 adolescent participants included in the study.

- The findings indicate that 17 (42.5%) participants belonged to the 16–18 years age group, which constituted the largest proportion of the sample. This was followed by 14 (35.0%) participants in the 10–12 years age group, while 9 (22.5%) participants were in the 13–15 years age group. These findings suggest that the majority of the respondents were older adolescents, providing an appropriate population for assessing knowledge and attitude regarding mobile phone addiction.
- With respect to gender, the sample was equally distributed, with 20 (50.0%) males and 20 (50.0%) females. This equal representation minimizes gender bias and allows comparison of responses between male and female adolescents.
- Regarding the educational level, the highest proportion of participants, 12 (30.0%), were studying in the 7th standard. This was followed by 10 (25.0%) students from the 6th standard, while 9 (22.5%) participants each belonged to the 5th standard and 8th standard. The findings

indicate that the study included students from different educational levels, ensuring adequate representation across middle school classes.

- In relation to the family system, 21 (52.5%) participants belonged to nuclear families, making it the predominant family type. 17 (42.5%) participants belonged to joint families, whereas only 2 (5.0%) participants were from broken families. This suggests that the majority of adolescents were living in nuclear family settings, which may influence their supervision, lifestyle, and mobile phone usage patterns.
- Considering religion, the majority of respondents, 22 (55.0%), were Hindus, followed by 9 (22.5%) Muslims, 6 (15.0%) belonging to other religions, and 3 (7.5%) Christians. This distribution reflects the religious diversity of the study population while indicating Hindu participants as the predominant group.
- Regarding monthly family income, 15 (37.5%) participants belonged to families with an income of less than ₹20,000, 13 (32.5%) had a monthly family income between ₹20,001 and ₹40,000, and 12 (30.0%) belonged to families earning ₹40,001–₹60,000 per month. The findings demonstrate that participants represented different socioeconomic backgrounds, with the largest proportion coming from lower-income families.



Note: n = 40 (Total Number of Adolescence)

Figure no-1 Pie charts showing Frequency distribution of demographic parameters of subjects

Table 2: Association between knowledge score and demographic parameters by using chi-square test

Variables		No Knowledge (0 - 3)	Material Knowledge (4 - 6)	Basic Knowledge (7 - 9)	Adequate Knowledge (10 - 12)	Superior Knowledge (13 - 15)	Chi-square test	P - Value	Significance
Age	10 - 12 Yrs.	5	8	1	0	0	10.373	0.0346	Significant
	13 - 15 Yrs.	1	7	1	0	0			
	16 - 18 Yrs.	10	3	3	1	0			
Gender	Male	7	10	2	1	0	0.472	0.7897	Not Significant
	Female	9	8	3	0	0			
Educational Level	5th Standard	3	6	0	0	0	9.514	0.0232	Significant
	6th Standard	6	3	0	1	0			
	7th Standard	1	9	2	0	0			
	8th Standard	6	0	3	0	0			
Family System	Nuclear Family	8	10	2	1	0	0.123	0.9406	Not Significant
	Joint Family	7	7	3	0	0			
	Broken Family	1	1	0	0	0			
Religion	Hindu	5	15	2	0	0	9.926	0.007	Significant
	Christian	2	1	0	0	0			
	Muslim	9	0	0	0	0			
	Others	0	2	3	1	0			

Family Income	< 20000 Rs.	6	7	2	0	0	3.857	0.4258	Not Significant
	20001 - 40000 Rs.	3	8	1	1	0			
	40001 - 60000 Rs.	7	3	2	0	0			

Table 2 presents the association between the knowledge scores of adolescents regarding mobile phone addiction and selected demographic variables using the chi-square test. The demographic variables included were age, gender, educational level, family system, religion, and family income.

- The findings reveal that age had a statistically significant association with the level of knowledge regarding mobile phone addiction ($\chi^2 = 10.373$, $p = 0.0346$). Adolescents aged 10–12 years were mainly distributed in the no knowledge and moderate knowledge categories, while those aged 13–15 years also showed predominantly moderate knowledge. Participants aged 16–18 years had comparatively better knowledge, with a few students achieving adequate knowledge. This indicates that knowledge regarding mobile phone addiction tends to vary significantly with increasing age.
- The analysis also demonstrated a statistically significant association between educational level and knowledge scores ($\chi^2 = 9.514$, $p = 0.0232$). Students studying in higher classes generally exhibited better knowledge levels than those in lower classes. Although most students were categorized under moderate knowledge, a small number of students in higher educational levels achieved adequate knowledge, suggesting that educational advancement contributes positively to knowledge about mobile phone addiction.
- A significant association was also observed between religion and knowledge scores ($\chi^2 = 9.926$, $p = 0.007$). The distribution of knowledge levels differed among the various religious groups, indicating that religion was associated with variations in knowledge regarding mobile phone addiction among the study participants.
- On the other hand, gender did not show any statistically significant association with knowledge scores ($\chi^2 = 0.472$, $p = 0.7897$). Both male and female adolescents had a similar distribution of knowledge levels, indicating that gender did not influence their knowledge regarding mobile phone addiction.
- Similarly, family system was not significantly associated with knowledge scores ($\chi^2 = 0.123$, $p = 0.9406$). Adolescents belonging to nuclear, joint, and broken families demonstrated comparable levels of knowledge, suggesting that the type of family structure had no measurable effect on their knowledge regarding mobile phone addiction.
- Furthermore, family income also showed no statistically significant association with knowledge scores ($\chi^2 = 3.857$, $p = 0.4258$). Participants from different income groups exhibited similar knowledge distributions, indicating that socioeconomic status, as measured by family income, did not significantly influence knowledge regarding mobile phone addiction.
- Overall, the chi-square analysis indicates that age, educational level, and religion were significantly associated with the knowledge scores of adolescents regarding mobile phone addiction, whereas gender, family system, and family income were not significantly associated. Therefore, the research hypothesis stating that there is a significant association between

selected demographic variables and knowledge scores was partially accepted, as only some demographic variables showed statistically significant relationships with the knowledge level.

Table 3: Association between attitude score and demographic parameters by using chi-square test

Variables		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Chi-square test	P - Value	Significance
Age	10 - 12 Yrs.	0	2	3	8	1	1.51	0.6808	All are not significant
	13 - 15 Yrs.	0	1	2	6	0			
	16 - 18 Yrs.	0	0	2	12	3			
Gender	Male	0	2	2	12	4	1.75	0.4164	
	Female	0	1	5	14	0			
Educational Level	5th Standard	0	1	0	7	1	2.09	0.7192	
	6th Standard	0	1	2	7	0			
	7th Standard	0	1	3	6	2			
	8th Standard	0	0	2	6	1			
Family System	Nuclear Family	0	1	2	15	3	3.142	0.3702	
	Joint Family	0	2	4	11	0			
	Broken Family	0	0	1	0	1			
Religion	Hindu	0	3	3	14	2	0.386	0.8246	
	Christian	0	0	0	3	0			
	Muslim	0	0	3	4	2			
	Others	0	0	1	5	0			
Family Income	< 20000 Rs.	0	2	2	9	2	1.059	0.9008	
	20001 - 40000 Rs.	0	0	4	8	1			
	40001 - 60000 Rs.	0	1	1	9	1			

Table 3 presents the association between the attitude scores regarding mobile phone addiction among adolescents and selected demographic variables using the chi-square test. The demographic variables included were age, gender, educational level, family system, religion, and monthly family income. The level of significance was considered at $p < 0.05$.

- With regard to age, adolescents aged 10–12 years showed 2 (14.3%) participants who disagreed, 3 (21.4%) who were neutral, 8 (57.1%) who agreed, and 1 (7.1%) who strongly agreed with the attitude statements. Among those aged 13–15 years, 1 (11.1%) disagreed, 2 (22.2%) were neutral, and 6 (66.7%) agreed. In the 16–18 years age group, 2 (11.8%) were

neutral, 12 (70.6%) agreed, and 3 (17.6%) strongly agreed. The calculated chi-square value was 1.51 with a p-value of 0.6808, indicating no statistically significant association between age and attitude towards mobile phone addiction.

- Regarding gender, among male adolescents, 2 participants disagreed, 2 were neutral, 12 agreed, and 4 strongly agreed. Among female adolescents, 1 participant disagreed, 5 were neutral, 14 agreed, and no participant strongly agreed. The chi-square value was 1.75 with a p-value of 0.4164, which shows that gender had no significant association with attitude scores.
- With respect to educational level, students from the 5th standard included 1 participant who disagreed, 7 who agreed, and 1 who strongly agreed. In the 6th standard, 1 participant disagreed, 2 were neutral, and 7 agreed. Among 7th standard students, 1 disagreed, 3 were neutral, 6 agreed, and 2 strongly agreed. In the 8th standard, 2 participants were neutral, 6 agreed, and 1 strongly agreed. The chi-square value of 2.09 with a p-value of 0.7192 indicates no statistically significant association between educational level and attitude regarding mobile phone addiction.
- In terms of family system, adolescents from nuclear families included 1 participant who disagreed, 2 who were neutral, 15 who agreed, and 3 who strongly agreed. Among those from joint families, 2 participants disagreed, 4 were neutral, and 11 agreed. In broken families, 1 participant was neutral and 1 strongly agreed. The chi-square value was 3.142 with a p-value of 0.3702, demonstrating no significant association between family system and attitude scores.
- Considering religion, among Hindu participants, 3 disagreed, 3 were neutral, 14 agreed, and 2 strongly agreed. Among Christian participants, all 3 participants agreed. In the Muslim group, 3 participants were neutral, 4 agreed, and 2 strongly agreed, while among other religions, 1 participant was neutral and 5 agreed. The chi-square value of 0.386 with a p-value of 0.8246 indicates no statistically significant association between religion and attitude towards mobile phone addiction.
- Regarding monthly family income, participants with a family income of less than ₹20,000 included 2 participants who disagreed, 2 who were neutral, 9 who agreed, and 2 who strongly agreed. Those with an income of ₹20,001–₹40,000 included 4 participants who were neutral, 8 who agreed, and 1 who strongly agreed. Participants with a family income of ₹40,001–₹60,000 included 1 participant who disagreed, 1 who was neutral, 9 who agreed, and 1 who strongly agreed. The chi-square value was 1.059 with a p-value of 0.9008, indicating no statistically significant association between monthly family income and attitude scores.

Table 4: Association between knowledge and attitude score by using chi-square test

Catego ry	No Knowle dge (0 - 3)	Material Knowledg e (4 - 6)	Basic Knowled ge (7 - 9)	Adequate Knowledge (10 - 12)	Superior Knowledge (13 - 15)	Chi- suar e test	P - Val ue	Sign ifica nce
Strong ly Disagr ee	0	0	0	0	0	13.67	0.0 084 3	Sign ifica nt
Disagr ee	1	1	1	0	0			
Neutra l	2	1	4	1	0			
Agree	13	10	2	0	0			
Strong ly Agree	0	4	0	0	0			

Table 4 presents the association between the knowledge levels regarding mobile phone addiction and the attitude of adolescents toward mobile phone addiction using the Chi-square test. The knowledge scores were categorized into five levels: No Knowledge (0–3), Moderate Knowledge (4–6), Basic Knowledge (7–9), Adequate Knowledge (10–12), and Superior Knowledge (13–15). The attitude responses were classified as Strongly Disagree, Disagree, Neutral, Agree, and Strongly Agree.

- The findings reveal that none of the participants with adequate or superior knowledge exhibited a strongly disagree attitude toward the statements related to mobile phone addiction. Among participants with no knowledge, the majority (13 respondents) belonged to the Agree category, while only two respondents showed a Neutral attitude and one respondent a Disagree attitude. This indicates that adolescents with poor knowledge were more likely to have attitudes that support or underestimate the seriousness of mobile phone addiction.
- Among respondents with moderate knowledge (4–6), 10 participants were in the Agree category, four were Strongly Agree, one was Neutral, and one Disagreed. This suggests that although their knowledge was slightly better, many participants still demonstrated attitudes indicating a need for improved awareness regarding mobile phone addiction.
- In the basic knowledge (7–9) category, four participants exhibited a Neutral attitude, two Agreed, and one Disagreed. Only one participant with adequate knowledge (10–12) showed a Neutral attitude, while no respondents achieved the superior knowledge level (13–15). This finding indicates that the overall knowledge level among adolescents was relatively low, emphasizing the necessity of Self-Instructional Modules.
- The Chi-square value was 13.67 with a p-value of 0.00843, which is less than the conventional level of significance ($p < 0.05$). Therefore, the association between knowledge level and attitude toward mobile phone addiction was found to be statistically significant.
- This statistically significant result indicates that knowledge and attitude are closely associated. Adolescents with better knowledge tended to demonstrate more appropriate and informed attitudes toward mobile phone addiction, whereas those with limited knowledge were more likely to exhibit less desirable attitudes.

Major Findings of the Study

1. Demographic Characteristics

- The majority of the adolescents **17 (42.5%)** were in the **16–18 years** age group, followed by **14 (35.0%)** in the 10–12 years group and **9 (22.5%)** in the 13–15 years group.
- Male and female participants were equally represented, with **20 (50.0%)** participants in each group.
- Most participants **12 (30.0%)** were studying in the **7th standard**, followed by the 6th standard (25.0%).
- More than half of the participants 21 (52.5%) belonged to nuclear families, while **17 (42.5%)** belonged to joint families.
- The majority of respondents 22 (55.0%) were Hindu, and 15 (37.5%) belonged to families with a monthly income of less than ₹20,000.

2. Association Between Knowledge and Demographic Variables

- **Age** showed a statistically significant association with knowledge regarding mobile phone addiction ($\chi^2 = 10.373$, $p = 0.0346$). Older adolescents demonstrated comparatively better knowledge.
- **Educational level** was significantly associated with knowledge ($\chi^2 = 9.514$, $p = 0.0232$), indicating that students in higher classes had better knowledge scores.
- **Religion** also had a significant association with knowledge ($\chi^2 = 9.926$, $p = 0.007$).
- **Gender** ($p = 0.7897$), family system ($p = 0.9406$), and family income ($p = 0.4258$) did not show statistically significant associations with knowledge.
- Therefore, the research hypothesis regarding the association between knowledge and demographic variables was partially accepted.

3. Association Between Attitude and Demographic Variables

- Most adolescents demonstrated an agreeable or positive attitude toward the statements related to mobile phone addiction across all demographic groups.
- There was no statistically significant association between attitude scores and any demographic variable:
 - Age ($p = 0.6808$)
 - Gender ($p = 0.4164$)
 - Educational level ($p = 0.7192$)
 - Family system ($p = 0.3702$)
 - Religion ($p = 0.8246$)
 - Family income ($p = 0.9008$)
- Thus, the research hypothesis regarding the association between attitude and demographic variables was **rejected**.

4. Association Between Knowledge and Attitude

- A statistically significant association was found between **knowledge and attitude** regarding mobile phone addiction ($\chi^2 = 13.67$, $p = 0.00843$).
- Adolescents with **better knowledge** demonstrated **more appropriate and informed attitudes**, whereas those with poor knowledge were more likely to exhibit less desirable attitudes toward mobile phone addiction.
- This finding supports the importance of improving adolescents' knowledge to promote healthier attitudes toward mobile phone use.

5. Overall Finding

- The study revealed that adolescents generally possessed **low to moderate knowledge** regarding mobile phone addiction, while attitudes were mostly favorable but influenced by knowledge levels.
- The findings indicate a clear need for **structured Self-Instructional Modules**, such as a **Self-Instructional Module (SIM)**, to improve adolescents' knowledge and encourage healthier attitudes and practices regarding mobile phone addiction.

Result of the Study

The major results of the study are as follows:

1. The majority of the participants (42.5%) belonged to the 16–18 years age group, while male and female participants were equally represented (50% each). Most participants were studying in the 7th standard (30%), belonged to nuclear families (52.5%), were Hindus (55%), and had a monthly family income of less than ₹20,000 (37.5%).
2. The analysis showed that age ($\chi^2 = 10.373$, $p = 0.0346$), educational level ($\chi^2 = 9.514$, $p = 0.0232$), and religion ($\chi^2 = 9.926$, $p = 0.007$) had statistically significant associations with adolescents' knowledge regarding mobile phone addiction. However, gender, family system, and family income had no significant association with knowledge ($p > 0.05$).
3. No statistically significant association was found between adolescents' attitude regarding mobile phone addiction and any of the selected demographic variables, including age, gender, educational level, family system, religion, and family income ($p > 0.05$).
4. A statistically significant association was observed between knowledge and attitude regarding mobile phone addiction ($\chi^2 = 13.67$, $p = 0.00843$). Adolescents with better knowledge demonstrated more appropriate attitudes toward mobile phone addiction than those with lower knowledge levels.
5. Overall, the findings indicate that adolescents had predominantly low to moderate knowledge regarding mobile phone addiction, although many demonstrated a generally positive attitude. The results highlight the importance of Self-Instructional Modules to improve knowledge and promote healthy mobile phone use.

CONCLUSION

The study concludes that mobile phone addiction is an important issue among adolescents, and their level of knowledge regarding its causes, consequences, and preventive measures is generally inadequate to moderate. Although most adolescents exhibited a favorable attitude toward preventing mobile phone addiction, their knowledge levels require considerable improvement. The study identified age, educational level, and religion as significant factors influencing knowledge, whereas gender, family system, and family income did not significantly affect knowledge. None of the selected demographic variables showed a significant association with attitude. Furthermore, the significant relationship between knowledge and attitude suggests that improving adolescents' knowledge can positively influence their attitudes toward responsible mobile phone use. Therefore, structured educational strategies, particularly a Self-Instructional Module (SIM), can be an effective approach to enhancing adolescents' awareness, promoting healthy digital behavior, and preventing mobile phone addiction. The findings support the need for regular school-based health education programs aimed at improving knowledge and fostering positive attitudes toward the prevention of mobile phone addiction.

RECOMMENDATIONS

Implementation of Digital Health Education Programs

Incorporate structured Self-Instructional Modules on responsible mobile phone usage, the dangers of addiction, and digital well-being into school curricula.

Expand Research to Other Regions

It would be beneficial to extend similar research to other regions.

Further Research

Conduct longitudinal studies to evaluate the long-term impacts of interventions aimed at addressing mobile addiction.

Policy Development

Advocate for policy reforms that prioritize the prevention of digital addiction and the well-being of adolescents. These recommendations aim to reduce the risks linked to mobile phone addiction while encouraging a healthier and more informed use of technology among adolescents.

LIMITATIONS OF RESEARCH WORK

Limited Age Group (10 to 18 Years)

The study focuses solely on adolescents aged 10 to 18 years, which restricts its applicability to younger children and older adolescents or young adults.

The developmental and behavioral patterns of younger children (below 10 years) and older individuals (above 18 years) may differ significantly in terms of mobile phone usage and addiction patterns.

Findings may not be generalizable to pre-adolescents or emerging adults, who may exhibit different levels of digital dependency, cognitive maturity, and coping mechanisms.

Geographical and Institutional Scope (Only Private Schools in Delhi)

The study is limited to Private schools in Delhi, which may not represent the diverse socioeconomic, cultural, and technological landscapes of adolescents across India.

Excluding adolescents from rural areas or other states limits the findings' broader applicability, as mobile usage patterns may vary due to differences in access, awareness, and digital infrastructure.

The study includes only school-going adolescents, excluding those who may not be enrolled in formal education, such as dropouts, working adolescents, or students from alternative learning environments.

The behavioral patterns and mobile usage trends of students in elite private schools, public schools, and low-income government schools may differ due to varying access to technology, parental supervision, and digital literacy levels.

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