



## A Study to Assess the Effectiveness of Self-Instructional Module on Knowledge Regarding Prevention of Adverse Effects of Mobile Phone Games among Students in Selected Nursing College at Udaipur

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### ABSTRACT

This study evaluated the effectiveness of a self-instructional module (SIM) in improving students' knowledge about mobile gaming risks. A pre-experimental one-group pre-test post-test design was used, with nursing students selected through purposive sampling. Data collection involved a structured knowledge questionnaire administered before and after the intervention. Pre-test results showed that 61.67% of students had inadequate knowledge, 38.33% had moderate knowledge, and none had adequate knowledge. Post-intervention, 21.67% remained inadequate, 50% attained moderate knowledge, and 28.33% achieved adequate knowledge, demonstrating the effectiveness of the SIM. The mean knowledge score improved from  $12.45 \pm 3.20$  (pre-test) to  $22.80 \pm 2.85$  (post-test), with a statistically significant increase ( $p < 0.05$ ). Chi-square analysis revealed significant associations between pre-test knowledge and variables such as age ( $\chi^2 = 10.52$ ), daily mobile gaming duration ( $\chi^2 = 12.34$ ), and academic year ( $\chi^2 = 9.87$ ). The findings confirm that structured educational modules enhance awareness and promote responsible digital behavior, emphasizing the need for such interventions to mitigate the adverse effects of excessive mobile gaming.

**KEYWORDS** *Effectiveness; Knowledge; Self-instructional module; Nursing students; Prevention of adverse effects of mobile phone games*



## INTRODUCTION

Technology has become an essential part of daily life, with smart phones playing a major role in communication, work, and entertainment. While mobile gaming is a growing industry, concerns about its negative effects on health and well-being are rising<sup>1</sup>. Mobile gaming addiction is characterized by excessive and repetitive gaming, leading to issues such as impaired academic performance, social withdrawal, and psychological distress<sup>2</sup>. The World Health Organization (WHO) classified "Gaming Disorder" in ICD-11, identifying impaired control over gaming, prioritization of gaming over other activities, and continuation despite negative consequences<sup>3</sup>.

Excessive gaming can result in anxiety, depression, stress, and physical problems like neck pain, obesity, and repetitive strain injuries<sup>4</sup>. A study by Aligarh Muslim University found that students check their mobile devices an average of 160 times per day, affecting academic performance and well-being. The COVID-19 pandemic led to a surge in mobile gaming, with a 35% increase in weekly gaming time in early 2021<sup>5</sup>. Mobile games generated \$91.8 billion in revenue in 2022, with advancements like Augmented Reality (AR) and Virtual Reality (VR) driving further growth<sup>6</sup>. To mitigate addiction, individuals should set gaming limits, engage in physical activities, and avoid playing games before bedtime. Recognizing these risks helps promote responsible gaming and a healthier lifestyle<sup>7</sup>.

## NEED FOR STUDY

India has become one of the leading smartphone and mobile network markets, with increasing mobile data affordability driving higher smartphone usage. Post-pandemic, the mobile gaming segment has grown significantly, making India the largest market in South Asia. Dr. Dinika Anand from BLK Max Super Specialty Hospital states that mobile phone and gaming addiction are on the rise, leading to bedtime procrastination, social isolation, and mental health concerns<sup>8</sup>. A Redseer Strategy Consultants report highlights that Indians spend around 7.3 hours daily on smartphones, primarily for social media, messaging, and entertainment<sup>9</sup>.

Electronic games pose a threat to adolescents, potentially leading to psychological disorders, depression, and aggression. Rong Shao and Yunqiang Wang (2019) found that violent gaming may increase aggression, and technological advancements have fueled increased gaming time among students<sup>10</sup>. A study in Iran (2009-2010) revealed that gaming addiction negatively impacts physical and mental health, increasing anxiety and depression while



decreasing social functioning<sup>11</sup>. In 2018, the WHO included "Gaming Disorder" in ICD-11, defining it by impaired gaming control, increased gaming priority, and continued gaming despite negative consequences for at least 12 months. A Malaysian study (2014) found that 68% of students played games for 1-6 hours daily, with 53% using mobile phones. Preventing gaming addiction involves incorporating physical activities, social interactions, and parental supervision<sup>12</sup>. Observing significant mobile gaming addiction among nursing students, this study aims to assess their knowledge and develop a self-instructional module to enhance awareness and promote healthier habit.

## **.PROBLEM STATEMENT**

“A Study To Assess The Effectiveness Of Self-Instructional Module On Knowledge Regarding Prevention Of Adverse Effects Of Mobile Phone Games Among Students In Selected Nursing College At Udaipur.”

## **OBJECTIVES**

- To assess the existing level of knowledge on prevention of adverse effects of mobile phone games among students in selected nursing college.
- To assess the knowledge of students regarding prevention of adverse effects of mobile phone games after the administration of self-instructional module.
- To evaluate the effectiveness of self-instructional module by comparing the pre-test and post-test knowledge score.
- To find out the association between pre-test knowledge score with selected demographic variables.

## **HYPOTHESIS**

**H<sub>1</sub>:** There will be significant difference in the level of pre-test and post-test knowledge score on prevention of adverse effects of mobile phone games among students in selected nursing college at Udaipur.

**H<sub>2</sub>:** There will be significant association between the selected demographic variables and pre-test knowledge score regarding prevention of adverse effects of mobile phone games among students in selected nursing college at Udaipur.

## **MATERIALS AND METHODS**

**Research Approach:** A quantitative research approach was used in the study.



**Research Design:** Pre-experimental, one group pre-test post–research design used.

**Sample:** In the present study, the sample comprises 60 students studying in selected Nursing colleges at Udaipur who fulfill the inclusion criteria.

**Sampling Technique:** In the present study, the samples were selected through a non-probability purposive sampling technique.

**Setting:** In the present study, the setting was Kalptaru College of Nursing in Udaipur city.

**Population:** In the present study, the target population was nursing students in the selected nursing colleges at Udaipur city.

**Description of tool:** Structured questionnaire to assess the knowledge. It consisted of two parts:

**Part-I:** 7 Demographic data, includes the age in years, gender, type of family, educational status of father, educational status of mother, monthly family income (INR), and place of residence

**Part-II:** A structured questionnaire consisting of 30 items was considered appropriate for assessing the knowledge score of respondents. The questionnaire covered the following selected aspects: Knowledge about mobile games; Physical adverse effects of mobile phone games; Emotional adverse effects of mobile phone games; Prevention of adverse effects of mobile phone games. The maximum total score for the knowledge questionnaire was 30, with 1 mark awarded for each correct response and 0 marks for an incorrect response.

### **Ethical consideration**

- Approval from the ethical committee of Venkateshwar College of Nursing Udaipur.
- Before data collection, written permission was obtained from the concerned authority of the nursing college, at Udaipur.
- Anonymity and confidentiality of subjects were maintained.
- Informed consent was obtained from the subjects.

### **Plan for data analysis**

The data analysis will be done according to the study objectives by using descriptive and inferential statistics. The plan of data analysis would be as follows:

- Frequency, percentage, mean, and standard deviation will be calculated.



- A paired t-test will be used to test the hypothesis.
- The chi-square test will be used for association with demographic variables.

## RESULTS AND DISCUSSION

The data obtained are divided into sections for easy and accurate interpretation of data. The data finding has organized under the following section:

**Section A:** Description of the demographic variables of nursing students.

**Section B:** Description of the samples according to pre-test & post-test level of knowledge among nursing students.

**Section C:** Description of the samples according to comparison of area-wise knowledge scores before and after the administration of the self-instructional module.

**Section D:** Analyze the effectiveness of self-instructional module by comparing pre-test & post-test level of knowledge among nursing students.

**Section E:** Association between pre-test knowledge level and their selected demographic variables.

### Section A: Description of the demographic variables of nursing students:

The socio-demographic characteristics of the respondents are presented in the table, which includes variables such as age, gender, type of family, educational status of parents, family income per month, and place of residence.

N = 60

**Table 1** Description of the demographic variables of nursing students

S. N.	Demographic variables	Frequency (n)	Percentage (%)	
1	Age in Years	17-19	52	86.67
		20-22	8	13.33
2	Gender	Male	35	58.33
		Female	25	41.67
3	Type of Family	Nuclear	33	55.00
		Joint	27	45.00
4	Educational Status of Father	Metric	25	41.67
		Intermediate	26	43.33
		Graduate & Above	2	3.33
		No Formal Education	7	11.67
5	Educational Status of Mother	Metric	27	45.00
		Intermediate	18	30.00
		Graduate & Above	1	1.67
		No Formal Education	14	23.33
6	Monthly Family Income (INR)	10,000 - 20,000	22	36.67
		20,001 - 40,000	13	21.67
		40,001 - 60,000	6	10.00
		60,001 & Above	19	31.67



7	Place of Residence	Rural	43	71.67
		Sub-rural	8	13.33
		Urban	9	15.00

- **Age:** The majority of the respondents, 52 (86.67%), were in the age group of 17–19 years, while only 8 (13.33%) belonged to the 20–22 years age group.
- **Gender:** Out of 60 respondents, 35 (58.33%) were male, and 25 (41.67%) were female.
- **Type of Family:** A total of 33 (55%) respondents belonged to nuclear families, whereas 27 (45%) were from joint families.
- **Educational Status of Father:** Among the fathers of the respondents, 25 (41.67%) had metric education, 26 (43.33%) had intermediate education, and 2 (3.33%) had completed graduation and above. Additionally, 7 (11.67%) of the fathers had no formal education.
- **Educational Status of Mother:** Regarding the educational qualification of mothers, 27 (45%) had matric education, 18 (30%) had completed intermediate education, and only 1 (1.67%) had a graduate or higher degree. However, 14 (23.33%) of the mothers had no formal education.
- **Family Income per Month (INR):** The table indicates that 22 (36.67%) respondents' families had a monthly income between ₹10,000–₹20,000, while 13 (21.66%) had an income range of ₹20,001–₹40,000. Additionally, 6 (10%) belonged to families with a monthly income of ₹40,001–₹60,000, and 19 (31.67%) had an income of ₹60,001 and above.
- **Place of Residence:** The majority of respondents, 43 (71.67%), resided in rural areas, followed by 8 (13.33%) in semi-urban (sub-rural) areas, and 9 (15%) in urban areas.

### Section B: Description of the samples according to pre-test & post-test level of knowledge among nursing students:

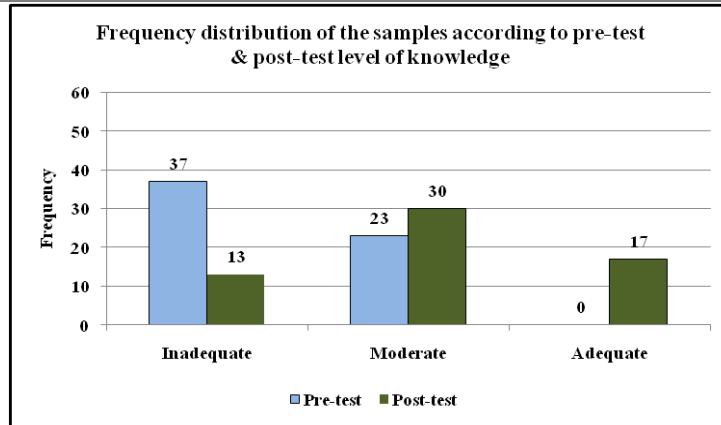
N = 60

The Table-2 & Figure-1 presents a comparison of the participants' knowledge levels before and after an intervention, categorized into three levels: Inadequate, Moderate, and Adequate. In the pre-test and post-test knowledge levels of 60 nursing students regarding the prevention of adverse effects of mobile phone games. In the pre-test, 37 (61.67%) students had inadequate knowledge, 23 (38.33%) had moderate knowledge and none had adequate knowledge. After the self-instructional module (SIM) intervention, 13 (21.67%) students remained in the inadequate category, 30 (50.00%) attained moderate knowledge, and 17 (28.33%) achieved adequate knowledge. This significant improvement in knowledge levels demonstrates the effectiveness of the SIM in enhancing students' awareness.



**Table 2** Description of the samples according to pre-test & post-test level of knowledge among nursing students

Level of Knowledge	Pre-test		Post-test	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Inadequate	37	61.67	13	21.67
Moderate	23	38.33	30	50.00
Adequate	0	0.00	17	28.33
<b>Total</b>	<b>60</b>	<b>100.00</b>	<b>60</b>	<b>100.00</b>



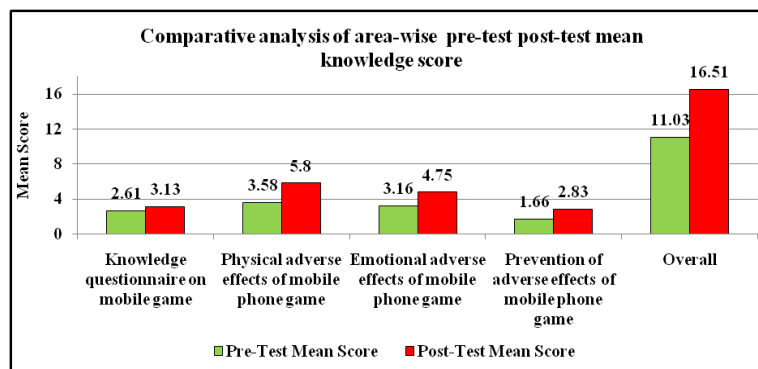
**Figure 1** Description of the samples according to pre-test & post-test level of knowledge among nursing students

**Section C: Description of the samples according to comparison of area-wise knowledge scores before and after the administration of the self-instructional module:**

The structured table for the comparison of area-wise knowledge scores before and after the administration of the self-instructional module:

**Table 4** Description of the samples according to comparison of area-wise knowledge scores before and after the administration of the self-instructional module

Knowledge Related To	Pre-Test			Post-Test		
	Mean	Mean %	SD	Mean	Mean %	SD
<b>Knowledge questionnaire on mobile game</b>	2.61	52.2%	1.35	3.13	62.6%	1.51
<b>Physical adverse effects of mobile phone game</b>	3.58	32.54%	1.73	5.8	52.72%	2.13
<b>Emotional adverse effects of mobile phone game</b>	3.16	35.11%	1.52	4.75	52.77%	1.89
<b>Prevention of adverse effects of mobile phone game</b>	1.66	33.2%	1.1	2.83	56.6%	1.28
<b>Overall</b>	<b>11.03</b>	<b>36.76%</b>	<b>3.9</b>	<b>16.51</b>	<b>55.03%</b>	<b>5.48</b>



**Figure 2** Description of the samples according to comparison of area-wise knowledge scores before and after the administration of the self-instructional module



Table 3 and Figure 2 illustrate the comparative analysis of area-wise knowledge scores on the prevention of adverse effects of mobile phone games before and after the administration of the self-instructional module. In the pre-test, the mean score for knowledge related to mobile games was 2.61, with a mean percentage of 52.2%, and a standard deviation (SD) of 1.35. After the intervention, the post-test mean score increased to 3.13, with a mean percentage of 62.6%, and an SD of 1.51, indicating an improvement in knowledge in this area. Regarding physical adverse effects of mobile phone games, the pre-test mean score was 3.58, with a mean percentage of 32.54%, and an SD of 1.73. Following the self-instructional module, the post-test mean score improved to 5.8, with a mean percentage of 52.72%, and an SD of 2.13, suggesting a significant enhancement in awareness of physical health risks. For emotional adverse effects of mobile phone games, the pre-test mean score was 3.16, with a mean percentage of 35.11%, and an SD of 1.52. The post-test results showed an increase in the mean score to 4.75, with a mean percentage of 52.77%, and an SD of 1.89, reflecting a considerable improvement in knowledge about emotional consequences. In terms of prevention of adverse effects of mobile phone games, the pre-test mean score was 1.66, with a mean percentage of 33.2%, and an SD of 1.1. After the intervention, the post-test mean score rose to 2.83, with a mean percentage of 56.6%, and an SD of 1.28, indicating better comprehension of preventive measures. Overall, the total pre-test mean knowledge score was 11.03, with a mean percentage of 36.76%, and an SD of 3.9. In the post-test, the mean score significantly increased to 16.51, with a mean percentage of 55.03%, and an SD of 5.48. This substantial improvement in overall knowledge scores suggests that the self-instructional module was effective in enhancing the respondents' awareness of the adverse effects of mobile phone games and their prevention.

#### Section D: Analyze the effectiveness of self-instructional module by comparing pre-test & post-test level of knowledge among nursing students:

N = 60

**Table 4** Effectiveness of self-instructional module by comparing pre-test & post-test level of knowledge among nursing students

Test	Mean	SD	Mean Difference	df	t- value	Inference
Pre-test	11.03	3.9	5.48	59	6.37*	S 2.00* (0.05 Level)
Post-test	16.51	5.48				

NS-Not Significant; \*\* Significant





**H<sub>1</sub>:** There will be significant difference in the level of pre-test and post-test knowledge score on prevention of adverse effects of mobile phone games among students in selected nursing college at Udaipur.

The table 4 presents an analysis of the effectiveness of the self-instructional module by comparing the pre-test and post-test knowledge levels among nursing students. The mean knowledge score in the pre-test was 11.03, with a standard deviation (SD) of 3.9. After the administration of the self-instructional module, the post-test mean score increased to 16.51, with an SD of 5.48. This indicates a significant improvement in the knowledge level of the students after receiving the intervention. The mean difference between the pre-test and post-test scores was 5.48, highlighting a substantial gain in knowledge. The t-value obtained was 6.37, which is higher than the critical value at the 0.05 level of significance (2.00). Since the calculated t-value is significantly greater than the critical value, the result is statistically significant, confirming that the self-instructional module effectively enhanced the knowledge of nursing students regarding the prevention of adverse effects of mobile phone games. Thus, the findings suggest that the self-instructional module was a beneficial educational tool in improving the awareness and understanding of nursing students on this topic. Hence **H<sub>1</sub>** is accepted and null hypothesis rejected.

**Section E: Association between pre-test knowledge level and their selected demographic variables:**

**N = 60**

**Table 5** Association between pre-test knowledge level and their selected demographic variables

S. N.	Demographic variables	df	Tabulated Value (0.05)	Calculated Chi-Square test	Inference
1	Age in Years	1	3.841	4.21	Significant
2	Gender	1	3.841	3.78	Not Significant
3	Type of Family	3	7.815	1.56	Not Significant
4	Educational Status of Father	3	7.815	9.54	Significant
5	Educational Status of Mother	3	7.815	5.35	Not Significant
6	Monthly Income	3	7.815	4.17	Not Significant
7	Residence of Student	2	5.991	1.19	Not Significant

**H<sub>2</sub>:** There will be significant association between the selected demographic variables and pre-test knowledge score regarding prevention of adverse effects of mobile phone games among students in selected nursing college at Udaipur.

The table 5 presents the association between pre-test knowledge levels regarding the prevention of adverse effects of mobile phone games and selected demographic variables. A significant association was found between age and pre-test knowledge ( $\chi^2 = 4.21$ ,  $df = 1$ ,  $p = 0.05$ ), indicating older students had



better knowledge. Similarly, the educational status of the father showed a significant association ( $\chi^2 = 9.54$ ,  $df = 3$ ,  $p = 0.05$ ), suggesting students with more educated fathers had higher knowledge. Gender ( $\chi^2 = 3.78$ ,  $df = 1$ ,  $p = 0.05$ ), type of family ( $\chi^2 = 1.56$ ,  $df = 3$ ,  $p = 0.05$ ), and educational status of the mother ( $\chi^2 = 5.35$ ,  $df = 3$ ,  $p = 0.05$ ) did not show a significant association. Additionally, monthly income ( $\chi^2 = 4.17$ ,  $df = 3$ ,  $p = 0.05$ ) and residence of the student ( $\chi^2 = 1.19$ ,  $df = 2$ ,  $p = 0.05$ ) were also not significantly associated. The findings indicate that students with higher paternal education had better knowledge, while factors like gender, family type, and income did not influence knowledge levels significantly. Thus, the hypothesis stating a significant association between demographic variables and knowledge is partially accepted, as only age and father's education were significantly related to pre-test knowledge scores. Hence  $H_2$  is accepted and null hypothesis rejected.

## CONCLUSION

The present study aims to assess the effectiveness of the self-instructional module on knowledge regarding prevention of adverse effects of mobile phone games among students in the selected nursing college of Udaipur Rajasthan. The quantitative research approach and pre-experimental one-group pre-test post-research design was adopted for this study. The non-probability purposive sampling technique was used for data collection. Data were collected from the nursing students to assess the level of their knowledge among the nursing students by using a structured questionnaire before and after the self-instructional module. The collected data were tabulated and analyzed by descriptive and inferential statistics. The study findings showed that the self-instructional module was effective in improving the knowledge of nursing students regarding prevention of adverse effects of mobile phone games. There was a significant difference between the pre-test knowledge score and post-test knowledge score after the administration of the self-instructional module regarding the knowledge of prevention of adverse effects of mobile phone games at the 0.05 level of significance. There was a significant association between the pre-test level of knowledge and their selected demographic variables.



## REFERENCES

1. Gentile, D. A., & Anderson, C. A. (2014). Long-term relations among prosocial-media use, empathy, and prosocial behavior. *Psychological Science*, 2, 358-368.
2. Goel, D., Subramanyam, A., & Kamath, R. (2013). A study on the prevalence of internet addiction and its association with psychopathology in Indian adolescents. *Indian Journal of Psychiatry*, 55(2), 140-143.
3. Kumar, V. S., & Girishchandra, P. (2016). A study on the relationship of Facebook and game addictive behavior with personality traits among medical students. *International Journal of Research in Medical Sciences*, 4(8).
4. Mentzoni, R. A., Brunborg, G. S., & Molde, H. (2011). Problematic video game use: Estimated prevalence and associations with mental and physical health. *Cyberpsychology, Behavior, and Social Networking*, 14(10), 591-596.
5. Nikhita, C. (2015). Prevalence of mobile phone dependence in secondary school adolescents. *Journal of Clinical and Diagnostic Research*, 9(11), 6-9.
6. Prasath, A. et al. (2022). Prevalence, underlying factors, and consequences of mobile game addiction in school-going children of six to twelve years in Kanyakumari district. *International Journal of Contemporary Pediatrics*, 9, 347-351.
7. Rehbein, F., Kleimann, M., & Mössle, T. (2010). Prevalence and risk factors of video game dependency in adolescence: Results of a German nationwide survey. *Cyberpsychology, Behavior, and Social Networking*, 13(3), 269-277.
8. Saquib, N., et al. (2017). Video game addiction and psychological distress among expatriate adolescents in Saudi Arabia. *Addictive Behaviors Reports*, 6, 112-117.
9. Sayeed, M. A., et al. (2021). Prevalence and underlying factors of mobile game addiction among university students in Bangladesh. *Global Mental Health (Cambridge)*, 8, e35. <https://doi.org/10.1017/gmh.2021.34>
10. Thomas, C. (2017). Mobile phone dependency and nomophobia among undergraduate students of Aburoad, Rajasthan. *New Journal of Psychiatric Nursing*, 6(1), 9-15.
11. Zamani, E., et al. (2009). Effects of addiction to computer games on physical and mental health of female and male students. *Addiction & Health*, 1(2), 98-104.
12. Zulfadli, B. Y. (2014). The effects of online game addiction among UNISEL's Shah Alam campus students. *Journal of Psychology & Education Research*.