IJNII - International Journal of Nursing Innovations and Insights
Volume 3, Issue 2 | November-2025
e-ISSN: 2998-3142 Print ISSN: 2998-3118

An Evaluation of a Structured Teaching Programme on Students' Knowledge of the Health Impact of Mobile Phone Usage at Al Ameen Arts & Science College, Thiruvannamalai District

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Received: 01-09-2025; Revised: 29-09-2025; Accepted: 25-10-2025; Published: 22-11-2025

Abstract

The world has become technologically rich and human development of science and technology have been outstanding over the last 20 years. According to recent studies, human screen time has greatly grown due to the popularity of mobile phones, and the fast growth of artificial intelligence has only broadened the scope of mobile phones, turning them into an almost essential device in everyday life. Among the most common users of these technologies are students.Even though mobile phones have a lot of benefits to offer, overuse has been linked to several negative impacts on human health. This study used a pre-experimental, one-group, pre-test/post-test design. This research was carried out on 60 degree students and through a self-administered questionnaire to determine the level of knowledge before the intervention. A post-test was conducted after administration of the STP. The analysis of the results showed that there was a much better improvement in the knowledge scores with the mean of the pre-test score being 15.98 (SD = 0.68) which rose to 30.77 (SD = 4.61) in the post-test. After the intervention, 44 students (73 percentage) demonstrated good knowledge, and 16 students (27 percentage) demonstrated moderate knowledge, and no students were left in the deficient knowledge range.These results show that the Structured Teaching Programme proved to be very successful in enhancing the awareness of students of the health consequences of mobile phone use.

Keywords: ***Mobile phone use, Health impacts, Structured Teaching Programme (STP), Knowledge enhancement, Educational intervention, Pre-test/post-test design, College students, Screen time, Awareness programme.***

1.Introduction

It is a time of mobile telephones everywhere as common as the air that people breathe and the influence they have in defining communication, education and social interaction cannot be ignored. These pocket sized gadgets have become doorways to a limitless world of knowledge and potential. However, there are some backlogs of this digital revolution. Extensive use of mobile phones is something that causes concern regarding its effects on physical, mental and social health (1).

In rural regions, college students tend to use mobile phones, both in academics and personal activities though not every student is aware of the health risks. Excessive screen time has been associated with headaches, eye strains and sleep disorders (2). Among the negative consequences of overuse of mobile phones, the effect on sleep is one of the most widespread. The blue light produced by screens is the primary culprit to inhibit the synthesis of melatonin the hormone that leads to the Sleep-wake cycles. Phone use at night is directly related to delayed sleep onset, poorer sleep quality that can bear a dire effect on academic achievement and cognitive functioning (3). Research by Reddy et al. (2013) has observed that approximately 82 percent of students who used mobile phones reported musculoskeletal pains, and a large proportion complained about Digital Eye Strain.

In light of this emerging national health issue, educational interventions, along with structured educational intervention, provide an opportunity to address awareness and healthier usage habits.

2.Methodology

In this study, a pre experimental, one group pre test/ post test design was used to determine the effectiveness of a structured teaching programme. The study was done at the Al Ameen Arts and Science College, Somasipadi, Thiruvannamalai District(4). The research adopted a disproportionate stratified random sampling technique to

identify the study participants.A self-administered questionnaire designed by the researcher was used in collecting data which comprised two parts. Part A will contain 15 questions to record socio-demographic information (i.e. age, gender, occupation etc. and place of residence). Part B included 35 questions in which the participants were asked about their level of knowledge about the health impact of using mobile phones, including the understanding of basic terms, health and behavioral effects, addiction, and preventive strategies(5).

This intervention included Structured Teaching Programme (STP) about the health benefits and harms of using mobile phones, the principle of Specific Absorption Rate (SAR) and the practical ways of reducing the health risks (6).The pre-test was done to ascertain the knowledge level at baseline and then the STP was implemented. Seven days later, the same questionnaire was used in a post-test to determine the level of knowledge gained. The chi-square tests have been used to test the relationship between knowledge scores and the demographic variables of choice (7).

3.Results

The research findings indicate that there is a high enhancement in the knowledge of the students when using a structured teaching programme. The mean score of overall pretests knowledge was 15.98(6).

3.1 Pretest Knowledge Scores

Table 1 Shows the Aspect-Wise Mean, Standard Deviation and Mean Percent, Scores of The Pretest Knowledge Level.

TABLE 1 Baseline Knowledge Scores on the Effects of Mobile Phone Use

Sl.no	Key Expertise Domains	No. of items	Max score	Mean	Mean%	SD
1.	Core Concepts Related to Mobile Phone Use	3	3	1.51	50.53	0.67
2.	General Effects of Cell Phone	6	6	2.55	42.5	1.03
3.	Health Implications of Cell Phone	10	10	4.31	43.1	2.09
4.	Behavioral Impact of Cell Phone	7	7	3.1	44.28	1.75
5.	Mobile Phone Dependence and Overuse	3	3	1.51	50.33	0.89
6.	Measures and Safe Usage Practices	6	6	3	50	1.55
	Overall	35	35	15.98	45.67	7.98

3.2 Post-test Knowledge Scores

Table 2 shows the Aspects of Mean, Standard Deviation and Mean Percentage Scores Of The Post-Test Level Of Knowledge(8).

TABLE 2 Post-Intervention Knowledge Scores on the Effects of Mobile Phone Use

Sl.no	Key Knowledge Domains	No. Of items	Max score	Mean	Mean%	SD
1.	Core Concepts Related to Mobile Phone Use	3	3	2.91	97	0.27
2.	General Effects of Cell Phone Use	6	6	5.25	87.5	0.87
3.	Health Implications of Cell Phone Use	10	10	8.65	86.5	1.41
4.	Behavioral Impact of Cell Phone Use	7	7	6.03	86.14	1.07
5.	Mobile Phone Dependence and Overuse	3	3	2.8	93.33	0.4
6.	Measures and Safe Usage Practices	6	6	5.13	85.5	0.87
	Overall	35	35	30.77	87.91	4.617

3.3 The Structured Teaching Programme is effective

Table 3 Shows The results of the structured teaching programme and the t-values and p-values are significant (below 0.001) in all the knowledge variables, which proves the effect of the intervention(9).

TABLE 3 Impact of a Structured Teaching Programme on Students' Knowledge of Mobile Phone Use

Sl.no	Key Knowledge Domains	Pre-test	Post-test	t- value	p-value
1.	Core Concepts Related to Cell Phone Use	1.51±0.67	2.91±0.27	14.77277	<0.001*
2.	General Effects of Cell Phone Use	2.55±1.03	5.25±0.87	15.45003	<0.001*
3.	Health Implications of Cell Phone Use	4.31±2.09	8.65±1.41	13.32827	<0.001*
4.	Behavioral Impact of Cell Phone Use	3.1±1.75	6.03±1.07	11.05617	<0.001*
5.	Mobile Phone Dependence and Overuse	1.51±0.89	2.8±0.40	10.22764	<0.001*

6.	Measures and Safe Usage Practices	3±1.55	5.13±0.87	9.277129	<0.001*
	Over all	15.98±7.98	30.77±4.61	12.411	<0.001*

3.4 Demographic Associations with Pre-test knowledge

TABLE 4 Association between Demographic Variables and Pretest Knowledge Score

No	Demographic variables	Frequency	Pre-test Knowledge scores		x^2	*df*	P Value inference
			Median & below Median(l5)	Above median (l 5)			
1.	**Age in years:**				8.408	3	0.038 **S****
	16-19 yrs	19	13	6			
	19-22 yrs	19	12	7			
	22-25 yrs	14	4	10			
	25-28yrs & above	8	2	6			
2.	**Gender:**				6.906	1	0.008 **S****
	Male	32	23	9			
	Female	28	8	20			
3.	**Course of study:**	12	7	5	9.154	3	0.027 **S****
	BSc	23	12	6			
	B.Com	9	5	8			
	B.B.A	16	7	10			
4.	**Place of residence:**				8.820	3	0.031 **S****
	Home	29	14	7			
	Hosteller	15	5	7			
	Paying guest	10	7	9			
	Relatives	6	5	6			
5.	**Family income (In rupees per month):**				4.642	3	0.199 **NS***
	Below IQs. 3000	14	8	6			
	Rs. 3001-5000	17	7	7			
	Rs. 5001-7000	19	11	8			
	Rs.7001 and above	10	5	8			
6.	**Occupation of the father:**				2.989	3	0.393 **NS***
	Government Employee	17	10	7			
	Private Em 10 ee	19	8	6			
	Non-Government Em 10 ee	16	6	10			
	Others	8	7	6			
7.	**Occupation of the mother:**				9.102	3	0.027 **S****
	House wife	27	10	6			
	Government Employee	17	8	9			
	Private Em 10 ee	9	7	6			
	Non-Government Em 10 ee	7	6	8			

8.	**Type of mobile phone:** Basic mobile	38	15	13	1.768	2	0.413 **NS***
	Basic set with internet	16	8	10			
	Smart phone	6	8	6			
9.	**Duration of mobile phone use per day:** S I hr	22	10	7	3.264	3	0.352 **NS***
	1 to 2 hrs	14	6	7			
	2 to 3 hrs	10	7	8			
	23 hrs	14	8	7			
10.	**Did you receive any information**: Yes	38	19	12	5.014	1	0.025 **NS***
	No	22	12	17			
11.	**If yes, Source of information:** Health personal	11	5	6	2.073	3	0.557 **NS***
	Family members/relative s	19	9	7			
	Friends/Neighbours	17	7	10			
	Mass media	13	10	6			

NS*-Not Significant, S**- Significant at p<0.01 level and p<0.05 level
(df=1, x^2=3.84. df=2, x^2=5.99. df=3, x^2=7.81 at p<0.05 level)

4.Discussion

The study shows that structured teaching programmes have the ability to close the knowledge gap on health effects of using mobile phones amongst college students. The marked improvement in post test knowledge scores, 87.91, over 45.67 in pretest, in all concepts, effects, health, addiction and behavioural effects(. Basic concepts of mobile phones had the highest knowledge gain (97% post test mean value)(10).

The outcome of the matched t-test concurs with the students who have some background knowledge and the knowledge can be moderately enhanced with a structured teaching. The demographic analysis found that there were strong relations between pre-test knowledge scores and variables, and that the socio-economic and educational background affects the level of awareness in the baseline(11). There were no significant correlations with age, gender or type of mobile phone that indicates that these variables may not have a direct influence on initial knowledge levels. These findings are relevant to the existing literature, which has demonstrated that educational intervention, which is targeted, can enhance the level of health-related awareness in young adults, especially when demographic profiles are similar. The restrictions of the study such as its targeting college students and one week data collection(12). The findings would recommend the incorporation of such educational programmes in college curriculum with modifications depending on the demographics in order to achieve the best impact.

5.Conclusion

The systematic instructional program really enhanced knowledge among students with regard to the effects of using mobile phones on their health conditions. Focusing on the most important aspects like addiction, health impacts and partial preventative actions, this intervention helped students to make informed choices concerning the use of mobile phones. The correlation with the demographic variables underscores that they should approach the students with the socio-economic backgrounds differently, primarily the students. Schools in the rural setting

ought to consider the implementation of programmes like these in order to enhance health awareness and well-being among the school-going children.

Acknowledgement: Nil

Conflicts of interest

The authors have no conflicts of interest to declare

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