Effectiveness of Snake and Ladder game on knowledge regarding health hazards of electronic gadgets among adolescents at selected colleges, Puducherry

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Abstract-

Introduction: Electronic gadgets are a part of our daily life. Electronic gadgets affect our ability to communicate effectively. Nowadays you don't need a dictionary to find the meaning of the words you have to type it on your phone. The number of people who own electronic gadgets has steadily increased and the dependency on them too. According to a report of the social talks in January (2021), there were 4.66 billion active internet users worldwide 59.5 percent of the global population. Of this total, 92.6 percent (4.32 billion) accessed the internet via mobile devices. Objectives: The aim of the study was to evaluate the effectiveness of Snake and Ladder game on knowledge regarding the health hazards of electronic gadgets among adolescents. Method: A pre-experimental design was used in this study. A total of 30 students were selected by using a purposive sampling technique. The Self-structured questionnaire was used to collect data. Findings: The results revealed that most of the adolescents 17(56.7%) had inadequate knowledge, 7(23.3%) had moderate knowledge and 6(20.0) had adequate knowledge in the pre-test and the post-test after the intervention, 29(96.7%) had adequate knowledge and 1(3.3%) had moderate knowledge. The findings of the study show that there is a significant difference between the effectiveness of the pre-test and post-test scores of knowledge regarding health hazards of electronic gadgets among adolescents after the intervention, respectively. The demographic variables Age, Hours of gadgets use, and knowing about health hazards showed significant associations between the pre-test score of the knowledge regarding health hazards of electronic gadgets among adolescents with selected demographic variables in the experimental group. Conclusion: In this study, Snake and Ladder game shows improvement in the student's knowledge regarding the health hazards of electronic gadgets.

***Keywords*: Snake and Ladder game, Health hazards of electronic gadget.**

INTRODUCTION

"The production of many useful things produces many useless people".

- Karl Marx

Electronic gadgets are special electronic devices that require electricity to operate. Examples of electronic gadgets include video games, televisions, computers, games, phone apps, cell phones and tablets. These devices are the result of inventions and technological developments. Young people and children tend to be active consumers and users of most electronic devices. [1]

At the beginning of 2022, the number of global internet users had risen to 4.95 billion and internet penetration now stood at 62.5 percent of the world's population. The data shows that the number of internet users increased by 192 million (+4.0%) last year. Due to restrictions in research and reporting caused by COVID-19, the actual growth trend may besignificantly higher than assumed.

In the last 12 months, the number of social media users worldwide has increased by more than 10%, and in 2021, 424 million new users will begin their social media journey.[2]**Need for the study**

According to Priyesh Marskole, et al. (2021), a cross-sectional study was conducted to assess the impact of electronic devices on the mental and physical health of medical students in central India. Those students who were willing and present at the time of data collection were included in the study. For this purpose, 200 samples were selected. A pre-designed, semi-structured questionnaire was used as the instrument for data collection. The data collected was then compiled in an Excel spreadsheet and the corresponding analyses were carried out. The results of the study showed that around 70% of respondents have the habit of waking up between 6 and 8 in the morning.

95.5% of respondents used smartphones, 61.5% of respondents used laptops/computers. 58% spent less than 4 hours using the devices, while 6.5% spent more than 10 hours. We found that 54% of participants had health problems with their eyes, and 46.5% said they felt anxious, irritable, or restless without their devices. The study found that teens experienced health problems such as headaches (30%), migraines (1%), depression (7%), and other problems such as back pain, weakness, joint pain, and others.[3]

Therefore, the researcher is interested in conducting a research study to evaluate the effectiveness of the snake and ladder game on adolescent's knowledge of the health hazards of electronic devices.

Statement of the Problem

A study to evaluate the effectiveness of Snake and Ladder game on knowledge regarding health hazards of electronic gadgets among adolescents at selected colleges, Puducherry.

Objectives

- To evaluate the pre-test and post-test knowledge regarding health hazards of electronicgadgets among adolescents.
- To evaluate the effectiveness of Snake and Ladder game on knowledge regarding healthhazards of electronic gadgets.
- To associate the pre-test level of knowledge regarding health hazards of electronic gadgets with selected demographic variables among the experimental group.

Assumptions

- Snake and Ladder game will improve knowledge about the hazards of electronicgadgets.
- Snake and Ladder game may stimulate young people to get actively involved.
- Snake and Ladder game will enhance relationships with classmates.

Hypothesis

1. There is a significant difference between the pre-test and post-test scores on knowledge regarding hazards of electronic gadgets among adolescents in the experimental group

Delimitation

- The samples were limited to 30 students.
- The duration of the study is limited to 1 week
- The samples were drawn from the College of Nursing -East Coast Institute of MedicalSciences.

RESEARCH METHODOLOGY

"My methodology is not knowing what I'm doing and making thatwork for me". **- Stone Gossard.**

Research Approach

A quantitative research approach is used for this study.

Research Design

Pre-experimental (one group pre-test post-test design) design is used for this study.

Study Group	Pre-test	Intervention	Post-test
Experimentalgroup	O1	X	O2

Variables of the Study

Independent variable: Snake and Ladder Game

Dependent variables: knowledge regarding health hazards of excessive use ofelectronic gadgets

Study Setting

The samples were drawn from the College of Nursing, East Coast Institute of Medical Sciences, Puducherry.

Population

In the present study, the population included all the adolescents in Puducherry.

Target population

In this study, the target population comprised all adolescents in the College of Nursing East Coast Institute of Medical Sciences Puducherry.

Accessible population

In this study, the accessible population is the late adolescents who are all first-year GNM students in the College

of Nursing East Coast Institute of Medical Sciences, Puducherry.

Sample

In this study, the samples are selected adolescents in the first year of GNM degree programs at the College of Nursing East Coast Institute of Medical Sciences, Puducherry.

Sampling Technique

In the present study, a non-probability purposive sampling technique is used to select the sample.

Sample Size

The sample size for the study is **30** students (N= 30).

Criteria for Selection of Sample:

Inclusion criteria:

Students who are

- Studying first-year GNM at the College of Nursing East Coast Institute ofMedical Sciences, Puducherry.
- Students who are willing to participate in this study.

Exclusion criteria:

Students who are

- Unavailable during the period of data collection
- Students who are not physically able at the time of data collection.

Description of the Tool:

The data collection was carried out with the help of an instrument comprising 2sections.

Section A - Demographic variables **Section B** - Self-structured questionnaire**Score Interpretation:**

Category	Score	Percentage
Adequate	13 - 30	87 - 100 %
Moderate	7 - 12	47 – 80%
Inadequate	0 - 6	0 – 40%

Data Collection Procedure:

The data collection took place from 19.6.2023 to 24.6.2023. The researcher selected 30 adolescents using a purposive sampling method and administered the self-structured questionnaire as a pre-test and post-test. The duration of data collection was planned for 1 week. After the pre-test, the snake and ladder game was played with the study participants based on their knowledge about the health hazards of electronic devices.

During data collection, the researcher introduced herself to the study participants and maintained a rapport with them. They were assured that they would not suffer any physical, psychological, or emotional harm during the study. Data collection began on the first day of the visit. A self-completed questionnaire was used to collect demographic variables and knowledge of electronic devices from the study participants. In the experimental group, the researcher conducted the snake and ladder game. The study participants were more enthusiastic and actively participated in the sessions. Post-test was conducted one week after the intervention, using the same questionnaire as in the experimental group.

Method of data analysis and presentation:

The data collected using the self-structured questionnaire were carefully recorded and analyzed using Descriptive and Inferential statistics (Chi-Square and T-test).

DATA ANALYSIS AND INTERPRETATION

SECTION A: Description of the demographic variables among adolescents in theexperimental group.

Regarding age, the majority of the 24 (80%) samples in the experimental group were 18 years old. Regarding gender, the majority of the 24 (80%) samples in the adolescent age group were male. Regarding the number of children: the majority of 16 (53.3%) had 2 children. Regarding family income, the majority of 27 (90%) samples were in the middle socioeconomic status. In terms of availability of appliances, 11 (36.7%) owned more than 2 appliances. The majority of the adolescents were Hindus 25 (83.3%). In terms of place of residence, most of the adolescents 18 (60%)lived in urban areas. In terms of family type, most adolescents 24 (80%) were from nuclear families. Regarding the use of electronic devices, most adolescents 13 (43.3) used them for 7 hours or more. In terms of outdoor activities, most of the 29 (96.7%) spent their time with friends. The majority of adolescents 13 (43.3) took part in family gatherings. In terms of reading habits, most of 21 (70%) read storybooks. When asked about knowledge of health risks, the majority of 20 (66.7) answered yes. The age of the father was between 40 and 50 years for the majority of the adolescents. The majority of the 16 (53.3) adolescent fathers had completed primary school. Most of the adolescents, 17 (56.7 %), were self-employed. The age of the adolescents' mothers was mostly 40 and over. 19 (63.3%) of the adolescents' mothers had completed primary school. The majority of young people whose mothers are employed are unemployed.

SECTION B: Evaluate the knowledge regarding health hazards of electronic gadgets among adolescents in the experimental group. (N=30)

Knowledge regarding health hazards of electronic gadgets	**Experimental group**			
	Pre-test		**Post-test**	
	N	**%**	**N**	**%**
Adequate knowledge	6	20.0	29	96.7
Moderate knowledge	7	23.3	1	3.3
Inadequate knowledge	17	56.7	0	0
TOTAL	30	100.0	30	100.0
MEAN	6.83		23.4	
STANDARD DEVIATION	5.66954		4.87499	

SECTION C: Effectiveness of snake and ladder game on knowledge regarding health hazards of electronic gadgets among adolescents in the experimental group.

(N=30)

REGARDING HEALTH HAZARDS OF ELECTRONIC GADGETS - EXPERIMENTAL GROUP						
TEST	**MEAN**	**STANDARD DEVIATION**	**MEAN DIFFERENCE**	**Paired t-test 't' VALUE**	**df**	**„p" VALUE**
Pre-test	6.83	5.66954	-16.56	-13.836	29	0.000
Post-test	23.4	4.87499				

*****p<0.001 HS- Highly significant**

SECTION D: Associate between the pre-test score of knowledge regarding health hazards of electronic gadgets among adolescents with selected demographic variables in the experimental group.

The demographic variables age, duration of device use, and knowledge of health hazards showed a significant correlation between the result of the pre-test on knowledge of health hazards of electronic devices among adolescents and selected demographic variables in the test group.

The other demographic variables showed no significant correlation between the result of the pre-test and the knowledge about the health risks of electronic devices among adolescents and the selected demographic variables in the experimental group.

DISCUSSION

A. Demographic variables of the sample:

Regarding age, the majority of the 24 (80%) samples in the experimental group were 18 years old. Regarding gender, the majority of the 24 (80%) samples in the adolescent age group were male. Regarding the number of children: the majority of 16(53.3%) had 2 children. Regarding family income, the majority of 27 (90%) samples were in the middle socioeconomic status. In terms of availability of appliances, 11(36.7%) owned more than 2 appliances. The majority of the adolescents were Hindus 25(83.3%). In terms of place of residence, most of the adolescents 18 (60%) lived in urban areas. In terms of family type, most adolescents 24 (80%) were from nuclear families. Regarding the use of electronic devices, most adolescents 13 (43.3) used them for 7 hours or more. In terms of outdoor activities, most of the 29 (96.7%) spent their time with friends. The majority of adolescents 13 (43.3) took part in family gatherings. In terms of reading habits, most of 21 (70%) read storybooks. When asked about knowledge of health risks, the majority of 20 (66.7) answered yes. The age of the father was between 40 and 50 years for the majority of the adolescents. The majority of the 16 (53.3) adolescent fathers had completed primary school. Most of the adolescent's fathers, 17 (56.7 %), were self-employed. The age of the adolescents' mothers was mostly 40 and over. 19 (63.3%) of the adolescents' mothers had completed primary school. The majority of young people whose mothers are employed are unemployed.

Findings based on objectives:

A. The first objective of the study was to evaluate the knowledge regarding health hazards of electronic gadgets among adolescents in the experimental group Regarding the knowledge of the adolescents in the experimental group before and after

the snake and ladder game regarding health hazards of electronic gadgets, 17(56.7%) of the adolescents showed insufficient knowledge, 7 (23.3%) moderate knowledge and 6 (20.0%) sufficient knowledge in the pre-test. The mean and standard deviation of the pre-test on knowledge of the health risks of electronic devices among the adolescents in

the experimental group was (6.83+5.66954). In the post-test, the majority of adolescents 29 (96.7%) had adequate knowledge and 1 (3.3) had moderate knowledge. The mean and standard deviation of the post-test score for the adolescent knowledge in the experimental group was (23.4+4.87499).
Therefore, hypothesis H1 was accepted.

The present study was supported by Karthi R. et al. (2018) who conducted a study to evaluate the effectiveness of a computer-assisted instruction program on knowledge of the harmful effects of electronic gadgets among adolescents at E.S. University of Nursing, Villupuram, Tamil Nadu. The result shows that in the pre-test out of 50 samples, 33 (66%) had an inadequate knowledge rating and 17 (34%) had a moderate knowledge rating and in the post-test 43 (86%) had adequate knowledge and 7 (14%) had moderate knowledge. [4]

B. The second objective of the study was to evaluate the effectiveness of Snake and Ladder game on knowledge regarding health hazards of electronic gadgets amongadolescents in the experimental group.

Regarding the effectiveness of the snake and ladder game on the knowledge regarding health hazards of electronic gadgets, the mean score of the knowledge regarding health hazards of electronic gadgets by using the snakes and ladders game was 6.83 ± 5.66954 in the pre-test and the mean score in the post-test was 23.4 ± 4.87499. The calculated "t" test value of t = -13.836 shows that there is a highly significant difference between the effectiveness of knowledge regarding health hazards of electronic gadgets among the adolescents in the experimental group before and after the intervention.

The present study was supported by Ginu George (2020), who conducted a quasi-experimental study in Shahjahanpur, Uttar Pradesh, to evaluate the effectiveness of snake and ladder games for educating healthy behavior in primary school children. The study found that the mean score of pre-test knowledge was 13.83. The mean score for post-test knowledge was 18.63. The mean score for pre-test practice was 19.30. The mean score for post-test practice was 25.96. The "t" value was obtained for the comparison. The "t" value obtained for the comparison of scores was 18.40 to 59, and the degrees of freedom were significant at the 0.05 level. The paired "t" test was used to evaluate the effectiveness of the snakes and ladders game by comparing the knowledge scores before and after the intervention. It was found that the "t-value was significant at the p=0.05 level. The results of the study show that there is a significant difference between the pre-test and post-test knowledge scores.[5]

C. The third objective of the study was to associate the pre-test score of the knowledge regarding health hazards of electronic gadgets among adolescents with selected demographic variables in the experimental group.

Regarding demographic variables age, duration of device use, and knowledge of health hazards showed a significant correlation between the result of the pre-test on knowledge of health hazards of electronic devices among adolescents and selected demographic variablesin the test group.

The other demographic variables showed no significant correlation between the result of the pre-test and the knowledge about the health risks of electronic devices among adolescents and the selected demographic variables in the experimental group.

The present study was supported by Prakash P (2021) who conducted a descriptive study to assess the effects of electronic gadgets on the sleep quality of college students at the College of Pondicherry University. A total of 240 samples were selected using stratified random sampling. A structured questionnaire was used to collect the data. The collected data was analyzed using descriptive and inferential statistics. The result of the study shows that 57.1% of the participants reported poor sleep, 42.9% of participants had good sleep quality and in terms of gadget use, 64.6% of participants had mild dependence, 31.3% of participants had moderate dependence and 4.2% of participants had severe dependence. The correlation between the effects of gadget use and sleep quality was examined. It was found that r=0.378, indicating a weak correlation. There is a significant correlation between sleep quality and selected demographic variables, particularly age (p=0.026). The research evidence identifies that the majority of college students had poor sleep quality and mild gadgets addiction.[6]

CONCLUSION, IMPLICATIONS AND RECOMMENDATIONS

Conclusion

Snake and Ladder games are traditional games used by investigators to improve the knowledge regarding the health hazards of electronic gadgets among adolescents. This is a grand way to increase Adolescents' knowledge regarding the health hazards of electronic gadgets.

Implications of the study:

Nursing Education:

- The nursing curriculum has to be updated by including topics like educating children byplay way method.
- This study will help nursing students to improve their knowledge regarding health hazards.
- This study will help nursing students use electronic gadgets within their limits.

Nursing Practice:

- A game is an effective and efficient way to improve the knowledge of school students and adolescents. School health nurses can use this snake and ladder game to teach the health hazards of electronic gadgets.
- The nursing research presented new interventional studies on different aspects.

Nursing Administration:

- The main focus of nursing administration is to improve the student's knowledge and enhance the professional development of the students by conducting educational programs.
- The nurse administrators have to motivate the school health nurse to incorporate various simple and cost-effective methods to educate children rather than the traditional methodof teaching.

Nursing Research:

- various innovative ideas can be invented and implemented to improve knowledge ofhealth
- The present study serves as an evidence-based practice for further studies.

Suggestions

- This study can be done for various age groups like toddlers, preschoolers, schoolers, andadolescents.
- This study can be applied with a variety of dependent variables.
- This study can be carried out for a large sample size.

Recommendations:

- The study can be replicated at other schools, colleges, and in the community.
- A similar study can be conducted to evaluate the effectiveness of the snake and ladder game on knowledge regarding health hazards of electronic gadgets among non-paramedical students.

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