

A Study to Evaluate The Effectiveness of An Information Booklet on Knowledge for “Health Hazard of Mobile Phone Usage” Among Adolescent School Going Children

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Abstract: A study was conducted to evaluate the effectiveness of an Information Booklet on Health Hazard of Mobile Phone Usage among adolescent school going children in selected English Medium Schools of Kolkata, West Bengal. A Pre-experimental approach with one group pre-test post-test design was adopted for the study. The data were collected using Simple Random Sampling technique among 40 adolescent school going children of M.P Birla Foundation Higher Secondary School, Behala, Kolkata. The collected data were analyzed using descriptive and inferential statistics. The study findings showed the range of post-test knowledge scores (30-24) was higher than the range of pre-test knowledge scores (22-10). The mean percentage of the post- test knowledge scores (27.4) was higher than the post-test mean pre-test knowledge scores (16.9). The median of the post-test knowledge scores (27.5) was found to be higher than the pre-test knowledge scores (17.5). The computed $t(39) = 19.34, P < 0.05$ level of significance, was found statistically significant, indicating that the information booklet was effective in terms of gain in knowledge. Associations of pre-test knowledge levels with selected variables were found to be not significant.

Keywords: Information booklet, health hazard of mobile phone usage, adolescent school going children, effectiveness and knowledge

1. Introduction

“Poor health is not caused by something you don't have; it's caused by disturbing something that you already have. Healthy is not something that you need to get, it's something you have already if you don't disturb it”. Dean Orush.

2. Background of the Study

People often do that mistake by disturbing their own health through some intentional and unintentional behavior and practices. Some of the behavior and practices are considered risky or unsafe, which cause actual health problem or has the potential to cause ill health. Human being come across various life stages throughout their life cycle and involve in doing more or less risky practices. Adolescence is one of such life stages when people engage in doing riskier practices.

One of the leading newspapers of India, Hindustan Times¹ reported that India has the largest population of adolescents in the world being home to 243 million individuals aged 10-19 years. In India adolescents constitute 20 percent of the world's 1.2 billion adolescents.

Times of India² reported that India has the fastest growing mobile phone market in the world, in which the number of telephone subscribers in India increased from 931.95 million at the end of February, 2014 to 933.00 million at the end of March, 2014, thereby showing a monthly growth of 0.11. Today the fastest growing group of mobile phone users is the children and young people. This growth is actively encouraged by the professional advertising campaigns from the mobile phone industry about the indispensability of the

phones to their life styles. Mobile phone is a small, portable communication device that enables people to make phone calls whenever where they are. Signal transmission is the very basic concept for mobile phone. The convenience of mobile phone is allowing people to communicate with one another without the limitation of regions and time.

National Cancer Institute³ said that mobile phones emit radiofrequency energy, a form of non-ionizing electromagnetic radiation, which can be absorbed by tissues closest to where the phone is held. The amount of radiofrequency energy a cell phone user is exposed to depend on the technology of the phone, the distance between the phone's antenna and the user, the extent and type of use, and the user's distance from cell phone towers. Exposure to ionizing radiation, such as from radiation therapy, is known to increase the risk of cancer.

3. Need of the Study

With the continuing world wide mobile phone advertising blitz, within the scientific community there is a growing chorus of expert voices that are urging caution, because if there are adverse health effects from mobile phone use, it will be the children and adolescent who are in the front line and who may pay the highest price.

Hakoama M⁴, Hakoyama S conducted a survey study regarding the impact of cell phone use on social networking and development among 501 college students by using questionnaire method. The study results showed that 99% owned cell phones and nearly 90% have had cell phones for more than three years. Excessive internet use, along with pathological gambling and addictive disorder, health risk

from cell phone radiation and cell phone dependency are the major social impacts found in teenagers. The study concluded that there is a negative impact of cell phone use on social networking among adolescents.

In conclusion, it could be inferred that administering an information booklet could bring about a desirable change among adolescent school going children regarding hazards of mobile phone usage. We, the health personnel can play a vital role in creating awareness among adolescent school going children regarding hazards of mobile phone usage by imparting knowledge to them.

Objectives

- a) To assess the existing knowledge of adolescent school going children on health hazard of mobile phone usage.
- b) To develop and validate an information booklet on health hazard of mobile phone usage for adolescent school going children.
- c) To find the effectiveness of information booklet on health hazard of mobile phone usage in terms of gain in post-test knowledge scores.
- d) To find the association of the pre-test knowledge level with the selected variables: standard of education, gender, age, family income, exposure to health related information and frequency of getting health information.

Variables

Dependent variable - knowledge on health hazard of mobile phone usage.

Independent variable- information booklet on "Health Hazard of Mobile Phone Usage"

Selected variable-standard of education, gender, age, family income and exposure to health related information.

Conceptual Framework

Shannon and Weaver- SMCR Model for Communication (1948)

Methods and Material

- **Research Approach:** In this study, the researcher intends to evaluate the effectiveness of an information booklet "on health hazard of mobile phone usage" among adolescent school going children of standard VIII and IX, therefore a **pre-experimental approach** was adopted for the study.
- **Research design:** The research design used was **one group pre-test- post-test design**.
- **Research setting:** The study was conducted in M.P Birla Foundation Higher Secondary School, which started in 1988. It is situated in James Long Sarani, Behala, Kolkata-34, West Bengal. It is run by the M.P.Birla Group, the philanthropic wing of the Birla family. It is a coeducational English medium school and has around 3600 students.

Population

- **Target population:** Adolescent School going children

- **Accessible population:** Adolescent School children of selected schools studying in VIII and IX standard and present during the day of data collection.
- **Sample:** The sample consists of adolescent school going children studying in VIII and IX standard of M.P Birla Foundation Higher Secondary School.
- **Sample size:** The sample size consists of 40 (forty) adolescent school going children who fulfill the inclusion criteria selected for the study. The inclusion criteria were: adolescent school going children; who are studying in class VIII and IX standard; Who can speak English; Who will be present during the data collection; both male and female
- **Sampling technique:** The sampling technique adopted for the study is simple random sampling technique. There are many methods to proceed with simple random sampling. The most primitive and mechanical technique would be the table random numbers method. The researcher prepares a number list of the sample of the population, and then with a blindfold chooses a number from the random table. The procedure is continued until the desired number of the sample is achieved.

Method of Data Collection

Tools and Techniques

Tool I: Background information: Consists of a total six (6) items which includes age, gender, education, family income, health related information and its frequency.

Tool II: Structured knowledge questionnaire

The structured knowledge questionnaire was developed on the basis of blue print and consisted of 30 items for assessing the knowledge of the adolescent school going children on hazard of mobile phone.

Development and Description of the Tools: As per the study purpose and objectives two tools were developed following the steps

- extensive review of research and non-research literature
- consultation with experts in the field and related fields
- developing blue print of the tool
- establishing content validity by formally seeking the suggestions and recommendations of seven experts in the field of child health nursing
- item analysis
- establishing reliability of the tool
- administering the tool for a try-out
- pilot study

The reliability for the structured knowledge questionnaire was 0.85, which was considered to be reliable.

Data Collection Procedure

The main study was conducted on 40 samples using simple random sampling technique. Formal administrative permission was taken from the Principal of M.P. Birla Foundation Higher Secondary School, Kolkata. An informed consent was taken from each participant. The confidentiality of the participants was maintained during the study. In order

to obtain free and true response, the participants were given explanation about the purpose of the study and assurance given on confidentiality of their responses. During the study, a pre experimental design, which is one group pre-test – post-test design was used. A probability simple random technique was used in selecting the sample, the adolescent school going children studying in class VIII and IX. On the 1st day pre-test was conducted on 40 adolescent school going children and an intervention is given on the same day in the form of information booklet. On the 7th day post-test was conducted on the same group.

4. Results

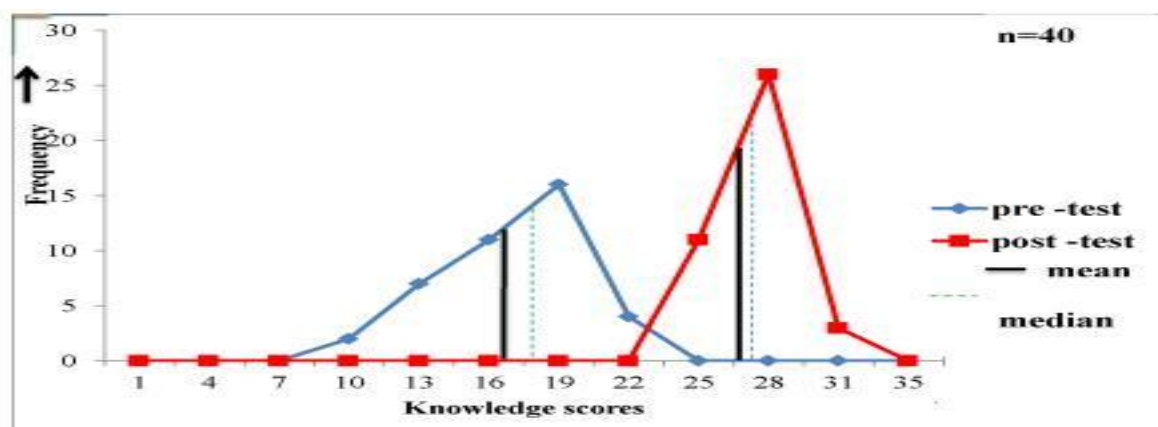
Analysis and interpretation of the data were presented under following section:

- Section I - Description of sample characteristics.
- Section II- Distribution of sample based on pre-test and post-test knowledge scores.
- Section III - Effectiveness of an Information Booklet on health hazard of mobile phone usage
- Section IV - Association of pre-test knowledge level with the selected variables: age, gender, standard of education, family income, exposure to health related information and frequency of getting health information.

Demographic data revealed that all (100%) adolescent school going children were within the age group of 13-15 years. The data also revealed that most (60%) of the adolescent school going children were male. Out of 40 adolescent school going children 21(52.5%) were studying in class VIII and 19(47.5%) in class IX. Data further showed that majority of (72.5%) adolescent school going children's family income was more than Rs 40,000 per month, whereas only (5%) of them had <20,000 per month. The tabulated data also indicated that most (65%) of the adolescent school going children had the habit of using health related information from magazine/newspaper, 25% of them reported internet and 10% of them reported TV/cinema as sources of using health related information.

Distribution of sample based on pre-test and post-test knowledge scores.

Pre-test score ranged from 23-9 and post-test score ranged from 30-24. Data further indicates that out of 40 adolescent school going children 16(40%) scored in the range of 18-20 in the pre-test whereas in the posttest 26(65%) of them scored in the range 27-29. The spread of knowledge score was more in the pre-test than in the post-test.



In the above figure both pre-test and posttest frequency polygon, mean and median lies close to each other. It further showed that the post-test frequency polygon lies to the right side of the pre test frequency polygon, indicating a higher score range. In the frequency polygon of pre test knowledge scores the mean(16.9) and median (17.5) lie close to each other and mean lie at the right of the median, indicated that the scores were negatively skewed (- 0.58). In the frequency polygon of post-test knowledge scores mean(27.4) and median(27.5) lie close to each other and mean lie at the right of the median, indicated that the scores were negatively skewed (-0.18). The figure also shows that in the pre-test, 40% of the adolescent school going children, scored within the range of 18-20 and in post-test majority of them 65% scored within the range of 27-29. So, it is evident that the post-test scores of most of the participants fall beyond the pre-test scores, which indicate that there was a considerable gain in knowledge scores after the administration of information booklet.

The post-test ogive lies right to the pre-test ogive over the entire range, indicating that the post-test knowledge scores

were consistently higher than that of the pre-test knowledge scores. The pre-test and post-test knowledge scores at 25th percentile (Q1) were 14.9 and 26.2, at 50th percentile (Q2) were 17.5 and 27.5 and at 75th percentile (Q3) were 19.3 and 28.6. Thus, it was found that the post test Q1, Q2 and Q3 were higher than the pre-test Q1, Q2 and Q3. Thus the gain in knowledge of the adolescent school going children on health hazard of mobile phone usage after administration of information booklet was higher in post-test than in pre-test.

Area wise modified gain of knowledge score on health hazard of mobile phone usage, n=40

The mean percentage of pre-test knowledge score ranged from (44.5- 68%) whereas post-test knowledge score ranged from (84- 92.5%). The table also indicated that modified gain in the area of: importance of technology in communication in the present era, common uses of mobile phone, boons & curse of mobile phone, health hazard of mobile phone and prevention of health hazard of mobile phone usage were 0.7, 0.7, 0.7, 0.8, 0.7 respectively. The tabulated data indicated that adolescent school going

children's knowledge on health hazard of mobile phone usage was more than 50% in all areas (area 1 to area 4) except area 5 and mean percentage of post-test knowledge was 90% and above except area 5 and thus modified gain was less in all areas.

Effectiveness of an Information Booklet on Health Hazard of Mobile Phone Usage in terms of knowledge gain

The mean, median, mean differences, standard deviation difference, standard error mean difference and 't' value of the pre-test and post-test knowledge score. The table further revealed that post-test mean and median(27.4, 27.5) is higher than the pre-test mean and median(16.9, 17.5). The table also indicates that the computed 't' value (19.34) * is significantly higher than the table value(2.02) at 0.05 level of significance, ('t'(39)=19.34 p<0.05).

Association of pre -test knowledge level and selected variables

Age, gender, standard of education, family income, health related information and frequency of getting health related information. Association results shows that value of X^2 (0.0041, 3.60, 0.144, 5.6, 1.06) for , gender, standard of education , family income, health related information, frequency of getting health information are not significant at 0.05 level of significance. Hence, the researcher failed to reject null hypothesis and that concludes that there were no significant association of the knowledge with the selected variables.

5. Recommendations

Keeping in view the findings of the present study, the following recommendations were made:

- A similar study can be repeated by using a larger sample from two or more institution.
- A similar study can be replicated with a control group.
- A comparative study can be conducted to assess the knowledge of private and government adolescent school going children on health hazard of mobile phone usage.
- An experimental study can be conducted to find the effect of planned teaching programme on knowledge and practice for health hazard of mobile phone usage.
- An experimental study can be conducted including one additional variable attitude along with knowledge on ill effects of mobile phone use and its prevention among adolescent

6. Conclusion

The study shows that most of the adolescent school going girls have inadequate knowledge on health hazard of mobile phone usage, as the mean post-test knowledge scores were higher than the mean pre-test scores. All the samples in the study group gained knowledge in five different areas of the information booklet on health hazard of mobile phone usage and 't' value was computed to see whether the difference between the pre-test and posttest mean of the adolescent school going children was significant. The test indicates that the Information Booklet was effective in terms of gain in

knowledge score of adolescent school going children related to health hazard on mobile phone usage.

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