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A study to assess the effect of snake and ladder game on knowledge regarding balanced diet among school children in selected school

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Abstract

Introduction: Malnutrition is a wide-spread problem that results from a complex interaction between environmental deprivation and under nutrition. Malnourished children typically experience a range of other environmental difficulties associated with poverty, such as poor housing, poor health-care, weak family and community support systems. There is a need to understand the way child malnutrition and poor health influence access and School participation of Children. In this paper, an attempt is made to draw broad contours for developing such an understanding of the issue rooted in the Indian context. An evaluative study is conducted to assess the Effect of Snake and ladder game on knowledge regarding balanced diet among children in selected schools of PCMC.

Methods of Research Approach: The research approach adopted for the present study was Evaluative approach. Research design was used Pre experimental one group Pre & Post-test research design. Present study is based on General System Model by Ludwig Von Bertalanffy. The setting for this study selected Schools of PCMC, Pune. Non - Probability Purposive Sampling technique was used for 60 sample, the tool developed which includes section 'A' is the demographic variables, section 'B' deals with structured knowledge questionnaire on balanced diet. Tool validity was done and tool found reliable. Study found feasible after pilot study.

Results: It has been observed that, pretest knowledge scores of School going child revealed that i.e.(1.67%) of the samples had poor level of knowledge score, (86.67%) had average level of knowledge score, and (11.67%) had good level of knowledge score. In posttest (1.67%) of the samples had Average level of knowledge score and (63.33%) had good level of knowledge score and (35%) had excellent level of knowledge score. It has been observed that, pretreatment knowledge average mean score is 9.68 and after teaching average score rises to 17.38. Researcher can conclude that at 5% level of significance and 99% of freedom there is significant rise in average knowledge score after playing game. Therefore researcher can infer that Snake and ladder game is effective. Since all the p values except p value occupation of father and mother. > 0.05 there is no significant association between any of the variables except occupation of father and occupation of mother.

Conclusion: It has been observed that pretest knowledge average mean score rises to 17.38. Researcher can conclude that at 5% level of significance and 99% of freedom there is significant rise in average knowledge score after playing game. P-value not significant (less than 0.05) hypothesis is rejected.

Keywords: Assess, effect, snake and ladder game knowledge, balanced diet, children

1. Introduction

It is estimated that 45,000 children dying each year due to malnutrition in Maharashtra, only around 12,000 are severe malnutrition cases. The remaining 33,000 children succumb due to mild or moderate malnutrition. Also, malnutrition is the underlying cause in about 480 of the 2,850 maternal deaths each year in the state. Despite this high prevalence of malnutrition, the state government spends just 0.08% of its gross domestic product on the Integrated Child Development Scheme (ICDS) and the mid-day meal program. 'A Report on Nutritional Crisis in Maharashtra', prepared by Pune-based NGO — Support for Advocacy and Training to Health Initiatives (SATHI). The findings of the report were presented during a press conference at the Karve Institute of Social Science.

Games are an innovative and challenging educational method. They have also been used as a teaching strategy in medical education, predominantly to review and reinforce lecture material for undergraduate medical students. One such game is snake and ladder game. It is used as a fun way of learning about a topic and can be used for topics on health, hygiene,

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gender, money, etc. This game has been used in health programs in many developing countries and adapted to the needs of each program. In a school environment, playing board games has many benefits for children of all ages, from helping to develop their visual alertness to increasing their attention span and assisting with memory strategies and reasoning.

Maharashtra has a persisting malnourishment problem. Almost 24,000 children died due to malnourishment in 2013 according to state government statistics. In the four financial years before that, 1.17 lakh children had similarly lost their lives. Therefore, malnourishment is one of the major health problems of India.

2. Methodology

Research approach

Evaluative approach is used.

Research design

Pre experimental one group Pre & Post-test research design.

3. Variable under study

Independent variable

In this study independent variable is snake and ladder game on balance diet.

Dependent variable

In the present study the dependent variable is knowledge of school children regarding balanced diet.

4. Research setting

The setting for this study was conducted in a selected Schools of PCMC Pune.

5. Population

The present study comprises of all school going children studying in selected schools of PCMC, Pune.

6. Sample

The sample selected for the present study includes students who are studying in Jen Fathechand School, Pune. And who are in 5th to 7th STD.

7. Sampling Selection criteria (Inclusion and Exclusion)

Inclusion criteria

- School children who are Studying in the selected Marathi medium school.
- School children who are Studying in the 5th to 7thstd.
- School children who are willing to participate in the study.

Exclusion criteria

- School children who are not present at the time of data collection.

8. Sample size: 60

9. Sampling technique

A Non - Probability Purposive Sampling technique.

10. Development of the tool

It includes two section:

Section I- Demographic data, it consists of items obtaining information about selected baseline data of the Standards of

student, Gender, Religion. Education of parents, Occupation of parents, previous knowledge of student.

Section II- Structured knowledge questionnaire on balanced diet. The scoring of section II were divided in to three, (1-8) = Average, (9-16) = Good, (17-24) = very good.

11. Validity

The tool was later validated by 15 experts from Pediatric Nursing which included the Professors, Lecturers and Doctors of Pediatric Department. Based on the suggestions given by the experts like in Section II, Question no.13, change the option and Question no 20, reframe the question etc.

Their valuable suggestions and modification were taken into consideration.

12. Ethical Consideration

- Researcher had obtained approval from appropriate review boards to conduct the study.
- Researcher had taken formal permission from the parents of students, teacher and students to conduct the study.
- Confidentiality of the data is maintained strictly.

13. Reliability

The reliability was done by split half method calculation was done by Guttman correlation formula and the reliability coefficient of the tool was 0.87, which was found to be Reliable.

14. Plan for data collection

- Ethical committee clearance.
- Permission from the Principal of the School.
- Consent of the Parents of students.
- The investigator approached the students of selected samples, assured the subjects about the confidentiality of the data.
- The investigator used structured questionnaires for data collection.
- Pre experimental one group pretest is given to the students, 20 subjects were approached daily. After pretest, Intervention was provided with snake and ladder game, at a time 4-5 students are included to play the game. Within three days pretest was conducted. After seven days post test was conducted with same students.

15. Data analysis and interpretation

- The investigator decided to analyze the data using Descriptive and Inferential Statistics and present them in tables, graphs and figures.
- The analysis will be done based on the objectives and hypothesis to be tested.
- Items related to demographic background variables would be analyzed in terms of frequency and percentage.
- Graphs would be plotted to compare the distribution of pretest and posttest findings.
- Mean median, standard deviation and mean percentage of pre and posttest findings would be computed and t test was applied.

16. Pilot study

After doing pilot study investigator found that it is feasible to carry out actual study. In these study data was done among selected samples of school going children.

17. Result

The major finding of the study were based on the objective of the study.

18. Section I: Demographic characteristics.

I have included Standard of student, Gender, Region, Education of Mother, Education of Father, Occupation of Mother, Occupation of Father, Previous knowledge about balanced diet, Source of knowledge in Demographic variable.

Distribution of samples according to their Standard depicts that all 20% of the samples were in the 5th, 6th and 7th standard, (50 %) of samples are Female and male, (70%) of the samples Were Hindu, (56.7%) of samples higher secondary education, highest percentage (58.3 %) of samples primary education, (70 %) of samples mothers was house wife, (65 %) of samples fathers was having business, (81.7%) of samples was having previous knowledge regarding balanced diet,(32 %) of samples was gain knowledge from parents.

Section II: Assessment Of Knowledge Score Of Children Regarding Balanced Diet.

In pretest highest knowledge level score in rich sources of balanced diet i.e.3.75 (41.66 %) and whereas the lowest mean score is 1.06 which was (53.3%).

In posttest highest knowledge level score in importance of balanced diet i.e. 4.5 (75.33 %) whereas the lowest mean score is 1.21 which was (60.83%).

Section III: Evaluate The Effect Of Snake And Ladder Game On Balanced Diet.

In pretest knowledge scores on balanced diet reveals that during pretest that the highest mean score was 3.75 which was 41.66 %, whereas the lowest mean score was 1.06 which was 53.3 % of the total score was observed on the area of “meaning of balanced diet”. Whereas during posttest it was observed that the highest mean score was 7.53 which were 64.28 % and the lowest mean score was 1.21 which were 60.83 % of the total score on “meaning of balanced diet”.

The ‘t’ value was computed to find out whether the effect of snake and ladder game on the knowledge of children was significant. It is evident that all the calculated’ values are greater than the table value of ‘t’ at 0.05 level. This indicates snake and ladder game is effective to gain in the knowledge of balance diet.

The ‘t’ value between pre and posttest computed for knowledge on balanced diet indicates that there is a significant improvement in scores from pre to post test at 5 % level i.e. $p < 0.05$. Hence Null Hypothesis H_0 is rejected.

Section IV: Level Of Knowledge Score Regarding Balanced Diet Before And After Snake And Ladder Game.

Table 1: Level of knowledge according to scores obtained in pre and post test, N=60

| Sr.no | Level of knowledge score | Pre Test | | Post Test | |
|-------|--------------------------|---------------|----------------|---------------|----------------|
| | | Frequency (f) | Percentage (%) | Frequency (f) | Percentage (%) |
| 1 | Poor | 1 | 1.67 | 0 | 00 |
| 2 | Average | 52 | 86.67 | 1 | 1.67 |
| 3 | Good | 7 | 11.67 | 38 | 63.33 |
| 4 | Excellent | 00 | 00 | 21 | 35 |

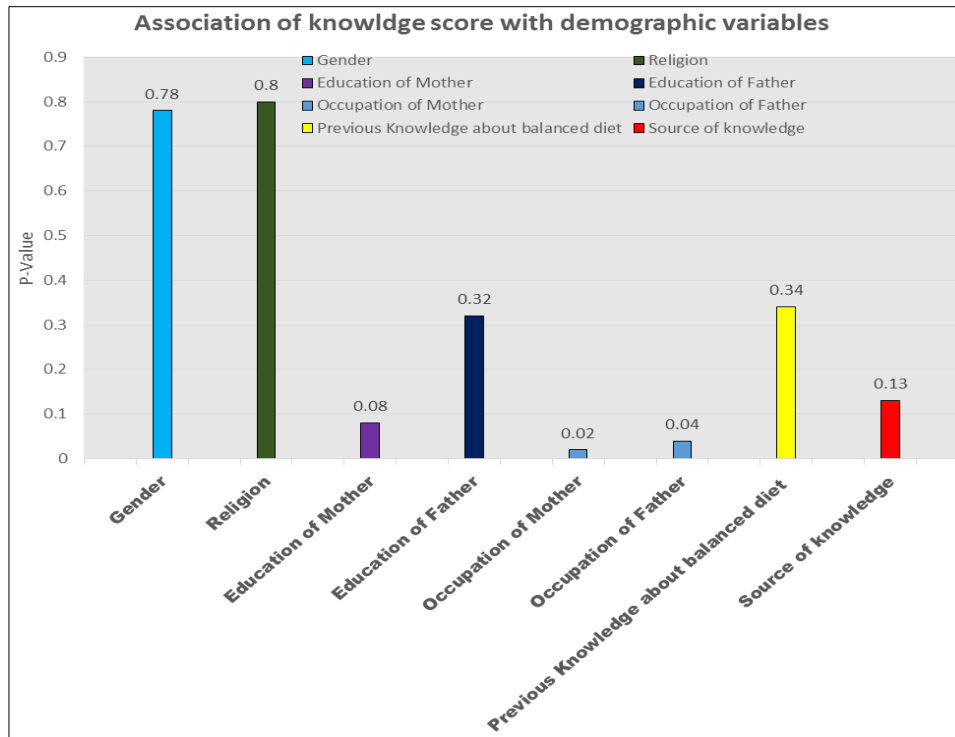
In pretest (11.67%) had good level of knowledge score. In posttest (35%) had excellent level of knowledge score. The difference between pretest and posttest level of knowledge score is found to be significant difference. Which indicates

that snake and ladder game is an effective to improve the knowledge of school going child.

Section V: Association of knowledge scores of children with their selected demographic variables. N=60

| Sr. no. | Association of knowledge score with demographic variables | P-value | Remark |
|---------|---|---------|-----------------|
| 1 | Standards of students | 0.00 | Significant Non |
| 2 | Gender | 0.78 | significant |
| 3 | Religion | 0.80 | Non-significant |
| 4 | Education of Mother | 0.08 | Non-significant |
| 5 | Education of Father | 0.32 | Non-significant |
| 6 | Occupation of Mother | 0.02 | significant |
| 7 | Occupation of Father | 0.04 | significant |
| 8 | Previous Knowledge about balanced diet | 0.34 | Non-significant |
| 9 | Source of knowledge | 0.13 | Non-significant |

There is significant difference is found in standards of students, occupation of Father. Occupation of mother, as P Value is less than 0.05.



Conclusion

Analysis of pretest knowledge scores of School going child revealed that i.e.(1.67%) of the samples had poor level of knowledge score, (86.67%) had average level of knowledge score, and (11.67%) had good level of knowledge score. In posttest (1.67%) of the samples had Average level of knowledge score and (63.33%) had good level of knowledge score and (35%) had excellent level of knowledge score.

The study reveals that snake and ladder game is effective to increase the knowledge of students regarding balance diet and could be used as an effective teaching strategy.

19. Discussion

A similar study was conducted by Anita r jag tap. On effectiveness of Snake and ladder game on academic achievement scores in Science on the Unit 'Food and Health' of STD V. Evaluative approach is used in this study. Single group pre-test and post-test design was used for the research study. Convenient sample was selected by the researcher for the study which consisted of 32 students of STD v. Out of the total population, all those who met the inclusion criteria were selected for the study. Tool was an achievement test based on the selected unit of Science prepared by the researcher. The researcher used mean, correlation and 't' test for analysis of data. The researcher conducted pre-test on students in written and assessed the achievement out of 25 marks in Science. The researcher then implemented the game-based learning program on the students on the selected unit of 'Food &Health'. The students were oriented about the rules and regulations of each game before it was implemented. Games such as Health and Nutrition snake and ladders, selected in the program. The program was implemented for 5 days. The duration of the period was of 40 minutes. The researcher used mean, product moment correlation and 't' test for the analysis of data. The results for 32 students are Shows that mean score of Pre-test was 6.64, and Mean score of Post-test was 14.45 which has increased. The computed 't' value exceeded the critical value of 2.04 at 0.05 level of

significance and 2.75 at 0.01 level of significance. Therefore, the null hypothesis is rejected.

The post-test mean score of students was higher than the pre-test mean score. That means, there was a significant change in the students' achievement in post-test. There was a positive correlation between pre-test and post-test scores. As the 't' value exceeded the critical value, there is a significant difference between pre-test and post-test scores. That means snake and ladder game based learning has a positive effect on students' achievement scores.

These findings are correlating with the Investigator study which showed that analysis of pretest knowledge scores of 1.67 % of the samples had poor level of knowledge score, 86.67% had average level of knowledge score, and 11.67% had good level of knowledge score. In posttest 1.67% of the samples had good level of knowledge score and 63.33% had good level of knowledge score and 35% had excellent level of knowledge score. So snake and ladder game is effective to increase the knowledge of students regarding balance diet.

20. Limitations of the study:

- The study is limited to
- The study was conducted on 60 school going students in a selected schools at PCMC, hence generalization is limited to the population under study.
 - Data collection period will be limited to 4 weeks.
 - The study is limited to only one selected schools.
 - The study did not use a control group and there is a threat to internal validity as the investigator had no control over the events that took place between the pretest and posttest.
 - Extraneous variables such as exposure to mass media were beyond researcher's control.

21. Recommendations

On the basis of the findings of the study, the following recommendations are made for the future research.

- A similar study can be replicated on a larger sample with different demographic characteristics.

- A study can be done on association between various demographic variables, which were significant, on larger sample.
- A comparative study can be conducted to determine the knowledge of different age groups on balance diet.
- A comparative study can be conducted to assess the knowledge of urban and rural school going child regarding balance diet.
- Same study can be conducted by using different teaching modalities like self-instructional module, booklet, health teaching etc.
- A survey can be conducted to identify the prevalence of balance diet among school going child.

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“Now to him who is able to keep them from stumbling, and to present you faultless before the presence of his glory in great joy, to God our Savior, who alone is wise, be glory and majesty, dominion and power, both now and forever”

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