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Research Article

A Study to Evaluate the Effectiveness of Snake and Ladder Game on Knowledge Regarding Nutritional Practices among Children in Selected School at Hubballi

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Abstract: Background of the study: Snake and ladder game is regarded as one form of edutainment tool. Such play-way methods enable the teacher to teach effectively and pupils to learn efficiently. Nurses can use this game to educate school children on healthy nutritional practices, prevention of infection and other imperative elements of healthy life style behaviors. **Objectives:** 1) To assess the knowledge regarding nutritional practices among school children. 2) To evaluate the effectiveness of snake and ladder game. 3) To determine an association between pretest knowledge scores regarding nutritional practices and their selected demographic variables. **Methodology:** An evaluative study was conducted among 30 school children from Government Primary School of Hubballi. The research design used for the study was Pre-experimental; one group pre-test, post-test design. **Results:** In the pre-test 20 (66.6%) had average knowledge, 6 (20%) had good knowledge and 04 (13.4%) had poor knowledge. Whereas, in post-test maximum subjects 29 (96.6%) had good knowledge, 01 (3.4%) had average knowledge and none of them had poor knowledge. There was a significant gain in knowledge of school children who were exposed to snake and ladder game i.e. 41.4%. The paired 't' test value (t_{cal} = 11.15) at $p<0.05$ level of significance for knowledge proved that the stated hypothesis i.e. the mean post-test knowledge scores of children on nutritional practices will be significantly higher than mean pre-test knowledge scores at 0.05 level of significance. **Conclusion:** The study concluded that the Snake and Ladder game was more effective for school children to increase and their knowledge regarding nutritional practices.
Keywords: Snake and Ladder Game, knowledge, Nutritional Practices, School Children.

Introduction

"Tell me and I forget, Teach me I remember, Involve me and I learn"

Benjamin Franklin

Maintaining a balanced diet and regular exercise is important for all individuals, especially school-aged children (6-12 years). These children are required to eat a variety of foods from each food group to ensure optimal intake of all vitamins and minerals. At the same time, they may face new challenges regarding food choices and habits. Decisions about what to eat are partly determined by what is provided in school, at home, the influences from friends at school, and the media.[1] Human rights, which are essential for total personal development, belong to everyone including children, adults, men and women, well and ill person, and individuals of all races. Children having rights in

the area, specific to their knowledge state of health or illness in taking decisions regarding treatment modalities and also counseling.[2]

Food and food products have become commodities produced and traded in a market that has expanded from an essentially local base to an increasingly global one. Changes in the world food economy are reflected in shifting dietary patterns, for example, increased consumption of energy-dense diets high in fat, particularly saturated fat, and low in unrefined carbohydrates. This is having a significant impact on the health and nutritional status of populations causing significant negative consequences in terms of inappropriate dietary patterns.[3]

Children are priceless resources and if the nation neglects their health, it would become a nation of unhealthy citizens. Nutrition of under-five children is of paramount importance because it can lead to long lasting effect on the mental and physical health of the children. In order to promote healthier eating habits, nutrition knowledge is believed to be important. However, nutrition knowledge alone may not be sufficient to change dietary habits hence in addition there is need to mold a positive attitude toward healthy eating early in childhood.[4]

School age children spend more time away from their parents thus, influence from friends and media further affect the formation and stabilization of their dietary practices. There is growing evidence suggesting that young children from developing countries are increasingly making unhealthy food choices especially due to lack of knowledge and wrong perception towards Nutritional Practices.[5]

Education at school, at home, and in community centers can solidify the understanding that nutrient dense foods can help fight many health disorders. Young school going children can become a very important target population for nutrition and health education to create awareness in the society. The importance of school going children is that they are at an impressionable age, and hence, powerful educational messages can be passed on to them.[6]

Through play children are able to express their needs and feelings. It is natural and most easily available method for children. It also provides enjoyment for children. Educational games promote interest in children and facilitate learning. Games help children to achieve good creativity, thinking capacity and problem solving skills. When information is provided using Play-Way method to children, they will share with their parents and family members that will help to improve the knowledge on the health.[7]

Snake and ladder game is regarded as one form of edutainment tool. It is vibrant and active game in India and it's known in many parts of Southern India. This game is associated with local custom and cultural practices and the knowledge of playing this game is been imparted through generations. This game has two important elements–Snakes and Ladders; the ladder will support child to win the game quickly and snake bites to reach him down. Washing hands before and after meal considered being good practices for which the ladder will assist child to reach above and eating without washing hands considered to be unhygienic practice – in which a snake bite will put child down. In best practices, the chances of winning are high and the routine unhygienic practices will keep child below the wining table. The game always has the excitement, thrill, and exhilaration for children while playing as a group and it offers insight to various basic health, nutritional practices and personal hygiene tips along with funny cartoons.[8]

Material and Methods

Research approach : Evaluative Research Approach.

Research design : Pre-experimental; one group pre-test, post-test design.

Research setting : Government Junior Primary School, Nekaar Colony, Vidyanagar, Hubballi

Population
Target Population : School Children

Sample and sampling technique
Sample : 4th & 5th Standard students studying in Government Junior Primary School, Nekaar Colony, Vidyanagar, Hubballi

Sampling technique : Non- probability; Purposive sampling technique.
Sample size : 30

Criteria for selection of the sample
The criteria for sample selection are mainly depicted under two headings, which includes the inclusion and the exclusion criteria.

Inclusion Criteria
Children who were:
- Present during data collection

Exclusion Criteria
- Sick at the time of data collection.
- Too much agitated.

Development of the tool
The tool used for research study was structured interview schedule which was prepared to assess the knowledge regarding nutritional practices. The tool was formulated on the basis of the experience of the investigator, review of literature, extensive library search and consultation with experts.

Description of the data collection tool
The tool selected for the study was structured interview schedule which comprised of two sections. They were:
Section I: Socio Demographic Data containing 9 items.
Section II: Structured Interview Schedule which consists of 25 items for assessing the knowledge of children regarding nutritional practices. Each correct answer carries 1 mark and incorrect answer carries 0 mark. Further tool was divided into:
- ✓ Part A : 05 items on knowledge regarding Nutrition.
- ✓ Part B : 02 items on knowledge regarding Nutritional Practices
- ✓ Part C : 18 true/false items on knowledge regarding nutritional practices

Development and Description of the Snake and Ladder Game
The conventional snake and ladder game was modified by incorporating the concepts of nutritional practice. This game consists of 100 square boxes, with nine ladders which indicates knowledge regarding the advantages of Nutritional Practice and Nine snakes which indicates knowledge regarding the ill effects of poor nutritional practices. In each round of the game, six children were made to play. The first square is the starting point. The children were asked to toss the dice and based on the dice throw, the coins were moved. The explanation of each box regarding nutritional practice was given by the researcher. The one who reaches 100th square box first, she/he was appreciated with a gift.

For the present study, in order to organise the content of the lesson plan, the literature were reviewed from the books, journals, published and unpublished studies, electronic media and websites. Opinion and suggestions from various experts were also considered for designing structured teaching programme.

Results

Findings related to socio-demographic variables of subjects

In regard to the age 15 (50%) subjects belonged to the age group of 8-9 years and 15 (50%) subjects belonged to the age group of 9-10 years. The maximum number of subjects 19 (63.3%) subject are females and 11 (36.7%) subjects are males.

In regard to the class of study 15 (50%) of subjects are studying in 4th standard and 15 (50%) of subjects are studying in 5th standard. The higher number of subjects 13 (43.3%) were 2nd born child, 09 (30%) were 1st born child and 08 (26.7%) were more than 3rd child.

In regard to the type of family 15 (50%) of subjects belonged to nuclear family and 15 (50%) of subjects belonged to joint family. The maximum numbers of subjects 24 (80%) belonged to Hindu religion, 01 (3.3%) belonged to Christian religion and 05 (16.7%) subjects belonged to Muslim religion.

The maximum number of subjects' father 13 (43.3%) were self-employed, 13 (43.3%) were working in private sector and 04 (13.3%) were Govt. employee. Majority of the subjects 25 (83.3%) were flexitarian (mixed) and 05 (16.7%) were vegetarian. Most of the subjects 24 (73.3%) had previous knowledge on nutritional practices from health professionals/teachers, 08 (26.7%) subjects exhibit no previous knowledge.

Analysis and interpretation of knowledge scores of subjects who have participated in the study regarding Nutritional Practices.

Table 1. Mean, Mode, Standard Deviation and Range of knowledge scores of subjects regarding Nutritional Practices.

Aspects of Analysis	Mean	Median	Mode	Standard deviation	Range
Pre-test	13.8	13	13	5.30	18
Post-test	24.16	25	25	1.91	07
Difference	10.36	12	12	3.39	11

Table 1 reveals that the pre-test mean knowledge score was 13.8, median-13, mode-13, standard deviation-5.30, range-18.

The overall difference in mean knowledge score was 10.36, median-12, mode-12, standard deviation-3.39 and range 11.

Table 2. Frequency and percentage distribution of knowledge scores of subjects regarding Nutritional Practices.

Level of Knowledge	Pre-test		Post-test	
	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
Good (19 and above)	06	20	29	96.6%
Average (09 – 19)	20	66.6	01	3.4%
Poor (09 and below)	04	13.4	00	00

Table 2 shows that distribution of level of knowledge on children regarding nutritional practices during pre-test and post-test. Most of them in pre-test 20 (66.6%) had average knowledge, 6 (20%) had good knowledge and 04 (13.4%) had poor knowledge. In post-test maximum subjects 29 (96.6%) had good knowledge, 01 (3.4%) had average knowledge and none of them had poor knowledge.

Table 3. **Pre-test, Post-test percentage of knowledge scores of subjects regarding nutritional practices.**

Items	Total Scores	Mean % knowledge scores of subjects		
		Pre-test	Post-test	Gain in knowledge
Structured knowledge interview questions.	750	55.2	96.6	41.4

Table 3 reveals that there was 41.46% gain in knowledge after the administration of Snake and Ladder game.

Testing of hypothesis

Calculated t-value (t_{cal} = 11.15) was greater than the tabulated t-value (t_{tab} = 2.045). This indicates that the gain in knowledge score was statistically significant at 0.05 level of significance. Therefore, Snake and Ladder game on Nutritional Practice was effective in improving the knowledge of subjects.

Analysis and interpretation of data to find out an association between pre-test knowledge scores of subjects with their selected socio demographic variables.

There was no association between pre test knowledge scores and selected demographic variables.

Recommendations

- ✓ A similar study can be replicated in different settings.
- ✓ A comparative study can be done between Junior Primary School & Senior Primary School children.
- ✓ Nurses working in any set up can utilize this snake and ladder game as a play way method to teach children about various health habits.
- ✓ Teachers and special trainers in special schools can practice, snake and ladder game as one of the routine teaching technique to teach the additional health related information to school children.

Conflicts of interest

The authors declare no conflicts of interest.

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