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An Prevalence Study On Healthy Food Choices Among Adolescent Girls

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ABSTRACT

The study's objective was to assess the impact of nutrition education among adolescent girls. Totally 50 subjects, were conveniently selected from the hostel, in Chennai. A study was conducted among the subjects. A pre-tested self-structured questionnaire was used for pre and post-test, and nutrition education was given using innovative games and educating them about the importance of Healthy food choices So the study has been initiated. A standard test survey questionnaire is applied before participation begins and reapplied after the end of the program. The study has highlighted that intervention in the form of nutrition education can significantly improve the knowledge about the importance of healthy food It has been concluded that there is a 35.5 % significant increase in knowledge at post-assessment. It is important to have this kind of nutrition education to adolescent girls.

Key words: nutrition education, healthy food choices

INTRODUCTION

NUTRITION EDUCATION

Nutrition education has a broad vision which encompasses educational strategies and environmental supports to encourage adoption of healthier, sustainable food choices and eating patterns, Nutrition education is widely used for a range of population groups as a medium to deliver healthy diet and nutrition information; however, this type of intervention is still rarely implemented for college students. While there are various modes of nutrition education interventions, their effectiveness on eating habits remains unclear .

CONSUMPTION OF FAST FOOD

Junk foods are defined as foods that are readily available, usually inexpensive, and having less nutrient value, Common junk foods include fast food, carbonated drinks, chips, desserts, chocolates, etc. Despite established evidence of the negative impacts of junk foods on the human body, the consumption of junk foods is popular among youngsters. Such consumption may lead to a high prevalence of obesity, diabetes mellitus, hypertension, and coronary heart disease. It is estimated that 16 million (1.0%) disabilityadjusted life years (DALYs) lost and 1.7 million (2.8%) of worldwide mortality have been attributed to inadequate consumption of vegetables and fruits

COMPLICATIONS AND NUTRITION DEFICIENCY

Nutrient deficiencies are prevalent worldwide. Diseases and morbid conditions have been described to result from nutritional deficiencies. It is essential to address nutrient deficiencies as these may lead to chronic long-term health problems such as rickets, iron deficiency anemia, goiter, obesity, coronary heart disease, type 2 diabetes, stroke, cancer and osteoporosis. Multiple nutritional deficiencies, including iron, calcium, zinc, folic acid, and vitamins B12, C, D and E, spanning all age groups, several minorities, and specific region. The lack of sufficient amounts of micronutrients affects health, function, and physical and cognitive development throughout the life cycle. Many diseases and morbid conditions have been described to result from nutritional deficiencies. These include developmental defects, such as birth defects, physical and cognitive development delays, increased risk of infectious diseases, as well as increased risk of poor health in adulthood. Almost two-thirds of deaths of young children around the world are related to nutritional deficiencies

INNOVATIVE GAMES

During childhood and adolescence, a game could be an effective educational tool to learn healthy eating habits. A board game, to promote nutrition education and to improve dietary behavior. In recent years, many researchers have used educational games to assist traditional teaching in order to enhance students' interest in active learning and improve teaching effectiveness. Games provide an attractive venue for engaging participants and increasing nutrition – related knowledge and dietary behaviour change, but no review has appeared devoted to the literature. **(Tom baranowski et al.,2018)** Among various education games, the board game has a long history, fewer adverse effects, lower development costs, and better experience.

In general, it has following advantages:

- ❖ It can improve students' learning motivation
- ❖ It is easy to combine multiple disciplinary content and improving students' interdisciplinary ability

IMPACTS OF NUTRITION EDUCATION

Nutrition education is an important measure to improve dietary habits and food choices, since poor dietary habits and ignorance are the main reason for poor nutritional status of the adolescents. Hence the WHO has advocated mass information and awareness programs to be organized to alert government and communities about the importance of health education (**Gupta and Kochar, 2009**). Improving knowledge among adolescents and other community members about nutrition and the causes, symptoms and consequences of under nutrition or specific deficiencies such as anaemia, as well as symptoms of eating disorders through health education programs in schools, health facilities, community outreach, and media and public information campaigns will be useful strategies to improve nutrition knowledge of adolescents. (**Chatterjee, 2005**)

OBJECTIVE OF THE STUDY

- Developing a healthy rider game to create awareness the adolescent girls
- To formulate the education tool and to educate knowledge based questionnaires
- To assess the impact of nutrition education among the adolescent girls.

AIM OF THE STUDY

- Aim of the study was formulate the education tool by means of innovative games and educate them about importance of healthy food and effects of junk food. To assess the impact of knowledge gain on importance healthy food and effects of junk food among adolescent girls.
- For adolescent girls nutrition education is an important tool in this period. Implementation of nutrition education among adolescent girls could well improve nutritional knowledge and eating habits .
- Many studies have used games to understand the relationship between children's nutritional knowledge and eating behaviors. Results of these studies have shown that games have a positive impact on children's dietary intake, nutritional knowledge, attitudes, behaviors, and activity level.
- Thus games could have positive effects on nutritional knowledge, dietary intake, attitudes, and behaviors of adolescent girls This innovative game is also an appropriate nutrition education tool to improve adolescent attitudes toward food.

REVIEW OF LITERATURE

- The study by **Verain et al.**, (unpublished results a) identifies four healthy eating strategies: (1) an increase in the consumption of more healthy products (e.g. eating more vegetables and drinking more water), (2) a restricted consumption of unhealthy products (e.g. drinking less alcohol and consuming less red meat) (3) a change in dietary pattern (e.g. consuming smaller portion), and (4) a shift towards consumption of light products (i.e. products that are labelled as being light/slim products such as low-fat products or low-calorie products). Healthy eating is associated with lower risks of disease and mortality, but the mechanisms underlying these associations are unclear. Age is strongly related to health outcomes, and biological age can be estimated using the blood methylome (**Jacob K Kresovich, Yong-Moon Mark Park, Jean A Keller, Dale P Sandler, Jack A Taylor**)

- According to **Hofmann, Baumeister, Förster, and Vohs (2012)**, one-third of our daytime desires ,People care about eating and food. People make more than 200 food decisions every day (Wansink & Sobal, 2007), and food cravings account for almost 20% of all human thoughts and desires, even when we are not really eating.
- According to **WHO (2003)**, adolescence in girls recognized as a special period which signifies the transition from girlhood to womanhood and marks the onset of female puberty and attaining maturity manifested by a number of physiological, behavioral, psychological and hormonal changes, the most notable being the onset of menstruation. The ongoing physical maturation process in girls, which is menstruation, directly affects the body and brain to alter their needs, interests, and moods. Then, as they start to look and act differently, an array of social influences further accelerates the social and emotional changes in them. This is marked by feelings of anxiety, eagerness to know about this natural phenomenon, shyness, and embarrassment. For this reason, stress issues often first emerge in adolescence

METHODOLOGY

Research design - exploratory research

Sampling- convenience sampling

Sample size-50 respondents

Period of study- 25 days

Data collection:

- Primary data - structured questionnaires
- Secondary data - journals and websites
- Tools of analysis: statistical analysis

RESEARCH DESIGN

Research design refers to the frame work of the research method and techniques that are carried out by the researchers through the research. The research design of this research is given below

Target population (Adolescent girls (n=50))

Accessible population of adolescent girls (selection of hostel at Chennai)

Pre knowledge assessment (using questionnaire)

Intervention of impact of nutrition education on adolescent girls using innovative games

Post knowledge assessment

Analysis the effectiveness of intervention (By statistical analysis)

DEVELOPMENT AND DESCRIPTION OF THE QUESTIONNAIRE

A questionnaire is a research instrument consisting of a series of questions for the purpose of gathering information from respondents through survey or statistical study. The study is carried out using a self-structural question. A self-administered questionnaire was found to provide more reliable information.

NUTRITION EDUCATION TOOL

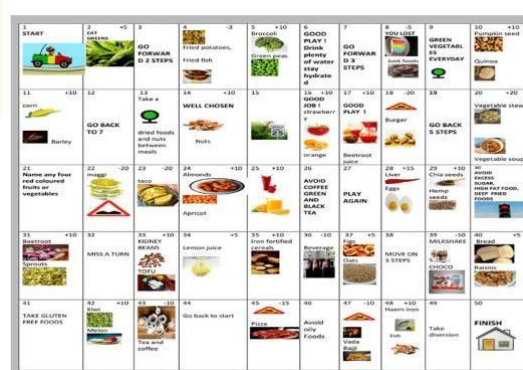


FIGURE 1

HOW TO PLAY HEALTHY RIDER GAME

- Each player puts their counter on the space that says 'start here'.
- Take it in turns to roll the dice. Move your counter forward the number of spaces shown on the dice.
- If your counter lands on the box contains iron rich foods , you get the points shown on the board
- If your counter lands on the box contains junk foods, you get minus points shown on the board

- If your counter lands on the box like minimum speed, uneven road, you have to stay the same place for one round.
- If your counter lands on the box, take diversion you have to start the game again.
- If your counter lands contains, move 2 steps backward, go 2 steps forward like these types of instructions you have to move accordingly.
- If your counter lands contains, traffic signals which intimates some healthy tips, you takeaway tips and stay healthy.
- The first player to get to the space that says 'home' is the winner.
- The goal of the player to eat iron rich foods and to avoid junk foods.
- Have fun and stay healthy.

IMPACT OF PRE AND POST ASSESSMENT AMONG THE SUBJECTS

Standard test survey of questionnaire is applied before participation begins and reapplied after a set period or at the end of the program. This kind of assessment help in estimating the level of understanding the knowledge of the subject.

CONDUCTION OF PRE – TEST

The validated question of administered to the participating subjects the willingness of participants were enquired before proceeding. A total of 10-15 minutes was given to each participant to record their response. The participant marked their response and return the filled questionnaire.

After conducting the education program the post-assessment was conducted to assess the level of knowledge gained. The same questionnaire is distributed. A total of 10-15 minutes was given for participant to record their response, the marked response was calculated

SCORING SYSTEM

The questionnaire has multiple-choice questions based on a nominal data scale. The nominal data scale involves self-esteem framed choice which may be open-ended at times. The knowledge-oriented questions were scored separately such as giving the scoring to one for the correct answer and zero for the wrong answer.

STATISTICAL ANALYSIS

Data was analyzed using descriptive statistics. Descriptive statistics describe or summarize the characteristics of a sample or data set, such as variables, mean, standard deviation, or frequency.

RESULTS AND DISCUSSION

The result and discussion pertaining to the study “TO STUDY THE IMPACT OF NUTRITION EDUCATION AMONG

ADLOSCENT GIRLS” is described under the following heading. The number of participants was 50. Health Educational intervention was given through games (Board game - Healthy Rider)

TABLE 1 FREQUENCY DISTRIBUTION OF SUBJECTS BASED ON KNOWLEDGE CRITERIA ON SIGNIFICANCE OF CONSUMING HEALTHY FOOD

S.NO	QUESTIONS	PRE TEST		POST TEST	
		SCORE	MEAN $\pm$ <u>S.D</u>	SCORE	MEAN $\pm$ <u>S.D</u>
1	Consumption of healthy food helps to prevent	21	0.42 $\pm$ 4.47	43	0.86 $\pm$ 6.47
2	Daily requirement of protein for adolescence	14	0.28 $\pm$ 3.60	47	0.94 $\pm$ 6.75
3	Starchy vegetable	14	0.28 $\pm$ 3.60	46	0.92 $\pm$ 6.70
4	Source for Protein	12	0.24 $\pm$ 3.31	49	0.98 $\pm$ 6.92
5	Food are gluten-free	0.1	0.24 $\pm$ 3.31	49	0.98 $\pm$ 6.92

N = 50

People eat less and make different food choices as they get older. However, lower food intake among the elderly has been associated with lower intakes of calcium, iron, zinc, B vitamins, diet-related illnesses.(Drewnowski, JM ShultzJournal of Nutrition, Health & Aging, 2001) Table 1 shows that,majority of the adolescent girls ,they have less knowledge on significance of consuming healthy food.

TABLE 2 FREQUENCY DISTRIBUTION OF SUBJECTS BASED ON KNOWLEDGE CRITERIA ON IRON

S.NO	QUESTION	PRE TEST		POST TEST	
		SCORE	MEAN $\pm$ <u>S.D</u>	SCORE	MEAN $\pm$ <u>S.D</u>
1	Heam iron	15	0.3 $\pm$ 3.74	46	6.92 $\pm$ 6.70
2	Vitamin help to absorb iron	11	0.22 $\pm$ 3.162	47	0.94 $\pm$ 6.78
3	Heat liable vitamin	9	0.18 $\pm$ 2.82	40	0.8 $\pm$ 6.24
4	Source of iron	20	0.4 $\pm$ 4.35	48	0.96 $\pm$ 6.85
5	Caffeine inhibits the absorption	11	0.22 $\pm$ 3.162	46	0.92 $\pm$ 6.70

N= 50

In 2017, Vexena Tan conducted a study on absorption of iron from foods stated that the foods you eat influence not only how much iron you consume, but also how well it is absorbed into your body. Beta-carotenes is the red-orange pigment found in plants and fruits. It can be turned into vitamin-A in your body. Adding Beta-carotene to the meals increased absorption of iron in your body. Table 2 shows that,

majority of the adolescent girls, they have less knowledge on absorption of iron in our body. After educating them by board game about the absorption of Iron, they gained knowledge on it.

TABLE 3 FREQUENCY DISTRIBUTION OF SUBJECTS BASED ON KNOWLEDGE CRITERIA ON SIDE EFFECTS OF JUNK FOOD

S.NO	QUESTIONS	PRE TEST		POST TEST	
		SCORE	MEAN + S.D	SCORE	MEAN + S.D
1	Excessive intake of fat	21	0.42±4.47	46	0.9±6.70
2	Consequence of dehydration	14	0.28±3.60	48	0.96±6.85
3	Organ meat	3	0.06±1.41	42	0.84±6.40
4	Disadvantage of fast food	22	0.44±4.58	48	0.96±6.85
5	Eating fast foods	28	0.56±5.19	45	0.9±6.62

N=50

Abraham S, Noriega Brooke R, Shin J, Stated that students eating habits and knowledge of nutritional requirements. J Nutr Hum Health, January 17th, 2018 stated that, Even though students were knowledgeable about food containing additives, perils of fast food, unhealthiness of processed food and soda, they intermingled processed and fast food based on taste preference and convenience with fruits and salads. Although many participants showed good eating habits and adequate knowledge of nutritional requirements, the need was discovered to investigate further about different factors that contribute to their eating habits and their knowledge. In addition, it would be beneficial to research what health education practices can be placed to help guide their eating habits and promote overall health. Providing health, nutrition related courses and using technology as a means to educate the new generation could be effective and used for future learning, Table 3 shows that majority of the adolescent girls does not know effects of junk food but after educating them with the help of board game, they understand the Side effects Of fast food.

TABLE 4 FREQUENCY DISTRIBUTION BASED ON KNOWLEDGE CRITERIA ON BENEFITS OF CONSUMING HEALTHY FOOD

S.NO	QUESTION	PRE TEST		POST TEST	
		SCORE	MEAN + S.D	SCORE	MEAN + S.D
1	Vegetable are not healthy	32	0.64 ± 5.56	49	0.98 ± 6.92
2	Probiotic food	15	0.3 ± 3.74	48	0.96±6.65
3	Beet root juice everyday	20	0.4 ± 4.35	40	0.94±6.24
4	Vitamin abundant in apricots	7	0.14 ± 2.44	40	0.8 ± 6.24
5	Almond good for health	17	0.34± 3.99	43	0.86±6.47

N=50

Consuming a healthy diet throughout a person's life helps prevent malnutrition in all its forms as well as a range of diet-related noncommunicable diseases and conditions. But the increased consumption of processed food, rapid urbanization and changing lifestyles have led to a shift in dietary patterns. People are now consuming more foods high in energy, fats and free sugars or salt/sodium, and many do not eat enough fibre-rich fruits, vegetables and whole grains.(WHO, 2019) The table 4 shows that majority of the adolescent girls, they have less knowledge on benefits Of consuming healthy foods. After educating them by game , they gained knowledge on it

Fruit and vegetables contain an abundance of phenolic substances, terpenoids and other natural antioxidants that have been associated with protection from and treatment of chronic diseases such as heart disease or cancer

TABLE 5 FREQUENCY DISTRIBUTION BASED ON KNOWLEDGE CRITERIA ON ANTIOXIDANTS

S.NO	QUESTION	PRE TEST		POST TEST	
		SCORE	MEAN $\pm$ <u>S.D</u>	SCORE	MEAN $\pm$ <u>S.D</u>
1	Terpenoid	6	0.12 $\pm$ 2.23	40	0.8 $\pm$ 6.24
2	Natural biopolymer	19	0.38 $\pm$ 4.24	40	0.8 $\pm$ 6.24
3	Alkaloids	28	0.56 $\pm$ 5.19	40	0.96 $\pm$ 6.85
4	Anti anxiety effect	17	0.34 $\pm$ 3.99	39	0.78 $\pm$ 6.16
5	Bodies use the energy in root	8	0.16 $\pm$ 2.64	42	0.84 $\pm$ 6.40

N=50

Fruit and vegetables contain an abundance of phenolic substances, terpenoids and other natural antioxidants that have been associated with protection from and treatment of chronic diseases such as heart disease or cancer table 5 shows that adolescent girls have less knowledge on pre test . a After educating them , they gained knowledge on it.

TABLE 6 NOWLEDGE DATA ASSESSMENT

Knowledge criteria	Mean ± S.D	percentage
Pre – test	7.78 ± 76.5	36.5
Post – test	70.5 ± 145.7	

SUMMARY AND CONCLUSION

Adolescence is a transformative phase marked by critical physical, psychological, and social changes that influence long-term health behaviors. This study evaluated the impact of an innovative, game-based nutrition education intervention on healthy food choices among adolescent girls in Chennai. A total of 50 participants underwent pre- and post-assessment using a structured questionnaire that gauged their knowledge on topics such as healthy food, iron absorption, junk food side effects, and antioxidants. The intervention employed a custom-designed board game called “Healthy Rider,” aimed at engaging participants while conveying essential nutrition concepts.

The results demonstrated a significant improvement in nutritional knowledge, with a 35.5% increase in post-test scores. Participants showed enhanced awareness of iron-rich foods, benefits of fruits and vegetables, dangers of fast food, and the importance of antioxidants. The study concludes that adolescent girls initially possessed limited awareness of key nutrition concepts, but educational interventions using interactive tools like games effectively improved their understanding and engagement. Given the high receptivity and effectiveness of such tools, incorporating game-based education into school health programs and community outreach efforts is highly recommended. These strategies can play a crucial role in promoting healthy dietary habits and preventing nutrition-related health issues among adolescents.

FUTURE RECOMMENDATIONS

Encouraging adolescent girls to actively engage in awareness programs conducted by Primary Health Centers and adolescent clinics is crucial for promoting overall well-being. Integrating nutrition education into these initiatives can enhance their understanding of healthy eating habits and empower them to make informed dietary choices, fostering long-term health benefits.

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