Abstract:

Introduction: The consumption of junk food among adolescents is emerging as a global health concern not only in developed countries but in developing countries. Diet related diseases are responsible for 35 million deaths worldwide. Junk food consumption has been associated with many health hazards such as obesity leading to increased risk for type 2 diabetes, hypertension, cardiovascular diseases, metabolic syndrome, decreased concentration etc.

Objectives: Objective of the study was to assess the effectiveness of educational intervention on health hazards of junk food among adolescents.

Methodology: Evaluative research approach with pre -experimental (one group pretest- posttest) research design was used for the study. Non probability purposive sampling technique was used to select 170 students of grade 8 of Tilingatar Secondary School, Kathmandu. For data collection firstly pretest knowledge was assessed using self developed structured questionnaire and then structured teaching program was administered. After 7 days of teaching program, post test was conducted to assess the effectiveness of structured teaching program. Data collected technique used was self administration of questionnaire. Percentage, frequency, Mc. Nemar and Wilcoxon Sign Rank tests were applied for data analysis using SPSS version 20.

Results: The overall median score with interquartile range of knowledge among adolescents was 13 (15-12) in pre-test which increased to 22 (23-20) in post-test. The difference between knowledge as a whole was calculated by using Wilcoxon Sign Rank test and the difference was found to be (p-value=0.0001) highly significant. The study results reveal that only 31.8% adolescents had adequate knowledge in pretest whereas, in posttest 95.3% had adequate knowledge.

Conclusion: Educational intervention on knowledge on health hazards of junk food was effective. So, information education, and communication programme should be planned in a regular basis to update the awareness among adolescents and improve their practice of consumption of healthy foods.

Key Words: Knowledge, health Hazards, junk food, Adolescents, Nepal

Introduction

Junk foods are those foods that provide suboptimal nutrition with excessive fat, sugar, or sodium. They are highly salted e.g. potato chips, high in refined carbohydrates e.g., candy, soft drinks, and high in saturated fats e.g. cake, chocolates etc.¹ Many additives are used in junk food that can lead to health problems. For example Monosodium glutamate (MSG) that causes various health problems such as hypothyroidism, headache, nausea, weakness, difficulty in breathing, drowsiness, rapid heartbeat and chest pain.²
Adolescence is the period which require highest nutritional requirement for optimal growth and development. Practicing healthy eating behavior is one of the important factors to meet the nutritional needs of adolescents. But unfortunately the practice of high consumption of junk foods like noodles, burgers, sandwiches, potato chips, carbonated drinks, biscuits, chocolates; pastries etc. have become the common feature of adolescents’ diet throughout the world. Hence adolescents are at greater risk for nutritional problem both from a physiological and a psychological view.\textsuperscript{[3-6]}

Consumption of junk foods and obesity in adolescents has been aroused as a global epidemic not only in the developed but also in the developing countries.\textsuperscript{3}

In Nepal most common junk foods are chips, packaged noodles, pizza and different kinds of sweet. In developing countries like Nepal, it has created new challenge to the health system by adding double burden of disease. This increasing trend of the junk foods consumption is due to globalization and market liberalization in food marketing.\textsuperscript{[6,7]}

Diet related diseases are responsible for 35 million deaths worldwide. More the consumption of junk food, more the risk for various health hazard such as obesity, dental carries, heart diseases, diabetes, improper digestion, hypertension, liver disease, etc. There is a strong relationship between junk food consumption and non communicable disease. Seventy-nine percentage of the death in global scenario is attributed to non communicable disease occurring in developing counties.\textsuperscript{8}

The Department of Education (DoE) of Nepal has banned the junk foods in schools and has made it mandatory for parents to send only homemade lunch for their children seeing the adverse effect of junk food on the health of the children.\textsuperscript{9}

A qualitative study conducted in Kathmandu district of Nepal among 24 students of grade 8 and 9 showed that most of the students knew the importance of a healthy diet to avoid diseases and stay healthy, however, most of them did not know that the lack of physical activity and unhealthy diet can cause possible non communicable diseases in the future.\textsuperscript{7}

A study conducted in India in 3 schools of Punjab district showed that the students’ pre-test knowledge regarding health hazards of junk food was 18.33\% and after an educational intervention 81.67 \% students had average knowledge, which shows high level of significance. The study concluded the knowledge of adolescents could be improved by structured educational program.\textsuperscript{2}

A study conducted in 3 districts (Kathmandu, Bhaktapur and Lalitpur) among primary and secondary level students in 8 schools shows that 15\% do not have any idea about balanced diet and 22\% of respondents think that consumption of junk foods help in normal development and growth.\textsuperscript{5}

There is knowledge gap in the adolescents regarding ill effects of junk food consumption and its long term impact on health. Thus the present study was conducted to assess the knowledge of health hazards of junk food among adolescents and also to assess the effectiveness of educational intervention on health hazards of junk food among adolescents.

**Conceptual Framework**

![Conceptual Framework based on General System Theory approach by Ludwing Von Bertalanfrey](image)
Methodology

Table Evaluative research approach with pre-experimental (one group pretest-posttest) research design was used for the study to assess the effectiveness of educational intervention on knowledge on health hazards of junk food among adolescents, studying in grade 8 of Tilingatar Secondary School located at Tokha, Kathmandu which consists of nearly 1500 students. Non probability purposive sampling technique was used and 170 students of grade 8 were involved in the study.

Self-developed structured questionnaire was used as data collection tool. Content validity of instrument was maintained by extensive literature review and consulting with research experts. Reliability of the research instrument was maintained by pre-testing the instrument in 10% of study respondents from different public school but similar setting Shree Manohara Secondary School.

Questionnaire consists of two parts. Part I consists, demographic variables, such as age, sex, religion, diet and part II consists of knowledge related questionnaire. For each knowledge related questions, 1 score was given for correct response and 0 score for incorrect response. In multiple response questions 1 score was given for one response. The scoring of level of knowledge was done as: Adequate knowledge (scored over 76%); moderate knowledge (scored 51%-75%); inadequate knowledge (scored below 50%).

Data collection was started on 2016/10/2 and completed on 2016/10/25 which consisted of three phases. First phase is preparation phase in which formal approval were taken from related authorities. Second phase is intervention phase in which pre-test was done by administering self structured questionnaire to assess the level of knowledge on health hazards of junk food among adolescents before the educational intervention. After pretest, education was provided on the basis of structured educational package which included the information on several aspects on junk food and its health hazards. Three educational sessions of 1 hour duration was conducted in three different sections of grade 8. Illustrative and interactive lecture method and audio visual aids like power point, posters, Meta cards and flip chart were used for explaining the content of educational package.

In third phase, posttest was done after one week of intervention to identify the level of knowledge on health hazards of junk food among adolescents after the educational intervention by using same questionnaire that was used in pretest.

Question related to feedback of educational intervention and was asked verbally in post-test only. Data has been analyzed by checking; editing and coding using SPSS database version 16. Data was presented by using descriptive statistics that is percentage, frequency, median and inter-quartile range and by inferential statistics, Wilcoxon Sign Rank test.

Result

Table 1: Frequency and percentage distribution of knowledge on junk food before and after intervention

| Variables                                | Pre-test | Post-test |
|------------------------------------------|----------|-----------|
|                                           | Correct  | Correct   |
| f    | %       | f    | %       |
|------------------------------------------|----------|----------|
| **Meaning of Junk Food**                 |          |          |
| Low nutritive value                      | 167      | 98.24    | 170      | 100.00  |
| High content of fat and sugar            | 124      | 72.94    | 168      | 98.82   |
| Noodles and Pizza as most common type of junk food | 167      | 98.24    | 170      | 100.00  |
| Junk food offers high calorie in low volume | 89       | 52.35    | 168      | 98.82   |
| **Harmful Ingredient in Junk Food**      |          |          |
| Caffeine and phosphoric acid in cold drinks | 97       | 57.06    | 163      | 95.88   |
| Preservative in Junk Food                | 23       | 13.53    | 70       | 41.18   |
| Use of MSG in junk food                  | 156      | 91.76    | 161      | 94.71   |
| **Effect of harmful ingredients in junk food** |          |          |
| Effect of MSG in junk food               | 40       | 23.53    | 164      | 96.47   |
| Effect of preservative in junk food       | 34       | 20.00    | 130      | 76.47   |
| Effect of Caffeine and Phosphoric Acid in cold drinks | 78       | 45.88    | 128      | 75.29   |
| Effect of fat in junk food               | 30       | 17.65    | 143      | 84.12   |

Table 1 presents that before intervention almost most all (98.24%) of the respondents were aware about low nutritive
value of junk food, this percentage was increased to cent percent in posttest. Regarding harmful ingredients in junk food, during pretest more than half of the respondents were aware about presence of caffeine and phosphoric acid in cold drinks this percentage was increased to 95.88% after intervention. Likewise during pretest nearly one fourth were known about the effect of Monosodium glutamate (MSG) in junk food, this percentage was increased to 96.47% in post test.

Table 2: Frequency and percentage distribution of knowledge on health hazards of junk food before and after intervention  n=170

| Variables                                      | Pre-test Correct Response | Post-test Correct Response |
|-----------------------------------------------|---------------------------|---------------------------|
| Health Hazard of excess salt                  |                           |                           |
| Health Hazard of excess sugar                 |                           |                           |
| Immediate health hazards of excess fat        |                           |                           |
| Long term health hazards of excess fat        |                           |                           |
| Possibility of junk food to cause cancer      |                           |                           |
| Long term health hazards of hydrogenated oil used in junk food |                           |                           |
| junk food consumption leads to decreased mind concentration |                           |                           |

Table 2 presents that during pretest nearly half of the respondents were aware about the health hazards of excess salt but after intervention this percent was increased to 94.12%. Likewise only few knew the long term health hazards of hydrogenated oil during pretest but this percent was increased to 73.53% during post test.

Table 3: Frequency and percentage distribution of knowledge on preventive measures for the effect of health hazards of junk food  n=170

| Variables                                      | Pre-test Correct Response | Post-test Correct Response |
|-----------------------------------------------|---------------------------|---------------------------|
| Reading the label of junk food                |                           |                           |
| Avoiding junk food                            |                           |                           |
| Minimizing daily salt consumption            |                           |                           |
| Maximizing daily water intake                |                           |                           |
| Maximizing daily consumption of vegetables and fruits |                           |                           |

Table 3 demonstrates that during pretest 94.12% of respondents answered that reading the label of junk food helps us to prevent the health hazards during posttest almost all respondents knew it. Likewise during pretest only 17.06% of respondents knew maximizing daily water intake helps to prevent the harmful effects of junk food but after intervention majority (76.47%) of the respondents had this knowledge.

Figure 2 highlights that 1.20% of the respondents had inadequate knowledge, 67.10% % had moderate knowledge and 31.80% of respondents had adequate knowledge in pre-test. Whereas, in post-test majority (95.30%) of the respondents had adequate knowledge on health hazards of junk food.

Table 4: Effectiveness of educational intervention regarding knowledge of health hazards of junk food  n=170

| Knowledge Score | Mean | Median | Standard Deviation | p-value |
|-----------------|------|--------|--------------------|---------|
| Pre Test        | 13.46| 13     | 2.53               | 0.0001* |
| Post Test       | 21.61| 22     | 2.31               |         |

*Significant at level of 0.05 (Wilcoxon Sign Rank test)

Table 4 illustrates that the median difference between pre-test and post-test score is 9. The difference between respondents’ pre-test and post-test knowledge on health hazards of junk food was calculated by Wilcoxon sign rank test and the calculated p-value was highly significant (p=0.0001). Hence the educational intervention was effective to increase the overall knowledge of junk food among the adolescents.
Discussion

The present study regarding baseline knowledge on types of junk food (Noodles and pizza are the most common type of junk food) revealed that 98.24% of the adolescents were aware about it. This result is supported by study done in Nigeria were 99.5% of respondents were aware about various types of junk food. This may be due to high consumption of junk food among adolescents.6

Regarding high content of fat and sugar in junk food, adolescents’ pretest knowledge was 72.9%. This result is supported by a study done Nigeria, where knowledge related to content of junk food was found considerably high among adolescents.11

In relation to the harmful ingredients in junk food, findings illustrated that only 57.1% adolescent were aware that Caffeine and phosphoric acid is harmful ingredient in cold drinks. In a similar study done in Sudan indicated that only 25% of the respondents were aware of the chemicals present in the junk food and its safety level.12

Junk food consumption has been associated with many health hazards such type 2 diabetes, hypertension, cardiovascular diseases, metabolic syndrome, cancer, decreased memory etc.13,14 The present study findings unveiled that during pretest nearly half of the respondents were aware about the health hazards of excess salt likewise only few knew the long term health hazards of hydrogenated oil. A similar study done by Arulogun and Owolabi in 2011 reveals that 52.1% of the adolescents had knowledge that junk food can increase the risk of having non communicable disease. Also, the current study finding is supported by a study done in India which revealed that 43.22% of the adolescents were aware about ill effects of junk food.15

In relation to knowledge about health hazards of excess sugar (risk of developing diabetes) only 36.5% of the adolescents had knowledge about it. This is supported by a study done in India by which illustrated that 37.8% had knowledge about association of junk food with diabetes.14

The present study showed that only 31.8% had adequate knowledge regarding health hazards of junk food during pretest whereas, in post-test majority (95.3%) had adequate knowledge. This is supported by a study done in India where only 7% had adequate knowledge during pretest whereas in posttest 93% had adequate knowledge.10

The difference between total pretest and post-test score in this present study was found to be statistically significant (p value 0.0001) which was calculated by Wilcoxon sign rank test. The present finding is supported by the study done by Ganagowri in 2014 which depicts that there was a highly significant difference between pretest and post test of total average knowledge scores regarding knowledge of junk food. (p value less than 0.05).

This means that the training package was effective in increasing the knowledge of adolescents. Therefore, it can be concluded that education plays a significant role in increasing awareness level of adolescents.

Conclusion

There was significant increase in the level of knowledge on health hazards of junk food after the educational intervention. Therefore, it can be concluded that education plays an important role in increasing awareness level of care givers. So, present study suggests that information, education and communication (IEC) programme should be planned in a regular basis to update the awareness and knowledge on prevention of health hazards of junk food.

Recommendation

- A similar study can be replicated on a large sample there by to generalize the findings to a large population.
• Educational package should focus especially on health hazards since most of the adolescents were found to have inadequate knowledge regarding it.

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Ethical Consideration

Formal permission was taken from the concerned school. The purpose of the study was explained to the respondents. Verbal and written consents were taken from all respondents before data collection. The privacy and confidentiality of the subject was maintained throughout the study and thereafter.

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