

Junk food prevention education package intervention and its effect on behavioural intention among students of kageswori manohara municipality, Kathmandu district, Nepal

Abstract

IThe study was conducted in Kageswari Manohara Municipality of Kathmandu district. Four government high schools studying in grade 8 and 9 were selected randomly from total eight government high schools. Baseline data was collected from 428 students. Based on baseline study education package was developed using P process. In next phase two schools were selected as intervention group and other two was taken as control group. Study was done in three phases, in first phase baseline study, in second phase health education package development and in third phase intervention study. The baseline study showed that the understanding of junk food was satisfactory but 79.7% replace their meal with junk food at least one time per week. For the evaluation of effectiveness of intervention Mann Whitney U tests was used. The result showed in the pre-test, there were no significant differences between two groups. After intervention there was significant improvement in each construct of TPB. However there were significant improvement in attitude and intention but its continuity is quite challenging. The findings of the study encourage us to further explore creative approaches for the prevention of junk food especially in the school setting. This study developed behavioral intention among the intervention group. Behavior intention will lead to change in intended behavior. These healthy eating habits will affect their physical, emotional, and mental growth and development and even their adult years..

Keywords: junk food, educational package, interventional study, theory of planned behavior, P process

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Introduction

The stage of adolescence has been defined as ages 10 to 19 years,¹ a group that represents about 20% of total population in SEAR.² In Nepal, adolescent comprise 23.63% of total population³ among them late adolescent make 10% of total population.⁴ It is the period of transition between childhood and adulthood,⁵ rapid physical growth and development, social and psychological. Junk foods are energy dense food with high sugar/fat/salt content and low nutrient value in terms of protein, fiber, vitamin and mineral content⁶ like chips, chocolate, soft drink, biscuits, noodles, cheese balls etc are generally taken as junk food. These foods contain high amount of refined sugar, white flour, trans fat and polyunsaturated fat, salt and numerous additives.⁷ Junk food are getting very popular among people due to time factor, taste factor, its attractiveness and appealing advertisements. Children and adolescent usually get addicted to such foods as they contain sweetening agents and food preservatives that are addictive in nature. Nutritional intake during adolescence is important for growth, long term health promotion, and the development of lifelong eating behaviours.⁸ Total nutrient needs are higher in adolescence than during any other time in life cycle because of rapid growth and development. Nutritional intake during this period may have long term health implications.

Due to this reason, they deny eating homemade foods and skip their meal. However, these foods do not have sufficient nutritive value to fulfill their dietary needs. So, it brings about serious consequence in their growth and development. On one hand because of high fat content particularly cholesterol and sugar content it increase risk of obesity and the other having low nutritive content it increase chances of micronutrient deficiency diseases. It also affects oral hygiene as these foods contains high amount of sugar. It increases chances of getting heart diseases due to high fat.⁸ According to Theory of Planned Behavior (TPB) more positive the attitude and subjective norm and the stronger the perceived control, the greater the intention will be for the individual to perform the behaviour. Essentially, the model implies a causal link between attitudes and behaviour that is mediated by intentions. The model also allows for external factors that may be beyond the immediate control of the individual to be captured as these, in addition to intention, are likely to influence behaviour.⁹

Statement of the problem

In Nepal, a study among school children revealed that fast food (ready to eat snacks, chips) was preferred by more than two-thirds.¹⁰ A study done by Nepal Public Health Foundation in Kathmandu valley found that about fifty percent of adolescent and children prefer junk food to homemade food due to various reasons like taste, availability,

cheaper price and time efficient.¹¹ In urban schools of Nepal, for instance, a study among pupils aged 9-11 from middle-income families revealed that 'fast food' (ready-to-eat snacks, potato chips, noodles...) was preferred by more than two thirds. Taste, convenience and affordability were the foremost preference criteria. The role of advertising was considered relevant for 80% of them. With increasing fast-food consumption, that of more traditional (and nutrient-dense) food items such as pulses, green leafy vegetables, fruits and milk decreased significantly.¹² A study on the junk food eating habits of school children in Delhi found that 60-70 per cent of children in different age groups consumed chips at least two three times a week.¹³

Methodology

- i. Study area: The study was carried out in Kageshwori Manohara Municipality of Kathmandu district.
- ii. Research design: Descriptive cross sectional study for baseline and interventional study consist of pretest-posttest with control group.
- iii. Research method: Quantitative (Conducted in 3 phases)
 - a. Phase I: Descriptive cross sectional study design
 - b. Phase II: Junk food prevention education package development
 - c. Phase III: Intervention study (Quasi experimental-pretest-posttest with control group) was designed including implementation of junk food prevention education package and assessment of its effectiveness after 15 days.
- iv. Sampling Procedure: Kageshwori Manohara Municipality of Kathmandu district was selected purposively, after that list of public high schools was created. Four schools were selected randomly for baseline data collection. For interventional study two schools were randomly selected as intervention group and two schools were selected as control group. All students of grade eight and nine was taken as study group.
- v. Sample size
 - a. For baseline study: Sample size was determined by using formula $n=4pq/L^2$
 - b. For Intervention study: The sample size was determined using the formula for two proportions

$$\text{SampleSize} = \frac{2[(z_{1-\alpha/2})+(1-\beta)]^2}{\Delta^2}$$

Assuming to develop desired behavior intention by 30 percent based on pretest.

$$\text{Sample size} = \frac{2[(1.96)+(0.8)]^2}{(0.3)^2} = \frac{15.2352}{0.09} = 169.28 \sim 170$$

Using above formula, the calculated sample size for each wing of intervention and control school students in 1:1 ratio was 170.

- vi. Inclusion Criteria and Exclusion Criteria
 - a. Inclusion Criteria: All the interested students having written signed consent of grade 8 and 9 were included on the study.
 - b. Exclusion Criteria: Students not attending all the session (pretest, intervention and posttest) were excluded during analysis.
- vii. Tools and techniques for data collection:
 - a. Data collection tool: Self administered questionnaire

b. Data collection technique: The data was collected through self administered technique as questionnaires were distributed to the students. For intervention, package was developed on the basis of baseline information. After the exploration of baseline information detail plan of action was developed for effective intervention.

- viii. Reliability and Validity
 - a. Reliability: Questionnaire was pretested in the similar setting and necessary corrections were made. In the second phase pretesting of likert scale attitude measuring questionnaire of intervention study was done using Cronbach's alpha which were within acceptable range for all subscales.
 - b. Validity: Validity of the study was ensured through literature review and consultation with supervisor, taking adequate sample size and making tools comprehensive.
- ix. Biases: Recall bias may appear as the participants have to recall on their behavior. As the questionnaire is self-administered, respondent bias may occur for which to minimize, the more emphasis will be to make them understand about the significance of true information for the study and encourage voluntary participation in study.
- x. Limitation of the study: Data collection tool was self administered questionnaire. So, there may be possibility that some study participants may misreported due to inability to recall. Long term impact of intervention on students knowledge, attitude and practice could not be assessed.

Results

- a) It was found that 84.8% respondents consumed junk food at least three times a week. Majority of respondent (68.7%) consumed junk food one time within 24 hour which was mainly during break time.
- b) It was found that majority of respondent (63.6%) replace their meal sometimes (3-5 times per week) followed by none 20.3%. In an average they replaced regular meal 3 times per week with standard deviation of 1.834.
- c) Majority of the respondent (71.7%) liked noodles as junk food. They mostly consumed it as Tiffin. Average amount of money spent to consume junk food was 31.06 rupees.
- d) Majority of participants responded that they would like to consume junk food due to better taste (82.9%) and easy availability (38.1%).
- e) Bivariate analysis showed that above mentioned factors like gender, mother education and ethnicity are statistically significantly associated with the level of knowledge regarding junk food.
- f) With reference to female, male had higher knowledge regarding junk food with Odds Ratio (OR) of 1.773, with reference to students of illiterate mother, literate mother's children had higher knowledge level of junk food with OR of 1.195 and with reference to Bharmin/Chettri, other ethnic groups like Dalit, Janajati, Madhesi, Thakuri and Dasnami had higher knowledge level of junk food with OR of 1.658.
- g) Bivariate analysis showed that only gender was the factor that was significantly associated with the replacement of regular food by junk food. Previously associated factors with knowledge level of junk food i.e. mother education and ethnicity was not statistically significantly associated with P value greater than 0.05.

- h) In pre-test intervention and control group were comparable with P-value of 0.664 but after intervention in post-test the P-value was less than 0.001 meaning intervention and control group are significantly different having mean rank increased from 225.7 to 267.48. So, it is most likely that education package might have changed their attitude towards the behavior.
- i) In pre-test intervention and control group were comparable with P-value of 0.52 but after intervention, in post-test the P-value was 0.027 meaning intervention and control group were significantly different having mean rank increased from 236.7 to 264.08. So, it is most likely that education package might have changed their normative belief and subjective norm.
- j) In pre-test intervention and control group were comparable with P-value of -6.070 but after intervention, in post-test the P-value was less than 0.001 meaning intervention and control group were statistically significantly different having mean rank increased from 216.04 to 260.85. So, it is most likely that education package might have changed their perceived behavioral control towards behavior.
- k) In pre-test intervention and control group were comparable with P-value of 0.937 but after intervention, in post-test the P-value was 0.042 meaning intervention and control group were statistically significantly different having mean rank increased from 227.51 to 235.81. So, it is most likely that education package might have changed their behavioral intention which would probably leads to desired behavior.

Discussion

To get valid result of study, researcher himself had involved in every steps of the research activity. The questionnaire was pretested in similar setting with chrons batch of greater than 0.7 in each construct. To maintain the internal consistency of collected information, several check questions have been added in the questionnaires. All the information from the questionnaires was checked in the same day of data collection. Errors in data entry were minimized by careful data entry and applying checks in EpiData. All these procedures and methods were implemented carefully. Thus, the results shown by the study are valid. Junk food consumption was reported by 97.5% students in a study done in China,¹⁴ 98% in a study done in Lucknow, India¹⁵ which was more than our observations. The consumption practice of junk food frequently (at least three times a week) was highly prevalent 84.8 percent which is comparable with the a study on the junk food eating habits of school children in South India found that 80 percent of children in different age groups consume it at least three times a week. The consumption practice in my study was high because of perceived better taste and easy availability. In my study most of students mother were illiterate (23.6%) that can be the reason for the preference of junk food over homemade food. Study done in South India showed that adolescent students were highly influenced by TV commercials (64.3%) and they like to consume it when alone in home (57%)¹⁶ which was quite different from my findings, influence of advertisement was quite low reported about 30% and most of them reported that they like to consume junk food in group(74.5%). In my study students would like to eat junk food like noodles, biscuits, chips, sweet beverages etc during break time in schools with friends rather than in home watching TV.

Mass media was the commonest source of information about junk foods in my study which was similar to study done in China where children received information from advertisement on television

(67.9%) followed by parents (9.02%) and newspapers or magazines (6.7%).¹⁷ In my study reason for consumption of junk food was due to better taste (82.9%), easy availability (38.1%), peer pressure (8.9%) but the study of USA and Iran showed that peer pressure was the main reason for consumption of junk food.¹⁸ In my study students would like to consume junk food with friends in group but they thought that this consumption practice is not due to peer pressure but it is due to perceived better taste and easy availability. Only nearly nine percent expressed that theirs consumption practice is influenced by peer pressure.

In this study average money spent on junk food was 31 rupees per day which was comparable with the study of India where majority of the adolescents spent 20-50 Rs per day.¹⁹ In my study most of the student's fathers were labor, working for daily wages so they were liberal in giving pocket money to their children. In this study advertisement influence in junk food was found to be 30.4% but a similar study done in Kathmandu found that advertisement effects 63% in adolescent and children for food preference.²⁰ There was wide difference which can be due to different target population in terms of age and different location. The same study done in Kathmandu found that top most reason for consumption of junk food is due to better taste which was consistent with my finding but there is wide difference in percentage i.e. 54% but 83% in my study. Perceived better taste was the main reason for the consumption of junk food but there was wide variation in percentage which could be due to different study population, sample size and study area. In my study with reference to boys, girls had low knowledge level this might be the reason for higher replacement of regular meal with junk food. In my study replacement of regular food with junk food among female student was 49.8 percent which is lower than a study in Dietary and Lifestyle habits amongst adolescents in Bahrain, revealed that replacement was significantly greater in female 62.8 percent.²¹

As in this study, the knowledge, attitude and behavior intention related to nutritional aspects were reported to be significantly positively changed in many studies.^{22,23} Many studies reported significant increase in knowledge related to physical activity and nutritional aspects.^{24,25} Overall, 18 out of 20 interventions reported that interventions were successful. Only 2 studies reported no significant effect of intervention at student level.^{26,27} A study done in school of Iran found that the student's average scores of knowledge, attitude, and performance in the 2 experimental and control groups were low before the educational intervention. In addition, independent *t*-test showed that no significant differences were seen between the 2 groups in these variables and the 2 groups were in similar conditions in this regard. The results showed that the pupils knowledge, attitude, and performance regarding the junk foods intake after intervention has increased significantly; this result is indicate of the positive effect of education on improving pupils' knowledge, attitude, as well as promoting their performance in decreasing the junk foods intake.²⁸ In this study performance was observed after 2 months of educational intervention but in my study due to less time availability I couldn't access the performance but I could predict the intended behavior would be achieved because there was significant change in attitude and behavioral intention in intervention group with reference to control group. Several models of health behaviour also assume that intention is the proximal cause of behaviour. Several theories predict that greater perceived or actual control over behaviours should be associated with improved prediction of behaviour by intention (e.g. TPB, Social Cognitive Theory).²⁹

Junk food and processed foods seem to be an increasing part of our daily feeding. Sadly, this low nutrition, high-calorie eating behavior is leading to the weight gain, increased blood pressure, and increased cholesterol levels that are contributing to our current obesity and diabetes epidemics. Many packaged and processed foods are marketed for children and adolescent because they are tasty and easy to eat. However, these foods are high in sugar and fats and low in nutritional value. It is important to teach your children and adolescent to eat more balanced, whole foods and avoid junk food. These healthy eating habits will affect their physical, emotional, and mental growth and development, and even their adult years. Education as one of the most important influencing factors can supply necessary grounds for increasing the knowledge, attitude and behavior of the students and so the society. So in this study, education package that was delivered will be very helpful for development of preventive behavior of junk food.

Conclusion

The study concludes that only 57.5% had good knowledge about junk food and most of them got information about junk food from mass media. Consumption practice of junk food is highly prevalent, 95.6% consumed it at least three times a week. Replacement of regular meal with junk food was also highly practiced nearly 4 in 5 students replace their meal with junk food at least once within a week. Majority of them prefer noodles as Tiffin and average amount of money spent for buying junk food was 31 rupees per day. About half of the students thought that their junk food eating practice is increasing day by day and more than half (54.2%) thought that they are more likely consume junk food after leaving home. It was more likely that to consume junk food in group 74.5%. They liked to consume junk food due to better taste 83% followed by easy availability 38%. About 30% of students responded that advertisement influence their junk food eating habit. After these findings, package was developed and implemented in intervention group. During the pre-test both intervention and control group were comparable in each construct of TPB i.e. attitude towards behavior, subjective norms, perceived behavior control and behavior intention with P-value of (>0.05). After intervention in post-test significant difference were found in each construct (attitude, subjective norm and behavior intention) of TPB with P-value (<0.05) with increase in mean rank. This study developed behavioral intention among the intervention group. Behavior intention will lead to change in intended behavior. These healthy eating habits will affect their physical, emotional, and mental growth and development and even their adult years.

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Conflict of interest

I declare there is no conflict of interest

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