

Effectiveness of Educational Intervention on Awareness Regarding Cancer Preventive Food Stuff among Adolescents

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Abstract: ***Introduction:** Chronic diseases, including cancer are the major causes of death and disability worldwide. Cancer is the second leading cause of death in Americans after heart disease. Globally, nearly 1 in 6 deaths is due to cancer. According to the report from WHO, 35% of carcinogenic substances are derived from food and drinks and 30% are from smoking as the second rank. Thus, awareness regarding cancer prevention can help a lot in controlling the increasing incidence of cancer. And educational intervention is the most effective way to raise awareness. **Objective:** To assess the level of awareness regarding cancer preventive food stuff among adolescents before and after an educational intervention. **Methodology:** Pre experimental one group pre- test post- test design was used among 86 adolescents of Bagmati Modern School. A self administered questionnaire consisting of questions related demographic characteristics and awareness related to cancer preventive food stuff was used before and after intervention. **Results:** The mean pre-test knowledge was 12.1 whereas, the mean post-test knowledge was 19.9 with a difference of 7.8. The paired t-value was 18.33 ($p = 0.00$) showing the significant increase in the awareness regarding cancer preventive food stuff after the educational intervention. **Conclusion:** Results of this study indicated that one third of the respondents had inadequate awareness at pre-test and all the respondents had adequate awareness after educational intervention. Thus, the survey concluded that general people need plans, programs and health campaign, and adolescents require educational intervention to raise their awareness level in the present context where cancer and other non-communicable diseases are at the peak level of incidence.*

Keywords: Cancer Preventive Food stuff, Awareness, Adolescents, Educational intervention

1. Introduction

Background of Study

According to WHO, chronic diseases, including cancer are the major causes of death and disability worldwide. (Bovell-Benjamin & Elmubarak, 2013) Cancer is the second leading cause of death in Americans (1 in 6 deaths globally) after heart disease. Death due to cancer, out of which 57% accounts in developing countries and remaining in developed countries. (Ferlay, et al., 2014) Cancer being public health concern causes about 8% mortality per year nationally. As Cancer is an important lifestyle related disease, Nepal needs to place greater focus on raising awareness of its risk factors, signs and symptoms, and prevention. (Sumi Poudel, 2018) As per the estimation of American Institute for Cancer Research and the World Cancer Research Fund, 30-40 percent of all cancers can be prevented by appropriate diets, physical activity, and maintenance of appropriate body weight. (Donaldson S, 2004)

Certain test has found that, the type of food people consume daily like fatty diet, genetically modified food, colored food, smoked food, pesticides used and processed fruits and vegetables, canned juices and sugar pose a viable threat to cancer. An expanding research on 'dietary induced cancer prevention' concluded that diet is one of the most important factor for the formation and prevention of cancer. (Kumar, Subham, & Kumar, 2012) Junk food consumption is increased among children due to increasing trend of urbanization life, widespread advertisements by TV and mass media, attractive packaging, and poor nutrition knowledge of parents. Since junk foods contain high sugar, salt, and fat, they form the setting for affliction with the chronic diseases such as obesity, diabetes, and cancer in later years of the life.

Research conducted on awareness regarding cancer preventive foodstuff have shown very poor knowledge on the topic which is found to be increased after intervention. (Kandasamy, Nasser, & Gamal, 2011) Whereas, research has been done in knowledge on risk factors of cancer among adults in Nepal whereby, any research has not been done on awareness regarding cancer preventive food stuff. By 2020 the incidence of cancer will further increase at the rate of 38.5 per 100,000 for males and 41.4 per 100, 000 for females throughout the world. (Poudel, Zhibi, Neupane, & Roberta, 2017) This shows that there is increasing need for awareness on cancer preventive food stuff.

Therefore, it is imperative to formulate strategy that will improve the awareness regarding cancer preventive food stuff among adolescents. The adolescent represent the whole family as the level of awareness can be imparted from the family. And when the adolescents are aware on cancer preventive food stuff, their friends and family can be benefited too. So the need to aware adolescents on cancer preventive food stuff cannot be overemphasized. The assessment of level of awareness will provide baseline information for the need of program and educational package. Finding will help to ascertain the effectiveness and need of educational intervention on cancer preventive food stuff. Despite the availability of some studies in the developed countries, evidences regarding the level of knowledge towards cancer preventive food stuff had not been published in Nepal till date.

Cancer is leaping to the peak point and to some extent we can control it's incidence through the awareness on preventive measures. The morbidity and mortality in Nepal is increasing day by day due to cancer. Research need to be done on awareness regarding cancer prevention among people which may indicate the reason behind the increment of cancer, thus highlighting the importance of research on

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the topic 'Effectiveness of Educational Intervention on Awareness regarding Cancer Preventive Food stuff among Adolescents.'

2. Literature Survey

Previous studies and surveys showed the inter-relationship between cancer and the diet we consume daily. An expanding research arena of emerging diet related to health care system on 'Dietary-induced cancer prevention' conducted concluded that diet is the most important factor for the formation and prevention of cancer. (Dilipkumar Pal, 2012) Similarly, a global perspective on 'Food, Nutrition, physical activity and the prevention of cancer supports the co-relationship between diet and cancer. (Food, Nutrition, Physical activity and the prevention of cancer: a global prospective, 2007) Correspondingly, 30-40% of all cancers can be prevented by lifestyle and dietary measures alone as per the findings on 'Nutrition and cancer'- a review of the evidence for an anti-cancer diet on the topic. (Donaldson, 2004)

Various research conducted on nutrition knowledge detected the importance for knowledge and awareness on diet to people in order to control the increasing rate of cancer and other chronic diseases. An experimental intervention study in Iran (Esmaeili, Mahnoush, Homamodin, Gharli, & Tavassoli, 2015), an interventional study in UK (Kyle, Forbat, Rauchhaus, & Hubbard, 2013) and an interventional study in Chandigarh (Puri, Swami, Rai, & Mangat, 2007) concluded that education is the most effective way to raise awareness among adolescents. Similarly, study conducted in England (Wardle, Parmenter, & Waller, 2000) strongly supports the nutrition knowledge as an essential factor for healthy food intake. Alike, study conducted in Arab (Kandasamy, Nasser, & Gamal, 2011) summarized the health education is essential to change the perception of people towards healthy diet.

The cross-sectional study in Nigeria concluded less than half respondents (49%) had good nutrition related knowledge of cancer prevention. (Folasire, Folasire, & Chikezie, 2016) And the descriptive cross-sectional study among Sudanese showed that more than half (52%) of the respondents answered correctly, (Benjamin & Adelia, 2013) similar to a report from a descriptive cross-sectional survey among Turkish adolescents. (Can & Ozturk, 2008)

Kind of food human consume influences the incidence of cancer. A systematic review and cohort studies on the topic 'Effect of diet on mortality and cancer', (Carolina, Heiner, Georg, Aleksandrova, & Schwingshackl, 2016) an expanding research on 'Dietary induced cancer prevention', (Pal, Banerjee, & Ghosh, 2012) study on 'Diet and cancer' in UK (Willett, 2000) and the topic 'The effect of diet on risk of cancer', (Key, Allen, Spencer, & Travis, 2002) supports the statement.

1) Research Hypothesis

H0= There will not be significant increase in respondent's level of awareness regarding cancer preventive food stuff after an educational intervention.

H1= There will be significant increase in respondent's level of awareness regarding cancer preventive food stuff after an educational intervention.

2) Study Variables

Dependent variable: Awareness regarding cancer preventive foodstuff.

Independent Variables:

- Education on school
- Health professional in family
- History of cancer in family
- Source of information: mass media, friends circle, self search on the topic
- Educational intervention package

3. Methodology

The study was conducted in Bagmati Modern College, Sokedhara, Kathmandu, one of the higher secondary school in capital city of Nepal. Pre experimental one group pre- test post- test design was used. The sample was all grade 12 students of science and management faculty. Census sampling technique was followed and all the adolescents present on the day of data collection i.e 18th and 19th June, 2018 were included. The close-ended questionnaire was provided to assess awareness regarding cancer preventive food stuff among 86 adolescents. Same questionnaire were distributed to assess the awareness before and after educational intervention.

After obtaining informed consent from all the participants, they were asked to fill the questionnaire within 20 minutes. Each respondent's level of awareness was analyzed as adequate if obtained mark was above 50%.

The collected data was checked, reviewed and organized for accuracy and completeness. The mode of data entry was computerized. Collected data was coded and entered and statistical analyses were performed using SPSS (version 21) software.

4. Result

Table 1: Respondent's Socio-demographic Information, n=86

Variable	Frequency (f)	Percent (%)
Gender		
Female	51	59.3
Male	35	40.7
Region		
Himalayan	8	9.3
Hilly	54	62.8
Terai	24	27.9
Health personnel		
Yes	25	29.1
No	61	70.9
Ethnicity		
Brahmin	26	30.2
Chhetri	26	30.2
Mongolian	18	20.9
Newar	11	12.8
Others	5	5.8
Religion		

Hindu	70	81.4
Buddhist	5	5.8
Kiratist	6	7.0
Christian	3	3.5
Muslim	1	1.2
Others	1	1.2
Economic status		
High economic status	1	1.2
Middle economic status	83	96.5
Low economic status	2	2.3
Family history		
Yes	9	10.5
No	77	89.5

Table 1 indicates that majority of respondents were female (59.3%), where most (62.8%) of them resided on hilly region, whereas least (9.3%) of them resided on Himalayan region and 70.9% of them do not have health personnel in their family. Majority (81.4%) of respondents followed Hinduism and 96.5% of respondents belong to middle class family. Most (89.5%) of the respondents do not have family history of cancer.

Table 2: Respondent’s Source of Information
n=86

Source of information*	Frequency (f)	Percent (%)
Education of schools	59	69.4
Mass media	28	32.9
Self education	19	22.4
Family/ Friend	14	16.5

*Multiple response question

Table 2 reveals the response given by respondents to the question regarding respondent’s source of information on cancer preventive food stuff. Majority (69.4%) of the adolescents procured information on the topic from education of schools, whereas, least (16.5%) of them got information from family/friend.

Table 3: Respondent's Awareness Level
n= 86

Awareness level	Pretest f (%)	Post-test f (%)
Adequate	57 (66.3)	86 (100)
Inadequate	29 (33.7)	0

Table 4 manifests the respondent’s level of awareness on cancer preventive food stuff. Among all the respondents, 66.3% had adequate awareness whereas, 33.7% had inadequate awareness on cancer preventive food stuff at pre-test. Hereby, after the intervention all the respondents had adequate awareness on cancer preventive food stuff.

Table 4: Comparison between Pre-test and Post-test on Awareness regarding Cancer Preventive Food Stuff
n=86

Variable	Pretest (X ± SD)	Posttest (X ± SD)	Paired t-test
Awareness	12.1 (3.5)	19.9 (1.7)	-18.3 (p=0.00)

p ≤ 0.05

Table 5 signifies comparison between pre-test and post-test on awareness regarding cancer preventive food stuff. The standard deviation at pre-test was 3.51 whereas, after intervention was 1.68 respectively, thus showing effectiveness of educational intervention. Hereby, the

calculated value of t-test (t_{cal}) was found -18.334, whereas tabulated value of t-test (t_{tab}) was 1.7 with the significance of 0.00 at 95% confidence level which reveals that the hypothesis is accepted. This shows that the educational intervention is effective in upgrading awareness level among people.

5. Discussion

In this survey, demographic variables were similar i.e adolescents of age grade 12 were involved who belonged to the same age group and had same educational level. Thus, showing no significant relationship between independent variables.

The source of information for most of the respondents i.e 69.4% was from schools whereas only 16.5% of the respondents got information from family/friend which is similar to the survey among Saudi girls i.e 62.3% from education in the study and only 20.7% from family/friends, (Hassan, Shehata, & Abdl-Wahab, 2014) which differ from what is reported by the cross-sectional study in Saudi Arabia and found that majority (65.1%) of the respondents received information from television. (Ravichandran, Gamal, M, & Hamdan, 2010)

Present study found that 33.7% of respondents were unaware about cancer preventive food stuff i.e has inadequate level of awareness. Similarly, lower than half adolescents in Iran were unaware regarding the nutritional knowledge, (Naeeni, et al., 2014) which is in contrast to the survey findings among Saudi girls where knowledge was poor in cancer preventive diet (59.3%) (Hassan, Shehata, & Abdl-Wahab, 2014) and more than half (51%) of the respondents has poor knowledge on cancer preventive diet among Nigerian Undergraduates. (Folasire, Folasire, Chikezie, & Samuel, 2016)

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6. Conclusion

Results of this study indicated that one third of the respondents had inadequate awareness at pre-test and all the respondents had adequate awareness after educational intervention. Thus, the survey concluded that general people need plans, programs and health campaign, and adolescents require educational intervention to raise their awareness

level in the present context where cancer and other non-communicable diseases are at the peak level of incidence.

7. Recommendation

- Awareness should be provided to the people regarding cancer preventive diet.
- Mass awareness on cancer is required throughout the world.
- Cancer prevention is to be kept in the curriculum of higher secondary school.
- Further research need to be conducted regarding the awareness of cancer prevention among various groups of people.

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