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Effect of nutrition education on food and nutrition security

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Abstract

Food and nutrition insecurity appears to have a negative impact on various aspects of health and wellbeing. Individuals living in food insecure households are more likely than those in food secure households to rate their own health as poor or fair and have lower physical and mental health. Food and nutrition insecure populations are also more likely to exhibit disordered eating patterns, have decreased household availability of healthful food groups and foods compared to food and nutrition secure. Additionally, food and nutrition insecure populations are more likely to have increased intake of less healthful nutrients. Nutrition education is an important measure to improve food and nutrition security, since food and nutrition insecurity are the main reason for poor nutritional status of the people. Nutrition education affects food and security in two ways; firstly through education that enables people to learn specifically about nutrition and secondly through the educational process as a whole that provides skills such as critical thinking and making choices that enable people to opt for healthy food and preservation of food with nutrients. Keeping in view of the above said the purpose of this study was to determine the effects of the nutrition education on the food and nutrition security. A pre-test post-test experimental design was employed and the study was a cross-sectional study. From rural areas of Muzaffarpur district, 110 women (18-35 years) who were related to farming were selected by random sampling. Interview schedule was constructed to record the data obtained. Study finding revealed that the majority of the respondents were illiterate and they were belonging to the low-income group. Before post-test experiment 84.55 percent of the respondents had no knowledge or insufficient knowledge about food and nutrition. It is concluded that, if nutrition education is provided to the rural women, then they will be able to focus on the nutritional status of their family members through food and nutrition security.

Keywords: fenugreek, hematological, *O. niloticus*, serum

Introduction

Ensuring food and nutrition security is a challenge for India, given its huge population and high levels of poverty and malnutrition. India is a net agricultural exporter, particularly of milk, fruits and vegetables, and cereals. However, the effects of climate change and declining water resources on agriculture output threaten food availability. Economic access to food by about a fourth of the population living below the poverty line is problematic, despite impressive economic growth in the recent years. The level of food absorption is also low. Around half of pregnant women are anemic, and the majority of women do not have access to toilet facilities and safe drinking water (T. Nandakumar, *et al.*, 2010) [5]. With nearly 195 million undernourished people, India shares a quarter of the global hunger burden. Nearly 47 million or 4 out of 10 children in India are not meeting their full human potential because of chronic under nutrition or stunting. The government has large food and nutrition security and anti-poverty programmes but there are critical gaps in terms of inclusion and exclusion errors. Women and girls are particularly disadvantaged. Despite the achievement of national food self-sufficiency, new challenges have emerged i.e., slowing agriculture growth, climate change, land degradation and shrinking bio-diversity.

Poor nutritional outcomes of infants and children arise from the poor health status of women, overall poverty and lack of hygiene, and inadequate health facilities. In particular, women's access to clean drinking water, toilet facilities, and clean cooking fuel influence their health outcomes, which are critical for child health and nutrition. Over 53% of women do not have

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access to toilet facilities, 55% do not have drinking water in their premises, and only 29% have access to clean fuel. In India, 35.6% of women suffer from chronic energy deficiency, indicated by a body mass index below 18.5 (Jose and Navaneetham 2010) [2].

Food and nutrition insecurity appears to have a negative impact on various aspects of health and wellbeing. Individuals living in food insecure households are more likely than those in food secure households to rate their own health as poor or fair and have lower physical and mental health. Food and nutrition insecure populations are also more likely to exhibit disordered eating patterns, have decreased household availability of healthful food groups and foods compared to food and nutrition secure. Additionally, food and nutrition insecure populations are more likely to have increased intake of less healthful nutrients. Nutrition education is an important measure to improve food and nutrition security, since food and nutrition insecurity are the main reason for poor nutritional status of the people.

Keeping in view of the above said the purpose of this study was to determine the effects of the nutrition education on the food and nutrition security, because education is critical to social and economic development and has a profound impact on population health.

Material & Methods

A pre- test and post- test experimental design was employed and the study was a cross- sectional study. From rural areas of Muzaffarpur district, 110 women (18-35 years) who were related to farming were selected by random sampling. Interview schedule was constructed to record the data obtained. In order to accomplish this goal, nutrition education targeted behavior change on food and nutrition security. In order to evaluate these specific aims, a questionnaire was given prior to the intervention. The responses to food and nutrition security on the questionnaire, such as stability of food, utilization of food {preference of purchasing food items, Food Safety and Standards Authority of India (FSSAI) marks, hygienic condition of kitchen and preservation of cooked food}, combination of five food groups, knowledge about nutrition and mode of cooking food. Following the four weeks of nutrition education sessions, the questionnaire was given again and the responses were compared to the baseline values to assess any changes behavior change on food and nutrition security. The mean, standard deviation, range, minimum, and

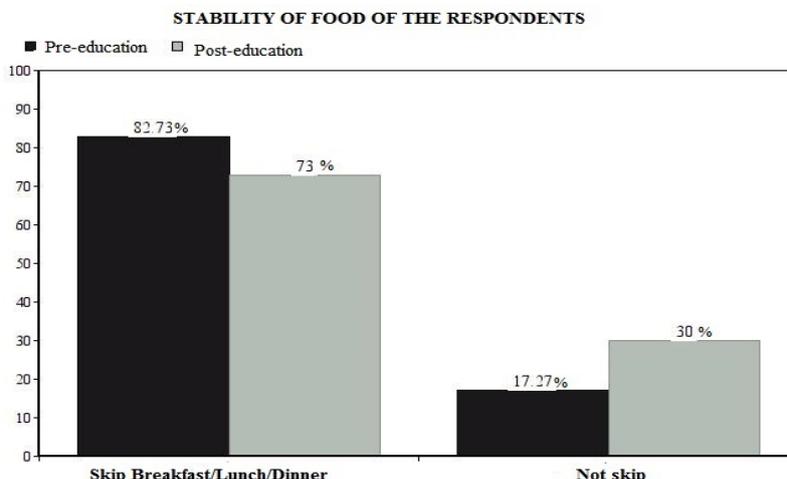
maximum were calculated from the responses of the pre-education and post-education questionnaires.

Results & Discussion

Table 1: Socio-economic Status of Respondents

Sr. No.	Socio-economic Status	Respondents	
		n=110	%
1	Age		
	18-25 years	71	64.55
	26-35 years	39	35.45
2	Caste		
	Gen.	21	19.09
	OBC	42	38.18
	SC/ST	47	42.73
3	Religion		
	Hindu	72	65.45
	Muslim	32	29.09
	Christian	05	04.54
	Sikh	01	00.91
4	Family Income (Rs./Month)		
	<5000	52	47.27
	5001-15000	41	37.27
	>15000	17	15.45
5	Daily expenditure on food (Rs./Day)		
	<50	67	60.91
	51-150	32	29.09
	>150	11	10.00
6	Education		
	illiterate	37	33.64
	literate	73	66.36

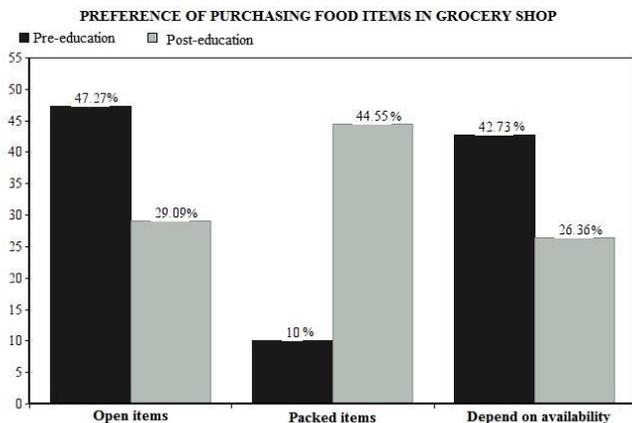
Table-1 showed the data on Socio-economic status and general profile of the respondents. According to the table, 64.55% of the respondents were below 25 years. Majority (42.73%) of the respondents were SC/ST followed by the OBC & general caste. More than half (65.45 percent) of the respondents were Hindu while 29.09 percent of them were Muslim, Sikh (0.91 percent) and Christian (4.54 percent). However, near about half of family earned below Rs 5000, only 15.45 percent of them earned more than Rs. 15000. Table also indicates that more than half (60.91%) respondents expend below Rs. 50 on food per day, very few of them (10 percent) expend more than Rs. 150 on food. It is clear from the table that the one third of the respondents were illiterate.



The chi-square statistic is 4.9359. The p-value is .026304. This result is significant at $p < .05$.

Fig 1: Revealed the data on stability of the food of the respondents.

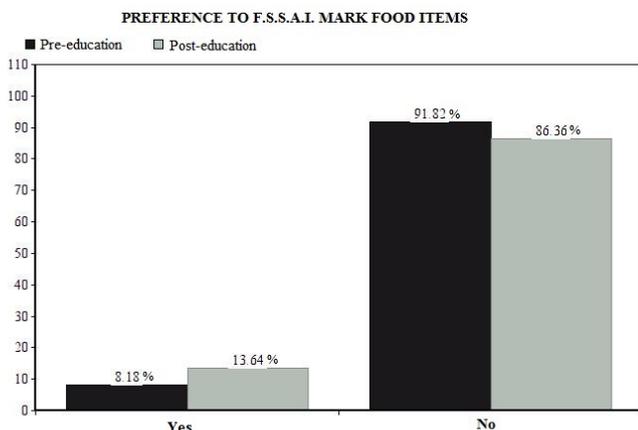
Figure-1 revealed the data on stability of the food of the respondents. Generally skipped of breakfast/lunch/dinner from pre-nutrition education questionnaire was found 82.73%. After post-nutrition education programme questionnaire it was found 70%, a 12.73% reduction from the pre-education was seen regarding skipped of breakfast/lunch/dinner. The reduction was statically significant ($p=0.26304$).



The chi-square statistic is 33.0917. The p -value is < 0.00001 . The result is significant at $p < .05$.

Fig 2: Shows the percentage of participant’s preferences of purchasing food items in grocery shop.

Figure-2 shows the percentage of participant’s preferences of purchasing food items in grocery shop. Before nutrition education programme it was found that 47.27% of the women preferred open food items followed by depend on availability (42.73%) and packed items (10%). After nutrition education programme packed items was increased 44.55%, a 34.55% increased was found in packed items. The reduction was statically significant ($p<0.00001$).

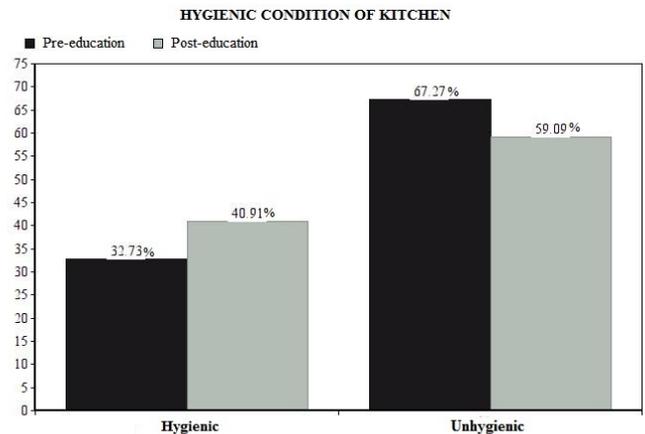


The chi-square statistic is 1.6837. The p -value is .194437. This result is *not* significant at $p < .05$.

Fig 3: Revealed the data on preference to FSSAI mark food items of the respondents.

Figure-3 revealed the data on preference to FSSAI mark food items of the respondents. It was found that only 8.18% of the respondents preferred FSSAI mark food items before nutrition education programmes. After nutrition education programme it was increased only 5.46%. Increased of preference of The Food Safety and Standards Authority of India (FSSAI) mark food items was not statically significant ($p=<0.194437$). Food safety and standards authority of India plays an important role in formulating the controlling procedures. It implements the measures in order to eliminate the toxic and the hazardous

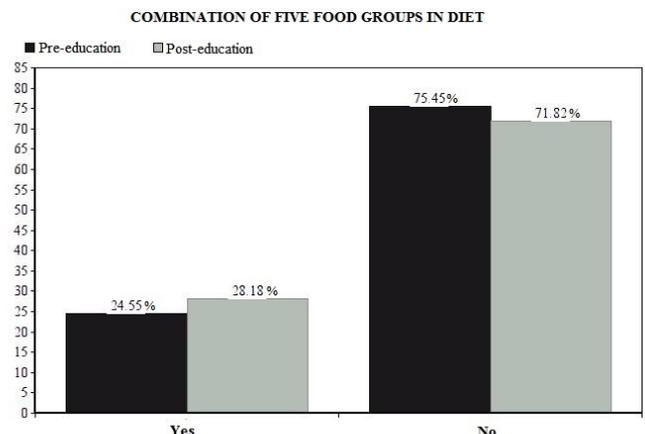
elements. The result is that every consumer receives an equal level of assurance of food safety. FSSAI has been established under Food Safety and Standards, 2006 which consolidates various acts & orders that have hitherto handled food related issues in various Ministries and Departments. FSSAI has been created for laying down science based standards for articles of food and to regulate their manufacture, storage, distribution, sale and import to ensure availability of safe and wholesome food for human consumption.



The chi-square statistic is 1.5827. The p -value is .208367. This result is *not* significant at $p < .05$.

Fig 4: Frequency distributions of the respondents according to the hygienic condition of the kitchen

Kitchen is the heart of any household. It is a place where women prepare healthy and delicious meals for her family by maintaining proper kitchen hygiene. An unhygienic cooking space attracts cockroaches and rats that make cooking area a hub of diseases. Unclean kitchen can lead to unhealthy cooking and can make family prone to several diseases like food poisoning, stomach infection and many more. Figure -4 shows the data on hygienic condition of the kitchen of the respondents. 67.27% of the women reported in pre-nutrition education questionnaire that her kitchen was unhygienic. Unhygienic condition of the kitchen was decreased only 8.18% after nutrition education programme. It was found that the result was not statically significant ($p=<0.208367$).

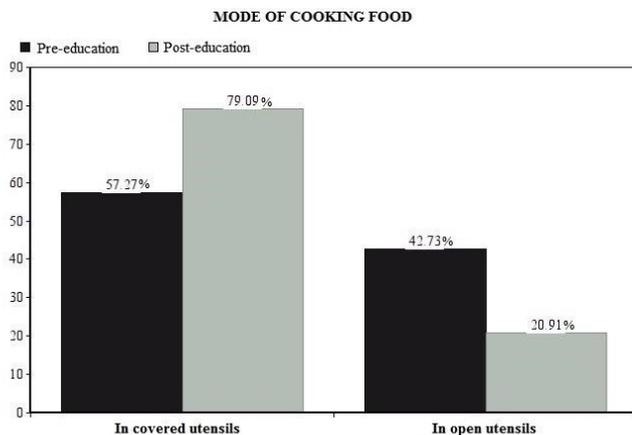


The chi-square statistic is 0.3746. The p -value is .540493. This result is *not* significant at $p < .05$.

Fig 5: Frequency distributions of the respondents according to the combination of five food groups in diet

To be healthy it’s very important to eat a balanced diet. All foods can be put into one of five food groups. A balanced diet

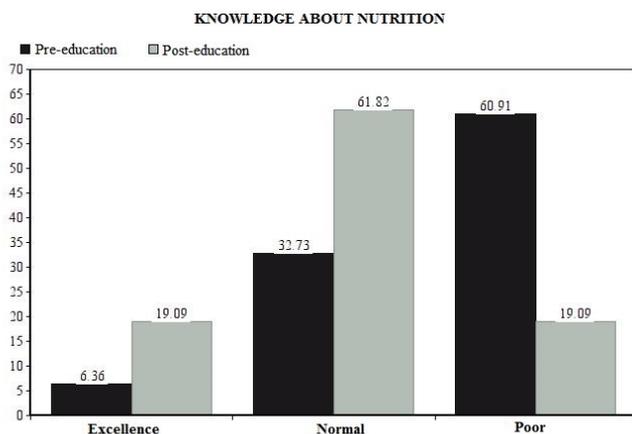
is made up of the five food groups i.e., Cereals, Pulses and Legumes, Milk and dairy products, Fruit and vegetables and Fats & sugars. Figure-5 revealed the data on combination of five food groups in Diet, according to the pre nutrition education questionnaire data only 24.55% of the women respond that they were consuming all the food groups, while rest (75.45%) of them were not consuming balanced diet. After nutrition education programme consumption of five food groups was slightly change, a 3.63% increased was found in consumption of five food groups, the result was not statically significant ($p=0.540493$).



The chi-square statistic is 12.0686. The p -value is .000513. This result is significant at $p < .05$.

Fig 6: Frequency distributions of the respondents according to the mode of cooking food

Figure-6 revealed the data on mode of cooking food. Significant differences (in cover utensils 21.82% and in open utensils 21.82%) were seen in mode of cooking food. After nutrition education covered utensils respondents were increased. The result was statically significant ($p=0.000513$).



The chi-square statistic is 40.8916. The p -value is < 0.00001 . The result is significant at $p < .05$.

Fig 7: Frequency distributions of the respondents according to the knowledge about nutrition

It is clear from the figure-7 that before pre-nutrition education programme only 6.36% percent of women had excellence knowledge about nutrients, 32.73 percent had normal knowledge, while more than half 60.91% had poor knowledge. After post-nutrition education it was significantly changed, excellence knowledge increased 12.73%, normal category increase 32.73% to 61.82%, a 29.09% increased was found in category of normal knowledge. The result was statically significant ($p=<0.00001$).

Conclusion

Food and nutrition security is not meant to provide just sufficient food; it is to ensure that everyone gets every time sufficient and nutritious food and this is possible only if the consumer had sufficient knowledge about health & nutrition. Present study revealed that significant association between Stability of food, Preference of purchasing food items, Mode of cooking food and knowledge about nutrition with nutrition education. Nutrition education is one strategy to reduce the food and nutrition insecurity. The current study found trends in decreased skip of breakfast/lunch/dinner and slight advances in balanced diet, hygienic kitchen and purchasing close packet of food items after nutrition education, and provides a framework for future studies in this area. It is concluded that, if nutrition education is provided to the rural women, then they will be able to focus on the nutritional status of their family members through food and nutrition security.

Recommendation

The government should make an effort to organize training programmes/nutrition education, to develop knowledge about food and nutrient, security.

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