

NUTRITION EDUCATION INTERVENTION AND FAST FOOD BEHAVIOR IN INDIA

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ABSTRACT

In recent years, fast-food (FF) consumption and obesity / overweight have become more frequent. The influence of a nutrition education intervention on Indian children's and parents' use of western-style-fast-food (WFF) was studied in a community-based intervention study. Two hundred and eight children aged four to six years old, as well as their parents, were selected at random from four daycare kindergartens in Varanasi, Uttar Pradesh. The Initial (I), midterm or metaphase (M), and final (F) WFF knowledge, attitude, and practise were evaluated using statistical methods (descriptive and analytical) to identify and compare both parents' and children's knowledge, attitude, and practise. Children and their parents were divided into "case" and "control" groups as per their nutrition knowledge or educational status. During breakfast, Indian children and parents do not consume a lot of WFF. The fact that WFF is considered as a "present, i.e. gift" or "interesting" rather than a "meal" is the major cause of this among youngsters. Weekends are when young people are most likely to consume WFF. The parents' WFF were significantly influenced by nutrition education ($p < 0.01$), but not the children's. Indians, particularly children, should be taught healthy eating practises. Families' perspectives may lead to future research and nutrition education programmes.

Keywords: Western Style Fast Food (WFF), Nutrition Education, Food Knowledge, Healthy Nutrition.

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INTRODUCTION

Obesity has tripled in emerging countries over the last two decades due to adopting a more urbanised lifestyle mixed with high-calorie intake and a sedentary lifestyle (Popkin et al. 2012). Several causes, including as changes in the food supply; growing reliance on fast foods or foods consumed outside of the home, are all contributing to this trend; food ads and costs, have significantly impacted eating habits (French et al. 2001).

According to data from the National Family and Health Surveys, Overweight and obesity have increased dramatically among young Indian youngsters (Kumar and Sahu 2019). Obesity's quickly rising tendency has been related to harmful dietary habits, such as consuming more energy-dense, low-nutrient foods (Li et al. 2007; Jaiswal 2013; Prentice et al. 2003; WHO 2000). "An

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obesogenic environment" is defined as "a home or working environment that encourages weight growth and discourages weight loss" (Swinburn et al. 1999). In India, the obesogenic environment is becoming more prevalent. For example, KFC, McDonald's, Pizza Hut, and other fast food restaurants occupied nearly every corner of the district in a short amount of time.

According to an English study, Obesity is more likely in youngsters who live near fast-food establishments (Mayor 2014). Fast or Junk food eaters were more likely to surpass recommended daily allowances (RDA) for energy and, fat even saturated fat, and were less likely to meet up whole grain and fruit recommendations (Whitton et al. 2013; Jaiswal 2012). This may be due to those who eat fast food underestimating the calorie or energy content of their meals, especially large meals (Block et al. 2013). Consumption of WFF was connected to an amplified incidence death from coronary heart disease and of type 2 diabetes in a group (Odegaard et al. 2013; Jaiswal et al. 2011). The relationships between community uses or consumption of WFF and weight changes or fluctuations, according to Geetha Menon (2017), are temporally energetic rather than stationary, according to a study based on the ICMR-National Institute of Medical Statistics.

For Indian populations who are unable to obtain fast food, Bowman et al. (2004) asserted that the link between junk-food consumption and overweight/obesity is unimportant. Obesity is most closely linked to consumers' (wrong) dietary information, the retail food surroundings, and socio-demographic in segments with a higher BMI. They also emphasized that, notwithstanding modern India's remarkable transformations, The impact of "obesogenic" environment should not be assessed only from a " Modern or Western " standpoint (Bowman et al. 2004). It is a severe public health crisis that underlines the necessity of early detection and prevention. However, Adults aged 18 and up who have already acquired a "diet pattern" and attitudes that are more difficult to change are the subjects of their study.

Children, especially young children, are more sensitive to their surroundings than adults and are more easily enticed by unfitness or unhealthy eating behaviour (Gortmaker et al. 1999). It's challenging to change poor eating habits in later life once they've developed them in their early years. Unfortunately, unlike those in western countries, people in Southeast Asia, particularly Indians, were unaware of the dangers of WFF. As a result, changing the obesogenic environment at the society or community level is crucial. Two examples of changes include access to healthy foods and locations to be physically dynamic or active that encourage an healthful habits of

Nutrition Education Intervention And Fast Food Behavior In India

individuals. Nutrition instruction has been connected to dietary behaviour; however, It is unknown how Indian children and parents react to WFF. As a result, the current study was carried out to determine Indian children's and parents' eating habits when it comes to WFF, particularly in the Varanasi district of Uttar Pradesh, and to see if nutritional education may influence parents' (P) and children's (C) attitudes on WFF. The purpose of this research is to investigate how young children and their parents consume WFF and to test if fast or junk food consumption may be influenced by nutrition knowledge or education. Researcher expected that proper nutrition-education could reduce fast-food-consumption or eat less junk food in both children (C) and parents (P).

Objective: To determine Indian children's and parents' eating habits in relation to western-style-fast-food (WFF), in the district Varanasi, Uttar Pradesh, and to see if nutritional education may influence parents' (P) and children's (C) attitudes on WFF.

Materials and Methods

The current research is based on a six-month intervention study that began in December 2018. It gathered children aged four to six years old, as well as their parents, from four daycare kindergartens in Varanasi, Uttar Pradesh. Varanasi, also known as Kashi or Benaras, is one of the vey old continuously living cities on the planet. The significance of Varanasi in Hindu mythology is mostly unclear. Hindus believe that dying on Varanasi's holy land will offer them salvation and deliver them from the cycle of birth and rebirth. Varanasi's Ganges is thought to have the power to cleanse grievous sins. Varanasi is noted for mysticism, Sanskrit, yoga, spiritualism, Hindi language, and renowned authors. Varanasi, a cultural capital, has provided a perfect climate for the flourishing of all creative interests. The district is divided into three sub-divisions and eight development blocks.

Varanasi district has a population of 3,676,841, which places it 75th in India according to the 2011 census (out of 640) with a population density of 2,399 persons per square kilometre. Between 2001 and 2011, its population grow at a 17.32 % annual rate, with a sex ratio of 909 girls to 1000 boys and a literacy rate of 77.05 percent (URL-1). Parents send their children to one of the 45 playschools/kindergartens in the Varanasi district in the mornings. Four playschools were chosen from all the playschools using stratified cluster sampling based on the density of the area. Playschools having a limited sample-size (≤ 50 kids) were not included. In order to create variability in each site, playschools were assigned either an intervention or case group (two

playschools and 208 children(C) parent (P) pairs) or a control group (two playschools and 141 children(C) parent (P) pairs). After the study's goal was explained, 95 % of the families who decided to participate in the study signed informed permission forms.

Age, sex, education levels, and household income were among the socio-demographic data collected. To capture WFF behaviours, a questionnaire on WFF habits was used, This has proven to be both effective and dependable. Both the children's and parents' WFF behaviour were recorded by the parents (frequency i.e number of times, time or occasion or instances, and reason or basis).Parents were given instructions on correctly recording the use of any foods or beverages. The researcher checked the questionnaires for the quality and completeness of data collection. The parents of the youngsters filled out all of the questions. In both the case and control groups, socio-demographic data and children's and parents' attitudes toward WFF were studied..

Parents were provided nutritional advice at the intervention day-care centres, who were taught nutritional knowledge regularly and got throwaway; A nutrition display chart was installed, and children got one semester of nutritional knowledge or education. Nutrition knowledge is included into the advanced educational program using established teaching methodologies. Food or menu information was included in languages, scientific, arts, maths, musical, and physical education classes as a learning tool for basic nutritional education (motor development).

Every month, nutritionists provided children and parents with a customised curriculum for in-playschool education. Based on the National-Dietary-Guidelines for India, nutrition professionals prepared the curriculum and covered fundamental nutritional facts (NIN 2011). Teachers alerted parents about the events, and training took held in the Kindergartens/playschools. All of the youngsters received an illustrated book from the teachers. The case group was given a write up material (book) with a nutritious and WFF behaviour theme, whereas the control-group was assigned a write up material or book with generic image story. The case group students received considerable knowledge about nutrition/food and healthy WFF behaviours as teachers delivered stories linked to the book's content.

Because the child's daily meal is the responsibility of the parents, At the commencement of the intervention, each parent couple in the case group received brochures with nutritional facts and descriptions of excellent eating patterns. The researcher urged parents to read the booklet and interviewed them on a regular basis. In a series of exercises, the parents' nutritional preconceptions

Nutrition Education Intervention And Fast Food Behavior In India

were publicly addressed. Two images for advertising purposes were presented throughout the intervention group kindergarten/playschool, one series each three months, offering information on nutrition and the most typical unhealthy WFF behaviours. The data were evaluated after two separate periods of follow-up: (a) February 2019 and (b) May 2019. The researcher presented the outcomes of mild-term (M) and final (F) stage follow-ups.

Statistical-Package (SPSS-21) was utilized in order to process and analyse data. A longitudinal study of self-control is conducted within groups, whereas a cross-sectional study is conducted between-groups. The χ^2 test is used to examine enumeration data, whereas the Student t-test and analysis-of-variance are used to analyze measurement data. At the baseline, intermediate, and final stages, both children and parents tested their attitudes toward WFF. The results are assessed using the final case and control group. The differences between the case and control groups at various phases were also discussed. The self-comparison of different time-points in the case group was done using the linear trend and Kruskal-Wallis tests. All of the tests were two-sided, with a significance level of 0.05.

The current study has a number of limitation. There was no data on total energy or food volume obtained. There is no data on the long-term consequences of WFF on children. Furthermore, repeated measurements of WFF behaviour in both the case and control groups improve the reliability of the outcome.

Results

Table 1. Distribution of Intervention and Control Groups According to Their Demographic and Socio-Economic Characteristics (D-SEC)

D-SEC	Case	Control	p- value
Sex-Rratio (Boys/Girls)	108/100	81/60	0.55
Age (Years)	4.6 \pm 0.6	5.0 \pm 0.8	<0.01
Family income/month	22848 \pm 1585	20658 \pm 1854	0.54

In terms of gender and family income, There were no significant differences between the children in the case and control groups. The children in the control group are slightly older than those in the intervention group.

Table 2. Distribution of Children of Case and Control Groups According to Phase-wise, Frequency-wise, Reasons of Consumption and the Time for Consumption of Western-Style-Food

Set	Phase (P)	Often (%) (refer to more than 1/week)		Sometimes (%) (refer to less than 1/week but more than 1/month;)		Occasionally (%) (less than 1/month, but more than 1/year)			Seldom (%) (less than 1/year)	
		i	ii	iii	iv	v	vi	vii	viii	ix or more
Case	I	6.2		18.8		45.6			26.6	
	M	3.6		19.3		50.9			22.3	
	F	4.1		21.2		45.4			24.5	
Control	I	5.8		17.2		42.7			39.5	
	M	2.9		12.9		43.3			36.0	
	F	0.8		18.4		49.0			28.2	
Frequency	P	i	ii	iii	iv	v	vi	vii	viii	ix or more
Case	I	42.4	32.6	11.1	11.0	2.1	1.2	0.2	1.3	0.2
	M	41.1	34.7	10.5	8.5	2.0	0.7	0.0	0.3	1.1
	F	45.1	35.1	10.0	6.3	1.6	0.5	0.0	0.5	0.2
Control	I	38.1	35.1	12.4	9.3	2.4	0.0	0.0	0.0	1.0
	M	46.2	31.1	7.5	12.2	2.4	0.0	0.0	0.0	0.0
	F	49.8	25.4	17.3	5.9	1.1	0.0	0.0	0.0	0.0
Reasons	P	For Taste		a gift- offered		Peer-pressure		attractive		Other
Case	I	23.5		30.9		7.8		30.4		7.2
	M	22.7		34.7		7.5		27.3		6.9
	F	22.2		33.7		7.6		29.6		7.8
Control	I	21.8		31.8		7.0		33.5		6.4
	M	21.1		30.8		8.5		30.5		8.3
	F	17.8		32.4		9.9		34.8		6.8
Time for	P	During Birthday time		Weekend time		Request time		Encouragement time		Other
Case	I	8.8		32.6		31.6		17.8		9.3
	M	9.6		29.1		32.1		18.4		10.6
	F	11.5		24.8		32.6		17.8		12.5
Control	I	12.4		32.8		31.7		16.5		9.4
	M	13.8		26.9		34.5		14.6		10.6
	F	12.5		25.2		32.5		21.6		9.5

*I= Initial, M= Metaphase, F= Final

Between the case and control groups, the elements of WFF frequency of consumption were similar, with most children eating western-style fast food only seldom or rarely. Table 2 shows that only 6.2 % of children (C) in the case group and 5.8 % of children in the control-group consume WFF on a regular basis.

Table 2 also shows that 97.1 % of the children (C) in the case-group and 97.3 % of the children (C) in the control-group eat WFF, 1–5 times per month.

Nutrition Education Intervention And Fast Food Behavior In India

At the baseline or Initial (I), metaphase or mid-term (M), and final (F) stages of the intervention in the case-group, the % of children who frequently consumed WFF and the frequency of children consuming WFF were similar, indicating that nutrition education had no significant impact on children's behaviour in consuming WFF.

According to present study, The gifts that came with the WFF or meals, the interesting dining situation, and the flavour of the food were all big reasons for children to eat WFF. Parents are most likely to allow their children to consume WFF because they ask, followed by weekends or holidays, encouragement or occasion, and birthdays. According to the results shown in Table 2, nutrition education did not affect the motivations and occasions for eating western-style fast food.

Table 3. Phase Wise Distribution of the Case and Control Groups According to Status of Parents Consumed WFF

Group	Different Phases	Yes* (%)	No. (%)
Case	Initial (I)	12.3	87.7
	Metaphase (M)	8.1	91.9
	Final (F)	7.1	90.7
Control	Initial (I)	11.3	88.7
	Metaphase (M)	7.3	90.7
	Final (F)	8.7	91.3

* based on the inquiry: Did you eat WFF in the previous month?

Table 4. Phase Wise Distribution of the Case and Control Groups According to the Frequency of WFF Monthly Consumed Among Parents.

Group (%)	Phase	i	ii	iii	iv	v	vi	vii	viii	ix or more
Case	Initial	42.4	32.7	10.0	8.4	1.6	1.2	0.6	1.1	1.2
	Metaphase	33.7	27.7	14.2	14.6	3.7	0.0	0.5	1.7	4.9
	Final	41.7	38.6	10.8	6.7	0.0	0.6	0.8	0.0	0.7
Control	Initial	47.4	32.9	10.3	4.8	1.9	0.9	0.5	0.5	0.9
	Metaphase	54.1	23.6	3.8	13.9	0.0	0.5	0.0	0.5	3.4
	Final	52.4	27.5	9.8	7.0	0.5	2.6	0.0	0.5	0.0

Tables 3 and 4 demonstrate the findings of parents' WFF behaviour at initial (I), mid-term or metaphase (M), and final (F). The majority of participants who consumed WFF (1–5 times per month) (94.1 % in the case of case-group and 97.3 % in the case of control-group at I) did so on a

monthly basis. Nutrition education had no effect on the frequency of WFF intake among people who ate WFF, as shown in Table 4. However, following the intervention, the % of parents who commonly used WFF (Table 3) declined i.e from 12.3 % to 7.1 %. In contrast, the control group showed no significant change, indicating that nutrition education can affect parents' behaviour.

Discussion

Obesity has become more prevalent in developing countries, ever-increasing the risk of chronic diseases such as diabetes, cancer and heart-disease in both adults and children. High consumption of meals purchase and produced outside the home, such as fast or junk food hotels and supermarkets, has been a significant factor to population weight rise (Naja et al. 2012; Jaiswal 2012; Thawornchaisit 2013). However, the food-environment has altered dramatically in the last twenty years due to the economic expansion in developing countries such as India (Reardon et al. 2003). Junk food consumption in India is at an all-time high i.e consumed at an unprecedented rate (Poti et al. 2013; Jaiswal 2007). KFC, McDonald's, and Pizza Hut's success in India result from a shift in Indian lifestyles favour speed and convenience. Although WFF has not yet become a popular dine or eating option in India, it is on the rise, particularly in urban areas, Traditional "dietary culture" has already been put to the test, particularly among the younger generation. WFF has grown in attractiveness due to commercials and other marketing methods, as well as a modernised lifestyle (Popkin et al. 2012).

In recent years, many researchers have looked into the current consumption habits of WFF in India and among Indians living in other countries. It has been stated that mainland Indians consume considerably less western-style fast food than Indians in other countries or places. According to Whitton et al., 22 % of Indians, 24 % of Malays, and 23 % of Chinese in Singapore regularly consume WFF (at least once in a week) (Whitton et al. 2013). This could be because Singapore is more westernised than the rest of India, making western fast food more accessible.

According to a survey conducted in England, Children (C) who live near junk food hotels or restaurants are more likely to be obese /overweight than those who reside elsewhere (Poti & Popkin 2011), demonstrating that the local food environment has a significant impact on local inhabitants' dietary habits (Wang & Shi 2012). Because western-style fast food was only introduced to mainland India roughly a decade ago. It is difficult to assess long-term consequences such as

Nutrition Education Intervention And Fast Food Behavior In India

cardiovascular disease and diabetes among Indian youngsters expose to it. Many childhood nutrition issues have already been linked to WFF (Bowman et al. 2004).

In India, However, there is currently no regulation prohibiting minors from eating fast food or western-style-fast-food. Furthermore because the advertising and food businesses oppose legislation limiting advertising to children, public health measures aimed against WFF have been severely hampered, making it critical to focus on nutrition/food knowledge or education and physical/dynamic activity methods (Swinburn et al. 2004). Children can be protected from fast food by spreading knowledge about the negative consequences of WFF and by creating good eating habits. Early in childhood, incorporating food or nutrition teaching into regular learning activities, when eating behavior are still being formed, is a practical and effective technique (French et al. 2001; Ghafoorunissa & Krishnaswamy 1994).

CONCLUSION

According to preliminary findings from current research, both children's and parents' eating habits can be improved with nutrition knowledge or instruction., and research discovered that youngsters were interested in nutrition knowledge or education activities. This study found that a one-semester nutrition-education programme reduced parents' use of WFF but had no direct impact on youngsters. This might be due to the fact that, while nutrition knowledge has great effects, it also has negative effects, it may take longer for children to see results, which could be attributed to the fact that children between the ages of 4 and 6 are extra susceptible to WFF than adults. A recent study shows that parents' health awareness influenced their children's habits. These findings show that intervention efforts should also involve parents, especially young children, to achieve optimum achievement.

In light of the findings of this study and India's rapid economic growth, more research and enhanced public health intervention are needed, as WFF is projected to become extra accessible and reasonable in the near future. The current study provided broad information about children and their parents' use of WFF in India. Nonetheless, it gave scientific evidence for effective rules and guidelines regulating the use of WFF.

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