

Effect of School-Based Nutrition Intervention on Food Label Related Knowledge and Practices of Children and Their Parents

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ABSTRACT

Background: Knowledge and practices of individuals regarding nutrition, affects their food choices and intake, which in turn determines their health and wellbeing. Consumption of convenience/junk food is highly prevalent among young children, leading them towards chronic health issues. Food label reading needs to be promoted, among the society so that better, conscious food choices can be made.

Aim: Assessing the effect of nutrition intervention on food label related knowledge and practices of school children and their parents.

Methodology: In this experimental-control study, 240 students (10-12 years) along with their parents, from two schools were enrolled for the study based on purposive random sampling, and were divided into experimental (n=121) and control (n=125) groups. Using a structured questionnaire pre data was collected after which, experimental group was given an interactive nutrition intervention for a period of 3 months, and post data was collected. Data was analysed using SPSS 23 software and Microsoft excel.

Results and Conclusion: Consumption of packaged snacks (1-2/day) reduced by 14.9% in experimental group. Post 4 months of intervention, awareness regarding food labels improved in children of experimental (87.6%) and control (3.2%) group. Increment of 10.7% in experimental and 4% in control group was seen among kids who always read labels. Knowledge increase was also seen in other parameters. Post intervention, an increase of 17.3% and 3.2% was seen in parental habit of always reading labels. Parents mostly paid attention to expiry date, price and vegetarian/non vegetarian symbol. Nutrition intervention was successful in bringing about the desirable changes.

Keywords: Nutrition intervention, school children, parents

INTRODUCTION

India, is currently battling with the triple burden of child malnutrition i.e., overnutrition, undernutrition and micronutrient deficiencies. Speedy urbanisation and faulty eating habits have resulted in nutrition transition, affecting the overall lifestyle of individuals. Children from a very young age are being exposed to all kind of processed and packaged food items that are often times loaded with salt, sugar and fat. This has resulted in an increased occurrence rate of diseases such as obesity, diabetes, cardiac problems etc. later in life(Kigaru et al., 2015). With the kind of availability of packaged/ convenience foods in the market, it becomes utmost important to educate children and parents regarding food and nutrition labels, so that conscious choices can be made. Moreover, the lucrative advertising and promotion of foods high in sugar, salt and fat as healthy foods, makes it even more important that food label reading not just comes into knowledge but in practice of individuals from a young age. Young children, in addition to their close environment, gets highly affected by media. Unhealthy food items which are often rich in calories and depreciated in other nutrients are promoted in a way that convinces not only children but parents, that they are good to be consumed on an everyday basis. Awareness and knowledge regarding food and nutrition labels is one of the most efficient way in which individuals can self-assess the nutritive adequacy of any packaged food item (Fernández et al., 2006). Food labels, in general represents information related to ingredients present, their nutritional values and claims made by the manufacturers. Under nutritional information, nutrients, their amount present and serving size is cited (Miller and Cassady, 2015). However, the extent to which consumer reads this information depends and varies based upon age groups, educational level, awareness and gender. Lack of understanding, is one of the major factor reported that prevents people of all age group from reading these food labels(Moore et al., 2018). Studies have shown that, a majority of people (81%) do look at food labels but to only read expiry/manufacturing date(Vemula et al., 2014).

Age group of 10-12 years can be considered as a window of opportunity for making behavioural changes, as this is the time where a child's concrete understanding formation takes place. Logical thinking and reasoning comes into play during this time (Craggs et al., 2011). School, in addition to home acts as a major platform that helps develop child's personality and understanding. School based interventions have proven to be successful in bringing about the desirable changes in habits, knowledge and behaviour of children, if implemented in a correct way. However, home still remains the implementational site, as activities of child, their eating and living conditions gets formed here. Hence, it becomes important to not only educate children but parents as well so that proper execution of delivered knowledge can take place. Studies focusing on interventions that examines the effect of education on knowledge and practices of children along with parents, in terms of Indian context are less, hence making the present study an important one.

MATERIAL AND METHOD

Under this experimental-control study, two schools were selected based upon purposive random sampling and willingness of the schools to participate. The study was approved by the respected schools and directorate of research. From these schools, 240 children (both girls and boys) of age group 10-12 years, were selected along with their parents (n=240) based upon systematic random sampling and divided into two groups: experimental group (n=121) who received an intervention for

a period of three months and control group (n=125), who did not receive any intervention. The intervention package comprised of interactive power point presentations, activities and games and educative material regarding food and nutrition topics such as health and wellbeing, food groups, nutrients, food pyramid, sugary and carbonated beverages, food labels and nutrition labels, their importance and packaged and junk foods and their health effects. Developed intervention package was evaluated by experts in the field to assess its appropriateness. The intervention group children were intervened in school once a week, in 30-40 minutes sessions. Parents were intervened once at the beginning of the programme and then were communicated on a regular basis throughout the study. A pre tested structured questionnaire was used separately for children and parents to collect the pre and post data. One month after the three months intervention period, post data was collected to identify effect if any. All the data was entered and analysed using Microsoft excel and statistical package for social science (SPSS)- 23 software. Frequencies and percentages were calculated. Paired and independent t test was used to determine differences between experimental and control groups.

RESULTS AND DISCUSSION

1. Demographic characteristics

Children were in the age group of 10-12 years, with majority of children (girls and boys), being 11 years old, for both experimental (40.5%) and control (48%) group. Parents in both the groups were mainly educated. Experimental (50.41%) and control (37.6%) group families were majorly small families (<4 members). Majority of mothers in experimental (75.2%) and control (80.8%) group were housewife. Whereas 57.85% of experimental and 48% control group fathers were government employees.

2. Packaged food/snacks consumption

Table 1, depicts the amount of packaged snack items eaten by children of the experimental and control group per day. Prior to the intervention, 37.2% experimental group and 37.6% control group children ate 1-2 snacks every day. Whereas, 12.4% and 20.8% of experimental and control group children ate 3 or more packaged snacks. Post four months, a reduction of 14.9% was seen in experimental group children who ate 1-2 snacks/day. However, where experimental group depicted a decrease (6.6%) in percentage of children who ate 3 or more snacks/day, control group depicted an increase of 16%. An increase (16.5%) was also seen among experimental group children who did not ate any snacks. The most popularly consumed food items were, Maggie, biscuits, namkeen and chips.

According to studies, packaged food/snacks consumption (at least 1 snack/day) is between 35-60% among Indian children of age group 9-13 years. Consumption of instant noodles, chips and other salted food items was found to be approximately 53% in the same age group(Amin T, Choudhary N, Jabeen A, 2017)(Agrawal et al., 2019). These results have found to be similar as observed in the present study.

Table 1: Packaged food consumption among experimental and control group children

HOW MANY PACKAGED SNACK FOODS – SUCH AS CHIPS, BISCUITS OR CHOCOLATE– DO YOU USUALLY EAT IN A DAY?						
	EXPERIMENTAL			CONTROL		
	PRE (%)	POST (%)	INCREASE/ DECREASE	PRE (%)	POST (%)	INCREASE/ DECREASE
3 OR MORE	12.4 (15)	5.8 (7)	-6.6	20.8 (26)	36.8 (46)	+16
1-2	37.2 (45)	22.3 (27)	-14.9	37.6 (47)	24 (30)	-13.6
1	40.5 (49)	45.5 (55)	+5	28.8 (36)	33.6 (32)	-4
NONE	9.9 (12)	26.4 (32)	+16.5	12.8 (16)	13.6 (17)	+1

Note: Value in the parenthesis indicate number

3. Knowledge and practice of reading food labels

Among Children: Awareness regarding food label among experimental group pre intervention was 8.3%, which changed significantly to 95.9% post intervention, while among control group it was 24% and 27.2% pre-post, with a very slight change (table 2).

Among experimental and control group, prior to the intervention, 76.2% and 73% children felt that food and nutrition labels are difficult to understand. Post intervention, a reduction was seen among experimental group (38%) children’s attitude, while for control group it remained almost the same (71.6%).S et al., (2013), also stated that approximately 66% young children and adolescents feel that the nutrition label is intricate to understand on their own.

Table 2: Awareness regarding food label among experimental and control group children

DO YOU KNOW WHAT A FOOD LABEL IS?				
	EXPERIMENTAL		CONTROL	
	PRE (%)	POST (%)	PRE (%)	POST (%)
YES	8.3 (10)	95.9 (116)	24 (30)	27.2 (34)
NO	91.7 (111)	4.1 (5)	76 (95)	72.8 (91)

Note: Value in the parenthesis indicate number

At baseline, only 5% experimental and 10.4% control group children always read nutrition labels. Majority of participants in experimental (65.3%) and control (52.8%) groups never read any nutrition label while purchasing. Post intervention, an increase of 10.7% and 4% was seen among experimental and control group children who always read labels. Percentage of children who read labels sometimes was 54.5% and 32% respectively. Showing effectiveness of the intervention, a percent reduction of 35.5% was observed among experimental group children who never read labels while among control group an increase of 0.8% was seen (table 3). According to Nurliyana G&Noramir MN et al., (2011)only 21.6% students often look for these food labels.

Table 3: Practice of reading nutrition labels among experimental and control group children

DO YOU EVER READ THE NUTRITION LABELS ON FOOD PACKAGES?						
	EXPERIMENTAL			CONTROL		
	PRE (%)	POST (%)	INCREASE/ DECREASE	PRE (%)	POST (%)	INCREASE/ DECREASE
ALWAYS	5.0 (6)	15.7 (19)	+10.7	10.4 (13)	14.4 (18)	+4
SOMETIMES	29.8 (36)	54.5 (66)	+24.7	36.8 (46)	32 (40)	-4.8
NEVER	65.3 (65.3)	29.8 (36)	-35.5	52.8 (66)	53.6 (67)	+0.8

Note: Value in the parenthesis indicate number

When children were asked, what information to look for when one is trying to identify preservatives present in the food, only 12.4% experimental and 21.6% control group said nutrition label. Majority of children in both the groups opted for ‘none of the above’ option (56.2% vs 38.4%). Post intervention, 91.7 % experimental group children opted for nutrition label option while only 27.2% among control group chose it (table 4). The information which children mostly look for while purchasing are expiry/manufacturing date (98.5%), price of the product (92.4%) and taste (95.7%) (Nurliyana G&Noramir MN et al., 2011).

Table 4: Knowledge regarding food label among experimental and control group children

WHILE DECIDING WHAT PRESERVATIVES ARE PRESENT IN FOOD, WHAT INFORMATION ON THE FOOD PACKAGE WILL YOU LOOK FOR?						
	EXPERIMENTAL			CONTROL		
	PRE (%)	POST (%)	INCREASE/ DECREASE	PRE (%)	POST (%)	INCREASE/ DECREASE
THE LABEL	18.2 (22)	5 (6)	-13.2	23.2 (29)	25.6 (32)	+2.4
RECIPES ON THE PACKAGE	13.2 (16)	1.7 (2)	-11.5	16.8 (21)	15.2 (19)	-1.6
THE NUTRITION LABEL	12.4 (15)	91.7 (111)	+79.3	21.6 (27)	27.2 (34)	+5.6
NONE OF THE ABOVE	56.2 (68)	1.7 (2)	-54.5	38.4 (48)	32 (40)	-6.4

Note: Value in the parenthesis indicate number

Among Parents: According to Table 5, prior to the intervention, only 6.6% experimental and 12.8% control group parents always read food labels, while 33.9% and 21.6% read them sometimes. Majority of the parents in both the groups, never read them. Post four months, an increase of 17.3% was seen among experimental group parents who sometimes read the information, while an increase of 2.4% among those who always read it. For control group, an increase of only 3.2% was observed in ‘sometimes read’ category and a reduction were seen in those who always read it. A study by, Daniel Robert et al. (2017) states that almost 46% of adults read food labels often while doing purchasing. This is similar to the present study findings.

Table 5: Practice of reading food labels among experimental and control group parents

DO YOU READ THE FOOD LABELS BEFORE PURCHASING THE PACKED FOOD ITEMS?						
	EXPERIMENTAL			CONTROL		
	PRE (%)	POST (%)	INCREASE/ DECREASE	PRE (%)	POST (%)	INCREASE/ DECREASE
YES	6.6 (8)	9 (11)	+2.4	12.8 (16)	11.2 (14)	-1.6
NO	59.5 (72)	39.7 (48)	-19.8	65.6 (82)	64.0 (80)	-1.6
SOMETIMES	33.9 (41)	51.2 (62)	+17.3	21.6 (27)	24.8 (31)	+3.2

Note: Value in the parenthesis indicate number

Packaged food items have a lot of information printed on them. When parents of experimental and control group were asked about which component they read and pay attention on the package while purchasing, majority of them opted for expiry/manufacturing date (42.97% vs 52.8%). Next, they looked for price (33.05% vs 25.6%), vegetarian/ non-vegetarian labels (14.87% vs 13.6%) and lastly food labels (9.09% vs 8%) respectively. Post intervention an increase of 20.66% was observed among experimental group parents who read food labels (table 6). Similar results have been shown by Vemula et al., (2014) and Daniel Robert et al. (2017) where approximately 80% of consumers look for expiry/ manufacturing information, <40% look for nutrition information and 20% read ingredient list while purchasing. Consumers (30%) find labels to be somewhat useful. Written text is often found to be confusing.

Table 6: Labelled information checked by experimental and control group parents

WHILE PURCHASING, WHAT DO YOU READ ON THE FOOD PACKAGE?						
	EXPERIMENTAL			CONTROL		
	PRE (%)	POST (%)	INCREASE/ DECREASE	PRE (%)	POST (%)	INCREASE/ DECREASE
PRICE	33.05 (40)	24.79 (30)	-8.26	25.6 (32)	24 (30)	-1.6
EXPIRY/ MANUFACTU RING DATE	42.97 (52)	33.05 (40)	-9.92	52.8 (66)	56 (70)	+3.2
FOOD LABELS	9.09 (11)	29.75 (36)	+20.66	8 (10)	6.4 (8)	-1.6
VEGETARIA N/NON- VEGETARIA N SYMBOL	14.87 (18)	12.39 (15)	-2.48	13.6 (17)	13.6 (17)	0

Note: Value in the parenthesis indicate number

CONCLUSION

Present study has shown that, even though parents are aware regarding food labels, the practical rate of reading them while purchasing is low. Most of them only read expiry/manufacturing information, price, and vegetarian/ non vegetarian symbols at most. Children on the other hand were found to be lacking in the knowledge and practices both. However, post intervention considerable increment in

knowledge and practices of children and parents was observed, indicating the effectiveness of intervention. Education level and habit of food label reading have found to be directly associated (Daniel Robert et al. 2017) hence the importance of making children and parents aware and educate about the same increases tremendously. School based education is an effective way of upgrading the skills and knowledge level of children. This study focused not only upon children but also ensured parental participation for concrete learning and implementation of knowledge delivered and was found to be successful in bringing about the desirable changes. Long term studies with larger sample size are warranted in terms of Indian context.

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