IMPACT OF TV ADVERTISEMENTS AND TV VIEWING ON FOOD CHOICES AND FOOD HABITS IN 6-10 YEAR OLD CHILDREN

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ABSTRACT TV advertisements and TV viewing have been associated with children's food choices and food preferences and has been a topic of interest for many years. With every passing year, the trends in TV advertising are constantly changing; better strategies are adopted in order to promote a particular product. The increased number of unhealthy food commercials aired on children's favourite channels could have an impact on their food choices and food habits. This study was done with an aim of finding the influence of TV advertisements and TV viewing on the purchase requests, food choices, and food habits of 6-10 year old children. A cross over study was conducted by dividing the children into control and experimental groups, questionnaires which were distributed were to be filled by both the children and their mothers' assessing TV viewing, food consumed while TV viewing and attitude towards advertised foods. Interventions were done to check brand preference and retention capacity of advertisements viewed, and to assess the healthfulness of food choices opted while TV viewing on a subpopulation (n=20). Results show that there were no significant values between the control and experimental groups. In the context of brand preference and retention capacity of advertisements; significant values were obtained for mango beverage (p=0.02) and potato chips (p=0.03) commercials. The healthfulness of food choices while TV viewing was poor as most of the children opted for unhealthy snacks and the consumption of healthy snacks like fruits were low.

KEYWORDS : TV advertisements, TV viewing, food choices, food habits, brand preference.

INTRODUCTION

Commercial advertisers of food products many at times try to create increased consumption for their products or services. In 2014, a study conducted over 7 years found that the television commercial is still the most effective mass advertising format. Advertisements of food products targeted at kids are very accepted in television. Advertising does have good effects too, but many at times it is dominated by the negative ones, which can have emotional, psychological effects on the minds of younger children in the longer run. (V P Shabeer, 2015).

The belief was that cancers and diabetes have directly relation with children's eating habits and the researcher focuses on children's behaviour while viewing TV advertisements and analysed their food requests. The results show that television advertisements have a direct effect on children's eating. (Tousi *et al*, 2017). Children are exposed to marketing messages for unhealthy foods, such as sugar laden breakfast cereals, fast foods or convenience foods and snack foods such as chips, desserts, candy and sugar-sweetened beverages. This exposure to unhealthy foods through TV marketing has been associated to heightened liking for marketed foods in the commercials. Since most of children's food preferences are formed during early childhood, they are prone to forming life-long preferences for foods laden in calories, fat, and added sugars and, therefore place themselves at an increased

risk for obesity due to TV food marketing practices. (Arcan C, 2013)

A logical stepwise process by which food marketing could be linked to weight gain was conceptualised by Kelly *et al.*, (2015). This model draws attention to the hierarchy of evidence to demonstrate marketing/advertising impact on weight gain and diet-related diseases (such as cancer, obesity), via effects on a number of other behaviours and behavioural determinants, and provides a useful referral point to contextualise the important evidence of the relation between the two factors. (Boyland *et al*, 2018).

AIM:

The aim of this study is to observe the effects of television food advertising on the food choices, purchase requests and food habits in children.

OBJECTIVES:

- To study the effect of advertisements on the purchase requests and food habits of children.
- To examine how TV advertisements promote unhealthy food preferences among children.
- To examine the nature of food choices of children while watching television.

METHODOLOGY (Fig.1)

Study Area & Study Design

This study was conducted in Bangalore. Bangalore is the principal administrative, cultural, commercial and industrial centre of the South Indian State of Karnataka. The school chosen for the study was a private school located in Anandapura, T.C Palya.

The study conducted was a cross over study as shown in Fig.1 and after an interval of 3 weeks there was a cross over between the experimental and control group. A sub-population (n=20) was chosen from the study sample and they were provided with choices of both healthy and unhealthy food for intervention.

SELECTION CRITERIA AND TYPE OF SAMPLING

Inclusion Criteria:

- Children must be between the ages of 6-10 years.
- Children without any mental disabilities.

Exclusion Criteria:

- Children with any mental or physical disabilities.
- Children below the specified age groups.

Type of Sampling: Random Sampling

Study Tools

- Self Developed Validated Questionnaire- A questionnaire was developed, and was validated by a panel of 7 subject experts who were from different related backgrounds like-Nutrition & Dietetics, Media and Communication, Psychology and Human Development and the thereafter the questionnaire was validated using Lawshe's content validity formula.
- A video clip with a mix of cartoons and advertisements, and a video tape with just the cartoons were developed by the researcher.
- Flash cards that consisted of two different brands- one which was advertised in the video shown and another, a random brand of the same food product was shown to the children. Flash cards were used as this was a more receptive method for children to identify brands and are a more engaging method of checking the memory retention.

DATA COLLECTION AND STUDY TECHNIQUE

This study was completed under the following phases:

Phase-1- Development Of Questionnaire

The questionnaire developed consisted of the following components-

- Demographic Data Information
- Part 1- To be filled by the child using interview method on the following topics- TV viewing and Advertisements, Food Consumption while TV viewing, Influence of TV viewing on Food Choices.
- Part 2- To be filled by the respective mothers, which consisted of similar questions as that of the children, the following subheading that were- TV viewing and advertisements, Perceptions on advertisements, Food consumption of the child while TV viewing, this was repeated so as to validate the response of the children with respect to their mothers in concern with their TV viewing behaviour at home.

Phase-2- Sample Selection And Data Collection

The sample included both boys and girls between the age groups of 6-10 years divided into two groups- control (6-8 years) and experimental group (9-10 years).

The control group (n=50) was shown a cartoon video without any advertisements, whereas the experimental group (n=50) were shown the cartoon video along with TV commercials of different products. Following a gap of 10 minutes both the groups were shown flash cards of two different branded products (of which one brand was shown in the video to the experimental group). They were asked which one they preferred, and their answers being recorded.

Phase-3- Cross Over

After an interval of 3 weeks there was a cross over between the control and the experimental group, and after this cross over, the children of both the groups were again shown the videos.

This time the control group watched the cartoon video along with TV

commercials of different products, and the experimental group was shown a cartoon video without any advertisements. Later shown flash cards of two different branded products to both the groups of which one was shown in the video to the control group only. Both the groups were asked which one they preferred or identified better. Responses were recorded.

This was done in order to find out the impact of the advertisements on the retaining capacity of the children, pertaining to their choice of brand of products which were/were not advertised during the video. Also, in order to check the influence of advertising on the choices/preferences of children on the selection of a product.

Phase-4-Sub-population Experiment

Setting:

Through random selection a sub-population of 20 children were taken. These children were offered food choices in a combination of both healthy and unhealthy foods while they watched a short video. Their choices over the three trials conducted were recorded and analysed. These were some of the common foods that were chosen for the intervention in accordance to many review of literature. The food choices offered were:

Healthy Options	Unhealthy Options
1. Cream Biscuits	5. Pop corn
2. Cookies	6. Makhana (Fox Nuts)
3. Potato Chips	7. Fruits (Banana, Orange or Apple)
4. Chocolates	

RESULTS AND DISCUSSION

Influence Of TV Advertisements On Purchase Requests

Table-1- Purchase Frequency Requests

CHILDREN'S PERSPECTIVE									
Variables		Study Groups				Total		χ^2 value	P-value
		Control (n= 51)		Experimental (n= 50)					
		No.	%	No.	%	No.	%		
Purchase Frequency Requests	Always	9	17.6	4	8	13	12.9	10.475 ^a	0.033 [*]
	Often	6	11.8	7	14	13	12.9		
	Sometimes	25	49	36	72	61	60.4		
	Rarely	5	9.8	3	6	8	7.9		
	Never	6	11.8	0	0	6	5.9		
Total		51	100	50	100	101	100		
MOTHERS' PERSPECTIVE									
Variables		Study Groups				Total		χ^2 value	P-value
		Control (n= 51)		Experimental (n= 50)					
		No.	%	No.	%	No.	%		
Purchase Frequency Requests	Always	14	28	3	6	17	17	13.176 ^a	0.004 [*]
	Often	33	66	35	70	68	68		
	Sometimes	3	6	9	18	12	12		
	Rarely	0	0	3	6	3	3		
	Never	0	0	0	0	0	0		
Total		51	100	50	100	101	100		

*Significance level < 5%

Purchase frequency for advertised products seen among the children was highest for the option sometimes in both the control (49%) and experimental (72%) groups and there was a significant value ($p < 0.05$). In relation to the mothers' response concerning their children's purchase frequency, the highest percentage was for the option of often in both the control (66%) and experimental (70%) and again there was a significant value ($p < 0.05$). This also reflects the frequency of food choices/brands purchased by the children under the influence of advertisements.

Among the responses of the children concerning the reasons for purchase of a product the highest percentage in both the control and experimental groups was recorded for TV advertisements (25%). The responses given by the mothers' for the reason determining their children's purchase request 25% of the control group had opted for TV advertisements as well another 25% for attractive display at the store making both the highest percentages, whereas in the experimental

group there was a clear cut high percentage (24%) for attractive displays at the store.

Table- 2- Reasons for Purchase Requests * Multiple Choice Question-Percentage

CHILDREN'S RESPONSE*						MOTHERS' RESPONSE*					
Variables		Study Groups				Variables		Study Groups			
		Control (n= 51)		Experimental (n= 50)				Control (n= 51)		Experimental (n= 50)	
		No.	%	No.	%			No.	%	No.	%
Reasons for Purchase Requests	TV Advertisements	48	24.4	49	24.5	Reasons for Purchase Requests	TV Advertisements	48	24.4	43	21.5
	Attractive display at store	44	22.4	37	18.5		Attractive display at store	48	24.4	47	23.5
	Real needs	2	1	6	3		Real needs	26	13.2	32	16
	Social/Peer group	19	9.6	22	11		Social/Peer group	28	14.2	25	12.5
	Free gifts, toys	37	18.8	39	19.5		Any other	0	0	1	0
	Any other	0	0	0	0						

* Multiple choice question- Percentage

PREFERENCES DURING TV VIEWING

Table-3- Most Preferred Foods Of Children Consumed While Watching TV (Children's And Mother's Response)

CHILDREN'S RESPONSE*					MOTHERS' RESPONSE*				
Variables		Study Groups			Variables		Study Groups		
		Control (n= 51)	Experimental (n= 50)				Control (n= 51)	Experimental (n= 50)	
Commonly preferred food while TV viewing	Chocolates, candies	34	28		Chocolates, candies	38	39		
	Biscuits, cookies, cream biscuits	49	49		Biscuits, cookies, cream biscuits	50	49		
	Cakes	17	18		Cakes	24	23		
	Fried foods- chips, French fries, smilies, mixture	50	46		Fried foods- chips, French fries, smilies, mixture	50	48		
	Ice cream, pudding	23	21		Ice cream, pudding	28	19		
	Fast food items- noodles, pizza, burgers.	19	22		Fast food items- noodles, pizza, burgers.	7	13		
	Carbonated beverages or packet fruit juices	29	36		Carbonated beverages or packet fruit juices	23	20		
	Fruits or vegetables	48	49		Fruits or vegetables	48	47		
	Any of the meals	46	43		Any of the meals	48	46		

* Multiple Choice questions

Amongst the control group 50 respondents opted for fried foods, 49 of them chose biscuits or cookies and 48 of them opted for fruits or vegetables. The mothers' response was in tune with that of their children where 50 of them said that their children preferred cookies or biscuits and fried foods while watching TV. Another 48 of them said that their children preferred fruits or vegetables and any of the meals while watching TV.

In the experimental group 49 of the respondents each opted for biscuits or cookies and fruits or vegetables. 46 of them chose fried foods. Whereas the in the mothers' responses 49 of them said that their children preferred biscuits or cookies and 48 of them said that they preferred fried foods like fries, chips etc.

IMPACT OF TV ADVERTISEMENTS ON CHILDREN'S BRAND PREFERENCE AND RETENTION CAPACITY

Table-4- Food Advertisements Exposure- Experimental Group

Food Advertis- ements	CHANGES FROM EXPOSURE 1-2						p-value
	No change		Influenced (Brand 2→1)		Not Influenced (Brand 1→2)		
	No.	%	No.	%	No.	%	
1	25	50	10	20	15	30	0.42
2	22	43	23	45	5	12	0.02 [*]
3	31	62	12	24	7	14	0.35
4	29	58	10	20	11	22	1.00
5	28	55	17	33	6	12	0.03 ⁺
6	37	74	5	10	8	16	0.581
7	35	70	6	12	9	18	0.60

1- Soft Drinks, 2- Mango Drink, 3- Ice cream, 4- Chocolate, 5- Potato chips, 6- Noodles, 7- Cream Biscuits

*Significance level < 5%

The table represents the change in choice of the brand in the experimental group that has occurred between the first and second

exposures of the advertisements. The most influential advertisement was advertisement 2 as a high percentage of children have been influenced to move from brand 2 (not exposed in the video) to brand 1 (exposed in the video clip) of the same product, 30 % was the highest percentage of the population (advertisement 1) who were not influenced in moving from brand 1 to 2. There were significant p values i.e ($p < 0.05$) for the advertisements 2 and 5.

Food Advertisment	1	2	3	4	5	6	7
Brand 1	Cola	Frooti	Amul	Cadbury Dairy milk	Lay's	Maggi	Cadbury Oreo
Brand 2	Pepsi	Maaza	Kwality Walls	Nestle Kitkat	Bingo	Yippee	Britannia Pure Magic

FOOD CHOICES DURING TV VIEWING (SUB-POPULATION)

Table-5-Mean Tabulation Of The Food Choices Opted By The Children

Variables	1 st Trial	2 nd Trial	3 rd Trial	Mean
1*	19	16	16	17
2*	10	6	9	8.3
3*	20	19	17	18.6
4*	19	19	20	19.3
5*	7	9	7	7.6
6*	11	16	19	15.3
7*	11	10	9	10

No.1* to 7*----1- Cream Biscuits , 2- Cookies , 3- Potato chips, 4- Chocolates, 5- Popcorn, 6- Makhana/ Foxnuts, 7- Fruits

In the first trial the highest opted choices were for food options of cream biscuits (19), potato chips (20) and chocolates (19). In the second trial the highest opted choices were for Potato chips (19), chocolates (19) and cream biscuits (16). In the third trial the highest opted foods were chocolates (20), Makhana/Foxnuts (19), potato chips (17) and cream biscuits (16). Amongst the mean for all the food choices the highest was for chocolates (19.3), followed by potato chips (18.6) and cream biscuits (17). It was evidently seen that the children preferred to snack on unhealthy snacks while watching TV in comparison to the healthier options. To conclude, children preferred more of unhealthy snack options instead of the healthier options while watching TV.

SUMMARY AND CONCLUSION

TV Viewing And Advertisements

TV advertisements were found to be the most pre dominant reason for the purchase of a product in children (25%). It was observed that 60.4% of the children from both the groups sometimes expressed their purchase requests whereas 68% of the mothers of both the groups responded that their children often expressed their purchase requests.

Food Consumption While Watching TV

The most commonly preferred foods among children of both the groups were found to be fried foods (50%), biscuits (49%). The mothers responses matched with that of the children (50%) and (49%) respectively.

Children's Perspective On Influence Of TV Advertisements On Food Choices

The study findings revealed that 69% of them always ate while watching TV, 84% found snacking while watching TV made the activity more interesting. Four to six meals were consumed by 92% of the population in a day out of which 97% of them consumed 1-2 meals while watching TV.

Mothers' Perspective On Influence Of TV Advertisements On Food Choices

The study results reflected that 54% agreed to TV advertisements

being a strong influence in shaping their children's beliefs and it did have an impact on their children's demands (64%). This was found to affect their children's food choices in 49% of the population. The mothers also agreed (45%) that their children developed unhealthy eating habits because of TV advertisements.

Impact Of TV Advertisements On Children's Brand Preference And Retention Capacity

Table-4 represents the change in choice of the brand in the experimental group that has occurred between the first and second exposures of the advertisements. There were significant p values i.e ($p < 0.05$) for the advertisements 2 and 5.

Influence Of TV Viewing On Children's Food Choices

In the experiment conducted to check the influence of TV viewing on the children's food choices, which was conducted in three trials. It was observed that only 20% of the population opted for one healthier choice and 15% opted for unhealthy choices between the first to the third trials. Between the first and the second trials, 5% have opted for unhealthy choices from trial 1 to 2. Between the second and third trials, it was observed that 15% shifted to healthier options.

Thus it can be concluded that there was no significant influence seen in the children with respect to their food choices and food preferences which could be attributed to the small sample size, hence the null hypothesis- (H_0)- There is no influence of TV food advertising or TV viewing on the food preferences and food habits of 6-10 year children can be accepted. Another reason for the insignificance could be the persuasive effects of advertisements could be different while TV viewing at home rather than a controlled environment in which this study was done, and preferences for the advertised items might differ if the actual items were presented to the children. These responses were with respect to the short-term/immediate influence of food advertisements, this may have differed for a medium or long termed study.

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