

PJN

ISSN 1680-5194

PAKISTAN JOURNAL OF
NUTRITION

ANSI*net*

308 Lasani Town, Sargodha Road, Faisalabad - Pakistan
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Urbanisation and Food Selection for South Asian Children

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Abstract : Changes in diet and activity are supposed to be responsible for the increased prevalence of urbanization related diseases. By comparing determinants of food choice among rural and urban south Asians we can assess the impact of urbanization on food selection process and this information can help in planning nutrition education strategies. This study was conducted to compare the determinants of food choice for South Asian children at different levels of urbanization. Among South Asian groups relative impact of males on family food choice and that of parents on children's food choice was more pronounced than it was among British Caucasians (BrC) but the influence decreased with urbanization rank (UR). With urbanization children's likeness for fatty snacks increased significantly. Gender bias in food choice was higher among all south Asian groups as compared to BrC but decreased with urbanization rank. Determinants of food selection for children differ with urbanization status. Influences of children's own preferences increase with UR. Influence of male family members on family food choice and gender bias in food preference decreases with UR.

Key Words: Food selection, food preference, food choice of male and female

Introduction

Demographic transitions accompany variations in dietary habits and health (Harris, 1981; Truswell, 1977; Eaton and Konner, 1988; Vargas, 1990; Popkin, 1994; Omran, 1971; Milio, 1990; Popkin, 1989; Popkin, 1992). Urbanization in less developed countries is exposing people to bilateral nutritional problems (Ge, 1995). Adoption of healthy food and activity habits is the only safeguard against these problems. Behavior modification is less difficult at young ages and an understanding of the determinants of food choice can assist in bringing out this change.

Determinants of food choice for children, however, may vary according to demographic characteristics. In view of increase in the prevalence of diet related disorders with increasing urbanization, it is worthwhile to understand the determinants of food choice at various stages of urbanization. This knowledge could help in planning fruitful strategies for nutrition education and nutrition interventions in various settings.

To explore the possible impact of urbanization on the following aspects of food choice by children and by their parents: what are the foods children like or dislike; what factors effect children's food choice when they choose food themselves; what factors effect food choice in children's families; and to what extent in what ways gender bias may effect food choice by children and by their families.

Materials and Methods

In order to study the association between urbanization and factors effecting food selection following aspects of food habits of six groups of 10-12-year-old school children, representing various urbanization categories was compared.

- 1.Children's food likes and dislikes
- 2.Factors effecting children's food choice.
- 3.Major influence on Food choice at homes
- 4.Food considered good or bad by parents and children.

Subjects : A total number of 623 10-12-year-old school children belonging to six different groups were asked to

identify the perceived importance of various factors influencing their food choice. Three groups represented different levels of affluence and urbanization within the same cultural milieu. These groups included rural Pakistani (RrP, n 100), middle-income urban Pakistani (MIP, n 148) and high income urban Pakistani (HUP, n 159) residing in the province of Punjab in Pakistan. Three further groups of children were drawn from the same geographical area (Slough) in the UK, but with different cultural backgrounds: British Pakistani (BrP, n 110), British Indian-Sikh (BrI, n 72), and British Caucasian (BrC, n 34). Schools were selected on the basis of the catchment population. All 10-12-year-old children from the selected school, who were willing to participate were included in the study. The students completed a questionnaire at school and the questionnaire for mothers was sent to their homes.

Data collection

Likes and dislikes of children : Children were asked to mention three liked, and three most disliked foods. The foods were categorized into five groups. For each food group each child's likeness score was calculated. If the child mentioned one food from any group as liked favorite he got an score of one for preference. Similarly If the child mentioned one food from any group as disliked food he got an score of minus one for aversion. The sum of two scores gave the likeness score. Thus higher showed likeness and vice versa.

Factors effecting children's food choice: Children were asked to indicate on a five-point ranking scale the degree to which certain factors influenced their food choice (higher score meant more importance was given to that factor).

Major influence on Food choice at homes: Schoolchildren and their mothers belonging to six different groups were asked to identify whose likes and dislikes were given the greatest importance when food choices were being made at home.

Food considered good or bad by parents and children: In order to explore these demographic differences in ideas about the

Table 1: Partial Correlation Coefficient between UR and food preference score controlling for sex

Food group	r	n	P
Cereals, bread	-0.0922	(469)	P=0.045
Fats, cream, fried/fatty snacks	0.4684	(469)	P=0.000
Fruits & Juices	-0.2445	(469)	P=0.000
Meat, egg	-0.1988	(469)	P=0.000
Milk, yogurt, cheese	-0.2069	(469)	P=0.000
Sweets, sugary drinks	-0.0494	(469)	P=0.285
Vegetables	0.1854	(469)	P=0.000

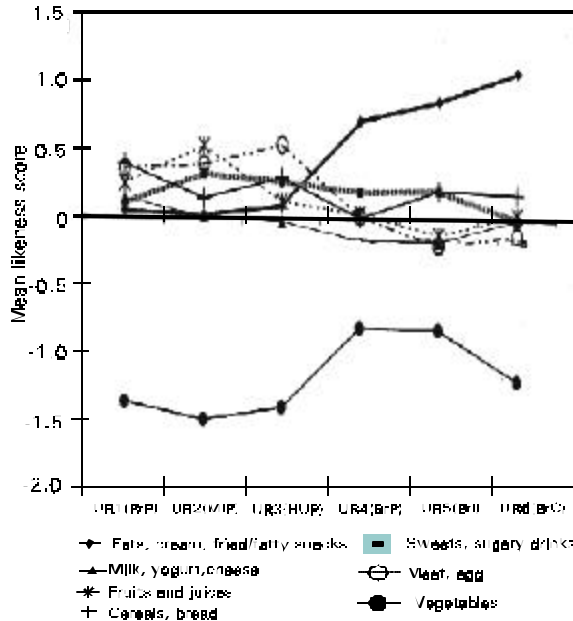


Fig. 1: Mean food preference score according to Urbanisation rank (UR)

appropriateness of foods according to sex, schoolchildren and their mothers were asked to identify any foods which they considered 'good for boys' and 'good for girls' and which foods they considered 'bad' for boys or girls.

Results

Children's food likes and dislikes: Likeness for fatty forms of foods increased steadily and rapidly with urbanization (Fig. 1). Preference for meat, milk and fruit was higher at lower URs. Preference for vegetable was lowest in all groups but the likeness was relatively high at higher URs. Preference for sweet food increased sharply from UR1 to 2 and then decreased steadily throughout. Preference for fatty snacks increased significantly and steadily with UR Association between UR and trends in food preferences was statistically significant in most cases (Table 1).

Factors effecting children's food choice: Comparison of the means of the ranks for each factor according to group indicated that urbanization, (RrP V. MIP), affluence (MIP V. HUP) migration, (HUP V. BrP) culture (BrP V. BrC) and religion (BrP V. BrC and BrI) played an important role in shaping the children's food choices (Fig. 2). Importance of parents and friends decreases with UR and that of taste increases. It appears that with urbanization and probably because of accompanied affluence children become more independent in food choice.

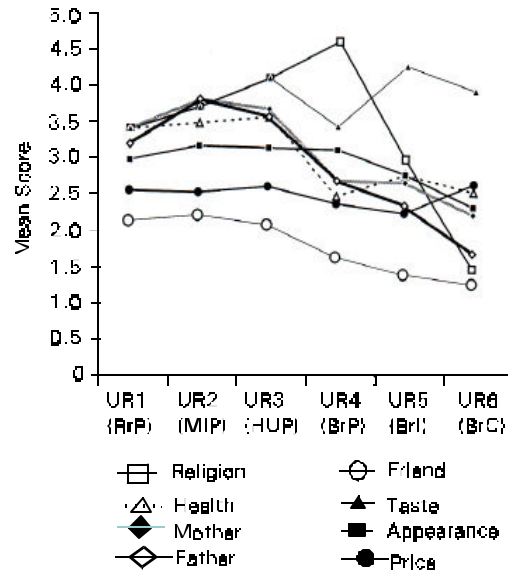


Fig. 2: Importance of various factors on food choice by the six groups of children having different Urbanization status

Major influence on Food choice at homes: Fig. 3a and 3b show that in most of the South Asian groups of parents and children, the percentage of those who considered a male family member to have a major influence on food choice at home was greater than that mentioned by Caucasian parents and children. These results indicate a tendency towards male dominance and lesser possibility of incorporating everyone's food preferences into making food choices in most of the South Asian groups.

Table 2 shows proportion of parents and children who considered any parent or any child to have major influence on family food choice. In all groups, both according to children's perception and according to the parents' perception children had less influence on family food choice as compared to parents. The most often mentioned family members in any group were father, mother or son. In no group daughter was the most often mentioned family member to have major influence on family food choice.

This sex bias may induce lower food intake and could put some vulnerable groups like women and children at a higher risk of malnutrition.

Food considered good or bad by parents and children: In terms of foods considered good for boys or girls by parents and children, preference for milk and meat decreased and preference for vegetable and fruits increased with Urbanization ranks (Table 3 and 4). However, meat and milk were mentioned to be preferred foods more often for boys than for girls by the three group living in Pakistan.

While in the three groups in UK fatty and sugary foods were considered to be bad both for boys and girls the three groups living in Pakistan rarely mentioned such foods to be bad either for boys or girls. No specific pattern of group-wise or gender wise difference was evident within the groups recruited from Pakistan or UK.

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Table 2: Children's and their parents' perception regarding the family members whose likes and dislikes are considered most important while selecting food choice at home

	UR1 (RrP)		UR2 (MIP)		UR3 (HUP)		UR4 (BrP)		UR5 (BrI)		UR6 (BrC)	
	%	N	%	N	%	N	%	N	%	N	%	N
Children's view												
Any Parent	68	(54)	55	(32)	61	(60)	76	(74)	54	(34)	64	(16)
Any Child	32	(25)	45	(26)	39	(38)	24	(24)	46	(29)	36	(9)
Parent's view												
Any Parent	85	(51)	90	(74)	97	(34)	94	(60)	85	(33)	94	(15)
Any Child	15	(9)	10	(8)	3	(1)	6%	(4)	15	(6)	6	(1)

Table 3: Foods considered to be good or bad for boys and girls by parents

	UR1 (RrP)		UR2 (MIP)		UR3 (HUP)		UR4 (BrP)		UR5 (BrI)		UR6 (BrC)	
	%	N	%	N	%	N	%	N	%	N	%	N
Food Good for Boys												
Total responses	%	65	%	60	%	56	%	62	%	40	%	20
Fat		1		0		0		2		0		5
Sugar		0		1		2		0		0		16
Milk		19		30		18		22		26		16
Meat		38		36		46		28		14		11
Fruit		9		10		11		18		23		21
Vegetable*		14		9		13		23		26		26
Cereal		13		7		7		7		11		5
Food Bad for Boys												
Total responses	%	18	%	15	%	16	%	47	%	36	%	21
Fat		5		0		6		49		45		50
Sugar		20		6		11		47		42		29
Milk		5		0		0		0		0		0
Meat		5		0		28		2		11		17
Fruit		0		0		0		0		0		0
Vegetable*		40		13		11		0		0		0
Cereal		10		6		0		2		3		4
Food Good for Girls												
Total responses	%	36	%	54	%	33	%	45	%	33	%	26
Fat		3		2		0		0		0		4
Sugar		3		0		0		0		0		4
Milk		18		22		21		16		30		25
Meat		23		28		44		13		7		8
Fruit		8		9		15		34		27		21
Vegetable*		28		16		9		37		27		33
Cereal		13		9		6		0		10		4
Food Bad for Girls												
Total responses	%	18	%	19	%	9	%	28	%	27	%	15
Fat		5		0		8		48		39		39
Sugar		15		13		0		26		42		39
Milk		5		0		8		0		0		0
Meat		0		30		31		13		16		22
Fruit		0		0		8		3		3		0
Vegetable*		55		9		15		3		0		0
Cereal		5		13		0		6		0		0

* specific vegetables were mentioned like okra, brinjals etc

Discussion

Food likes and dislikes of children from different groups were found to vary. In terms of actual intake, Both fat and sugar intake is found to increase with urbanization (Hakeem *et al.*, 1999). However, according to children's likes and dislikes, with increasing urbanization, behavior modification to lower intake of fatty snacks may be more difficult than decreasing the intake of desserts and sweets. Restrictions on eating favorite foods are found to have negative impacts on food behavior (Fisher and Birch, 1999). Thus a more fruitful strategy could be to modify recipes to decrease fat contents. Children's food choices are usually found to be influenced by parental food preferences (Klesges *et al.*, 1991; Feunekes *et al.*, 1998). During adolescence children are assumed to be

influenced more by outside world and may adopt new food habits. However we see that this process may not occur at similar ages for various groups of children. The less urbanized children either because of cultural factors or limitation of resources, are under the influence of their parents to a greater degree than the more urbanized groups. Thus, the impact of nutrition education imparted through schools only may not have similar impact in various groups.

Among Pakistani children, Impact of religion on food choices was not found to decrease with urbanization, and those in multicultural environment were most conscious of this factor. This factor needs to be considered in nutrition education.

As children at this age eat most of their meals at home impact of family food on their food choices and health is likely to be

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Table 4: Foods considered to be good or bad for boys and girls by children

	UR1 (RrP)	UR2 (MIP)	UR3 (HUP)	UR4 (BrP)	UR5 (BrI)	UR6 (BrC)
Food Good for Boys						
Total responses	% 46	% 22	% 33	% 22	% 15	% 9
Fat	17	0	3	14	0	0
Sugar	0	5	3	0	0	11
Milk	9	18	9	14	7	0
Meat	26	23	24	9	7	0
Fruit	9	27	0	18	27	44
Vegetable*	22	27	39	41	60	44
Cereal	17	0	15	5	0	0
Food Good Girls						
Total responses	% 21	% 13	% 13	% 20	% 16	% 8
Fat	0	8	8	0	0	0
Sugar	0	0	8	0	0	0
Milk	5	0	15	10	6	13
Meat	19	23	15	5	6	0
Fruit	67	23	8	35	31	38
Vegetable*	5	23	31	40	56	50
Cereal	5	23	15	10	0	0
Food Bad for Boys						
Total responses	% 17	2	% 31	% 27	% 22	% 9
Fat	0	0	3	33	41	56
Sugar	0	0	3	59	55	44
Milk	0	0	6	0	0	0
Meat	35	0	19	4	5	0
Fruit	0	0	3	0	0	0
Vegetable*	53	50	29	4	0	0
Cereal	6	0	10	0	0	0
Food Bad for Girls						
Total responses	% 16	% 4	% 20	% 28	% 19	% 9
Fat	0	0	0	43	37	44
Sugar	6	0	5	50	42	56
Milk	0	0	5	0	0	0
Meat	31	0	35	4	5	0
Fruit	0	0	0	4	5	0
Vegetable*	63	25	20	0	11	0
Cereal	0	0	10	0	0	0

* specific vegetables were mentioned like okra, brinjals etc

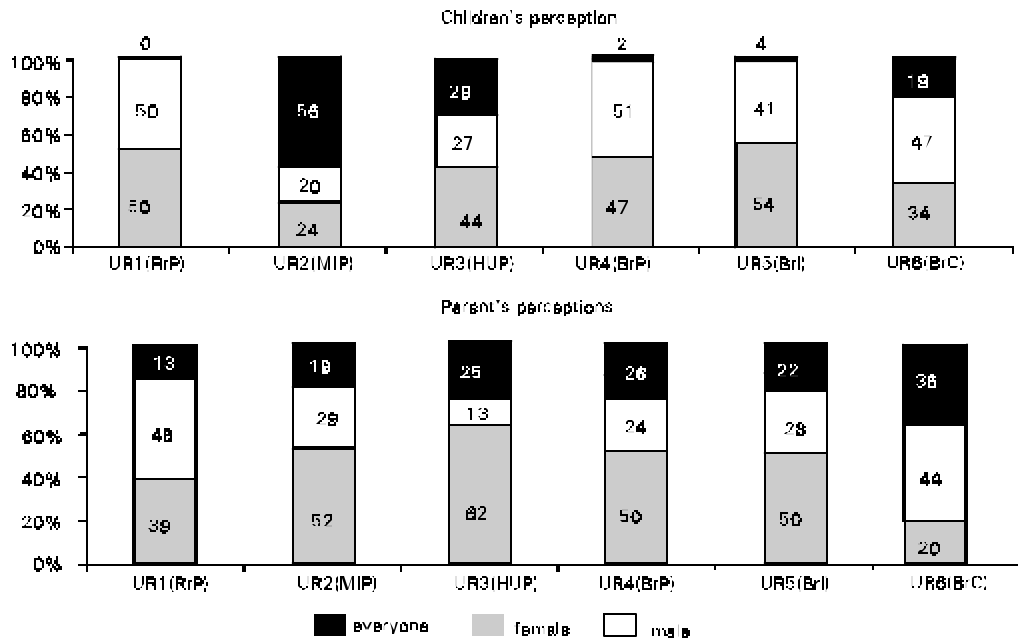


Fig. 3: Perception of major influence on food choice at home by children (c) and parents (p) according to Urbanization status

great. Relative influence of children's preferences on family food choice seems to be low in all sub groups. In family food choice also, in general children's likes and dislikes are not given first preference in the families studied. This finding again indicates that in the age group studied, involvement of families is required for modifying food intake. Indication of gender bias necessitates involvement of males even when women and children nutrition is the concern. It appears that educating only the females may have limited impact on family food choices. Gender bias observed in relative importance of males and females in family food choice and differential preferences for boys and girls needs to be studied further. Nutrition education of males is equally important and crucial for behavior modification within South Asian groups. Further it needs to be explored that differences in food preferences for boys and girls are due to knowledge or due to relative position of males and females in the family. Gender bias favoring males in the distribution of food within households is reported from other countries also (Babu *et al.*, 1993; Chakrabarty, 1996; Frongillo and Begin, 1993; Miller, 1997) and this trend should be checked through creating awareness regarding women nutrition.

Socio-demographic factors could effect the process of food selection for and by children in various ways. While nutrition education can influence food preferences of parents and children, understanding of cultural factors can help in designing appropriate nutrition messages and targeting all family members.

Acknowledgement

Dr. R. Hakeem was recipient of Commonwealth scholarship while doing Ph.D. and ISFE Switzerland provided additional financial support. The authors also wish to express thanks to the funding agencies; and the students and staff of the participating schools for their cooperation in this study.

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