Urbanisation and Health related Knowledge and Attitudes of South Asian Children

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Abstract

Objective: To study the differences in health related knowledge and attitudes of less and more urbanised 10-12 year old South Asian school children.
Method: A total of 589 Asian children living in UK and in Pakistan were studied. Three groups of children were recruited from Punjab, Pakistan: rural (RrP n=100), middle income urban (MUP, n=148) and high income urban (HUP, n=1 59) and they were assigned urbanization rank (UR) 1 2 and 3. Another two groups of children were recruited from Slough, UK: British Pakistani (BrP, n=110) and British Indian (Brl, n=71) and they were assigned urbanization rank 4 and 5 respectively. Information about Cardiovascular Health (CVH) related knowledge, Health Locus of Control (HLC), smoking behaviour, self-perception of bodyweight and self-perception of activity level was collected through questionnaire. Actual weight status was judged by measuring body height and weight. Actual Physical Activity Level (PAL) was calculated from three day activity records kept by children.
Results: In general health related knowledge improved with urbanisation status. In all groups girls scored better on knowledge test than boys from the same group. HLC scores increased (indicate higher level of internal locus of control) steadily with urbanisation from UR 1-3. In most groups girls had slightly lower HLC scores. Smoking intentions were not related to UR. Validity of perceptions slightly improved with urbanisation rank only for activity level.
Conclusion: Due to lack of knowledge and belief in external health locus of control, behaviour modification is likely to harder in less urbanized Pakistani groups. For the prevention of disease, efforts are required not only to increase the children's knowledge about health but also to increase awareness and understanding of healthy body weight, physical activity, hazards of smoking and to inculcate belief in internal control over own health (JPMA 51:437,2001).

Introduction

In developed countries incidence of non- communicable diseases increased with urbanisation but was found to decline due to behaviour modification[1]. The health of future generations of South Asian countries, which are rapidly urbanising now, depends on the health-related behaviour of children today and tomorrow. Preventive check the spread of CHD epidemic in future. Positive results from early interventions have been noticed[2-6]. However, differences in demographic characteristics may necessitate designing culturally appropriate education. Studies in China have shown socio-demographic differences in nutrition knowledge and health locus of and they were assigned urbanization rank[4] and[5] control and indicate a need for specific nutrition education respectively (table 1). Assessment of dietary habits and for rural and urban population[7-10]. Assessment of of differences in knowledge and health-related beliefs of less and more urbanised South Asian groups can help in planning specific and effective educational campaigns.

Methods

Data was collected through questionnaires from five group of 10-12 year old school children, representing various urbanization catagories. Three groups of children were recruited from Punjab, Pakistan: rural(n=100), middle income urban (n=148) and high income urban (n=159) and they were assigned urbanization rank (UR) 1,2 and 3. Another two groups of children were recruited from Sliugh, UK: British Pakistani (n=110), and British Indian (n=71) and they were assigned urbanization rank 4 and 5 respectively (table 1).

Table 1. Sample size.

	UR1 (RrP)	UR2 (MUP)	UR3 (HUP)	UR4 (BrP)	UR5 (BrI)	Total
Girls	52	61	69	67	42	291
Boys	48	87	90	43	30	298
Total	100	148	159	110	72	589

Assessment of dietary habits and exposure to Western culture conformed that ranking of Indian and Pakistanis in Britanin was correct[11].

The data was collected through questionnaires filled by a total of 589 children. Students filled the questionnaires in their classrooms, in the presence of their teachers and the researcher. Proportion of adequately filled questionnaires ranged form 90-98% in various groups.

Data Collection and Analysis

CVH related Knowledge

The questionnaire contained questions about CVH related knowledge, belief in health locus of control, smoking intentions and presence of smoker in the family and self concept about bodyweight and physical activity level.

The cardiovascular nutrition knowledge questions were based on two nutrition teaching packages for primary schoolchildren in[12] and cardiovascular nutrition knowledge questionnaire designed by White et aP[3]. The questions regarding health locus of control were adapted from Health related behaviour questionnaire used at the national level for British school children[14].

Health Locus of Control

For determining health locus of control, children were asked to mention their agreement or disagreement with four statements regarding health locUs of control. The question were: i) "I am in charge of My Health"; ii) "If I Keep Healthy I Have Just Been Lucky"; iii) "If I take care I'll stay healthy" and iv) "Even if I look after myself I can still fall ill". The responses to these questions indicated the extent to which the children considered themselves responsible for their health (internal locus of control). These questions were used to generate a health locus of control score as used by Balding,[14] For the first and the third question where agreement indicated internal control over health, a score of 1 was given for agreement and -1 for disagreement. For the second and the fourth question where agreement indicated external control over health, a score of-1 was given for disagreement and I for agreement. For all the four questions 'not sure' was given a score of zero. The sum of all the four scores generated a locus of health control score for each child, which could range from -4 to +4. Lower scores or more negative scores indicated that the child considered external factors to be responsible for their health.

Smoking intentions

Students were asked to mention whether any of their parents were regular smokers or not. They were

also asked to indicate their own smoking behaviour, as well as future intentions.

Validity of Self-Perception of Body Weight

Children's height and weight was measured in school. BMI was calculated and by comparing BMI values with international standards they were grouped into three categories of BMI: underweight, normal-weight and overweight. Children were asked to mention whether they wished to lose or gain weight or were happy with their bodyweight as it was. Validity of their concerns was judged by comparing their desires with their actual weight status.

Validity of Self-Perception of Physical Activity Level Children were asked to provide information about their daily activities (3 day-record) and on the basis of this information their Physical Activity Level (PAL) was calculated. The PAL value indicates multiples of BMR the subject spends in physical activity and thus higher values indicate more active lifestyle. Children were asked to mention whether they considered themselves to be physically very active, moderately active, or inactive. The validity of their perceptions regarding their activity level was judged by comparing their responses with thefr PAL calculated from their activity records.

Results

Cardiovascular nutrition knowledge

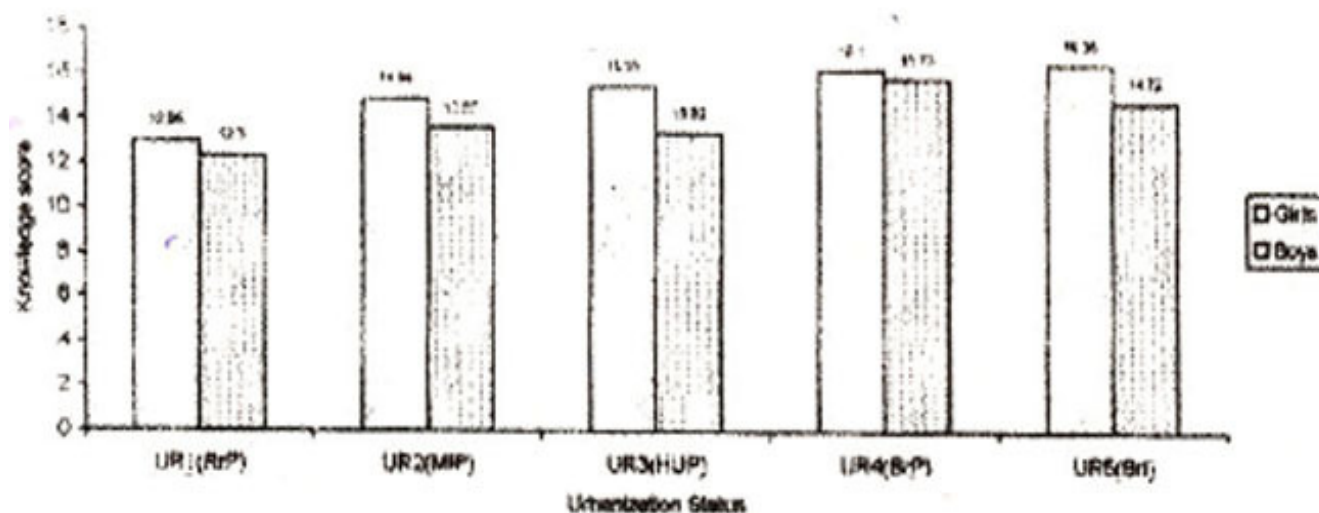Overall knowledge score increased with the urbanisation status (Figure 1).

Figure 1. Cardiovascular Nutrition Knowledge' Score of children according to urbanisation rank and sex.

Controlling for age and sex knowledge score had significant positive correlation with urbanisation rank (Spearman's r = 0.2654, P<0.001). Overall difference in mean score of the five groups was also highly significant (ANOVA: P<0.001). However post hoc analysis of least significant difference (P<0.05) revealed the following pattern of inter group differences. Among the two groups of children residing in UK, there was no significant in the mean scores achieved. The two British groups had significantly higher scores than any of the three groups in Pakistan. And among those living in Pakistan the two urban groups were not significantly different from each other but both of them had significantly higher scores than the rural Pakistanis.

In all groups girls had higher mean scores than the boys. The gender difference was minimum among the British Pakistanis and reached statistical significance among less affluent urban Pakistanis

(P<0.005), affluent urban Pakistanis (P<0.001) and British Indians (P<0.05).
Differences in responses to individual questions are presented in Table 2.

Table 2. Percentage of children who gave correct answers according to group.

Questions	UR1 (RrP)	UR2 (MUP)	UR3 (HUP)	UR4 (BrP)	UR5 (BrI)
Which One Is A Better Choice For Protecting Ourselves From Heart Disease?					
1. Apple/Apple Pie[1]	72	48	78	99	95
2. Whole Milk/Skimmed Milk	27	43	46	47	64.
3. Butter/Poly unsaturated Margarine	18	41	32	86	73.
Which Of The Following May increase A Person's Risk Of Having A Heart Attack?					
4. Too Much Stress (yes)	56	74	89	88	84.
5. Eating Vegetables (no)	87	86	98	95	98.
6. Smoking Cigarettes (yes)	87	89	93	97	100
7. Hard Work (no)	62	64	60	43	53
8. Eating Too Much Fat (yes)	24	61	70	92	91
9. Being Overweight (yes)	41	56	58	79	62
10. Lack Of Exercise (yes)	35	60	65	54	55
11. Drinking Tea (no)	38	60	58	87	92
Are The Following Statements True Or False?					
12. Bread, Potato And Pasta Are Fattening	68	26	28	55	76
13. Butter Contains More Calories Than Margarine	39	34	29	33	20
14. Weight For Weight Fat Contains More Calories Than Carbohydrates	72	52	45	66	54
15. Fibre Is Obtained Both From Animal And Vegetable Foods	32	42	56	35	44
16. Fibre Is Lost During Cooking	35	36	32	61	64
17. Amount Of Fibre in The Diet Can Be increased By Adding Fruits.	60	54	46	81	84
18. Saturated/Polyunsaturated	64	61	73	37	26
Which Of The Following Contains Saturated/solid Fats?					
19. Whole Milk	65	33	21	55	40
20. Cheddar Cheese	39	56	64	65	63
21. Corn Oil	68	58	58	47	51
22. Cod Liver Oil	63	52	28	40	50
23. Sunflower Oil	58	53	61	52	46
24. Lard	48	82	84	63	63
25. Ghee	60	69	69	71	68
26. Dairy Cream	56	60	52	65	74

[1]replaced by carrot/carrot halwa for questionnaires in Pakistan.

The less urbanised groups scored better than the urbanised groups in a few specific areas of knowledge. For example, the rural Pakistanis scored better than others did, in queries about saturated fat.
Health Locus of Control (Children's perceptions of their control over their own health)
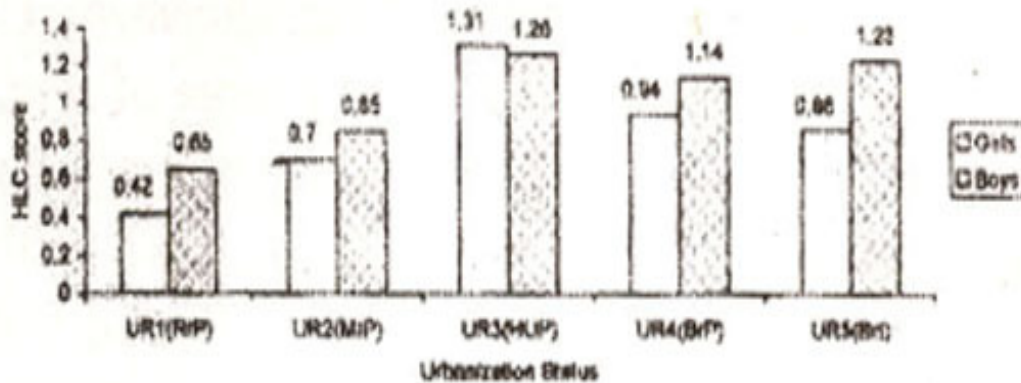Overall HLC score increased with the urbanisation status (Figure 2).

Figure 2. Health Locus of Control (HLC) score of children according to urbanisation rank and sex.

Controlling for age and sex, HLC score had weak but significant positive correlation with urbanisation rank (Spearman's r = 0.13, P <0.001). Overall difference in mean score of the five groups was also highly significant (ANOVA: P<0.001). HUP had highest mean score, which was significantly higher than that of RrP and MUP. Girls had slightly lower HLC scores in four of the six groups studied (UR 1,2,4 and 5). However the difference in the mean score of boys and girls was not significant in any group. Differences in responses to individual questions are presented in table 3.

Table 3. Children's perception of control over their health according to group.

		p (UK)	p (PK)	UR1 (RrP)	UR2 (MUP)	UR3 (HUP)	UR4 (BrP)	UR5 (BrI)
	girls			n=52	n=61	n=69	n=67	n=42
	boys			n=48	n=87	n=90	n=43	n=30
				%	%	%	%	%
I am in charge of My Health	girls	ns	ns					
	boys	ns	ns					
not sure	girls			63	45	49	39	39
	boys			38	34	34	27	43
agree	girls			31	50	46	55	51
	boys			54	57	58	61	47
disagree	girls			6	5	4	6	10
	boys			8	9	8	11	10
If I Keep Healthy I Have	girls	ns						
Just Been Lucky	boy	*	****					
not sure	girls			36	50	49	25	43
	boys			16	33	49	48	13
agree	girls			58	43	36	42	29
	boys			78	49	35	29	37
disagree	girls			6	7	16	33	29
	boys			6	18	15	24	50
If I take care I'll stay healthy	girls	ns	ns					
	boys	*	ns					
not sure	girls			4	19	11	18	15
	bovs			11	16	12	16	7
agree	girls			86	75	84	76	78
	boys			84	80	76	79	87
disagree	girls			10	5	4	6	7
	boys			4	4	12	5	7
Even if I look after myself	girls	*						
I can still fall ill	boys	ns	*					
not sure	girls			54	43	38	30	32
	boys			42	44	33	35	47
agree	girls			27	33	16	43	46
	boys			19	30	17	35	30
disagree	girls			19	25	46	27	22
	boys			40	26	50	30	23

*=P<0.05, **=P<0.005, ***=P<0.0005, ****=P<0.00005

Smoking intentions

Table 4. Smoking intentions of school children according to urbanization rank.

Measurement	UR1 (RrP)	UR2 (MUP)	Group UR3 (HUP)	UR4 (BrP)	UR5 (BrI)
	n=32	n=46	n=68	n=67	n=47
Girls	%	%	%	%	%
Don't smoke now and never will	94	94	96	93	91
Don't now but may when older	6	6	4	7	9
Smoke; like to give up	0	0	0	0	0
Smoke; don't want to give up	0	0	0	0	0
	n=41	n=99	n=89	n=46	n=30
Boys	%	%	%	%	%
Don't smoke now and never will	83	98	90	89	97
Don't now but may when older	15	0	6	4	3
Smoke; like to give up	2	2	3	2	0
Smoke; don't want to give up	0	0	1	4	0

Table 4 shows the responses of children, to the question asking them to mark the option, which described them, the best. Although the majority of the children from each group (63 to 96% of girls and 73 to 98% boys) selected the option: "do not smoke now and never will" the proportion varied according to group. However the rates of various responses were not necessarily associated with urbanization status.

Children were also asked to mention whether any member of their family smoked regularly. According to their responses the rates of smoking among family members of children did not have any consistent association with urbanization rank (Figure 3).
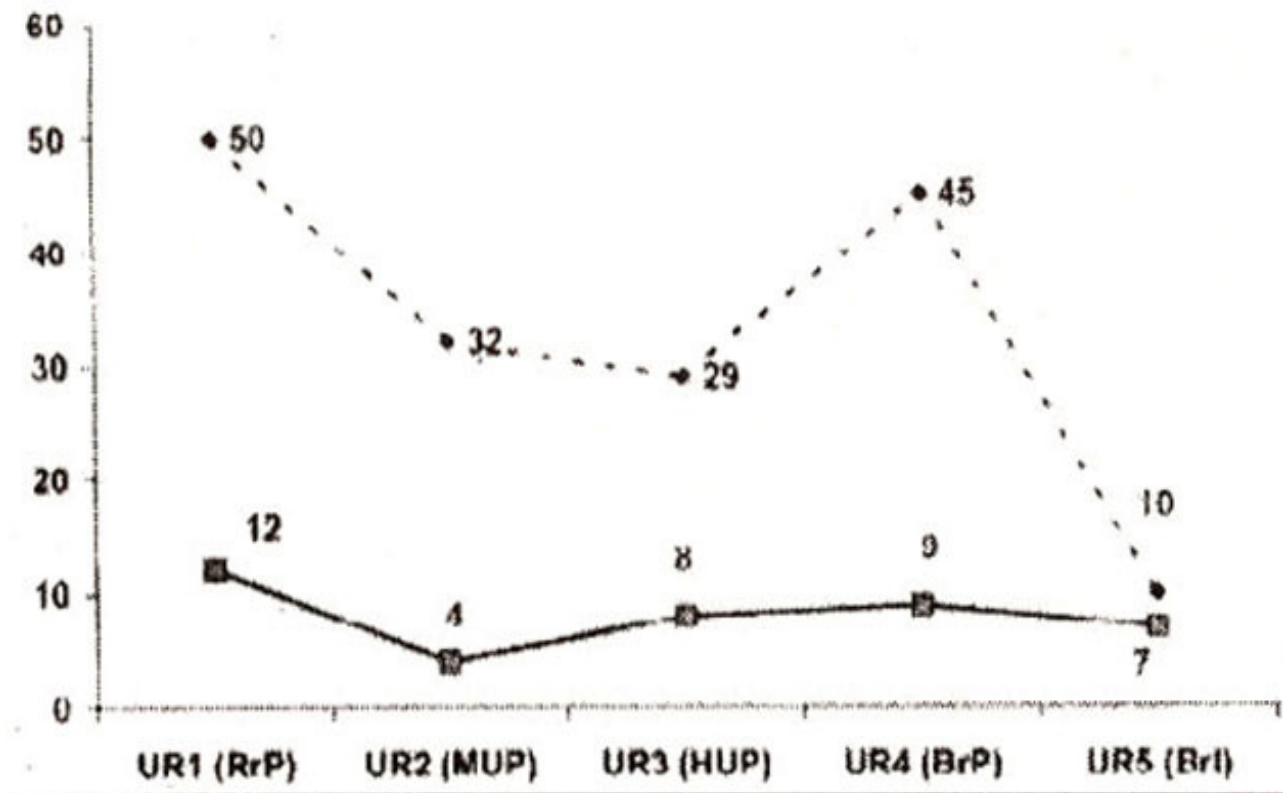
Figure 3. Smoking likelihood* of School children according to Parental Smoking.
*The children who did not selected options"don't smoke now and never will" in the question about smoking.

Children who did not select the option 1 (i.e. "do not smoke now and never will") were considered to have likelihood of smoking in future. Families with smokers and proportion of children having likelihood of smoking were highest at UR1 (RrP) and lowest among British Indians UR5. Only among three groups from UR 2-4 the likelihood of children's smoking in future increased steadily with urbanization rank.

Controlling for the effect of group and sex of the child, there was strong positive association between presence of smoker in the family (O=none, 1=one or more) and likelihood of child's smoking in future (O=no, 1 =yes) (Partial Correlation Coefficients: r=0. 1871, P=.000, n=58 1).

Within each group the proportion of children showing likelihood of smoking in future was higher in the sub-group having any smoker in the family (Figure 3).

Validity of self-assessment of weight and physical activity level

Most of the children from each group had incorrect perception of their activity level. However degree of overestimation in most cases increased with UR. More than fifty percent of children assessed their weight status correctly. No particular association was observed between the degree of over or under estimation of weight status and urbanisation rank (table 5).

Table 5. Accuracy of children's perception of their own body weight status and physical activity level.

	UR1 (RrP)	UR2 (MUP)	UR3 (HUP)	UR4 (BrP)	UR5 (BrI)
Weight Status					
Percentage who assessed weight status correctly	52	64	51	62	53
Mean difference in perceived and actual weight status.	0.29	0.25	0.40	0.21	0.29
Physical Activity level					
Percentage who assessed PAL correctly	30	39	28	35	34
Mean difference in perceived and actual activity level.	0.18	-0.06	0.30	0.68	0.71

Discussion

As observed in China[15], in this study also the knowledge regarding cardiovascular health was lower among the less urbanised groups. Among the Pakistani groups (UR 1-3) the perceived control on health also decreased with urbanisation status. It indicates two things. Firstly, that coping with urbanisation related health problems, could be difficult for the less urbanised South Asian people, due to their lack of knowledge and their less likelihood of taking active measures for modifying their behaviour. Secondly that delivering information and increasing knowledge would not be enough to change the behaviour of these children. Serious attempts are required to modify the belief in external locus of control. Unless people think themselves to be responsible for their health and believe that their health status can change by taking positive measures, no amount of knowledge would help. It is a common attitude in South Asian cultures to hold luck or nature responsible for outcomes regardless of personal inputs. Paradoxically most people do not follow similar attitude while earnings of other material benefits are concerned. For example the people, who are found to be using any or every mean to earn money would have a very passive attitude towards health and would attribute ill health to God's will even if they had been adopting unhealthy food and activity habits. It appears that belief in external sources of control is not uniformly held for various facets of life. Perhaps it is used as an excuse for not being able to adapt healthier habits. It is also possible that due to lack of knowledge, or methods of teaching followed in schools, even the educated people are unable to observe as concrete cause and effect relationship between health related behaviour and health as they do observe in endeavours to earn money and accumulation of wealth. Health educators need to find correlates of external health locus of control and devise strategies for instilling belief in internal locus of control to make people active in taking responsibility for their health. In many studies the healthier people are found to have a higher degree of internal health locus of control as compared to their less healthy counterparts[15-18]. As childhood aiid adolescence is the period when behaviour modification is relatively easier, efforts to modify beliefs should be focused on this age group.

Rural Pakistani children may not be at low risk for CHD and other NCDs in future because of their own and their parents' smoking behaviour. Even as children they are exposed to secondary smoke due to parental smoking. Even those who do not adopt smoking in future significant harm might have been done due to parental smoking.

Lack of association between urbanisation and smoking, evident from this study, is also reported by a few other researchers[17,18], According to the results of this study smoking among adults was deterniined by factors other than urbanization status. Those factors could be cultural and educational background of families. However, one thing is clearly evident that smoking behaviour of parents has significant

impact on children's intentions to smoke in future.

In terms of maintenance of healthy body weight, the children and particularly rural children needs to be guided both about the hazards of over, as well as underweight. Considering the long-term impact of pre-maternal and maternal nutrition on the health of the offspring, girls need to he cautioned about identifying, preventing and overcoming underweight also.

As maintenance of a particular level of physical activity is essential for the prevention of several diseases of urhanisation, children should be guided about kind and amount of activity desirable for the maintenance of health. Overestimation of PAL with increasing urbanisation indicates a need for particular guidance of more urbanised groups.

In conclusion the risk for non-communicable diseases can escalate quickly because of: lack of knowledge; neglecting health advice because of belief in external health locus of control; smoking history and inability to maintain healthy weight and adequate PAL because of improper assessment of weight status and activity level. These underlying factors could aggravate the detrimental effects of adopting urban life style in certain newly urbanised groups. Rural populations could be better prepared for healthy transition to urban life by educating and cautioning them about these factors.

Acknowledgements

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