Socioeconomic Differences in Housewife's ability to take Nutritional Care

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Abstract

Objective: To explore socio-economic differences in 'Nutritional Care Potential' (NCP) of housewives belonging to three distinctively different income groups living in urban areas of Karachi.

Methods: Data was collected from families living in small, medium and large sized houses located in the authorized urban residential areas of Karachi. A total of 180 housewives (60 each for low, middle and high income groups) were interviewed. Trained data collectors visited the households, interviewed the housewives about family's socio-demographic characteristics and their own nutritional knowledge, health locus of control and decision making.

Results: The total NCP scores increased with income level (Low = 14.8±5.6; Middle 16.58±5.5; High = 17.28±5.3) but the difference was statistically significant only between low and high income groups (t-test P = 0.015). The mean nutrition knowledge score of low income group was lower (mean score = 11.7±4.1) and significantly different from both middle (mean score = 13.5±3.4 t-text P = 0.013) and high income group (mean score = 14.2±4.0, t-test P = 0.001). All the three income groups had firmer belief in internal health locus of control (mean score less than one out of a total of 4). Though, the mean score was highest for the high income group and lowest for the middle income group but the difference were not statistically significant. There were no marked differences in decision making power of the three groups.

Conclusion: The results of this study document socioeconomic difference in nutrition care potential. Though nutrition care potential of housewives was not found to be commendable at any income level, the fact that it is low at lower income levels indicates that poor nutritional status at lower income level is not because of income only (JPMA 54:382;2004).

Introduction

Caregiver's knowledge, attitudes, resources and control on resources are important components of model of care presented by UNICEF.[1] Women have an important role in determining nutrition of household and societies but due to social injustice they may lack resources or control on resources required to fulfil their roles properly.[2] Hupkens et al[3] have noted class differences in food rules mothers' impose on their children. Begin et al[4] found that while Socioeconomic factors associated with children's height-for-age, caregiver characteristics influence children's nutritional status, even while controlling for the socioeconomic status of the household. Maternal education was found to affect child's nutrition by Bende and McCann[5] in Bolivia but not by Kutty[6] in India. In Bangladesh, family income, mother's literacy, family size and area of residence exhibited strong and statistically significant associations with night blindness in the 1989 cross- sectional study.[7] In Tanzania McCauley noted that health education could not be directed at the women alone because the decision to change behavior had to be sanctioned by the husband in the household.[8] Women's power has been observed to be directly associated with child's nutritional status in Zambabwe.[9] Women's lack of power could also effect mothers nutrition care practices by inducing depression[10] or by effecting her own health related decisions.[11,12]

Thus not only family income and mother's abilities but also her decision-making power would affect family member's health and nutritional status.[8,12,13] In a review of relevant literature from Pakistan, Bharmal[14] also, identified unawareness of the mother about healthy behaviors, lack of decision- making power of women as possible causes of malnutrition

In an earlier study conducted in Karachi it was observed that children from higher and middle income group had better nutritional status than those from low-income group did.[15] In order to explore whether the three income groups were different in other nutrition-care-related aspects also comparisons were made of various sub-samples of households. The purpose of this study was to explore socio-economic differences in the following aspects of housewives' ability to safeguard food and nutrition security of family titled in this paper as her 'Nutritional Care Potential' (NCP):

1. Nutritional knowledge
2. Belief in health locus of control
3. Decision-making power

Methods

As this study aimed at exploring association between Socio economic status (SES) and nutritional status, of urbanized population, sampling was purposive. A total of 180 families (60 each for low, middle and high-income groups) were recruited only from urban authorized residential areas of Karachi. Plot size was used as the primary variable for selection of families for each of the three groups. Families living in houses built on around 80, 200 and 600 square yards were recruited to represent low middle and high-income groups.

Sampling

This study was part of a larger project[15] that aimed at exploring association between Socio-economic status (SES) and nutritional status, of urbanized population, sampling was purposive. For the project A total of 600 families (200 each for low, middle and high-income groups) were recruited only from urban authorized residential areas of four districts of Karachi division. The households included in this study were a randomized sub-sample of the main cohort. Selection criteria and recruitment procedure for the main sample were as follows:

Selection criteria: The authors and data collectors belonged to the same city, they also had knowledge about general income level of the residents of various localities and plot size was observed to be a feasible factor to recruit families of varying SES. Thus plot size was used as the primary variable for selection of families for each of the three groups. However information about family's monthly income and possession of household assets was also obtained to check the validity of using plot size as criteria for determining the SES of families. Information about housing and household possessions was used to develop as SES scale, and each family was assigned a SES score accordingly. Significant differences in reported income and SES score of the three groups were expected.

In order to control the effect of variability in family composition, stage of family life cycle was controlled. Childless families, families with married children and extended or joint families were not included in the study. Families with pregnant or lactating mothers and children less than 1 year of age were also excluded.

Recruitment procedure: From each district approximately 10% of the urban-legal localities were selected randomly. As valid information regarding exact proportion could not be obtained the proportion of families of varying SES recruited from various localities was not statistically controlled. However an attempt was made to have a balanced representation by recruiting at least 2 families of each income level from each selected locality. Within the select-

Within the selected localities the blocks of houses having specific size were identified. Data collectors visited these blocks, interviewed families, and families that fulfilled the selection criterion and were also willing to participate were recruited. The families were identified through snow balling rather than statistical randomization.

Data collection

Trained data collectors visited households and the housewives were interviewed about family's socio-demographic characteristics and their own nutritional knowledge, attitudes and decision making.

The interviewers to assess the housewife's nutritional knowledge administered a nutritional knowledge test consisting of 20 Multiple choice questions.

The questions regarding health locus of control were adapted from Health related behavior questionnaire used at the national level for British schoolchildren.[16]

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, 1994.[16] 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 agreement and 1 for disagreement. 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.

In order to assess housewives power in household decision making a list of 21 common decisions was presented and they were requested to mention who is usually responsible for making the particular decisions. Both, decision having direct or indirect impact on nutritional care were included. Number of decisions made exclusively by the housewife indicated their decision making power.

Date entry and analysis

SPSS for windows, version 7.5 was used for data entry and analysis. For comparing the statistical significance of the differences in three groups where scale level data (e.g. knowledge scores) was available, ANOVA was performed. In order to further explore the differing pairs within the three groups, t-test was used. All the statistical tests were performed at the 95% confidence level.

Results

Socio-demographic characteristics of the sample are given in Table 1. Though all the differences were not statistically significant, house wives from the three income groups differed to varying extent in their nutritional knowledge, health related attitude and decision making power.

Housewives' Nutritional Knowledge

Mean nutrition knowledge score increased with income level. Mean number of correct answers by low middle and high-income groups was 11.7 ±4.1, 13.5±3.4 and; 14.2±4.0 respectively. The mean score of low-income group was significantly different from both middle (t-test P=0.013) and high-income group (t-test P=0.001). Though the mean score oh high-income group was more than the middle income group the difference was not statistically significant.

In order to assess the areas of knowledge where the income group differed, chi. square test was performed to study the significance of differences in percentage of correct answers given by the three income group studied (Tables 2 and 3). For almost all the answers regarding identification of nutrients (Table 2) the proportion of correct answers increased with income level. However the difference reached statistical significance for questions concerning names of vitamin and minerals and units of energy. Awareness of macronutrients was relatively better even at lower income level. Knowledge regarding food sources of various nutrients was also better at higher income levels. However the difference was significant only for vitamin C only (Table 3).

Housewives' Attitude Towards Health

Responses to various items of HLC assessment Scale are given in Table 4. It could be noted that in all income groups there was no consistency in responses. Though a vast majority (80-90%) from each income group agreed to the statements 'I am in charge of my health' and 'I would stay healthy if I take care of myself'; more than half and three fourth of them respectively also agreed to the statement 'If I keep healthy, I have just been lucky' and 'Even if I look after myself , I can still fall ill'. This pattern of responses indicates lack of firm belief in internal control over health. Lack of belief in external control is also evident by low total HLC score. The higher score indicated firmer belief in internal health locus of control. At each income level the mean score was less than one where 4 was the maximum possible score. However, the mean score was

Table 1. Socio-demographic characteristics of housewives.

Parameters	Statistics	Low n=60	Middle n=60	High n=60
Age (in completed years)	Mean (SD)	41.3 (10)	42.1(10)	42.7 (8)
Education (years of formal education)	Mean (SD)	12.1 (4)	13.3(2)	13.0(2)
Occupation				
Working	%	28	15	13
Housewife	%	72	85	87

Table 2. Percentage of Housewives who gave correct responses to questions about nutrients at three income levels.

		Low % n=60	Middle % n=60	High % n=60
1.	Calorie is a unit of measuring energy ⊗	42	63	62
2.	Protein helps in building muscle and tissues	50	63	67
3.	Carbohydrates is found in potatoes and provides us energy	58	66	78
4.	Fat is found in butter and provides us energy	92	90	98
5.	Calcium is a mineral ⊗	40	67	57
6.	Iron is a mineral ⊗	47	62	72
7.	Iodine is a mineral	55	58	60
8.	Ascorbic acid is a vitamin ⊗	47	65	72
9.	Folic acid is a vitamin	36	45	50
10.	Thiamine is a vitamin ⊗	27	45	47

⊗ Chi sq. test: differences statistically significant at least at P<0.05 level.

level the mean score was less than one where 4 was the maximum possible score. However, the mean score was highest for the high income group and lowest for the middle income group but the differences were not statistically significant.

Housewives' Role in Decision Making

In terms of overall decision making power the difference was not marked. At low and high-income level on average 11 decisions were undertaken by housewives whereas at middle income housewives undertook 12 decisions. Individually, out of a total of 21 decisions socioeconomic differences were statistically significant for six (Table 5). The differences were more marked for four decisions having direct impact, and two having indirect impact on housewife's nutritional care potential.

The housewives at each income level had more control on decisions directly related to food than those household decisions, which could indirectly affect nutritional care potential (Table 5). Decision exclusively done by more than 70% of housewives at all income levels included: "How much food should be given to various family members?"; "How the food should be cooked?"; "How the food should be served?"; "Who should cook the food?*"; "Whether to eat the leftover food or not" and "What should you do with your spare time?*"

Decision exclusively made by 50-85% of housewives at all in come levels included: "What type of food should be bought?"; "What type of food should be cooked in the home?"; "Who should get the best quality of food?*"; "How much money could be spent on servants?" and "What type of clothes should be worn?*". All the other decisions were undertaken by less than 50% of housewives at each income level.

Housewives satisfaction with their Decision-Making Power

In high and low income groups only 41.7% and 40.2% house wives were completely satisfied whereas in the middle income group 50.8% of housewives were completely satisfied with their decision making power. Though

Table 3. Housewives' knowledge about sources of nutrients.

Q = Which of the following is good source of….	Answers!	Low n=60 %	Middle n=60 %	High n=60 %
CALCIUM	Milk	**83**	**85**	**90**
	No Response	**0**	**2**	**0**
	Potato	**5**	**0**	**3**
	Tomato	**12**	**13**	**7**
IRON	Liver	37	38	52
	No Response	**3**	**2**	**0**
	Fish	**23**	**15**	**2**
	Apple	**37**	**46**	**47**
VITAMIN C Ä	Orange	88	98	97
	No Response	**2**	**2**	**0**
	Apple	**5**	**0**	**0**
	Banana	**5**	**0**	**3**
VITAMIN A	Milk	42	44	50
	No Response	**17**	**8**	**12**
	Rice	**20**	**20**	**25**
	Banana	**22**	**28**	**13**
VITAMIN B1	Wheat	52	66	72
	No Response	**42**	**12**	**15**
	Apple	**5**	**12**	**10**
	Banana	**2**	**12**	**3**
PROTEIN	Egg	83	90	90
	No Response	**7**	**2**	**0**
	Rice	**5**	**3**	**5**
	Soup	**5**	**5**	**5**
IODINE	Fish	87	93	93
	No Response	**7**	**2**	**2**
	Rice	**2**	**2**	**5**
	Orange	**5**	**3**	**0**
VITAMIN D	Fish oil	38	41	57
	No Response	**23**	**8**	**8**
	Spinach	**12**	**23**	**7**
	Oats	**27**	**28**	**28**
HARMFUL FATS	Ghee	**98**	**89**	**95**
	No Response	**0**	**3**	**2**
	Vegetable Oil	**0**	**3**	**2**
	Fish oil	**2**	**5**	**2**
CARBOHYDRATES	Banana	52	66	60
	No Response	**10**	**2**	**7**
	Spinach	**12**	**16**	**13**
	Grapefruit	**27**	**16**	**20**

!correct answer in bold and underlined

⊗ Chi.Sq. Test (between right and wrong answers); difference statistically significant at $P<0.05$ level

Table 4. Housewives views about control on health.

	Low	Middle	High
	%	%	%
I am in charge of my health			
Agree	92	93	95
Disagree	5		3
Not sure	3	7	2
If I keep healthy, I have just been lucky			
Agree	83	90	92
Disagree	10	8	3
Not sure	7	2	5
If I take care of myself, I'll stay healthy			
Agree	80	73	88
Disagree	8	8	
Not sure	12	18	12
Even if I look after myself , I can still fall ill			
Agree	57	57	55
Disagree	20	20	25
Not sure	23	23	20
Mean health locus of control score (max. possible = 4)	0.48	0.4	0.62

Though the housewives from middle income group appear to be more satisfied than the two other groups, the difference was not statistically significant.

Overall Nutrition Care Potential of Housewives

In order to have an overall estimate of housewives nutrition care potential, the scores on three components were ranked and sum of ranks was calculated to generate NCP score. The three groups differed in their NCP scores but the difference was statistically significant only between low and high-income group (P=0.015).

In order to explore association between education and components of nutrition care potential within each SES group the housewives were divided into two groups according to educational level. Those at or above the 50th percentile were labeled as 'more educated' and others as 'less educated'. Mean scores for Decision making power, and nutrition knowledge of the less and more educated groups within each income level were compared. DMP score of more educated group was higher than the less educated group at both low and middle income groups but the difference was statistically significant for middle income only (Figure 1). Nutrition knowledge score of more educated group was higher than the less educated group at all three income groups but the difference was statistically significant for low income only. Nutrition Care potential score also of more educated group was higher than the less educated group at all three income groups and again the difference was statistically significant for low income only (Figure 2). Within each income group working housewives appear to have higher nutrition care potential (Table 6). The pattern of differences though consistent was not statistically significant in most cases.

Discussion

The results of this study document socioeconomic difference in nutrition care potential. Though nutrition-care potential of housewives was not found to be commendable at any income level, the fact that it is low at lower income levels indicates that poor nutritional status at lower income level is not because of income only. Provision of balanced diet at low income levels is possible only when all the resources of the family are very carefully distributed among various items of expenditures and the food money is used judiciously to provide adequate diet to all family members. If we assume that the housewife has major responsibility for family's nutritional status, she must have ability and authority to exercise these controls. Reports of improvement in nutrition and health without escalation of income level are not non-existent.[17] Even in developed countries overall development is attributed to input in nutrition education and women empowerment.[18]

Table 5. Percentage of housewives who had a major role in making particular decisions at three income levels.

	Decisions	Income Level		
		Low	Middle	High
		n=60	n=60	n=60
		%	%	%
Decision directly effecting nutritional care				
1.	How much food should be given to various family members?	90	97	93
2.	How the food should be cooked? ⊗	83	95	78
3.	How the food should be served? ⊗	83	98	80
4.	What type of food should be bought?	45	52	57
5.	What type of food should be cooked in home?	63	80	68
6.	What type of fruits should be bought	18	23	28
7.	Who should cook the food? ⊗	73	92	78
8.	Who should get the best quality of food? ⊗	58	85	55
9.	Whether to eat out or not?	23	17	22
10.	Whether to eat the leftover food or not	72	80	75
Decision indirectly effecting nutritional care				
11.	How much money could be spent on servants?	67	68	63
12.	How much money should be spent on house?	30	27	33
13.	What type of clothes should be worn? ⊗	68	88	82
14.	What type of medical treatment should children get?	33	30	43
15.	Whether to go to a doctor or not?	35	30	47
16.	Whether to go for outings or not?	27	22	15
17.	Whether to arrange a function at home or not?	37	28	20
18.	Whether to buy news papers and magazines or not?	20	23	23
19.	Whether to go to any wedding or not?	43	38	32
20.	Which schools should children go to?	47	47	43
21.	What should you do with your spare time? ⊗	83	97	85

⊗ Inter-group difference significant at least at P<0.05 level (Chi .sq. test)

Figure 1. Association between Education and housewife's decision making power at three SES groups.

Figure 2. Association between Education and housewife's Nutrition Care Potential Score at three SES groups.

Table 6. Housewife's occupation and her nutrition care potential score.

SES	Occupation	Components on NCPS			Total
		DMPS[1]	NKS[2]	HLCS[3]	NCPS[4]
		Mean SD	Mean SD	Mean SD	Mean SD
L0W	Housewives	10.93	11.47	0.47	14.35
	n=43	4.24	3.98	1.12	5.47
	Working	11.18	12.24	0.53	15.76
	n=17	5.48	4.47	1.23	5.83
MIDDLE	Housewives	11.82 ⊗	13.49	0.39	16.35
	n=51	2.41	3.44	1.25	5.55
	Working	14.11	13.22	0.44	17.44
	N=9	4.57	3.60	1.01	5.70
HIGH	Housewives	11.38	13.77 ♣	0.62	17.00
	n=52	4.25	3.98	1.05	5.22
	Working	10.13	16.75	0.63	18.50
	n=8	4.32	2.96	0.92	5.71

[1]DMPS = Decision Making Power Score
[2]NKS = Nutrition Knowledge Score
[3]HLCS = Health Locus Of Control Score
[4]NCPS = Nutrition Care Potential Score
⊗ P=0.024 t-test
♣ P=0.038 t-test

The results of this study also indicate a need for updating and enrichment of school and medical colleges' curriculum in terms of nutrition education. As it is evident from the results that even at middle and high income where the education level was higher, the very basic facts of nutrition were not answered correctly by all. The reason could be that nutrition is not included in general science curriculum in enough detail. Further, as dietitians are hardly available to vast majority, family physicians are the main source of their nutritional guidance; and regrettably nutrition education is not imparted in medical colleges also in sufficient depth and nutrition knowledge of physicians themselves has been found to be insufficient.[19,20]

As nutrition education at graduate or post-graduate level also is very deficient, number of nutrition experts in the country is very low. Due to lack of accreditation of nutrition courses and any register of qualified nutritionists, it is currently an open field for anyone with vested interest in nutrition. Nutrition information disseminated through local mass media is also in most cases not very effective, as it is either provided by non-nutritionists or is poorly translated from foreign books and magazines.

Besides having insufficient knowledge, at all income levels there was lack of firm belief in self-control on health. In a previous study in which the same tool was used to assess HLC score of a group of rural and urban Pakistani children, the relative difference in income groups was similar but the mean scores for the rural, low income urban and affluent urban group were relatively higher (0.53, 0.79 and 0.1.28 respectively).[21] If the housewives do not believe in possibility of controlling health, no amount of knowledge or power would encourage them to modify dietary practices according to scientific knowledge. This trend needs to be ameliorated through formal and informal education. Practical experimentation and observation to appreciate the impact of nutrition rather than provision of theoretical information alone could be of greater help. Role of religious leaders could also be important in this regard.

The observation that within each income group the more educated ones had higher NCP indicates that at least some change could be expected by providing formal education opportunities to all. Compulsory school education could help women break the barriers to empowerment to some extent.

While the results of this study evidence socioeconomic differences and similarities in nutrition care potential of housewives, they also have implications for policy makers in relation to similar opportunities for education at various income levels, provision of nutrition education and contents of the curriculum. In conclusion, if all females have

all females have similar opportunities for good quality education, the effects of financial resources on family's health could be minimized.

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A total of 53 mothers with mean age and standard