# Nutritional Knowledge and Its Impact on the Children of the Working and Non-working Mothers

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## Introduction

Influence of nutritional knowledge of the mother on child's growth and development is an established fact(1-5). With the advanceement of modernization, industrialisation and the continuing onslaught of economic hardship, mother's participation in the job market is becoming necessity for a better life style (6,8). Mother's employment is considered incompatiable with child care(9). The present study was designed to compare working and non-working mother's nutritional knowledge on the growth of their pre-school children from the same socio-economic background.

## Materials and Methods

A total of 495 (243 working and 252 non-working) mothers from the upper socio-economic urban families of the Dhaka metropolis were interviewed. The upper middle class comprised of the families having a monthly income of more than Taka Four thousand(10). Mothers having at least one child between 2 and 5 years of age were selected for the study. Working mothers were those, who have job outside the home and spend a certain amount of the time in their work place regularly, leaving their children at the hands of others. Samples were selected from among the residents of Sobhanbag Staff Colony and the children attending at play group/nursery level from different city schools. The age selection of the children was purposive, because at 2 years of age weaning is completed and child starts taking his food from the family pot(11). Morever the physical care of the child by the mother is reduced substantially. The formal schooling also do not start before the age of 5 years.

A pre-coded questionnaire was prepared for the study. Information relating mother's profession, educational qualifications, monthly household income and nutritional knowledge were recorded.

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The actual age of the children were collected from the mothers,who usually maintain family birth records. The questions relating nutritional knowledge consisted of 2-parts : the first part was about general nutritional knowledge (8 items) and the second part on child nutrition (7 items).

The choices for each item was 'yes' and 'no'. The score was then given '1' for correct answer and '0' for wrong answer. Level of nutritional knowledge was assessed on the basis of total score into 'poor' (0-6), 'satisfactory' (7-12), and 'good' (over 12). Anthropometric measurements of weight and height were taken. Standing height was measured in erect position without shoes using 'Stanley Microtoise (04-116)'. Weight was taken using a bathromn scale with minimum clothings and without shoes. Accuracy was checked before each measuring session by comparing the scale reading with known weights. The WHO/NCHS reference[12-13] was used to convert anthropometric measurements into indicators of weight for age, height for age and weight for height. As the study was done among the upper socio-economic group of the urban population it was thought appropriate to examine the anthropometric measurements taking the median of WHO/NCHS reference as the 'cut-off' point. The weight and height for each child of his/her age in months were plotted in the separate charts for male and female to indentify the ranks of the children studied.

Data were analysed in the computer. Appropriate statistical tests were done where necessary.

## Results

Tables 1 and 2 describe the socio-economic characteristics of the mothers interviewed. Eightyfive percent of the working mothers were graduates and/or post graduates, whereas for non-working mothers it was 43%. Singificant difference ($P< 0.05$) was observed between the level of education and engagement in employment. Mothers engaged in outside jobs were highly educated. No significant difference in monthly income level between the two groups of population was observed.

Level of nutritional knowledge of the mothers studied is shown in Table 3 as total score attained. Mothers under study had 'satisfactory' level of knowledge. F-test showed no inter-group difference when knowledge was tested against income and educational level. but intra-group difference was noticed among the working mothers when knowledge was tested against income ($P< 0.05$).

**Table** : Percentage distribution of mothers by their educational qualifications.

| Educational level / Classification of Mothers | S. S. C. | H. S. C. | Graduate | Post graduate |
|---|---|---|---|---|
| Working mothers | 05 | 10 | 30 | 55 |
| Non-working mothers | 26 | 31 | 23 | 20 |

**Table : 2** Prcentage distribution of sample according to income level.

| Income level (Tk. per month) | Working mother | Non-working mother |
|---|---|---|
| 4,000—5,999 | 12 | 02 |
| 5,000—7,999 | 16 | 17 |
| 8,000 and above | 72 | 81 |

**Table 3 :** Level of nutritional knowledge score of the mother studied.

| Mother's Status | Total Score X ± SE | General Nutritional knowledge score X ± SE | Score of nutritional knowledge for infants and young children. |
|---|---|---|---|
| Working | 11.84 ± 1.09 | 5.74 ± 1.35 | 6.10 ± 0.3 |
| Non-working | 11.68 ± 1.80 | 5.56 ± 100 | 6.12 ± 0.80 |

**Table 4** Mean weight for age and SEM values of the subjects compared with WHO/NCHS reference data.

| Age group (in months) | Mothers Status | Male | | | Female | | |
|---|---|---|---|---|---|---|---|
| | | Obs. weight (kg) | Ref. wt. (kg) | Percent of Ref.. | Obs. wt. (kg) | Ref. wt. (kg) | Percent-age of Reference |
| | Working | 14.3 ±1.8 | | 105.0 (+0.38)* | 11.5 ±1.3 | | 87.8 (—1.23)* |
| 25—36 | | | 13.6 | | | 13.1 | |
| | Non-working | 10.0 ±1.0 | | 73.5 (—2.4)* | 12.0 ±1.0 | | 91.6 (—0.78)* |
| | Working | 15.8 ± 2.9 | | 100.0 (0)* | 16.2 ±2.3 | | 107.3 (+0.29)* |
| 37—48 | | | 15.8 | | | 15.1 | |
| | Non-Working | 16.6 ±1.7 | | 105.0 (+0.47)* | 15.6 ±2.7 | | 103.3 (0+0.29)* |
| | Working | 18.5 ±3.1 | | 109.5 (0.8)* | 18.7 ±2.3 | | 110.7 (+0.9)* |
| 49-60 | | | 16.9 | | | 16.9 | |
| | Non-Working | 17.8 ±2.5 | | 105.3 (+0.47)* | 17.4 ±2.3 | | 103.0 (+0.26)* |

Figures in parentheses are SD-Scores

**Table : 5** Mean height for age and SEM values of the subjects compared with WHO/NCHS reference data.

| Age group (in months) | Mothers Status | Male | | | Female | | |
|---|---|---|---|---|---|---|---|
| | | Obs. weight (kg) | Ref. wt. (kg) | Percent of Ref.. | Obs. wt. (kg) | Ref. wt. (kg) | Percent-age of Reference |
| | Working | 92.0 ±8.1 | | 101.3 (+1.5)* | 86.0 ± 4.6 | | 95.8 (—1.0)* |
| 25-36 | | | 90.8 | | | 89.8 | |
| | Non-Working | 87.0 ±1.0 | | 95.8 (—0.8)* | 87.8 ± 2.4 | | 97.8 (—0.58)* |
| | Working | 99.9 ± 6.8 | | 100.6 (+0.15)* | 99.9 ± 6.9 | | 101.7 (0.42)* |
| 37-48 | | | 99.3 | | | 98.2 | |
| | Non-Working | 107.9 ±8.2 | | 108.1 (+1.9)* | 105.1 ±7.1 | | 107.0 (+1.81)* |
| | Working | 109.4 ±8.9 | | 102.4 (+0.60)* | 110.2 + 6.1 | | 104.7 (+1.13)* |
| 49—60 | | | 106.8 | | | 105.3 | |
| | Non-Working | 108.9 ±6.7 | | 101.9 (+ 0.47)* | 111.4 ±6.6 | | 105.8 (+1.41)* |

*Figures in parentheses are SD-Scores.

**Table : 6** Mean weight for height and SEM values of the subjects compared with WHO/NCHS reference data.

| Age group (in months) | Mothers Status | Male | | | | Female | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Obs. ht. (cm) | Obs. wt. (kg) | Ref. wt.for ht. | Percentage of Reference | Obs. ht. (cm) | Obs. wt. (kg) | Ref. wt.for ht. | Percentage of Reference |
| 25-36 | Working | 92.0 | 14.3 | 13.2 | 108.3 (+0.78)* | 86.0 | 11.5 | 11.9 | 96.6 (—0.3)* |
| | Non-Working | 87.0 | 10.0 | 12.1 | 99.0 (-1.75)* | 87.8 | 12.0 | 12.4 | 96.8 (—0.3)* |
| 37-48 | Working | 99.9 | 15.8 | 15.3 | 103.3 (+0.31)* | 99.9 | 16.2 | 15.3 | 105.9 (0.52)* |
| | Non-Working | 107.3 | 16.6 | 17.5 | 94.9 ( 0.40)* | 105.1 | 15.6 | 16.9 | 92.3 (-0.68)* |
| 49—60 | Working | 109.4 | 18.5 | 18.1 | 102.2 (+0.23)* | 110.9 | 18.7 | 18.8 | 99.5 (-0.05)* |
| | Non-Working | 108.9 | 17.8 | 18.1 | 98.3 (-0.12)* | 111.4 ±6.6 | 17.4 | 18.8 | 92.6 (+0.45)* |

*Figures in parentheses are SD-Scores.

The anthropometric data of the children examined are shown in Tables 4 through 6 as 'group mean'. All data were transformed into Z-scores and were examined against the median of the reference as percentage and SD-score. The average height and weights of the children were on or above the median of the NCHS chart. No significant difference was seen between the two groups (working vs. non-working).

Mention needs to be made that growth faltering was noticed among the female children of the working mothers and the male children of the non-working mothers of the 25-36 months age group ($P< 0.05$). Inter-group differences among these children were well marked ($P< 0.05$). Chi-square test showed significant difference ($P< 0.05$) between the height-weight status of the children and the educational level of the mothers among the working group. But no such difference was observed among the non-working mothers.

## Discussion

The main purpose of this study was to compare the level of nutritional knowledge between two groups of mother (working and non-working) and to co-relate its impact on the growth of their pre-school children. No significant difference of nutritional knowledge was observed between the study populations. Mother's knowledge on child feeding was in general 'satisfactory' and their actual practice was seen reflected on the growth of their children. Usually, the higher educated mothers spend more time on child care[14,15]. All children (both group), excepting 25-36 months age group, approximated the WHO/NCHS standard when they were distributed against weight for age, height for age and weight for height standard. Anthropometric findings confirm the observation made by Habicht et al [16]. Growth faltering (mild type) observed among the lower age group of both the population probably due to statistical error in sampling. Inter-group difference in growth status was observed ($P< 0.05$). Children of the working mothers were seen better anthropometrically. Influence of knowledge was not so strong in differentiating the growth status of the children between the two groups. Rather, the 'caring' influenced more than the nutritional knowledge or time constraints. Working mothers, though time pressed, are usually seen spending a specified amount of time for child

care, leaving their leisure time aside [17]. Negative association between nutritional knowledge of the mothers and the growth of the children among these group of population certainly suggest that it is the 'caring pattern' that played a definite factor for the better growth status among the working group.

## Summary

Nutritional knowledge of 495 mothers (243 working and 252 non-working) of the upper middle income urban population were evaluated with the growth status of their pre-school children. Mother's knowledge on child feeding was found 'satisfactory'. Total scores attained by the study population showed no significant difference. Children of the working mothers were anthropometrically better placed. 'Caring pattern rather the level of nutritional knowledge was considered more important for the better child nutritional status.

## References

1. Kricas, B. A., D. H. Hendricks, and B. W. Wyse, Parent involvement in a nutrition education program for primary grade students. Journal of Nutrition Education, 14 :137-40 (1982).

2. Axelson, M. L., T. L. Federline, and D. Brinberg, A analysis of Food and nutrition-related research. Journal of Nutrition Education, 17:51-54 (1985).

3. Harill, I. C. Smith, and J. A. Gangever, Food acceptance and nutrition intake of pre-school children. Journal of Nutrition Education 4: 103-5, (1972).

4. Yetley, E.A., and C. E. Vaughan. The relationship of family structure and interaction to nutrition. Journal of American Dietetic Association, 74 : 23-27, (1979).

5. Eppright, E. S., H. M. Fox, B. A. Freyer, G. H. Lamkin and V. M. Vivian. The North Central regional study of diets of pre-school children. Pt.2. Nutrition knowledge and attitudes of mothers. Journal of Home Economics 62 : 327-32, (1970).

6. Mahmuda Islam, Women at work in Bangladesh : A sample survey on working women. Women for Women, Bangladesh. University Press. Dhaka. (1979).

7. Rafiqul H. Choudhury, Social aspects of fertility with special reference to developing countries. Vikash Publishing House, Pvt. Ltd., New Delhi, (1982).

8. A. F. A. Husain, Employment of middle class Muslim women-in Dhaka. Dhaka University, Socio-economic Research Borad, (1958).

9. Rafiqul H. Chaudhury, The effect of mother's work on childcare, dietary intake and dietary adequacy of pre-school children. The Bangladesh Development Studies, 10(4), 33-61, (1982).

10. Statistical Year Book of Bangladesh. Bangladesh Bureau of Statistics, (1991).

11. Waterlow, J. C. : Current issues in nutritional assesment by anthropology. In, Josef Brozek and Beat Schurch ed. Malnutrition and Behaviour : Critical assesment of key issues, Nestle Foundation Publication Series, Lausanne, (1984).

12. Waterlow, J. C. et al. The presentation and use of height and weight data for comparing the nutritional status of groups of children under the age of 10 years. Bulletin of the World Health Organization, 55: 489—498, (1977).

13. United States Public Health Service, Health Resources Administration. NCHS Growth Charts. Rockville. MD. (1976).

14. Pratima P. Majumder, Women, Work and Home. BIDS Research Report No. 49, (1986).

15. Manning Sarah L. Time use in household tasks in Indian families. In F. Thomas Juster ed. Education, Income and Human behaviour, Mc Graw & Hills Book Company (1968).

16. Habicht, J. P. et al. Height and weight standard of pre-school children : Are there really ethnic difference in growth potential? Lancet; 611-615. (1974).

17. Pratima P. Majumder. Incompatibility of child care with women's participation in the job market : The case of Urban Bangladesh. Bangladesh Institute of Development Studies Research Report No. 79, (1988).