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Nutritional Assessment of Working and Non-Working Mothers: A Pilot Study

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Abstract:
Objective: To compare the nutritional status of working and non-working mothers of preschool children (3-5yrs).
Methodology: Body composition data and information on dietary intake (3-day food recall) of 30 working and 30 non-working mothers of pre-school children was obtained.
Results: According to BMI, 76.7% of the non-working mothers were obese as compared to 50% of the working mothers. Mean body fat of non-working mothers was 31.9% while that of working mothers was 29.25%. No significant differences in the BMI, body fat percentage, total body water and BMR were observed among the non-working and working mothers. Macronutrient composition of the working and non-working mothers did not differ significantly ($p>0.05$).However, higher caloric and dietary fat intake was observed among the working mothers. Skipping breakfast was a common habit among the working mothers. Also frequency of consumption of fast-foods with higher caloric and fat content was significantly more among the working mothers as compared to non-working mothers($p<0.05$). It was observed that time allocated by the mothers for child-care and household activities was significantly different for both the groups indicating lesser time spent with the child for the working mothers.
Conclusion: In spite of slight differences in the body composition of the working and non-working mothers, body fat percentage correlated well with the higher energy and dietary fat intake among the working mothers. Also the eating patterns and insufficient time observed among the working mothers may have an effect on their own nutrition as well as on the nutritional status of their children. With the increasing demands of maternal employment, there can be a rising difficulty for the mothers to manage their role as care-givers and as income providers, implicating a risk on their nutritional status.

1. Introduction

With increased opportunities for employment for women and the need to supplement household income; more and more women are entering the job market. With the breaking up of joint family system and the increased phenomenon of nuclear families, working women need support; in terms of quality and care; for their young children while they are at work.

Preschool children constitute the most vulnerable segment of any community. Their nutritional status is a sensitive indicator of community health and nutrition. Children in preschool stage require most attention, as this is the period of rapid growth and development which makes them highly vulnerable to malnutrition. During preschool period, child is mostly dependent on the mother for all her nutritional needs. Hence, the mother being the major care provider for the child during preschool period, her status in the family may have bearing on nutritional status of her child [1].

Women play multiple roles in the family that affect the health and well-being of all family members. The role of women as care-givers and as providers of family income may conflict with one another; which may have potentially important implications for the welfare of children. The employment status of the mother can have a significant impact on the health and nutritional status of the mother, which in turn can have an implication on the pre-school child.

A study was undertaken to assess the impact of women's work on their health and nutritional status in Ghana. For food intake and nutrition, it was observed that 70% of the women had only two meals in a day. The diets of rural residents were low in almost all the nutrients calculated, whereas that of the urban residents was slightly deficient in protein, energy, iron and calcium. Using BMI as a measure of nutritional status, 31% of the women were found to be at nutritional risk [2].

The modern Indian woman is subjected to excessive stress at home and work. Overworking, under-resting and a higher level of frustration at work bring about greater aggression in quality of life. A study was conducted in Tamil Nadu among the women of working and non-working sector to assess the risk of cardiovascular cardiovascular diseases using a formulated risk assessment index (RAI). From the scores calculated, it was found that 18% of working women and 27% of non–working women were in high risk for cardiovascular diseases. 75% of working women and 65% of non– working women had moderate risk for cardiovascular diseases. Only 6% and 13% of working women and non-working women were with low risk for cardiovascular diseases. [3].

Another study analysed the clinical and haematological profile of urban working women after imparting nutrition counselling. It was observed that iron deficiency anaemia was highly prevalent in both the experimental (E) and control (C) groups, but the condition improved in group E as the subject started taking whole grain cereals, pulses, and green leafy vegetables.It was seen that in spite of good purchasing power, the diet of the working women was not balanced due to ignorance, strenuous pressure of work or activity both at home and at work place, coupled with lack of time [4].

The impact of women's participation in economic activity on nutrition status of the mother and her preschool-age children was examined among rural women. Malnutrition was widespread in both the mothers and the children. The time saved by house wives not engaged in economic activity was not adequately reflected in time devoted to child care. Working mothers and their children tended to show higher prevalence of signs of B-complex deficiency than housewives and their children [5].

A study examined the relationship between maternal employment and time spent with children among working women in urban and rural areas. It was noted that working women invested about two hours less on childcare activities than non-working women. Similarly, working women spent 2.5 hours in urban areas and 1.1 hours in rural areas less on leisure time activities as compared to non-working women [6].

Another study examined the effect of mother surrogate on the nutritional status of pre-school children. The nutritional status of children was found to be affected by the time devoted by mother on child care activities, working status of mother and type of family independently and jointly. The children cared by mother had better nutritional status than those children who were cared by servants and any other family member [7]. Mittal et al[8] observed that mother's education was inversely related to the prevalence of stunting in an urban slum population. Further, it was observed that mother's employment had adverse effects on the child's growth. 58.9% of the children of employed mothers were stunted as compared to prevalence of 44.8 where mother was a house wife.

There are few studies with regard to the impact of maternal work on the nutritional status of the mother herself which would in turn have an influence on the time spent for child care activities as well as nutrition of child. Most of these studies have been performed in rural setting or among low socio economic class. With urbanization and increased women employment, it would be interesting to gather information on the nutritional status and health of the women themselves, as their well-being would play an important role in child care and influence the nutritional status of their children.

Thus, the purpose of the proposed study is to assess the nutritional status of the working and non-working mothers of pre-school children.

2. Aims & Objectives

- To assess the nutritional status of the working and non-working mothers of preschool children (3-5yrs).
- To compare the nutritional status of working and non-working mothers of preschool children (3-5yrs).
- To observe the time allocated by the working and non-working mothers towards childcare.

3. Methodology

3.1. Sample Selection

Working and non-working mothers of preschool children were selected from various kindergarten and pre-schools in Mumbai.

3.2. Sampling Technique

Convenience Sampling.

3.3. Sample Size

Thirty working and thirty non-working mothers of preschool children.

3.4. Inclusion and Exclusion Criteria

The inclusion and exclusion criteria for the proposed study as stated below:

3.4.1. Inclusion Criteria

- Only working and non-working mothers of preschool children (3-5yrs).
- Working women may be working either full time or part time. Women should be engaged in work for at least 4 hours per day.
- Working women should be working from at least past 6 months.

3.4.2. Exclusion Criteria

- Pregnant and lactating mothers.
- Women belonging to joint family system.

4. Data Collection

Data was collected using a structured questionnaire after obtaining a written consent from the mothers. An in-depth interview was taken to collect the following information.

4.1. General Information

It included the Socio-economic status, maternal education and medical history, working status: type of work, duration / hours of work, family structure, mothers time allocation of various activities: household, child care, cooking, occupation, leisure, etc.

4.2. Anthropometric Measurements

Height, weight, body composition analysis (body fat percentage, total body water, basal metabolic rate) using Tanita Inner Scan – body composition monitor.

4.3. Nutritional Assessment (Dietary Recall)

A 3-day recall (two weekdays and one weekend) was taken.It included questions pertaining to the quantity and frequency of various foods consumed throughout the dayThe food recall was analysed to obtain daily caloric and nutrient intake consumption. The actual caloric and nutrient intake was then calculated from the food composition tables.

5. Results & Discussion

The results of the study involved assessing and comparing the nutritional status of working & non-working mothers using body composition analysis, dietary intake analysis and assessing the dietary patterns.

5.1. Body Composition Analysis

5.1.1. Body Mass Index

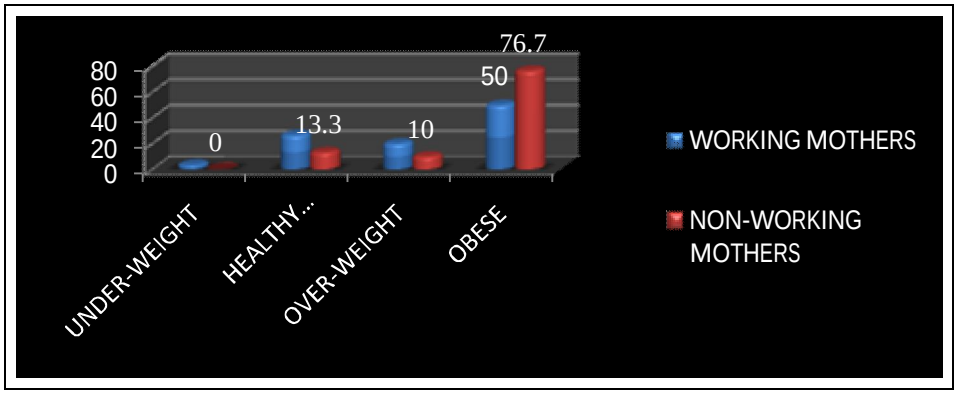

Figure 1: Body Mass Index of working and non-working mothers

76.7% of the non-working mothers were obese as compared to 50% obese working mothers. Mean BMI of working mothers was 25.49kg/m^2 while that of non-working mothers was 27.45kg/m^2. However, there is no statistically significant difference in the BMI of working and non-working mothers ($p>0.05$). Similar findings were observed in a study conducted to assess the risk for cardiovascular diseases among young women in Coimbatore, Tamil Nadu, which showed that the Body Mass Index of 25 % of working women and 21% of non–working women were graded as Grade I obese and 6% working women and 3% of non–working women were Grade II obese [3].

5.1.2. Body Fat Percentage

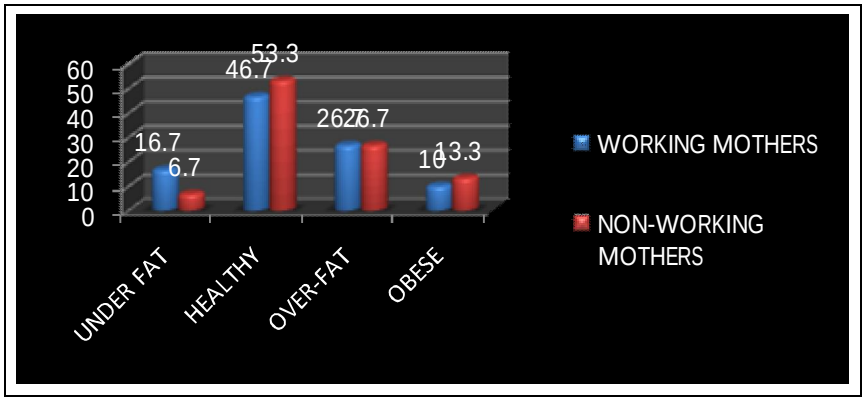

Figure 2: Body fat percentage of working and non-working mothers

According to body fat percentage, 26.7 % of both the working and non-working mothers were over-fat while 10% of working and 13.3% of non-working mothers were obese. Mean body fat of working mothers was 29.25% while that of non-working mothers was 31.9%, which does not differ significantly ($p>0.05$). The body fat % of Caucasian adult women ranged between 11.6% - 53.7% with the mean values of 28.7% [9].
It was further observed that there was a significant correlation between body fat percentage and energy intake ($p<0.05$, $r=0.44$) as well as between body fat percentage and dietary fat intake($p<0.05$,$r=0.38$) among the working mothers.

5.1.3. Total Body Water
72.1% of all the mothers had a healthy total body water range of 45- 60%.
Mean total body water of working mothers was 49.3% while that of non-working mothers was 47.9%, which does not differ significantly($p>0.05$).

5.1.4. Basal Metabolic Rate (BMR)
Mean BMR of working mothers was 1303.6 kcal while that of non-working mothers was 1346.2 kcal, which does not differ significantly ($p>0.05$).

5.2. Dietary Patterns

5.2.1. Type of diet

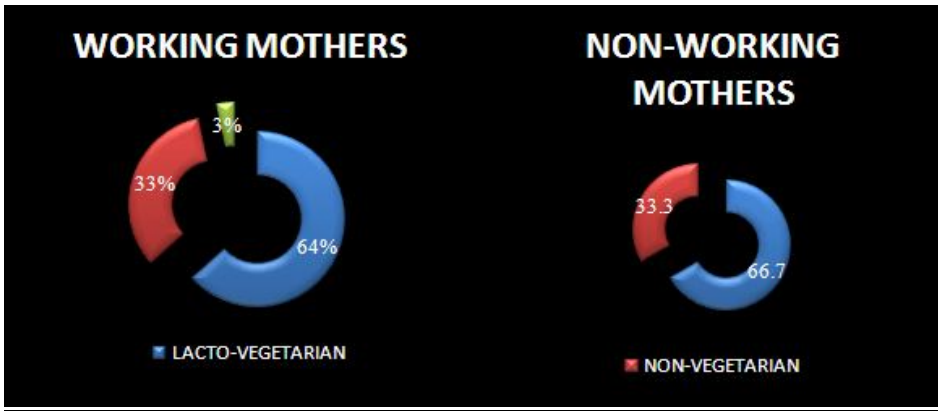

Figure 3: Type of diet followed among working and non-working mothers

The type of diet did not differ among both the groups. Majority of both the working and non-working mothers were lacto-vegetarian.

5.2.2. Frequency of Skipping Breakfast

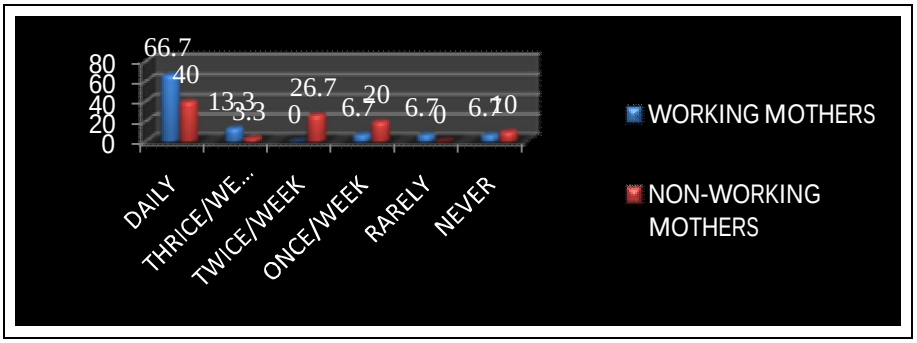

Figure 4: Frequency of skipping breakfast among working and non-working mothers

66.7% of the working mothers skipped breakfast daily as compared to 40% of the non-working mothers who did not consume breakfast daily. There is a statistically significant difference in the consumption of breakfast between the working and non-working mothers ($p<0.05$).

5.2.3. Frequency of Consumption of Foods at Fast-Food Outlets

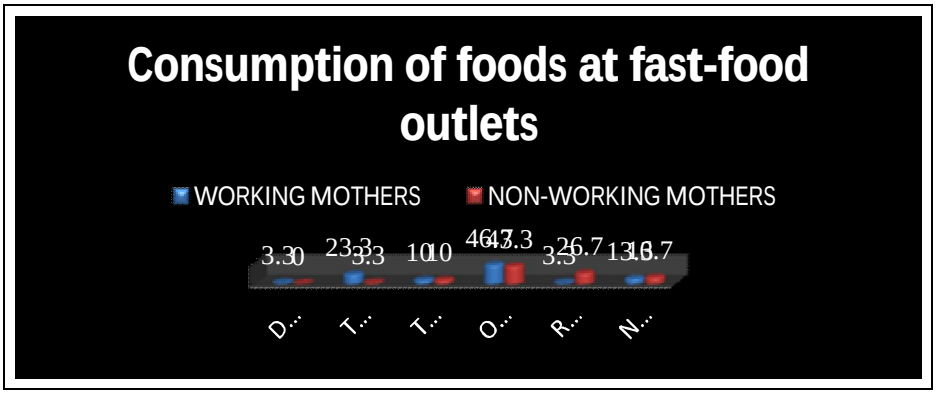

Figure 5: Frequency of consumption of fast foods among working and non-working mothers

Majority of the working and non-working mothers ate at fast food outlets once a week, but a considerable 23.3% of working mothers consumed thrice a week. There is a statistically significant difference in the consumption of foods at fast-food outlets between the working and non-working mothers ($p<0.05$).
Also among the working mothers, 73.3% of them carried a packed meal to work.

5.3. Time Allocation by Mothers

MOTHERS	Household Activities (mean in hours)	Childcare (mean in hours)	Personal Activities (mean in hours)
WORKING	3.67±1.32	2.63±1.33	10.53±1.95
NON-WORKING	6.10±1.66	3.98±1.58	13.85±1.98

Table 1: Time allocation by working and non-working mother

There is a statistically significant difference in the time allocated by the working and non-working mothers for household & personal activities as well as time spent for childcare ($p<0.01$). The mean time spent for child care by working mothers was 2.63 hours which was less than 3.98 hours by non-working mothers. A comparative study on nutritional status of the pre-school children of employed and unemployed mothers reported that among the unemployed mothers,10.3% spent one hour a day with their child, 61.7% spent two hours a day and 26.3% spent three hours a day with their children. Among the employed mothers, 83.3% spent only one hour a day with their children. The proportion of the working mothers who spent more than one hour a day with their children was seen to be significantly less as compared to that among the unemployed mothers [10]. It was observed that the average amount of time spent decreases when the number of work-related activities of women increases [11].

5.4. Dietary Intake Analysis

5.4.1. Macro-Nutrient and Caloric Intake

	Mean Energy intake (kcal)	Mean carbohydrate intake (grams)	Mean protein intake (grams)	Mean fat intake (grams)
Working mothers	1760.2± 327.1	220±37.5	39.3± 9	76.4±19.2
Non-working mothers	1605.1±268.3	208.9±40	37.8±12.8	66.6±16.9

Table 2: Mean Macronutrient and energy intake of working and non-working mothers

There is a significant difference in the energy intake between working and non-working mothers ($p<0.05$). Mean energy intake of working mothers is higher than that of the non-working mothers. However, energy intake of both the groups is lower than the recommended dietary allowances. Lower Energy intake of women has been reported in most of the studies [12, 13].
There is a significant difference in the dietary fat intake between working and non-working mothers ($p<0.05$).
Higher fat and lower energy intake among the working mothers as compared to non-working mothers can be attributed to higher frequency of consumption of fast food items (which tend to high in fat and calories) observed among the working mothers tend to high in fat and calories.

5.4.2. Macro-Nutrient Composition

	Mean % of carbohydrates in the diet	Mean % of proteins in the diet	Mean % of fats in the diet
Working mothers	50.5±5.5	9±1.5	38.5±4.8
Non-working mothers	52.1±5.8	9.4±2.3	37.2±6.2

Table 3: Mean Macronutrient composition of working and non-working mothers

There is no significant difference in the macronutrient composition between the working and non-working mothers ($p>0.05$). The contribution of protein to total energy intake was lesser while fat was above the suggested values of 10% - 15% for protein and 15% - 30% for fat. Similar macro nutrient composition was reported in a study which assessed the body composition and dietary intake of women [13]. Higher fat intake and lower protein intake was observed among women working in a sedentary job[12]. Data from National Nutrition Monitoring Bureau (NNMB) suggests that the Energy intake is lower in urban areas in spite of higher intake of fats and oils because of lower cereal intake and furthermore, the intake of all nutrients is lower in urban slums as compared to rural areas. http://wcd.nic.in/research/nti1947/7.2%20dietary%20intakes%20pr%204.2.pdf

6. Conclusion

The concept of "women as women", responsible for their own health and welfare, needs to be advertised within nutrition programmes. The concept of improving women's nutrition for their own sakes, rather than just as mothers, needs to be fostered. There is little doubt that a woman whose basic nutritional and health needs are met will be in a better position to meet the needs of her family.

7. References

1. Pandey A (2007). Mother's status in the family and nutritional status of their under five children. Regional Leprosy Training and Research Institute, Lalpur, Raipur. www.isical.ac.in/~wemp/Papers/PaperAparnaPandey.doc
2. Nti C, Inkumsah D, Fleischer G (1999). Influence of women's workload on their nutritional status in selected communities in Ghana.Journal of Consumer Studies & Home Economic, 23(3), 165–170. http://onlinelibrary.wiley.com/doi/10.1046/j.1365-2737.1999.00106.x/abstract
3. Thilagamani S and Mageshwari U (2010).Risk appraisal for cardiovascular disease among selected young adult women in Coimbatore,India.Indian Journal of Science and Technology,3(6),672-675. http://www.indjst.org/index.php/indjst/article/viewFile/29780/25751
4. Monga S, Sachdeva R, Kochhar A and Banga K(2008).Efficacy of Nutrition Counselling on the Knowledge, Attitude and Practices of Working Women.Stud Home CommSci, 2(2),99-102. http://www.krepublishers.com/02-Journals/S-HCS/HCS-02-0-000-08-Web/HCS-02-2-087-08-Abst-Text/HCS-02-2-099-08-066-Monga-S/HCS-02-2-099-08-066-Monga-S-Tt.pdf
5. Bamji M and Thimayamma B (2000). Impact of women's work on maternal and child nutrition. Ecology of Food and Nutrition, 39(1), 13-31. http://www.tandfonline.com/doi/abs/10.1080/03670244.2000.9991602
6. Muthuswamy S (2006). Are Working Mothers in India Investing Less Time in the Next Generation? .Paper presented at the Population Association of America (PAA) 2006 Annual Meeting held at Westin Bonaventure Hotel, Los Angeles, California, USA between March 30- April 1, 2006.http://paa2006.princeton.edu/download.aspx?submissionId=60451

7. Jain S, Choudhry M (1993). Mother surrogate and nutritional status of preschool children, Indian 60(3), 429-33. http://www.ncbi.nlm.nih.gov/pubmed/8253493
8. Mittal A, Singh J, Ahluwalia S (2007). Effect of maternal factors on nutritional status of 1-5 year old children in urban slum population.Indian journal of community medicine, 32(4), 264-267. http://www.ijcm.org.in/article.asp?issn=09700218;year=2007;volume=32;issue=4;spage=264;epage=267;aulast=Mittal
9. Schutz Y, Kyle U & Pichard C (2002).Fat-Free Mass Index and Fat Mass Index Percentils in Caucasians Aged 18-98 y. International Journal of Obesity, 26, 953–960. http://www.nature.com/ijo/journal/v26/n7/pdf/0802037a.pdf
10. Yeleswarapu B and Nallapu S (2012).A Comparative Study of Nutritional Status of Pre-School Children. Journal of Clinical and Diagnostic Research, 6(10), 1718-1721. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3552212/
11. Thampi B (2007).Economic Roles of Women and its Impact on Child Health and Care: A Study in Kerala. Population Research Center, Institute for Social and Economic http://www.isec.ac.in/Theses%20new/Economic_roles_of_women_and_its_impact_on_child_health_and_care.pdf
12. Jain H and Singh N (2003). A Study on Nutritional Status of Women in the Age Group of 25-50 Years Working in a Sedentary Job in Jaipur City. Indian Journal of Nutrition and Dietetics, 40(3), 91-98.
13. Kaur G, Bains K, Kaur H (2012). Body Composition, Dietary Intake and Physical Activity Level of Sedentary Adult Indian Women. Food and Nutrition Sciences, 3, 1577-1585. http://www.scirp.org/journal/PaperInformation.aspx?paperID=24607