

Comparative Study of Nutrition and Health of Domestic and Working Women (Bhopal)

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Abstract

Measurement of nutritional status is always vital and thought to be primary step to formulate development strategy. Reproductive aged ethnic women are important group to study because of their distinct features. An observational cross-sectional study was carried out at northern part of Bangladesh to assess nutritional status of reproductive aged Santal women with a sample size 200. with the semi-structured questionnaire. Convenient sampling technique was used to collect data on the basis of inclusion and exclusion criteria and written consent was taken prior to interview. Nutritional status was determined according to BMI cut off value for Asian population. Descriptive as well as inferential statistics were used to present data. Mean \pm SD age of respondents was 34.27 \pm 8.60. More than half (67%) of the respondents were illiterate and housewife (84%). Mean \pm SD income of respondents was 5700.71 \pm 282.89 per month. Underweight, normal and overweight were 67%, 30% and 3% respectively.

1. INTRODUCTION

The major challenge facing third-world women today is to overcome the resource constraints that consign them to low levels of productivity and well-being. While women's role in the food chain is essential to produce that all-important resource, food, it paradoxically does not guarantee women even minimum levels of nutrition. Malnutrition adversely affects women's participation in the economic system and their productivity. To break this vicious downward spiral, it is important to focus simultaneously on women's

nutrition-related roles and their nutritional status.

Nutritional stress on women is the outcome of low dietary intake on account of economic and social backwardness, and their high energy output for work and child-bearing. That third-world women work more than men when economic and domestic labour are combined seems now to be widely accepted. Their reproductive responsibility is inescapable. Among the consequences of this triple burden of market production, home production, and reproduction are high levels of protein-energy malnutrition and anaemia among women.



These nutritional problems have received attention in the context of pregnancy and lactation. The consequences of inadequate body reserves, deficient dietary intakes, and the resultant low pregnancy weight gains for birth outcomes, birth weights, and infant survival are established. Maternal depletion on account of high fertility among third-world women has been well recognized, and the consequent high maternal mortality rates of less-developed countries are the subject of great concern. However, less attention has been accorded to these same nutritional problems in the context of women's general

wellbeing and their participation in economic and social development. The papers in this issue of the Food and Nutrition Bulletin focus attention on this critical area.

2. Importance of Women Health

Better nutrition means stronger immune systems, fewer incidences of illness and better health.

- The nutritional status of women is important both for the quality of their own lives and the survival and healthy development of their children.
- healthy women can fulfill their multiple roles — generating income, ensuring their families' nutrition, and having healthy children — more effectively and thereby help advance countries' socioeconomic development.
- Improving women's nutrition can also help nations achieve three of the Millennium Development Goals, which are commonly accepted as a framework for measuring development progress

Factors affecting Nutritional status of a woman

- Household income and its utilization
- Quality of the environment
- Number of siblings
- Vulnerability to gender discrimination
- Educational level
- Her activity status & exposure to social stimulation
- Decision making power at the household, etc.

3. NUTRITIONAL NEEDS DO WOMEN

Women have some unique nutritional needs, including needing more of certain vitamins

and minerals during pregnancy or after menopause.

Calories. Most times, women need fewer calories. That's because women naturally have less muscle, more body fat, and are usually smaller. On average, adult women need between 1,600 and 2,400 calories a day. Women who are more physically active may need more calories. Find out how many calories you need each day, based on your age, height, weight, and activity level.

Vitamins and minerals. Calcium, iron, and folic acid are particularly important for women.

Reproductive health. Women have different nutritional needs during different stages of life, such as during pregnancy and breastfeeding or after menopause.



Health problems. Women are more likely to have some health problems related to nutrition, such as celiac disease and lactose intolerance, and vitamin and mineral deficiencies, such as iron-deficiency anemia.

Metabolism. Women process some substances differently and burn fewer calories at rest and during exercise than men do.

4. Literature Review

Faroque Md Mohsin et al Reproductive health is closely related with nutritional status of a country. The biologic and socio-economic differences between women and men sometimes place women at higher risk for malnutrition and mortality. In some countries, girls are treated differently in terms of access to health care, food, and education.¹ Nutritional problems are different between developed and developing countries.

Bangladesh is placed in the bottom 25% of the Global Hunger Index ranking, indicating that the country is expected to face a huge risk in the context of food price-hike.² The social roles of women generally include major responsibility within the household of care for the other members, involving household management, food preparation, cleaning duties, obtaining health care, education and supervision of children. In addition to this family role, they frequently have kin and community roles and finally[1]

K. Mallikharjuna Rao, et al The health of women is linked to their status in the society. The demographic consequence of the women has formed expression in various forms, such as female infanticide, higher death rate, lower sex ratio, low literacy level and lower level of employment of women in the non-agricultural sector as compared to men. Generally, at household level, cultural norms and practices and socio-economic factors determine the extent of nutritional status among women. National Nutrition Monitoring Bureau has been carrying out regular surveys on diet and nutritional status of different population groups since 1972. For the purpose of present investigation, the data collected during 1998-99 and 2005-06 on diet and nutritional status of tribal and rural population respectively in nine States of India was utilized. The intake of all the foods except for other vegetables and roots and tubers was lower than the suggested level among rural as well as tribal women.[2]

Julita Regula et al High-protein diets are often used as a quick and easy way to achieve weight loss in those who are overweight or obese. People using for a long time this type of diet are not aware that it can cause serious health problems, therefore it is very important to monitor the effects of long-term use of high-protein diets. The aim of this study was to evaluate the high-protein diet (Dukan Diet) and after its completion, as well as to assess the nutritional status of women on the basis of biochemical parameters of blood: morphology, blood sugar,

lipid profile and hepatic profile, in order to determine the health consequences of the high-protein diet[3].

SUSAN P. WALKER et al The topic of nutrition of women in developing countries has largely been equivalent to maternal nutrition with emphasis on the effect of the mother's nutritional status on birth weight and lactational performance. Little attention has been paid to the well-being of the mother and the effects of nutrition on her performance in social and economic activities. In the present review I will limit discussion of maternal nutrition to its relationship with the nutritional status of the mother as opposed to the child, and will focus on other aspects of women's nutrition. Issues related to reproduction are the topic of another review in the present symposium [4].

Nutritional status is an indication of the overall well being of a population. Adequate nutritional status of women is important for good health and increased work capacity of women themselves as well as for the health of their offspring. Poor nutrition is indicative of greater health risk to both mother and children born to them. The health risk it could pose for women necessitates continuous monitoring of their nutritional status and dietary intake especially in poor resource countries like Nepal. The current literatures provide limited information regarding dietary intake pattern and nutritional status in Nepal. The objective of this study was, therefore, to assess the dietary intake pattern and nutritional status of women of reproductive age and associated factors in Nepal. In other words, the study intends to measure diversity in dietary behavior with regard to important and commonly consumed foods groups and nutritional status of women but not how much food do individuals consume or the average calorie intake.[5].

Francesco Branca et al Every year the lives of around 50 million children are put at risk because they are dangerously thin from acute undernutrition, while the long term health of more than 40 million children is threatened because they are overweight. Two billion people suffer from vitamin and mineral deficiencies, but overweight and obesity are

key contributors to the non-communicable diseases that account for almost two thirds (63%) of adult deaths globally. These different forms of malnutrition undernutrition, overweight and obesity, and micronutrient deficiencies now affect people across the same communities and harm people of all ages. (Unless otherwise cited, the figures given are WHO estimates.) [6].

5. HOW NUTRITION AFFECTS WOMEN

Women are more likely to suffer from nutritional deficiencies than men are, for reasons including women's reproductive biology, low social status, poverty, and lack of education. Sociocultural traditions and disparities in household work patterns can also increase women's chances of being malnourished Globally, 50 percent of all pregnant women are anemic, and at least 120 million women in less developed countries are underweight.² Research shows that being underweight hinders women's productivity and can lead to increased rates of illness and mortality. In some regions, the majority of women are underweight: In South Asia, for example, an estimated 60 percent of women are underweight

Many women who are underweight are also stunted, or below the median height for their age. Stunting is a known risk factor for obstetric complications such as obstructed labor and the need for skilled intervention during delivery, leading to injury or death for mothers and their newborns. It also is associated with reduced work capacity

6. OBJECTIVES

The objective of the study was to determine the nutritional status of women in area of Bhopal district and to study the socio-demographic factors affecting the nutritional status of women in area of Bhopal district.

7. Materials and Methods

Study Area: Present cross sectional study was conducted in urban areas of Bhopal district. Bhopal is the capital city of state of Madhya Pradesh.

Study Population: Economically independent and economically dependent married women of the reproductive age group residing in urban areas of Bhopal district.

Sample size: The sample size was estimated by taking into consideration the prevalence of under nutrition (BMI < 18.5 kg/m²), 36% (NFHS-2, India) and permissible level of error of 0.10 at 95% confidence interval. Since the national level data for the two groups were not separately available and prime objective of the study was to ascertain the difference in the nutritional status of economically independent and dependent women and, we took equal level of prevalence of under-nutrition in the two groups, to gain the maximum sample size. The sample size was calculated using the formula: $n = 2p(1-p) F/D^2$. A sample size of 177 women was required for each group; however the researchers increased the sample size to 200 in each group to make up for drop outs.

Sampling method: Hundred women were included in the cross section survey. To get the representation of all the strata of the society in the study, the Bhopal city

Economically independent women is defined as, a woman currently working, either at home or outside in a craft or trade which fetches income in addition to performing the regular household work

Women who were pregnant or lactating (for \leq six months) at the time of survey were not included in the study, because of impact of these physiological conditions on the maternal weight and changes in diet intake.

Data Collection: Quantitative data collection methods were used by researchers for gathering Information regarding type of locality, family characteristics, women's

demographics characteristics, type of occupation, measurement of food/ nutrient intake, anthropometry assessment, clinical examination for overt signs for malnutrition and assessment of activity patterns. Updated Gupta and Mahajan's Socio economic classification was used to elicit the socioeconomic status of the family of the women

Assessment of Nutritional Status

Nutritional status of the women was estimated by anthropometric assessment, hemoglobin estimation, clinical examination and assessment of dietary intake

Dietary Intake: Dietary intake was assessed by 24 hr recall oral questionnaire method. Standardized utensils were used; bowl was used to estimate the quantities of eaten cooked Dal, rice, vegetables,. Cups and glasses for measuring intake of tea, milk, coffee etc. and standardized spoons were used for measuring sugar, oil etc. Nutritive estimates were done utilizing nutritive value of Indian food for proximate principles and vitamin content per hundred grams of food items **11**. The intake of nutrients by the study participants was compared with ICMR standards for recommended daily allowance RDA

Anthropometric Assessment

Weight: For all study subject's weight was recorded by using the bathroom scale. The weighing machine was checked for zero error before taking the weigh each time. The study subjects were weighed in minimum clothing with no foot wear. Weight was measured to the nearest 100 gms.

Height: The height was measured in the standing position on the level ground with a measuring tape. Subjects were made to stand straight with their head, shoulders, buttocks and heel vertically aligned against the wall. A hard board was put vertical to wall just above the head and height marked on the wall and measured to the nearest millimeter. The body mass index (BMI) was calculated using the formula: $BMI = \text{wt (kg)}/\text{height}^2(\text{m})$.

Hemoglobin estimation: Hemoglobin was estimated by using the acid hematin (Sahli's) method.

Clinical Examination: Study subjects were examined for the overt signs of nutrition deficiencies, viz; vitamin A, B, C, D deficiency, anemia and iodine deficiency disorders.

Control over household income expenditure

was asked by putting question, how much of the total income of the household is spent at your will, is it less than twenty five rupees in hundred earned (no autonomy) or about fifty (partial autonomy) or more than seventy five rupees (full autonomy).

Statistical Analysis: Data was analyzed using the software intercooled Stata version-8 for windows. Discreet data was analyzed using Pearson's Chi square test for non formal distribution. Continuous data was analyzed using Wilcoxon (Mann Whitney) test and Student's test. P value <0.05 was considered significant in the study.

Biosocial characteristics of the Study subjects (N=200)

Table 1:- Distribution of adolescent girls according to the Body mass index

Body mass index	Frequency (%)
CED Grade III (BMI <25)	67 (33.5%)
Under Weight (BMI 16-18.4)	71(35.5%)

8. RESULT

In the present study 33.5% subjects suffered from chronic energy deficiency (CED) grade III (BMI<16), 35.5% working womens were under weight (BMI<18.5) and only 31% study subjects had normal nutritional status (Table-1).

Normal (BMI 18.5-22.9)	62 (31%)
Total	200 (100%)

Calorie intake of women with their Body Mass Index Majority of the participants i.e. 85.5% consume <1400 kcal daily in their diet. About 70% of adolescent girls who consumes <1400 kcal were under nourished while 87.5% of adolescent girls who consumes calorie between 1600-1800kcal.and 75% who consumes calorie between 1800-2000k cal. Were under nourished (Table- 2).

Table 2 Association of Calorie intake Working Women with their Body mass index

Calorie (Kcal.)	CED Grade III (18-25)	Under weight (25-35)	Normal (35-45)	Total
<1400	61 (35.7 %)	59 (34.5 %)	51 (29.8%)	171 (100 %)
1400-1600	3 (20.0%)	3 (20.0%)	9 (60 %)	15 (100 %)
1600-1800	2(25.0 %)	5 (62.5 %)	1 (25%)	8 (100 %)
1800-2000	1(0 %)	2 (50 %)	1 (25 %)	4 (100 %)
2000-2200	0(0 %)	0(0 %)	0 (0%)	0%
2200-2400	0(0 %)	0(0 %)	0 (0%)	0%
2400-2600	0(0 %)	2 (100 %)	0 (0%)	2 (100 %)
Total	67 (33.5 %)	71 (35.5 %)	62 (31%)	200(100 %)

DISCUSSION

The nutritional status of working women, contributes significantly to the nutritional status of the community. The nutritional requirement increases during adolescent period. In the present study 61% of women are under nourished. A study revealed that about 34.5 % of the subjects and Soumyajit Maitistudyrevealed 51% of the subjects as per weight for age criterion were suffering from various degrees of malnutrition. In H.R. Shivaramakrishna study 30 % women were normal Condition.

Total 35.7 % working women consume calories <1400kcal/day and 70% of which are undernourished. This shows that their average nutrient intake is much below the recommended dietary allowances. Thus, most likely reason for being underweight is not having enough calories. Similar findings of low energy consumption among adolescents have been reported.

In the present study there is no significant association between calorie intake and BMI of working women. A similar finding was observed in a study by Majority of under

Out of 200 working women, 138 i.e.69% are undernourished (BMI < 18.5). Majority i.e. 87.20% of working women belongs to the age group of 25-35 years are under nourished. Similarly 29.8% of women belongs to the age group of 35-45 years are normal nourished with Odds ratio = 5.5195, X² = 23.4 & P value = < 0.0001 showing highly significant association between age of participants and Body Mass Index (Table –3).

nourished women i.e. 34.5.20% belongs to the age group of 25 years, followed by 29.8% of working women of 25-45 years. National Nutrition Monitoring Bureau also reported that under-nutrition decreased from 61% in 18-25years to 59 % to 25-35 year Similar findings were reported. This could be because of the early growth spurt seen in the women with sudden increase in height in early age group

In the present study significant association was found between Socio economic status and nutritional status of working women. Nutritional status of lowincome families’ was low. Similar findings revealed in Neyamul Akhter study. In study of maximum 82.54% under nutrition was observed in subjects belonging to lower SES, followed in middle (69.92%) and then in high (54.05%) SES categories thus showing significant association between SES and nutritional status

Table 3 Association of Nutritional status of working Women

	Body mass Index	Total
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Age of women	Normal	Overweight	
25-35 Year	75(87.20 %)	11 (12.79 %)	86 (100 %)
35-45 Year	63 (55.26)	51 (44.73 %)	114 (100 %)
Total	138 (69 %)	62(31 %)	200 (100 %)

Maximum i.e.71.72% of participants of middle and lower socio-economic class is under nourished while only 11.11% of upper class participants are under nourished with Odds ratio = 20.2963, $X^2 = 14.8$ & P value = <0.0001 showing significant association between socio-economic class and Body Mass Index (Table- 4)

9. Conclusion

In sum, there are indications that women' work participation, their income and autonomy over the household income alone not guarantee the nutrient intake and health status. Women's employment along with education is the major mean to improve the nutrition and health. There is need to emphasize to increase her knowledge about the nutritional needs and balanced diet which will empower her to take better decision in favor of not only her nutrition and health but also for her family.

In addition to this, it is essential to foster the concept among women of improving nutrition for their own health rather than for their family or children sake. Women especially from low socio economic classes, younger age group, and Muslim community who are also less educated should be made aware about their nutritional requirements, balanced diet etc. Even working women from this section of society are less educated and there is need to make them more aware about their nutritional needs. The more aware women will significantly have better nutrition knowledge, food habits, self concepts and better health.

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