

Cultural Practices and Nutritional Status Among Premenopausal Women of Urban Setup in India

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Abstract: A data of 124 adult women who had not attained menopause, age ranging from 21-50 years was collected to see the impact of nutritional status as assessed by Body mass index which were categorized according to World Health Organization and cultural practices. Majority of adult urban women were in overweight category followed by normal category and obese category and very few remained in the underweight category. With the increase in number of children, there was a shift in BMI category from normal to obese with substantial prevalence of women noticed in overweight category. Maximum numbers of women were found in overweight category with two children. Normal weight category is also well represented with number of pregnancies. No woman with three children was reported in underweight category. It is evident that there is shift towards obese category with the number of children, confirming to the cultural practice of giving rich diets to mothers during and after delivery.

Keywords: Culture, nutritional status, premenopause, urban women.

INTRODUCTION

The Indian population is passing through a nutritional transition and is expected to witness higher prevalence of adult non-communicable diseases such as diabetes, hypertension and coronary heart disease according to the theory of 'fetal origin of adult disease'. There is a need for examining several issues of nutritional significance for effective planning of interventions to combat the situation. Improvement in women's socioeconomic status is vital for the economic and social development of a country [1, 2]. The physiological and psychological changes with child birth have an impact on food intake and nutritional status of women. The assessment of nutritional status plays a vital role. To assess the nutritional status of an individual or population, anthropometry is widely recognized as one of the useful techniques because it is highly sensitive to detect malnutrition.

The physical well being and maintenance of normal health of an individual is related closely to the status of nutrition. Very few studies have been conducted on nutritional status of women with reference to childbirth in different phases. Advice about nutrition is most meaningful in the context of cultural practices and beliefs. The women can be advised healthy eating, more effectively if they understand the customs and beliefs and the general circumstances of the various cultural groups in their region. Among women, a 7% increase in risk in obesity was noted for each additional child, adjusting for age, race, household income, work status, physical activity, tobacco use and alcohol use [3]. Mechanisms have been proposed to explain the association of number of children and obesity among women, with reference

to excess deposit of fat tissue that accumulates, preferentially in the femoral area during pregnancy [4]. Kapoor *et al.* [5] mentioned the importance of trunkal fat in pregnant women which acts as a shock absorbing pad in protecting the growing fetus besides as the source of energy needed during this period. A population study from Finland found that number of children among women aged 25-84 was closely related to the prevalence of obesity independent of marital status, occupation, and smoking habits [6].

Many of these physiological changes associated with pregnancy have been shown to persist years after childbearing [7]. In addition to these physiological changes, motherhood may also be associated with changes in diet and physical activity to accommodate living with small children. It is well established that nutritional status is a major determinant of the health and well-being among women. High BMI in early adulthood and premenopausal women has been reported to be inversely related to breast cancer risk [8] and is established as adversely affecting both the incidence of breast cancer [9] and its prognosis [10]. There are no other simple anthropometric measurements of obesity however, and BMI is generally accepted to be well correlated with body fat in young women [11]. The influence of BMI on blood pressure was demonstrated in a socio-economically stratified sample by Reddy [12], points towards the risk of developing a high load of obesity among the socio-economically advanced urban Indians thus making them vulnerable to obesity related health risks. The US Women's Health Study concluded that even a slightly elevated BMI at age 18 was a risk factor for subsequent anovulatory infertility [13]. Studies have confirmed the association between obesity and reduced fertility [14, 15]. Elevated BMI is also associated with poorer outcomes from assisted reproduction [15]. This study will elucidate the nutritional status of the

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women, classified by body mass index, according to the number of children born to.

MATERIAL AND METHODOLOGY

Data was collected on 124 women who had not attained menopause, residing in national capital territory of Delhi. Their age ranged from 21-50 years; they were divided in three groups 21-30 years, 31-40 years and 41-50 years. A detailed schedule was structured to collect necessary information from the subjects. The anthropometric measurements height and weight were recorded as per the guidelines suggested by Weiner and Lowrie [16]. Nutritional status was assessed by Body mass index. It was computed as weight in kg divided by stature in meter square. They were classified as underweight, normal, overweight and obese according to categories recommended by WHO [17].

RESULTS

The basic data of the women according to BMI categories is presented in Table 1. Range of the weight varied from 40.93 kg to 78.69 kg, while not much variation was noticed in stature. The BMI ranged from 17.17 kg/m² to 32.97 kg/m².

Majority of adult urban women (48.4%) were in overweight category followed by 29.8% in normal category and obese category (19.4%). Very few (2.4%) remained in the underweight category.

Table 3 represents the distribution of women according to age and number of children. Majority of the women (56.5%) were in 31-40 years category followed by 21-30 years. Most of the women (35.48%) in 31-40 years age category were found with two children. No representation of women is there in 21-30 years and 41-50 years with three children.

Table 4 shows the cross tabulation of nutritional status as assessed by body mass index and age. Maximum percent (23.39%) of women were found to be overweight in 31-40 years age group. Marginal representations of women were also seen in 21-30 years (1.6%) and 31-40 years (0.8%) amongst overweight and underweight category (Table 2).

With the increase in number of children, there was a shift in BMI category from normal to obese with substantial prevalence of women (30.64%) noticed in overweight category (Table 5). Maximum numbers of women were found in overweight category with two children while that in obese

Table 1. Basic Data of the Subjects According to BMI Categories

Variable	Underweight		Normal		Overweight		Obese	
	Mean	±SD	Mean	±SD	Mean	±SD	Mean	±SD
Weight (kg)	40.93	4.15	55.24	5.58	65.17	5.37	78.69	8.06
Height (cm)	154.17	7.21	154.86	5.05	155.65	5.79	154.33	6.17
BMI (kg/m ²)	17.17	0.15	22.79	1.46	27.03	1.33	32.97	2.26

Table 2. Distribution of Subjects According to Nutritional Status

BMI (kg/m ²)	Number	Percent
Underweight	3	2.4
Normal	37	29.8
Overweight	60	48.4
Obese	24	19.4

Table 3. Cross Tabulation of Age and Number of Children among Adult Women

Age Range (Years)	Mean Age (Years)	Number	Percent	Number of Children		
				1	2	3
21-30	27.82	28	22.6	16.93(21)	5.64(7)	-
31-40	35.74	70	56.5	16.93(21)	35.48(44)	4.32(5)
41-50	44.27	26	21.0	1.60(2)	19.35(24)	-

Number of women in parentheses.

Table 4. Cross Tabulation of Nutritional Status and Age

Age Range (Years)	Mean Age (Years)	Body Mass Index (kg/m ²)			
		Underweight (%)	Normal (%)	Overweight(%)	Obese(%)
21-30	27.82	1.6(2)	8.87(11)	10.48(13)	1.60(2)
31-40	35.74	0.8(1)	18.55(23)	23.39(29)	13.71(17)
41-50	44.27	-	2.42(3)	14.52(18)	4.32(5)

Number of women in parentheses.

Table 5. Cross Tabulation of Nutritional Status and Number of Children

Number of Children	Body Mass Index (kg/m ²)			
	Underweight (%)	Normal (%)	Overweight(%)	Obese(%)
1	1.6(2)	13.71(17)	16.13(20)	4.32(5)
2	.8(1)	14.52(18)	30.64(38)	14.58(18)
3	-	1.6(2)	1.6(2)	.8(1)

Number of women in parentheses.

were 14.58%. Normal weight category is also well represented with number of pregnancies. No woman with three children was reported in underweight category.

DISCUSSION

The physical activity of women in the middle years decreases along with metabolic rate. Conversely, the energy requirement decreases and even regular or routine eating may lead to weight gain. Due to this the prevalence of overweight was common among the women studied. It is observed that with the increase in number of children, there is a shift in BMI category from normal to obese with substantial prevalence of women noticed in overweight category. Maximum numbers of women are found in overweight category with two children. This observation strengthens our cultural values with respect to care and diet given to women during and after pregnancy. Normal category is also well represented with pregnancy. Similar findings were quoted by Weng *et al.* [3] that 7% increase in risk in obesity was noted for each additional child, adjusting for age, race, household income, work status, physical activity, tobacco use and alcohol use. The present study had majority of the women (56.5%) in 31-40 years category followed by those in 21-30 years. The demographic profile of women reflects that majority of premenopausal women (48.4%) were in overweight category followed by 29.8% in normal category. Very few (2.4%) remained in the underweight category. When seen with respect to distribution of the women according to the number of children. 35.48% were found in 31-40 years with two children whereas none were found in 21-30 years and 41-50 years with three children. Table 4 shows the distribution of women in different age groups according to their nutritional status as assessed by body mass index. Maximum percent of women are found to be overweight in 31-40 years

age group. Marginal representation of women is also seen in 21-30 years (1.6%) and 31-40 years (0.8%).

Major findings have emerged from this study. Individual aging process is related significantly to changes in body composition. Changes in fat mass are especially affected by the aging process [18]. But not only is the nutritional status affected by aging, the number of children born also show typical changes especially after middle age. Women continue with a largely unchanged fat patterning from puberty to middle age but with advancing age and changed hormonal pattern during the peri- and post menopause the body mass index increases and fat distribution patterns change [19]. In a more recent study from Sweden, number of children was also associated with obesity among women [20]. Similarly in the present study with the increase in number of children, there is a shift in BMI category from normal to obese with substantial prevalence of women noticed in overweight category (Table 5). Maximum numbers of women are found in overweight category with two children. This observation strengthens our cultural values with respect to care and diet given to women during and after pregnancy. Normal category is also well represented with pregnancy. Kaye *et al.* [4] found the association of number of children and obesity among women, the excess deposit of fat tissue that accumulates, preferentially in the femoral area, during pregnancy. The demographic profile of women in age groups and different nutritional status with respect to number of children shows that maximum numbers of women who have 2 children are found in overweight category in the age group 31-40 years, followed closely by those in 41-50 years. Representation of obese women with two children in 31-50 years is also noticed. In the Nurse's Health Study too, an increase in BMI was found with increasing number of children among women [21]. The Rancho Bernardo Study also found an association with number of children and obesity among

women many years after childbearing [22]. Bastian *et al.* [23] found higher rates of obesity were associated with increasing number of children that was independent of socioeconomic status and other confounding factors.

It is quite evident that there is shift towards obese category with the number of children, confirming to the cultural practice of giving rich diets to mothers during and after delivery. A noteworthy feature is that the situation is not too bad which could be the awareness of ill effects of weight gain on health.

It is rather clear that the mechanism by which an association between number of children and obesity may be mediated remains unclear. Repeated full-term pregnancies may result in physiological changes that increase the risk for obesity may be due to behavioral changes in diet and physical activity. It is a common experience that the excess deposit of fat acquired during childbearing tends to remain for a long time after delivery. Parity may thus be an important determinant of obesity. Although it is unsure if the increased risk for obesity could influence the number of children women choose to have, but would definitely be vital in understanding the physiological mechanism of obesity in women. Women desirous of more children may be counseled how to modify their risk for obesity through medications and health behaviors. We need to explore behavioral effects of having children on the risk for obesity in mothers.

CONCLUSION

With the increase in number of children, there was a shift in BMI category from normal to obese with substantial prevalence of women noticed in overweight category. It is clear that there is shift towards obese category with the number of children, confirming to the cultural practice of giving rich diets to mothers during and after delivery.

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