Nutritional Status of and Utilization of Health Care Facilities by Pregnant Women in Sri Lanka

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Abstract

Objectives-Objectives of this study are to assess the nutritional status of pregnant women and utilization of health care provided.

Methodology- A cross sectional household survey was carried out in nine districts, one district randomly selected from each province. A multistage cluster sampling method was used to identify 30 clusters per district. A systematic random sampling technique was used within each cluster to identify 21 households. The household survey included the administration of a pre-tested questionnaire, assessment of the nutritional status by measuring Mid Upper Arm Circumference (MUAC) and haemoglobin levels. Food consumption was assessed by 24 hour and 7-day recall for specific foods. Those who had a MUAC value of ≤23 cm were identified as being underweight.

Results- A total of the 6071 households included in the study. In those households, there were 228 pregnant women. Three percent of all women aged 15-49 years were pregnant at the time of survey. Of them 18.4% were undernourished and 16.2% were aneamic .Of the pregnant women who attended antenatal clinics, the percentage who received thriposha and *poshana malla* were 77.3 and 23.9 respectively. Iron tablets were received by 98.1 percent, and of them, only 82.1 percent reported to have taken the tablets daily.

Conclusions- Anaemia and undernutrition among pregnant women are still high in Sri Lanka. Coverage of Supplementary food programmes is poor.

Recommendations-Individuals to be targeted as beneficiaries of ongoing intervention programmes have to be identified on strictly defined criteria. Creation of awareness among public to strengthen behavior modification to improve positive care practices including dietary diversity should be a key intervention to promote nutritional status among women and children.

Introduction

As a result of the social welfare oriented government policy for last five decades, Sri Lanka has a well established, extensive network of free health care facilities accessible to all citizens across the country and well trained public health staff with orientation towards improvement in community health and nutrition[1]. Despite improvements in basic health indicators when comparing to the other countries with a comparable gross domestic product, maternal under-nutrition still remains as a major public health problem in Sri Lanka[2].It is shown that advances in nutritional status of women between 2000-2007 have been slower[3,4].

It is important to pay attention to the maternal nutrition as it is one of the determinant factor for low birth weight and most of the antenatal and post natal complications5. In Sri Lanka , approximately 30 percent of pregnant mothers are anaemic, leading to an increased risk of low birth weight babies and other pregnancy related complications6.

The main strategy implemented by the government to improve nutrition is the comprehensive maternal and child healthcare (MCH) package which focuses on pregnant and lactating mothers and young children. Nutritional care for pregnant women includes supplementation of iron, folic acid, vitamin C and calcium, and food supplementation in the form of a pre-cooked ready to eat food, Thriposha. Under the Poshana Malla programme initiated in 2006, a basket of food consisting of essential items is distributed to the most needy pregnant mothers. The coverage of areas in this programme is increasing yearly and aims to target the most food insecure groups 1. But the coverage of these programmes is a debatable.

In view of the wide range of factors that influence nutritional status, conducting a comprehensive study where information on basic, underlying and immediate causes are available can be considered a need at the present time. Such a study is likely to provide evidence   that will assist the policy makers to make decisions regarding the actions which should be taken in order to have a positive impact on the current nutrition situation. Observations regarding the inter district, inter sectoral differences and the influence of income on nutritional status that have been reported need to be studied in depth to assess the changes that are likely to have an effect due to recent global economic scenario.

In response to these challenges, this study was conducted to provide data from a household survey, supplemented by information from in-depth interview data, to assess the nutrition and food security situation in 9 districts in the country, one district from each of the 9 provinces. The survey will provide urgently needed information that will help the Ministry of Health, other ministries and all other stakeholders, to map the most vulnerable populations and identify interventions , targeting mechanisms, and serve as a baseline which can be compared with subsequent data collection.

The objectives of this study were,

1. To determine the nutritional status of pregnant women.
2. To estimate the coverage and utilization of nutrition supplementation programmes for pregnant women.

Methodology

A cross sectional household survey was carried out in nine districts of Sri Lanka, one district randomly selected from each province. Each district constituted one study area, except the Colombo district which had two study areas: the Colombo Municipal Council area and the Colombo RDHS area. The selected study areas are Jaffna, Trincomalee, Colombo Municipal Council (MC) area, and other areas in Colombo district, Kurunegala, Anuradhapura, Nuwara Eliya, Badulla, Ratnapura and Hambantota.

The probability proportional to size technique was used to identify the clusters which are defined at the Grama Niladhari (GN) division level. The first cluster was identified randomly, followed by identification of a total of 30 clusters per district, using the sampling interval. A systematic random sampling technique was used within each cluster to identify 21 households.A household was defined as persons routinely sharing food from the same cooking pot and living in the same compound or physical location. The estimated sample size per district was 617 households totaling to 6170 households in 10 study areas.

Nutritional status of pregnant women in the age group 15 – 49 years from the households included in the study was described using Mid Upper Arm Circumference (MUAC) and haemoglobin levels. Those who had a MUAC value of ≤23 cm were identified as being underweight. Measurement of haemoglobin levels was carried out using hemocue method, using capillary blood.Food consumption was assessed by 24 hour and 7-day recall for specific foods. Two indicators of economic status were used in this study, the first being the average household income per month and the second, the Household Wealth Index.

The study was carried out during the period, January to April 2009.

Results

This study included a total of 228 pregnant women. Out of them57 were from urban sector, 159 from rural and 12 from the estate sectors respectively.

Nutritional Status

As shown in the table 1, 18.4 percent of pregnant women   were undernourished. High percentages were seen among the age groups less than 20 years (37.5 percent) 40 – 49 years (37.5 percent) and in the estate sector (41.7 percent).
When considering the related factors no consistent pattern was seen in relation to the mothers educational status or indicators of income and wealth, even though lowest values are in the highest educational status category (9.3 percent), income level (13.6 percent) and wealth quintile (7.8 percent).

Overall prevalence of anaemia among this group was 16.7 percent. Comparison between sectors showed that the highest prevalence was in the urban sector (19.3 percent) with the lowest, in the estate

sector (8.3 percent). Inter district comparisons indicate that Colombo MC area had the highest prevalence (28.6 percent), with Anuradhapura (25.0 percent), Badulla (21.7 percent), Ratnapura (21.4 percent) and Hambantota (20.0 percent) also showing high values. The highest prevalence was seen among the mothers who had 'higher' education. There was no consistent pattern with income levels and a lower prevalence was seen in the lowest wealth quintile (9.3 percent) and the highest quintile (10.0 percent).

Utilization of Services Provided by Health and Other Sectors

A total of 90.2 percent of the pregnant mothers had attended antenatal clinics regularly as shown in Table 2. In general, regular antenatal clinic attendance was above 80 percent in all the subgroups, except in the Kurunegala district (75.0 percent).

"Thriposha" programme provides a food supplement to all pregnant mothers at the antenatal clinics. Of the antenatal mothers who attended the clinics, 75.4 percent has received Thriposha. This percentage was higher in the estate sector (81.8 percent) compared to the urban (76.9 percent) and rural (74.2 percent) sectors.

Of the pregnant women, 23.0 percent had received "poshana malla". As explained above, at present, this programme is being implemented in selected areas, hence the wide inter district variation as shown in the Table 2, is to be expected.

Percentage of pregnant mothers who received iron tablets from the antenatal clinic was 87.4 and of them only 85.9 percent reported to have taken the tablets daily. Compared to the other districts, the percentage who received iron tables was lowest in Hambantota (72.7 percent).

DISCUSSION

Study was carried out with the objective of identifying the most vulnerable populations in relation to their nutritional status. This enabled the assessment of nutritional status of pregnant women.

Sri Lanka Demographic and Health Survey (DHS) 2006/07 has also studied the nutritional status of pregnant women[3]. Due to methodological differences between the two surveys, there are limitations in making direct comparisons between the findings from the present study with those of DHS 2006/7. However, it was considered useful to compare the main findings as both studies were based on large household samples, used the same indicators and methods in the assessment of nutritional status and were carried out within a three year period.

A study done in 2003 shows that prevalence of anaemia among pregnant was 30% in Sri Lanka, but this study showed a decline in rate of anaemia (16.2%)[6].This disparity may be due to improvement in the supplementary programmes and health education system over the past years.

But these observations need to be interpreted with caution as they are based on small numbers of pregnant women. Comparisons between subgroups also require cautious interpretation due to limited number of pregnant women included in each of the sub-categories.

Conclusions

The prevalence of undernurition was 18.7 percent and anaemia was 16.2 percent among pregnant women. They are still high.

Coverage of supplementary food programmes are poor as coverage of Thriposha and poshana malla being 75.4% and 23% respectively.

Recommendations

1. In view of the inter- district differentials observed, it is necessary to develop such plans and programmes at sub national levels. Monitoring of the activities has to be an essential part. Programmes to focus on vulnerable groups, identified on a geographical basis and on selected socio economic criteria. In this context, it is recommended hat district levels authorities develop their plans taking into account, such differences.
2. Individuals to be targeted as beneficiaries of food supplementation / poverty alleviation programmes have to be identified on strictly defined criteria and a comprehensive 'package ' of inputs are to be implemented with necessary follow up.
3. Continuous and regularity of food and nutrient supplementation programmes with proper monitoring should be ensured.
4. Proper education about the nutrition and important of taking iron tablets at the facility level should be strengthened.

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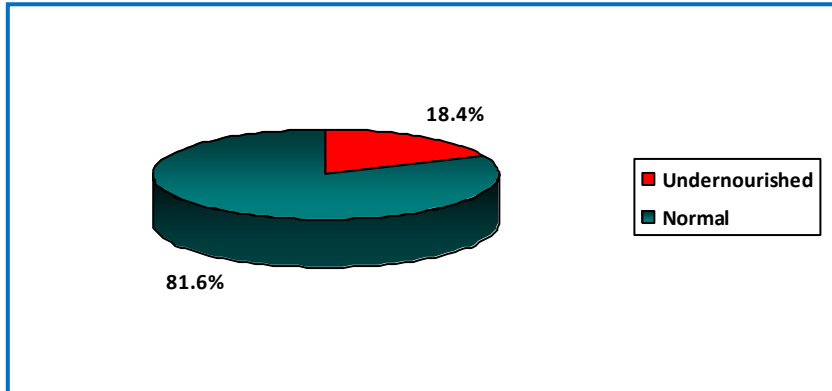
Table 1. Distribution of pregnant women by their nutritional status and background characteristics

| background characteristic	MUAC Category		Anaemia	Total No of Women
	Undernourished ≤23cm	Normal >23cm		
Age group (years)				
< 20	33.3	66.7	13.3	15
20-29	17.4	82.6	17.4	132
30-39	15.1	84.9	17.8	73
40-49	37.5	62.5	0.0	8
Residence				
Urban	12.3	87.7	19.3	57
Rural	18.9	81.1	16.4	159
Estate	41.7	58.3	8.3	12
District				
Anuradhapura	6.3	93.8	25.0	16
Badulla	21.7	78.3	21.7	23
Colombo	25.0	75.0	13.0	24
Colombo MC	14.8	85.2	28.6	27
Hambanthota	8.0	92.0	20.0	25
Jaffna	14.8	85.2	14.8	27
Kurunagala	31.3	68.8	6.7	16
Nuwara Eliya	30.0	70.0	10.0	20
Ratnapura	38.5	61.5	21.4	13
Trincomale	10.8	89.2	8.1	37
Women's education level				
no schooling	40.0	60.0	0.0	5
primary	14.3	85.7	7.1	14
Secondary	22.5	77.5	19.7	71
Passed GCE (O/L)	18.3	81.7	21.3	93
Higher	9.3	90.7	7.1	43
Monthly household income				
< 9,000	17.6	82.4	18.9	74
9,000 – 13,999	19.4	80.6	8.3	36
14,000 – 19,999	25.0	75.0	14.3	48
20,000 – 31,999	17.6	82.4	12.1	34
≥ 32,000	13.6	86.4	13.6	22
Wealth quintile of household				
Poorest	34.9	65.1	9.3	43
Second	18.4	81.6	31.6	38
Middle	22.7	77.3	20.0	44
Fourth	11.5	88.5	15.4	52
Richest	7.8	92.2	10.0	51
Overall	18.4	81.6	16.7	228

Table 2. Percent of pregnant mothers who attended antenatal clinics, and who received "poshana malla", "thriposha" and Iron tablets, by background characteristics

Background characteristic	Regular ANC Visits*		"poshana malla"		"thriposha"		Iron tablets			Total No. of Pregnant women
	Percent	Total No of Mothers	Percent	Total No of Mothers	Percent	Total No of Mothers	percent received tablets	Of the received, percent took daily	Total No of Mothers	
Residence										
Urban	96.4	55	9.6	52	76.9	52	90.7	89.8	54	60
Rural	88.5	148	29.2	120	74.2	120	85.8	84.8	141	162
Estate	83.3	12	18.2	11	81.8	11	90.9	80.0	11	12
District										
Anuradhapura	92.9	14	0.0	14	50.0	14	85.7	84.6	14	17
Badulla	90.9	22	23.8	21	81.0	21	95.5	95.5	22	23
Colombo	95.8	24	4.8	21	85.7	21	91.3	90.5	23	25
Colombo MC	100.0	25	0.0	26	76.0	25	84.0	90.5	25	28
Hambantota	91.3	23	27.8	18	55.6	18	72.7	82.4	22	25
Jaffna	87.0	23	66.7	24	69.6	23	89.5	72.2	19	27
Kurunegala	75.0	16	28.6	7	100.0	6	93.3	92.9	15	16
Nuwara Eliya	84.2	19	10.0	10	80.0	10	100.0	82.4	17	21
Ratnapura	92.9	14	21.4	14	85.7	14	92.3	91.7	13	14
Trincomale	88.6	35	32.1	28	80.6	31	80.6	79.3	36	38
Maternal education										
no schooling	100.0	5	66.7	3	100.0	3	80.0	100.0	5	5
primary	84.6	13	18.2	11	70.0	10	90.9	90.0	11	14
Secondary	89.2	65	22.2	54	76.8	56	88.7	84.2	62	72
Passed GCE (O/L)	91.2	91	30.3	76	76.0	75	84.9	85.1	86	95
Higher	89.7	39	8.1	37	70.3	37	92.5	86.8	40	46
Monthly household income										
up to 9000	89.3	75	28.1	64	81.5	65	83.6	81.4	67	77
9000-13999	89.7	39	30.0	30	66.7	30	97.1	87.9	34	38
14000-19999	89.2	37	21.2	33	72.7	33	79.5	94.4	44	70
20000-31999	97.5	40	14.7	34	81.8	33	96.6	85.7	29	21
32000 +	88.9	18	13.3	15	80.0	15	81.0	82.4	21	25
Wealth quintile of household										
Poorest	86.7	45	37.1	35	86.1	36	85.4	85.7	41	45
Second	88.6	35	25.9	27	70.4	27	81.8	73.3	33	38
Middle	95.3	43	25.0	36	75.7	37	88.4	94.7	43	46
Fourth	88.9	45	22.0	41	67.5	40	88.4	84.2	43	52
Richest	91.5	47	9.1	44	76.7	43	91.3	88.4	46	53
Overall	**90.2**	**215**	**23.0**	**183**	**75.4**	**183**	**87.4**	**85.9**	**206**	**228**

Figure 1. Distribution of pregnant women by their nutritional status
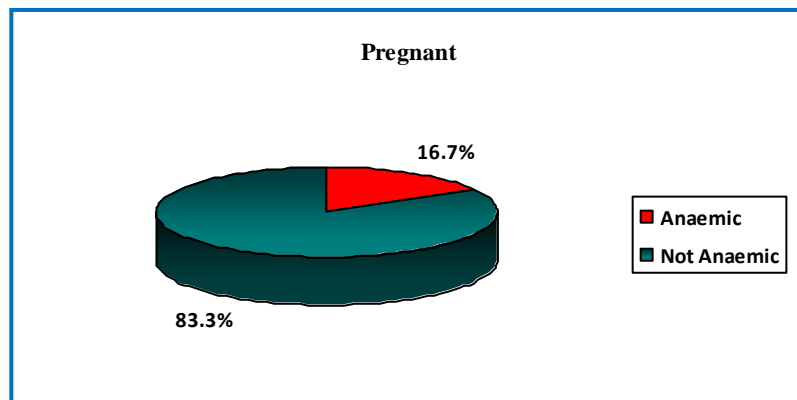
Figure 2. Prevalence of Anaemia, among pregnant women