



Consumption pattern and dietary practices of pregnant women during second trimester in Paddipalai divisional Secretariat area of Batticaloa District, Sri Lanka

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Abstract

This study was conducted in antenatal health care clinics at Paddipalai Divisional Secretariat area of Batticaloa District, Sri Lanka during January 2015 to May 2015 to collect data on the eating habit of pregnant women. A total of 55 pregnant women at 12-24 weeks of pregnancy were identified and chosen by random sampling from the seven health centers. Personal interview was conducted privately in the local language (Tamil) with the duration of 20 to 30 minutes. Pre-tested structured questionnaires was used to collect primary data and food frequency questionnaire was used to estimate the frequency of eating different food items. Weight of pregnant women was measured by using solar digital weighing scale of bathroom beam balance scale developed by SECA (Germany). Height was measured in centimeters using a rod attached to the weighing scale and body mass index (BMI) calculated as $\text{weight}/\text{height}^2$ (kg/m^2). "Warrior digital Body Mass Caliper" from Sequoia fitness products USA was used to measure the percentage of Body fat. Collected data was analyzed using SPSS version 19. Results revealed that, 58% of the pregnant mothers were between the age ranges of 20-35. Only 1.8% had university level education while 90.9% had secondary education, 49.1% earn income through labour. On food intake, majority (87.2%) consumed rice on a daily basis. For protein intake, 41.8% consumed fish curry 2-4 times a week while 49.1% consumed chicken curry once in a week. Banana (40%) accounted for the mostly consumed fruit on daily basis. Leafy vegetable (58.2%) are frequently used as 2-4 times per week. Of the milk and milk products, milk is the one that has higher percent (52.7%) of daily consumption, while curd and butter were consumed once in a week by 25.5% and 9.1%, respectively. Low BMI in pregnant women was also recorded in the study area that may leads to low birth weight (LBW) of infants. Therefore, awareness campaign is needed to sensitize the pregnant women on the importance of good nutrition especially fruits, vegetables and dairy products.

Keywords: Antenatal health care clinics, Nutrition, Pregnant women, Body mass index, Low birth weight.

Introduction

Throughout the world, pregnancy and lactation are considered vulnerable periods for both the mother and the child. The role of maternal health and nutrition has been emphasized by the recognition of the problem of low birth weight which affects some 20 million newborns annually, mainly in developing countries¹. This is essentially an end result of interference with fetal growth following inadequate nutrition and infections in pregnant women in these².

Kind, nutritional quality and composition of foods determine the impact of the diet on health³. A woman's body changes considerably during pregnancy. During that period, it is vital to balance these changes with nutritious food⁴. Because of the inadequate food intake, nutrition during pregnancy period has been accounted as unsatisfactory level⁵.

According to Harding⁶, there are several impacts to the mothers due to the insufficient nutrition during pregnancy period.

Based on the above mentioned views, the present study was conducted to collect useful information on the eating pattern and practices of mothers during the pregnancy period at Paddipalai Divisional Secretariat area of Batticaloa District and to provide basic information that would assist nutrition/health workers in order to assist the mothers in choosing diet during the period of pregnancy.

Materials and methods

The study was conducted in antenatal health care clinics of Paddipalai Divisional Secretariat in Batticaloa district during the period of January 2015 to may 2015. Paddipalai Divisional Secretariat Area is one of the fourteen Divisional Secretariat Areas in Batticaloa district. Population of this Divisional Secretariat area is about 24,547⁷.

The Divisional Secretariat area shares boundary with Manmunai West and Porathivu pattu Divisional Secretariat area in the north and South, while in the East with Manmunai Pattu and West

side of the study area is occupied by the Ampara district. The people of the study area are predominantly *Tamils*.

A total of 55 pregnant women at 12-24 weeks of pregnancy were randomly selected from the seven health centers. Personal interview with each participating mother was conducted in the local language (*Tamil*) with the duration of 20 to 30 minutes at the antenatal clinics.

Pre-tested structured questionnaires were used to collect primary data and food frequency questionnaire was used to estimate the frequency of eating different food items.

Weight of pregnant women was measured by using solar digital weighing scale developed by SECA (Germany). The weight was taken without shoes and with as few clothes as possible.

Height was measured in centimeters using a stadiometer and body mass index (BMI) calculated as weight/height² (kg/m²). Maternal BMI was then categorized as underweight (<18.50 kg/m²), healthy weight (18.50 - 24.99 kg/m²), overweight (25.00-29.99 kg/m²), or obese (≥ 30 kg/m²). Body fat percentage was measured directly by using “Warrior digital Body Mass Caliper” from Sequoia fitness products USA.

Statistical Package for Social Sciences (SPSS) version 19 and the descriptive statistics were used to analyze the collected data.

Results and discussion

The main characteristics of the participating mothers are shown in Table-1. The age range of the mothers was from 15 to 49. Majority (92.8%) of the mothers were falls within the age of 20 and 35 years while 3.6% were between 15 and 19(teenage) and rest of them (3.6%) were in the range of 36 to 49 age.

As far as the educational background is concerned, 7.3% mothers had completed their primary education, while secondary education (90.3%) and university level education (1.8%).

The results further showed that, 41.8%, 34.5%, 16.4%, 5.5%, 1.8% of respondents had two, three, four, five and six members in their family respectively.

In addition, 49.1% of the household heads of the subjects were labourers and 18.2% were farmers while 39.9% practiced other forms of occupation while 27.3% had a monthly income of Rs. 5000 and below, 52.7% were between the range of Rs.6000-Rs.15000, 16% were in the range of Rs 15000 - Rs 25000 and rest of them were more than Rs. 25000.

As shown in Table-1, 3.6% of mothers had below 15% of body fat content while 29.1% had more than 25% of body fat and rest of them (67.3%) were in normal range (15%-25%).

Table-1: Characteristics of the mothers.

Variables	Frequency	Percentage
Age(years)		
15-19	2	3.6
20-35	51	92.8
36-49	2	3.6
Family size		
2	23	41.8
3	19	34.5
4	9	16.4
5	3	5.5
6	1	1.8
Educational Level		
Primary	4	7.3
Secondary	50	90.9
Tertiary	1	1.8
Occupation		
Government Servants	4	7.3
Non Governmental Organization	2	3.6
Labourers	27	49.1
Business	4	7.3
Farmer	10	18.2
Others	8	14.5
Monthly income		
Rs.5000 and below	15	27.3
Rs.6000 - Rs.15000	29	52.7
Rs.15000 - Rs 25000	9	16
Rs.25000 and above	2	3.6
Fat%		
<15%	2	3.6
15%-25%	37	67.3
>25%	16	29.1

Food Consumption pattern of pregnant women: For the category of foods under meat and fish, the Table-2 indicated that most (49.1%) of the respondents consume chicken curry once in a week, 41.8% and 38.2% of mothers consume fish curry and fried fish 2-4 times in a week. Frequent consumption of fish is good for the health of the pregnant women because Ademuyiwa and Sanni reported that the fish products are rich sources of protein and nutrients for healthy pregnancy and successful suckling by infant. This is however contrast to the

results obtained by Nyaruhucha⁸ and Koryo *et al.*⁹. Where meat and fish were commonly avoided foods by larger percent of the respondents in their studies. The present study also found that 100% of the mothers never consumed beef and pork due to the religious taboos. However, 67.3% of the pregnant mothers consumed mutton curry occasionally. The reason for the lower consumption of mutton is mainly due to the higher price and not due to the religious taboos.

Table-2: Food Consumption pattern of pregnant women.

Variables	Never	Occasionally	Once a week	2-4 per week	5-6 per week	Daily
Meat and fish						
Beef: roast	100					
Beef: curry	98.2	1.8	0	0	0	0
Mutton	16.4	67.3	16.4	0	0	0
Chicken: curry	3.6	40	49.1	7.3	0	0
Fried fish	14.5	10.9	10.9	38.2	20	5.4
Fish curry	5.5	7.3	7.3	41.8	34.5	3.6
Canned fish	34.5	32.7	29.1	3.6	0	0
Crab, prawns	27.3	34.5	23.6	9.1	1.8	3.6
Cereals and grains						
Cornflakes	92.7	1.8	3.6	3.6	0	0
Noodles	20	23.6	38.2	18.2	0	0
Pittu	7.3	27.3	21.8	30.9	10.9	1.8
String hopper	9.1	21.8	25.5	18.2	21.8	3.6
Rotti	23.6	27.3	32.7	10.9	5.5	
Green gram	29.1	20	20	21.8	3.6	5.5
Chickpea	7.3	29.1	32.7	20	9.1	1.8
White rice	1.8	3.6	0	0	7.3	87.2
Milk, Milk products and egg						
Milk	10.9	7.3	12.7	10.9	5.5	52.7
Yoghurt	43.6	16.6	30.9	5.5	3.6	0
Curd	12.7	12.7	25.5	23.6	7.3	18.2
Butter	72.7	9.1	9.1	9.1	0	0
Ghee	85.5	10.9	3.6	0	0	0
Egg	10.9	3.6	32.7	34.5	10.9	7.3

Values are in percentage.

Large number of respondents used to eat white rice than the other category of cereals and grains because, rice is a major staple food in Sri Lanka and of the easy to prepare. Noodles (38.2%), string hopper (25.5%), rotti (32.7%) and chickpea (32.7%) are other foods consumed by the pregnant women once in a week. 30.9% and 21.8% of mothers consumed pittu and green gram 2-4 times in a week respectively. About 92.7% of the mothers never consumed cornflakes as it is not a menu native to the people in the study area.

Calcium and riboflavin content are rich in Milk and milk products which balance the nutrients for pregnant mothers. Of the milk and milk products found in this study, large number of mothers drink milk (52.7%) daily; 30.9% and 25.5% mothers consumed yoghurt and curd once per week respectively. Only 10.9% of pregnant mothers added ghee occasionally to the diet

while 72.7% of mothers in the studied population did not use butter and 34.5% of the respondents consumed egg 2-4 times in a week interval.

Pattern of consumption of beverages and sweets and snacks are shown in Table-3. According to the result of the survey, 46.7% of respondents consume tea 2-3 times per day and 23.6% consume once a day. For the consumption of soft drinks (soda) and fruit cordial 45.5% and 21.8% of the respondents consumed them once a week, respectively. On a daily basis the consumption of viva (10.9%), fruit cordial (12.7%) and fresh fruit juice (9.1%) were low. While 1.8% of respondents consume Bournvita once in a week, 98.2 % of the respondents refused to intake ovaltine. The reason to avoid these beverages may be due to their economic status.

Table-3: Pattern of consumption of beverages, sweets and snacks.

Variables	Never	Occasionally	Once a week	2-4 per week	5-6 per week	2-3 times/day
Sweets and Snacks						
chocolate	16.4	34.5	21.8	10.9	3.6	0
biscuit	27.3	23.6	20.2	14.5	10.9	0
Cakes	18.2	29.1	34.5	18.2	0	0
Buns	18.2	16.4	27.3	18.2	10.9	0
Ice cream	18.2	36.4	34.5	9.1	1.8	0
Toffees	29.1	18.2	21.8	16.4	5.5	0
sugar added cereals	41.8	21.8	25.5	7.3	3.6	0
mixtures	32.7	21.8	27.3	14.5	1.8	0
peanut	9.1	18.2	43.6	20	1.8	0
Beverages						
Tea	7.3	7.3	7.3	7.3	3.6	46.7
coffee	65.5	10.9	12.7	7.3	1.8	0
Viva	45.5	12.7	16.4	10.9	10.9	0
Soft drink (soda)	7.3	20	45.5	18.2	5.5	0
fruit cordial	41.8	14.5	21.8	5.5	3.6	0
Ovaltine	98.2	0	1.8	0	0	0
Bournvita	98.2	0	0	1.8	0	0
fresh fruit juice	14.5	12.7	21.8	20	9.1	0

Values are in percentage.

The results of the study also revealed that the pregnant mothers consumed peanuts (43.6%), cake (34.5%), buns and mixtures (27.3%) and biscuits (20.2%) as snacks once in a week while 21.8%, 34.5%, 25.5% and 21.8% of respondents consumed chocolate, ice cream, sugar added cereals and toffees once per week respectively.

Based on the Table-4, about 98.2% pregnant women reported that, they used to eat fresh fruits and vegetables daily. From the table, it is obvious that, green leafy vegetables and banana are mostly consumed by the pregnant women on a daily basis. The study of Santiago *et al*¹⁰ revealed that banana is the third most commonly consumed fruit in California.

According to some of the respondents, banana is consumed regularly because its available all the times. Mango (3.6%) and bittergaurd (1.8%) consumed by a very few mothers in a daily

basis due to the unavailability of those in all the time. Higher percent (72.7%) of the respondents have never consumed pine apple during their pregnancy.

Conclusion

The dietary behaviors were influenced by various socio-demographic characteristics. The low level of education and the type of job for income earning influenced on the food consumption pattern and dietary practices of the respondents. Lack of knowledge and awareness on the benefits and nutritional values of fruits and vegetables was the reason for the low intake of some fruits and vegetables. Low BMI in pregnant women may lead to low birth weight (LBW) infants in the study area. Therefore, awareness on the importance of nutrient intake during the pregnancy has to be created among the pregnant women.

Table-4: Consumption pattern of fruits and vegetables.

Variables	Never	Occasionally	Once a week	2-4 per week	5-6 per week
Fruits					
Apple	3.6	32.7	21.8	30.9	5.5
Orange	3.6	30.9	34.5	16.4	3.6
Bananas	1.8	12.7	12.7	18.2	14.5
Grapes	18.2	34.5	29.1	10.9	1.8
Guava	18.2	32.7	25.5	9.1	3.6
Mango	16.4	23.6	34.5	12.7	9.1
Pine apple	72.7	12.7	12.7	1.8	0
Vegetables					
Carrot	1.8	21.8	29.1	36.4	5.5
Leafy vegetables	1.8	10.9	20	58.2	3.6
Tomato	12.7	12.7	38.2	25.5	3.6
Potato	5.5	10.9	23.6	43.6	10.9
Brinjal	30.9	23.6	23.6	18.2	0
Okra	10.9	14.5	45.5	21.8	1.8
Pumpkin	41.8	20	16.4	20	1.8
Bitter guard	36.4	27.3	23.6	10.9	0
Drum strick	30.9	32.7	25.5	10.9	0
Manioc	10.9	18.2	21.8	38.2	9.1

Values are in percentage.

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