Knowledge attitude and practice in pregnant women on healthy lifestyles and their nutritional status

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Abstract
Nutritional care during pregnancy and lactation is of great concern to reduce the incidence of low birth weight, infant mortality and morbidity. The objective of the study is to assess the nutritional status of selected pregnant women and their knowledge, attitude and practice of healthy lifestyle among them. A total of 150 pregnant women between the age group of 18-40 years was selected and grouped into three groups (I, II, and III) trimesters. Using an interview schedule the investigator collected the details on background information, clinical assessment, biochemical assessment, life-style pattern, dietary pattern, food frequency and 24–hour recall of the subjects from three maternity hospitals from the city of Coimbatore. Their knowledge, attitude and practice of healthy lifestyle were tested using a pre test and post test. The difference in score was analysed statistically. A significant difference between the mean nutrient intake and RDA for all both the micro and macronutrient was observed for all the pregnant women (I trimester, II trimester and III trimester) at 1 per cent level of significance (Figure 3, 4 & 5). The above finding clearly indicate the deficit intake of food and nutrient and also project a poor nutrition status among selected subjects.

Introduction
From time immemorial it has been recognized that women especially pregnant and lactating women form one of the most vulnerable segments of the population from nutritional point of view. Numerous studies in India and elsewhere have shown that in chronically under nourished women subsisting on unchanged low dietary intake, pregnancy and lactation have an adverse effect on maternal nutritional status. Maternal health is complex and is influenced by many factors in addition to diet including genetic, environmental, social and economic factors. Also the mother’s nutrition, before pregnancy is as important as her nutrition during pregnancy. A great proportion of Indian women belonging to low socio economic status are under nourished and continue to be in the state of malnutrition throughout pregnancy. High incidence of low birth weight, infant mortality and morbidity and poor maternal nutrition of the mother continue to be a major nutritional concerns of today. Inadequate nutrition is a cause of concern for the health of the mother as well as foetus. Nutrients that the baby does not get from the mother’s diet are drawn from her body tissue creating a deficiency. Women have an increased risk of iron deficiency during pregnancy because of the developing foetus. It is one of the most common nutritional deficiency seen in India, and it is directly or in directly responsible for about 20 per cent of maternal deaths and is also a significant contributor to foetal wastage, premature births and low infant birth weight. Most common micro nutrient deficiency disorder among pregnant women is vitamin A deficiency (VAD) which becomes obvious in the form of night blindness during the 3rd trimester, when the demand by both foetus and mother is highest. Night blindness in women is recognized as a public health problem and its occurrence can be used as
a simple and reliable indicator of VAD in the community as a whole. The effects of maternal VAD on the infant are manifold, gruesome and life long.

The foetus cannot control the kinds and amounts of nutrients it receives. The mother alone is responsible for supplying that nutrition through her own food choices. Ideally good eating habits are established long before this time. Meanwhile her diet has been the unborn baby’s sole source of nourishment. A woman who is already enjoying healthful foods is more likely to have a healthy baby. Poor eating habits of the mother place the baby at risk for serious problems throughout life.

The attitude, knowledge and practice of nutrition among pregnant women is a key factor in child’s overall growth and development. Most of the women in Tamil Nadu in rural areas are not aware of the nutritive values of vegetables, fruits, meats and eggs and they are ignored about the importance of providing a good nutrition for the developing foetus through their diet. Thus educating the pregnant women of healthy practice is the need of the hour and hence the present study “Assessment of Nutritional Status of Selected Pregnant Women and their Knowledge, Attitude and Practice of Healthy Life-Style” was undertaken with the following objectives.

The main objective of the study is to:

- Assess the nutritional status of the pregnant women
- Study the life-style pattern of pregnant women
- Assess the dietary pattern of the pregnant women and
- Study the knowledge, attitude and practice of healthy life style.

Methodology
Selection of Area

Three maternity hospitals from the outskirts of Coimbatore were conveniently selected for the conduct of the study.

Selection of Sample

A total of 150 pregnant women between the age group of 18 to 40 years were purposively selected for the conduct of the study from the three maternity centre of Coimbatore. The selected sample were then grouped into three groups consisting fifty samples from each group. Group I – 1st trimester, group II – 2nd trimester and group III – 3rd trimester based on the gestational age. The investigator developed a well structured interview schedule as a tool to collect the relevant information from the selected pregnant women. Thus using the interview schedule the background information, anthropometric assessment, clinical assessment, biochemical assessment, life-style pattern and dietary pattern of the subjects were elicited.

i. Background Information

The background information for name, age, sex, occupational status and income level were collected using an interview schedule.

ii. Anthropometric Assessment

The measurement for height and weight of the selected subjects were done and the mean height and weight was computed.

iii. Clinical Assessment

Using the Jelliffe table of clinical assessment the women belonging to the three groups were assessed for the sign and symptoms for nutritional deficiencies for both micro and macro nutrients with the help of a physician.

iv. Biochemical Assessment

The biochemical test for total haemoglobin and random blood glucose were done for all the selected pregnant women. Further, the blood pressure of the subjects was also measured using the sphygnomanometer to check the patient for gestational hypertension.

v. Life-style Pattern
Using the interview schedule the investigator elicited the life-style pattern of the subjects for leisure time activities, exercise pattern, type of exercise and their duration, consumption pattern of hot beverages and their frequency of consumption and the habit of chewing pan or tobacco.

vi. Food Frequency Table

Using food frequency table the investigator collected information on the quantum and frequency of consumption of various food groups. Along with this the eating out trends, types of fast foods consumed were also elicited.

vii. Nutrient Intake (24Hours Recall)

A 24 hour recall was done for all the one hundred and fifty samples. The weight per portion of the cooked foods in household measurement were converted into raw equivalent and the nutrient intake of the subjects were calculated using the nutritive value table. The mean nutrient intake of the subjects representing the three group were then compared with the Recommended Dietary Allowance (RDA) for pregnant women to assess their nutritional adequacy.

Assessment of Knowledge Attitude and Practice

The knowledge, attitude and practice of the selected pregnant women was assessed with the help of a pre-tested questionnaire. Score were awarded for every correct answers. An individual face to face counseling was given to all the selected subjects on healthy eating practices, gestation care and nutrition care was given.

Anthropometric Assessment

The Anthropometric parameters for height and weight of the subjects were measured and the mean height and weight is given in Table I.

A post-test was conducted to find the gain in the knowledge, attitude and practice of healthy life-style. The gain in knowledge attained and practice of healthy life-style was statistically analysed using the test of significance.

RESULTS AND DISCUSSION

The salient findings of the study are presented below:

Background Information

- Out of 150 pregnant women 119 of them were in the age group of 20 to 30 years.
- Ninety six pregnant women completed a high school level of education. Six of them were under graduates and only two of them were post graduates.
- The majority of the pregnant women (131) were house wives, and only 19 were working.
- Ninety seven out of 150 women belonged to very low income group with the monthly earning of rupees less than 3,300. Fifty subjects belonged to low income category. Earning between rupees 3,301 and 7,300, and only two belonged to middle income rupees 7,301 to 14,500 and one in high income rupees 14501 and above.
- Out of 150 subjects 145 subjects were sedentary workers, and the remaining five were found to be moderate workers.

Anthropometric Assessment

The Anthropometric parameters for height and weight of the subjects were measured and the mean height and weight is given in Table I.
The mean weight of the pregnant women both in I\textsuperscript{st} and II\textsuperscript{nd} trimester was above 50 kgs and the III\textsuperscript{rd} trimester was 64 kg indicating a positive weight gain.

**Clinical Assessment**

The clinical status of the selected pregnant women was assessed using the Jelliffe table of clinical assessment for sign of nutritional deficiencies with the help of a physician (Table II).

<table>
<thead>
<tr>
<th>Body Area</th>
<th>I Trimester (N = 50)</th>
<th>II Trimester (N = 50)</th>
<th>III Trimester (N = 50)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Normal</td>
<td>Abnormal</td>
<td>Normal</td>
</tr>
<tr>
<td>Hair</td>
<td>48</td>
<td>2</td>
<td>47</td>
</tr>
<tr>
<td>Face</td>
<td>46</td>
<td>4</td>
<td>47</td>
</tr>
<tr>
<td>Eyes</td>
<td>42</td>
<td>8</td>
<td>38</td>
</tr>
<tr>
<td>Tongue</td>
<td>46</td>
<td>4</td>
<td>50</td>
</tr>
<tr>
<td>Teeth</td>
<td>47</td>
<td>3</td>
<td>43</td>
</tr>
<tr>
<td>Gums</td>
<td>48</td>
<td>2</td>
<td>46</td>
</tr>
<tr>
<td>Skin</td>
<td>46</td>
<td>4</td>
<td>46</td>
</tr>
<tr>
<td>Nails</td>
<td>45</td>
<td>5</td>
<td>42</td>
</tr>
<tr>
<td>Muscular and skeletal system</td>
<td>47</td>
<td>3</td>
<td>45</td>
</tr>
<tr>
<td>Heart</td>
<td>43</td>
<td>7</td>
<td>45</td>
</tr>
<tr>
<td>Abdomen</td>
<td>50</td>
<td>0</td>
<td>50</td>
</tr>
<tr>
<td>Kidney</td>
<td>47</td>
<td>3</td>
<td>45</td>
</tr>
<tr>
<td>Neurologic</td>
<td>49</td>
<td>1</td>
<td>47</td>
</tr>
</tbody>
</table>

In general it was welcoming to note that more than 40 subjects each from all the three trimester did not show any abnormal clinical symptom for any of the nutritional deficiency disorders. Also it was observed that, less than 10 subjects from each group showed symptom prominent for anemia with pale hair and nail. Irregular heart beat was observed among 19 (I trimester – 7, II trimester – 5 per, III trimester – 7) subject which can be attributed to the physiological change during the gestation.

**Biochemical Assessment**

The biochemical assessment for total haemoglobin, blood glucose and blood pressure were done for all the selected pregnant women, and the values are compared with the normal value.

The biochemical assessment for total haemoglobin for all the selected pregnant women showed that out of 150 pregnant women 35 subjects were found to be with mild anemic (I trimester – 9, II Trimester – 16, III Trimester – 10) and 9 subjects had
moderate anaemia (I trimester – 3, II Trimester – 2, III Trimester- 4) (Figure 1).
BLOOD GLUCOSE LEVEL OF THE SUBJECTS

Except for three subjects from I trimester - (2) and III trimester - (1) the rest of the subjects random blood glucose levels were found to be within the normal range of 80–120 mg/dL (Figure 2).

Blood pressure of selected pregnant women

<table>
<thead>
<tr>
<th>Blood pressure</th>
<th>I Trimester (N = 50)</th>
<th>II Trimester (N = 50)</th>
<th>III Trimester (N = 50)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;130/85 (normal)</td>
<td>48</td>
<td>48</td>
<td>50</td>
</tr>
<tr>
<td>140/90 – 159/99 (Mild hypertension)</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>160/100 -179/109 (Moderate hypertension)</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>&gt;180/110 Severe</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

Source** AHA 2002

Four subjects each two from I and II trimester had gestational hypertension. Out of the hypertensive two subjects from I trimester were found to have moderate hypertension. (Table III).

Lifestyle Pattern

Lifestyle

- Totally 56 pregnant women did mild forms of exercise (I trimester-8, II trimester-18, III trimester-30).
- One hundred women consumed tea daily and coffee was found to be consumed only by 44 subjects and 81 subjects consumed milk daily.
- Out of 150 subjects 10 subjects had the habit of chewing pan (three from I trimester, two from II trimester and five from III trimester).
- Out of 150 subjects 131 were found to be non – vegetarians, (40 - I trimester, 44 - II trimester and 47 - III trimester).

Dietary Pattern

Food frequency

Using the food frequency table, the frequency of consumption of various food groups were elicited. It was observed that among all the cereals rice was consumed by all the subjects daily followed by wheat (72). None of the subjects consumed bajra and barley. Among the pulses black gram dhal was consumed by majority of the subjects, followed by red gram dhal (107). (I trimester – 34, II trimester – 36, III trimester – 37) Soyabean a good source of protein was consumed by 52 subjects (I trimester – 14, II trimester – 11, III – trimester – 27).
Drumstick leaves one of the locally available, low cost green leafy vegetable rich in both iron and vitamin was found to be consumed only by 97 subjects from (I trimester- 29, II trimester- 35, III trimester- 33). Spinach and amaranth was consumed by 37 and 62 pregnant women respectively.

Among roots and tubers onion was consumed by all of the subjects and the least consumed was colocasia. (I trimester – 6, III trimester – 10) Drumstick was consumed by majority of the subjects (124), followed by ladies finger (115). Only 13 pregnant women consumed bittergourd. Banana was consumed by majority of the subjects daily followed by sapota (103) and guava (33).

Among fruits none of the subjects consumed papaya which can be attribute to the faulty dietary practices and myth that is been passed from generation to generation. Therefore sensitizing the mass to put the knowledge of nutrition to practice is the need of the hour. Only few subjects consumed almond (2), cashew nut (12) and ground nut (14), whereas fresh coconut was consumed by all the subjects because of its frequent usage in preparation like chutney and curry. Chicken was found to be consumed by majority of the pregnant women (121). It was also surprising to notes that none of the subjects from all the three trimester consumed pork, goat, goat liver and duck. It was noted that milk a good source of protein and calcium was consumed by only 92 subjects (I trimester – 19, II trimester – 29, III trimester – 41), followed by buttermilk (68) and curd (67). None of the subjects took cheese and skimmed milk either as such or in the form of powder. Refined oil was used by all the subjects and butter and ghee was used by only few subjects (19) and (28) subjects respectively.

NUTRIENT INTAKE (24 HOUR RECALL)

A 24 hour recall was done for all the one hundred and fifty samples. The mean nutrient intake of the subjects were then compared with the RDA for nutritional adequacy. The data were further analysed statistically.

![Mean Nutrient Intake of the Selected Pregnant Women (I Trimester)](image-url)
MEAN NUTRIENT INTAKE OF THE SELECTED PREGNANT WOMEN (II TRIMESTER)  
FIGURE 4

The mean nutrient intake of the pregnant women from III trimester is interpreted in Figure 5.

A significant difference between the mean nutrient intake and RDA for all both the micro and macronutrient was observed for all the pregnant women (I trimester, II trimester and III trimester) at 1 per cent level of significance (Figure 3, 4& 5). The above findings clearly indicate the deficit intake of food and nutrient and also project a poor nutrition status among selected subjects.
Assessment of Knowledge Attitude and Practice of Pregnant Women

The knowledge, attitude and practice of pregnant women on healthy lifestyle was assessed using a pre test. Nutritional knowledge was imparted through nutritional education and post test was conducted using the same questionnaire. The knowledge gained before and after nutrition education.

### TABLE IV

<table>
<thead>
<tr>
<th>Before/After</th>
<th>Paired Difference</th>
<th>‘t’ value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Standard Deviation</td>
</tr>
<tr>
<td>I trimester</td>
<td>3.6200</td>
<td>±3.0499</td>
</tr>
<tr>
<td>II trimester</td>
<td>3.2400</td>
<td>±1.5194</td>
</tr>
<tr>
<td>III trimester</td>
<td>2.8800</td>
<td>±1.3037</td>
</tr>
</tbody>
</table>

A significant gain in knowledge, attitude and practice of pregnant women at 1% level of significance (Table IV) was observed during the phase of study.

Conclusion

The current research finding reveals a deficit intake of both macro and micronutrients among all the selected pregnant women indicating the prevalence of poor maternal status in general. The knowledge attitude and practice of healthy practice was the selected women was found to have improved significantly after the individual nutrition education and counseling. Thus educating the pregnant and lactating mother will help us to bring up healthy children.

References