

Nutritional Knowledge, Attitude and Practices among Mothers during Prenatal Period in Aligarh City, U.P., India

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ABSTRACT

Prenatal period is universally considered crucial for women and children. During pregnancy, maternal nutrition requires considerable attention. Pregnant women's nutritional knowledge, attitudes, and practices are less understood. The objective of this study was to assess and compare nutritional knowledge, attitude, and practices among pregnant women who attend antenatal care at public and private hospitals of Aligarh city, U.P. An institution based study was conducted to collect relevant data of 400 pregnant women (Primigravida or multigravida), who attended antenatal care service in selected public and private hospitals in Aligarh city, UP, India. Stratified Purposive Sampling procedure was used to select hospitals and Simple random sampling techniques were used to select pregnant mothers. Data was code and exported to the statistical package for social sciences (SPSS) program version 23.0 for further analysis. Multivariable logistic regression analyses were used to identify independent predictors of knowledge, attitude, and practices of pregnant women regarding nutrition. This research paper is the original work. The results of the study revealed that the majority (69%) of the respondents were aware about the Antenatal care clinics during pregnancy and about 81.0% went to antenatal checkups done. Almost all respondents were fully aware of the place of antenatal checkups. Around 53.75% of sample respondents suffered complications during pregnancy and majority 76.25% of sample respondents aware about the institutional delivery. Almost all respondents (79.50%) were aware about the importance of nutritional diet and only 53% respondents' balanced diet during pregnancy. This shows that having knowledge is not enough until we put that knowledge into practice. Almost all respondents were aware of IFA/Calcium tablets and schedule of TT vaccination during pregnancy but (76.50%) take IFA and received TT vaccination (78.50%). Basic prenatal care components are effective means to prevent range of pregnancy complication and reduce maternal mortality.

Key Words : Knowledge, Attitude, Practice, Nutrition; Malnutrition, Pregnancy

INTRODUCTION

Nutrition is a fundamental pillar of human life, health and development throughout the entire lifespan (Daba *et al.*, 2013). There are approximately 40 different nutrients that are essential for health. If any one of these is deficient in the diet, the person will not be fully healthy and able to resist the agents of disease (Collins, 2007). In many developing countries, improper nutrition during pregnancy and childbirth are leading causes of death among women of reproductive age. The maternal health situation in the

country has been staggering despite several changes in a rapidly evolving socioeconomic environment. The roles and responsibilities of primary care physicians have also been revised continuously in this context. According to WHO (Children: reducing mortality 2019) in 2018 an estimated 5.3 million children died in the first 5 years, with almost half of these in the first month of life mostly from preventable causes. Leading causes of death in children under-5 years are preterm birth complications, pneumonia, birth asphyxia, congenital anomalies, diarrhoea and malaria. Nearly half of these deaths are in

newborns. More than half of these early child deaths are preventable or can be treated with simple, affordable interventions including immunization, adequate nutrition, safe water and food and appropriate care by a trained health provider when needed. Strengthening health systems to provide such interventions to all children will save many young lives.

Malnourished children, particularly those with severe acute malnutrition, have a higher risk of death from common childhood illness such as diarrhoea, pneumonia, and malaria. Nutrition-related factors contribute to about 45% of deaths in children under-5 years of age. Leading causes of death in post-neonatal children mainly cause of death are Pneumonia, or other acute respiratory infections, (Risk factors are Low birth weight, Malnutrition, Non-breastfed children, Overcrowded conditions) and Childhood diarrhoea (risk factors are Non-breastfed children, Unsafe drinking water and food, Poor hygiene practices and Malnutrition) these can be prevented by Antenatal care visits for mother, Adequate nutrition, Exclusive breastfeeding, Reduction of household air pollution, Vaccination, Exclusive breastfeeding, Safe water and food, Adequate sanitation and hygiene.

According to Global Response: Sustainable Development Goals (SDGs) adopted by the United Nations in 2015 were developed to promote healthy lives and well-being for all children. The SDG Goal 3 is to end preventable deaths of newborns and under-5 children by 2030. According to UNICEF, the nutritional status of mothers during pregnancy influences her child's health both beneficially and adversely. Recent research has highlighted the association between undernutrition in pregnancy with maternal, fetal and infant morbidity and mortality. Abu Saad *et al.* (2010) found that poor nutrition during pregnancy not only leads to high maternal morbidity and mortality, but also results in high prenatal infant and child mortality rates. A component of improving child malnutrition and mortality rates, therefore, lies in improving the nutritional status of women during pregnancy and nursing. Nutrition is the intake of food necessary for optimal health. Several studies have revealed that inadequate maternal nutrition could lead to malnutrition which causes poor pregnancy outcomes, such as fetal growth failure, low birth weight, preterm birth, prenatal and infant mortality and morbidity. Rosliza and Muhamad (2011) reported that the majority (94.2%) of the women know that pregnant women need to go for antenatal check-up. Daba *et al.* (2013) reported that less

(34.8%) respondents had the knowledge that inadequate nutrition during pregnancy can be the cause of miscarriage and pre-term birth. (Sethi, 2003; Saaka, 2014) said that the maternal health issues that can have a lifelong effect on child health; particularly nutrition, parental care, and care of new-born are often ignored, but there should be clear connections between the mother's health status and its nutritional knowledge. Payghan *et al.* (2014) conducted study among pregnant women visiting Antenatal clinic at urban and rural field to determine the existing practices, knowledge and attitude of mothers towards nutrition during pregnancy, result shows that the nutritional knowledge and practices of urban mothers are high compared to rural mothers, while rural and urban mothers had almost equal positive attitude towards nutrition. Adikari *et al.* (2016); said that Nutrition during pregnancy has a major impact on the outcome of pregnancy and is accredited as an important determinant for a healthy and successful pregnancy including the life-long health of future generation. And, it makes mothers more susceptible to nutritional deficiency during the gestational period due to dietary behaviors influenced by their knowledge. Lim *et al.* (2018) conducted a cross-sectional study on 88 randomly selected antenatal mothers at the Obstetrics and Gynecology Clinic during their antenatal care visits. It concluded that the current knowledge gap that exists in antenatal mothers and nutritional education ought to be intensified to address this issue. Addressing maternal health means ensuring that all women receive the care they need to be safe and healthy throughout pregnancy and childbirth. Prenatal period is very important and prenatal care is an essential first step in a child's life. Newborn and the unborn have a special place in all societies and their needs are frequently considered a high priority, but in reality their needs may frequently, for various reasons go unnoticed. One reason among them is the poor knowledge of pregnant women regarding the care or antenatal care which may directly affect an unborn child.

The major components of prenatal care include the diagnosis and treatment of any health complication counselling about nutritional diet, avoidance of drugs etc. Comprehensive prenatal care may prevent complications of pregnancy, which can have life time effects and reduce premature labor and neonatal mortality. Keeping above factors in view the present study was taken with the purpose to determine the nutritional knowledge, attitude and practices among pregnant women during prenatal

period with the objectives.

Objective of the study:

The present research was undertaken with following objectives.

- To assess nutritional knowledge, attitude, and practices among pregnant women who attend antenatal care at public and private hospitals of Aligarh city, U.P.
- To compare the knowledge level related to prenatal care among pregnant women (both Primigravida and Multigravida)

METHODOLOGY

The study was conducted in Aligarh city which is governed by Aligarh Municipal Corporation. The Aligarh city is located in the western part of the state of Uttar Pradesh in India. Aligarh is one of the 13 Smart Cities identified in UP out of 100 in India. It is the administrative headquarters of the Aligarh Division.

The sample:

The sample consisted of 400 pregnant women (Primigravida or multigravida) from 6 selected hospitals (3 public and 3 private hospitals). The information provided from each of these hospitals, the average number of pregnant mothers attending antenatal clinics antenatal care (ANC) were selected. The study population included randomly selected pregnant women who had visited public and private hospitals in Aligarh city during August to December, 2019 for antenatal care. The sample size was determined using a single population proportion formula at 95% of confidence interval with assumption of prevalence of knowledge of pregnant mothers towards nutrition 50% (Daba *et al.*, 2013) with ($\alpha=0.05$) 5% margin of error ($d=0.05$). Stratified Purposive Sampling procedure was used to select hospitals and Simple random sampling techniques were used to select pregnant mothers proportionally in the study at each hospital unit until the desired sample size was attained.

Tools used:

In order to collect the data a self devised Interview Schedule.

After going through different review material, an Interview Schedule was prepared which was pretested on 25 sample women beneficiaries belonging to all were finalized.

The interview schedule comprised of

1. Socio-demographic characteristics of pregnant mothers attending hospitals (N=400)
2. Assessment of knowledge and practice of mothers related to prenatal period
 - (a) Basic knowledge of mother during pregnancy
 - (b) Knowledge and Practice Related to Nutritional Supplements during Pregnancy

(c) Procedure of data collection:

The data was collected by visiting the selected hospitals and the prior permission is taken from hospitals and pregnant mothers.

RESULTS AND DISCUSSION

This study was conducted to investigate the level of nutritional knowledge, attitudes, and dietary practices of pregnant women during pregnancy.

The results of the present study have been discussed under categories.

1. Socio-demographic characteristics of pregnant mothers attending hospitals (N=400)
2. Assessment of knowledge and practice of mothers related to prenatal period
 - (a) Basic knowledge of mother during pregnancy
 - (b) Knowledge and Practice Related to Nutritional Supplements during Pregnancy

Socio-demographic characteristics of pregnant mothers attending hospitals (N=400):

The detailed compositions of the sample studied are shown in Table 1. The total number of respondents studied were 400 in the age group of 18 years and above.

A total of 400 pregnant mothers participated in the study. The majority of respondents (41.0%) were in the age group of (24-29 yrs). It is shown in the table that the majority of respondents were married 94.3%, whereas 2.8% were widowed and 2.5% were separated and only 0.5 % were divorced. About 44% belongs to Hindu families, majority of respondents 52.3% were belong to Muslim families, few were belongs to Sikh 2.3% and Christian 1.5% respectively. Majority of respondents belonged to General caste 47% followed by OBC 43.3%, only 2.8% belonged to SC/ST and rest 7% belonged to other caste.

On analysis of educational background of the respondent mother and her husband, it was found that 13.5% respondents were graduate and 20.3% were post graduate whereas 22.8% husband of respondents were

Table 1 : Socio-demographic characteristics of pregnant mothers attending hospitals (N=400)

Characteristics	No. of respondents (Frequency)	Percentage (%)
Age		
18-23	87	21.8
24-29	164	41.0
30-35	117	29.3
36 and above	32	8.0
Marital status		
Married	377	94.3
Widow	11	2.8
Divorcee	2	0.5
Separated	10	2.5
Religion		
Hindu	176	44.0
Muslim	209	52.3
Sikh	9	2.3
Christian	6	1.5
Caste		
General	188	47.0
SC/ST	11	2.8
OBC	173	43.3
Other	28	7.0
Educational Status of Mother		
Illiterate	119	29.8
Primary	31	7.8
High school	61	15.3
Intermediate	54	13.5
Graduate	54	13.5
Post Graduate	81	20.3
Family structure		
Nuclear Family	183	45.8
Joint Family	217	54.3
Family size/ members		
less than 4	72	18.0
6-8	97	24.3
> 8	231	57.8
Mother's occupation		
Non-working/ House wife	335	83.8
Working	65	16.3
Educational status of husband		
Illiterate	123	30.8
Primary	26	6.5
High school	55	13.8
Intermediate	40	10.0
Graduate	91	22.8
Post Graduate	65	16.3
Husband's occupation		
Non-working	35	8.8
Working	365	91.3
Family income in Rs.		
<10000	174	43.5
10000-25000	88	22.0
25000-45000	59	14.8
45000 or more	79	19.8

graduate and 16.3% were post graduate. The findings revealed that the majority of 29.8% respondents and majority of 30.8% respondent husbands had no education at all. Only 7.8% respondents and 6.5% respondent husbands had primary education. 15.3% respondents had high school and 13.5% had intermediate education. On the other hand 13.8% of respondents had high school education and only 10% had intermediate education.

The respondents 54.3% lived jointly and the remaining 45.8% lived in nuclear families.

The respondent studied were mostly non working (housewife) *i.e.* 83.8% and only 16.3% found to working whereas 91.3% respondent husband were found to be working and only 8.8% were non working. The family size of the respondents states that majority 57.8% having large family size (> 8 members), 24.3% respondents having 6-8 members in their family and only 18% respondents have less than 4 family members in their family. The majority of respondents *i.e.* 43.5% had a family income upto Rs. 10000 per month followed by 22% respondents had family income between Rs. 10000-25000 and 14.8% respondents had family income between Rs 25000-45000 per month. Only around 1/5th of the total *i.e.* 19.8% respondents had family income above Rs 45000 or more respectively. A family's socioeconomic status is based on the family income, educational level, and occupation.

Assessment of knowledge and practice of mothers related to prenatal period:

Basic knowledge of mother during pregnancy:

Pregnant women must have awareness regarding Antenatal care (ANC) clinic, Place of antenatal checkups, benefits of institutional delivery in order to reduce risks, IMR and MMR. Mothers absolutely need good care during the prenatal period. It is essential to ensure not only the health of mothers, but also the health and well being of the baby. The first prenatal visit starts at one month and continues till delivery as per the doctor's advice. Table 2 reveals that majority of sample respondents (69%) were Aware about the Antenatal care (ANC) clinic, Statistically there was no significant difference regarding awareness about Antenatal care (ANC) clinic among the groups of mother (P>0.05)

Majority of respondents (81%) revealed that Antenatal check-up was done during the last pregnancy. While only (19%) of total respondents didn't go for any antenatal check-up done during the last pregnancy. The

findings revealed that there is no significance difference observed in antenatal check up done during pregnancy between pregnant and non pregnant mother (P> 0.05)

Majority of respondents (45.25%) in favour of consultation in Government Hospital and around (32.25%) preferred private hospitals as a place of antenatal checkups. Some (18%) of sample mothers go to Anganwadi for their ANC while only a small proportion (4.50%) did not find it necessary to consult a doctor during pregnancy. The analysis revealed that there is a very high significance difference observed in place of antenatal checkups between pregnant and non pregnant mother (P<0.005)

With respect to the complication during pregnancy majority (53.75%) of sample women suffered complication and (46.25%) of total respondents didn't face any complication during pregnancy. Statistically, there is no significance difference observed in complication suffered during pregnancy between pregnant and non pregnant mother (P>0.05)

Table shows that the majority of sample respondents

(76.25%) were Aware about the benefits of institutional delivery and around 1/4th (23.75%) were not aware about it. Statistically there was no significant difference regarding awareness about benefits of institutional delivery among the groups of mother (P>0.05)

Knowledge and practice related to nutritional supplements during pregnancy:

Data from the table shows that the majority 79.5 per cent of mother respondents have awareness about the importance of Nutritional diet during pregnancy, out of them 34.25 per cent were pregnant mothers and 45.25 per cent were non pregnant mothers. While 20.5 per cent mothers were not aware about the importance of nutritional diet during pregnancy, out of which 12.75 per cent were pregnant mothers and 7.75 per cent were non pregnant mothers. Statistically there was a significant difference regarding awareness about importance of Nutritional diet during pregnancy among the groups of mother (P<0.05)

The Table 3 shows that the majority 53.0 per cent

Table 2 : Basic knowledge of mother during pregnancy

Characteristics			Pregnant mothers	Non pregnant mothers	Total	Chi square value
Aware about the Antenatal care (ANC) clinic	Yes	f	128	148	276	0.139 ^a
		%	32.0%	37.0%	69.0%	
	No	f	60	64	124	0.107 ^a
		%	15.0%	16.0%	31.0%	
Antenatal check-up done during the last pregnancy	Yes	f	151	173	324	0.107 ^a
		%	37.75%	43.25%	81.0%	
	No	f	37	39	76	54.755 ^a
		%	9.25%	9.75%	19.0%	
Place of antenatal checkups	Private Hospitals	f	63	66	129	54.755 ^a
		%	15.75%	16.50%	32.25%	
	Government hospital	f	59	122	181	
		%	14.75%	30.50%	45.25%	
	Anganwadi	f	60	12	72	0.000 ^a
		%	15.0%	3.0%	18.0%	
	Others	f	6	12	18	2.235 ^a
		%	1.5%	3.0%	4.5%	
Any complication suffered during pregnancy	Yes	f	101	114	215	0.000 ^a
		%	25.25%	28.50%	53.75%	
	No	f	87	98	185	2.235 ^a
		%	21.75%	24.50%	46.25%	
Aware about the benefits of institutional delivery	Yes	f	137	168	305	2.235 ^a
		%	34.25%	42.0%	76.25%	
	No	f	51	44	95	2.235 ^a
		%	12.75%	11.0%	23.75%	

of total mother respondents have taken a balanced diet during pregnancy, out of them 24.75 per cent were pregnant mothers and 28.25 per cent were non pregnant mothers. While 47.0 per cent of total mothers do not take a balanced diet during pregnancy, out of which 22.25 per cent were pregnant mothers and 24.75 per cent were non pregnant mothers. Statistically there was no significant difference regarding taken balance diet during pregnancy among the group of mothers ($P>0.05$)

Data from the table shows that the majority 76.50 per cent of total mother respondents have taken Iron Folic Acid/Calcium Tablets during pregnancy, out of which 35.50 per cent were pregnant mothers and 41.0 per cent were non pregnant mothers. While 23.50 per cent mothers did not take Iron Folic Acid/Calcium Tablets during pregnancy, out of which 11.50 per cent were pregnant mothers and 12.0 per cent were non pregnant mothers. The analysis revealed that no significant difference in knowledge was found regarding Iron Folic Acid/Calcium Tablets taken during pregnancy among the groups of mother ($P>0.05$)

In context to the knowledge regarding IFA and calcium tablets, it is clear from the table that the majority 76.5 per cent of mothers under this study were fully aware about it.

Data from the table shows that the majority 62.50 per cent of total mother respondents have increased consumption of vegetables, fruits, milk and other dairy products during pregnancy, out of them 25.50 per cent were pregnant mothers and 37.0 per cent were non pregnant mothers. While 37.5 per cent mothers have not increased consumption of vegetables, fruits, milk and other dairy products during pregnancy, out of which 21.5 per cent were pregnant mothers and 16.0 per cent were non pregnant mothers. Statistically there was a highly significant association regarding increase consumption of vegetables, fruits, milk and other dairy products during pregnancy among the group of mothers ($P<0.05$)

The data from the Table 3 shows that the majority 78.5 per cent of total mother respondents have received Tetanus Toxoid Injections during pregnancy, out of them 32.75 per cent were pregnant mothers and 45.75 per cent were non pregnant mothers. While 21.50 per cent mothers have not received Tetanus Toxoid Injections during pregnancy, out of which 14.25 per cent were pregnant mothers and 7.25 per cent were non pregnant mothers. The statistical data discovered a very high significant difference in knowledge of Tetanus Toxoid Injections received among the pregnant and non pregnant mother ($P<0.05$)

Characteristics			Pregnant mother	Non pregnant mother	Total	Chi square value
Awareness about importance of nutritional diet	Yes	f	137	181	318	9.561 ^a
		%	34.25%	45.25%	79.5%	
	No	f	51	31	82	0.017 ^a
		%	12.75%	7.75%	20.5%	
Take balance diet	Yes	f	99	113	212	0.017 ^a
		%	24.75%	28.25%	53.0%	
	No	f	89	99	188	0.185 ^a
		%	22.25%	24.75%	47.0%	
Iron folic acid/Calcium tablets taken	Yes	f	142	164	306	0.185 ^a
		%	35.50%	41.0%	76.50%	
	No	f	46	48	94	10.288 ^a
		%	11.50%	12.0%	23.50%	
Increase consumption of vegetables, fruits, milk and other dairy products	Yes	f	102	148	250	10.288 ^a
		%	25.50%	37.0%	62.50%	
	No	f	86	64	150	16.347 ^a
		%	21.50%	16.0%	37.50%	
Tetanus toxoid injections are given	Yes	f	131	183	314	16.347 ^a
		%	32.75%	45.75%	78.5%	
	No	f	57	29	86	
		%	14.25%	7.25%	21.5%	

Conclusion:

The sample mothers in the study reported poor levels of nutritional knowledge, attitudes and practices. Most pregnant women have adequate levels of nutritional knowledge about nutrition and balanced diet during pregnancy. The socio-economic factors have a direct and indirect effect on the level of nutritional knowledge, attitudes and practices among pregnant women. The Monthly income, educational level and attitude were the significant factors affecting nutritional knowledge of mothers during pregnancy. Monthly income, husband education and occupation were significant predicting factors for nutritional practices during pregnancy. Good knowledge about maternal nutrition usually affects nutritional attitudes during pregnancy.

The findings reveals that multigravida has a more knowledge than primigravida mothers regarding maternal health care, including the antenatal and prenatal care, Antenatal check-up done during the last pregnancy, Antenatal check-up done during the last pregnancy, Place of antenatal checkups, Any complication suffered during pregnancy, Aware about the benefits of institutional delivery was moderate, but there were still many aspects of prenatal care where the knowledge was lacking and in which respondents need to be made aware of. The findings of the study revealed that there is a difference in level of nutritional knowledge, attitudes and practices among pregnant women (Primigravida or multigravida). Better understanding of various aspects of antenatal care must be ensured by pregnant mothers during pregnancy for improving the foetal growth and health. Health care providers should introduce strategies for providing health education about proper and balanced maternal nutrition during ANC visits.

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