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Research Article

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Awareness of pregnant women about folic acid supplementation during pregnancy to reduce neural tube defects

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ABSTRACT

Aim

The aim of the study was to measure awareness of pregnant women about folic acid supplementation during pregnancy to reduce neural tube defects.

Methods

A prospective observational cross sectional study was conducted for a period of six months. The study included all the women who are pregnant and who are planned to be pregnant in the study site after satisfying the inclusion criteria. Data was collected with the help of a self-prepared questionnaire and interview. Statistical analysis was performed to test the differences between variables by using Chi square analysis. The value of $p < 0.05$ was considered as significant level.

Results

The present study was conducted on 200 pregnant women to assess their knowledge regarding folic acid supplementation during pregnancy. The results of our study revealed that 8.5% with high level of knowledge, 32% with intermediate level, and 38.5% with low level knowledge, and 21% with no knowledge. There was no association between the knowledge scores and the socio demographic variables like level of education, Gestational age, number of previous pregnancies. Pregnant women with a past history of previous pregnancies had poor knowledge when compared with the present first pregnant women.

Conclusion

Awareness of folic acid role and its requirements during pregnancy is low among interviewed women. There is a need to increase the awareness of the importance of folic acid among females of childbearing age. The different strategies are required to elevate the knowledge about folic acid among the women in reproductive age and provide them with some information about the benefits of this supplement. Further counseling programs would increase the level of awareness among this group and increase the consumption of folic acid in the correct time to prevent Neural tube defects.

Keywords: Folic acid, Neural tube defects, Pregnancy.

INTRODUCTION

The word folate comes from the Latin word folium, which means leaf.¹ Folate is found naturally in a

wide variety of foods including vegetables (especially dark green leafy vegetables), fruits and

fruit juices, nuts, beans, peas, dairy products, poultry and meat, eggs, seafood, and grains.²

Spina bifida

Spina bifida is a developmental congenital disorder caused by the incomplete closing of the embryonic neural tube.³

Anencephaly

Anencephaly is the absence of a major part of the brain, skull, and scalp. A baby born with anencephaly is usually blind, deaf, unconscious, and unable to feel pain.

Encephalocoeles

Encephalocoeles are when parts of the brain protrude through openings in the skull. The protruding parts of the brain are encased in a sack. They are often associated with abnormalities of the brain, skull, face and other problems.⁴

Etiology of neural tube defects

Genetic and environmental factors are likely to cause neural tube defects. The risk for neural tube defects is higher among families of lower socio economic status. Other factors identified in previous studies include maternal use of anti-epileptic drugs, maternal diabetes, hyperthermia and obesity. Maternal age, alcohol consumption, maternal exposure to excess vitamin A and lead, febrile illness, heat exposure and tea usage in the first trimester may be causally associated with the pathogenesis of neural tube defects.⁵ To achieve 70% reduction in neural tube defects the U.S. Public Health Service recommends that all childbearing age women capable of pregnancy consume 0.4 mgs of folic acid daily.⁶

AIM & OBJECTIVES

This study aims to measure awareness of pregnant women about folic acid supplementation during pregnancy to reduce neural tube defects.

The key objectives of the study include:

- To assess the level of awareness regarding the use of folic acid in pregnancy.
- To determine the level of knowledge of folic acid supplementation in pregnant women.

METHODOLOGY

Study design and study period

It is a prospective observational cross sectional study done for six months.

Source of data

All the data was collected in the previously designed data collection form. The data required for the cross sectional study was collected on daily basis for six months. Self-prepared questionnaires were used to assess the level of knowledge about folic acid supplementation by pregnant women.

Sample size

A sample size of 200 members was included in the study.

Inclusion criteria

The study includes, All women who are pregnant and who are planned to be pregnant was included in the study.

Exclusion criteria

The study excludes,

- Pregnant women who are not willing in the study they are excluded.
- Pregnant women who could not communicate in spoken English and Telugu (either directly or through family members).

Method of collection of data

Data collection would be done by using the following documents

- Annexure-1(Pregnant women data collection form)
- Annexure-2(Questionnaires)

QUESTIONNAIRES

Pregnant women's knowledge assessing questionnaires form

Knowledge would be assessed for pregnant women about folic acid using the following questions. Pregnant women respond yes or no for the following 15 questions. Score >13 was considered as very good knowledge, 10 to 13 was considered as good knowledge, 9 to 5 was considered as average and score <5 as poor knowledge.

Statistical analysis

Descriptive statistics were used to describe demographic characteristics of the pregnant women and for Knowledge assessing scores. Demographic characteristics will be compared with knowledge assessing questions by using chi square test.

RESULTS

The present study was conducted on 200 pregnant women to assess their knowledge regarding folic acid supplementation during pregnancy. The mean

age of pregnant women was 23.4 years (± 3.53) with a minimum age of 18 and maximum of 37 years.

Table: 1 Demographic characteristic of the pregnant women

Characteristics	Mean \pm SD or n = 200(%)
1. Age	23.4 \pm 3.53
2. Level of education	
Tertiary education	17(8.5)
Secondary education	64(32)
Primary education	77(38.5)
No formal education	42(21)
3. Gestational age	
2 nd month	6(3)
3 rd month	33(16.5)
4 th month	31(15.5)
5 th month	43(21.5)
6 th month	23(11.5)
7 th month	25(12.5)
8 th month	8(4)
9 th month	31(15.5)
4. No. of previous pregnancies	
None	84(42)
One	75(37.5)
Two	33(16.5)
Three	5(2.5)
More	3(1.5)

Table: 2 Characteristics of pregnant women which are significant by using chi square test

S.No	Variables	N=200(%)	Very Good (>13)	Good (10-13)	Average (5-9)	Poor <5	p-value
1.	Level of education						
	Tertiary	17(8.5)	07	09	0	01	
	Secondary	64(32)	02	19	35	08	<0.00001
	Primary	77(38.5)	0	08	59	10	
	No formal	42(21)	0	01	25	16	
2.	Gestational age						
	2 nd month	6(3)	0	01	03	02	
	3 rd month	33(16.5)	02	02	19	10	
	4 th month	31(15.5)	02	03	12	14	0.773655
	5 th month	43(21.5)	01	11	27	04	
	6 th month	23(11.5)	0	07	14	02	
	7 th month	25(12.5)	02	04	17	02	
	8 th month	8(4)	0	03	05	0	0.795622
	9 th month	31(15.5)	01	08	20	02	
3.	No. of previous pregnancies						
	None	84(42)	04	20	44	16	

One	75(37.5)	04	13	48	10	
Two	33(16.5)	0	05	21	07	0.79354
Three	5(2.5)	0	01	04	0	
More	3(1.5)	0	0	02	01	

The above table calculates the characteristics of the pregnant women according to the knowledge of pregnant women's. There is no association between the knowledge scores and the socio demographic variables like level of education, Gestational age, Number of previous pregnancies. Pregnant women with a past history of previous pregnancies had poor knowledge when compared with the present first pregnant women. The knowledge of most respondents (38.5%) was in the primary education level, (32%) was in the secondary education, (21%)

was in the no level of education and only a few of them (8.5%) had the high level of knowledge (Figure1). Tertiary level of knowledge was only found in a few numbers of participants, but most of them revealed the intermediate knowledge and the low level knowledge (Figure 2). The number of previous pregnancies ranged between none and more than three. Women with no previous pregnancies have more knowledge when compared to women with three or more pregnancies (Figure 4).

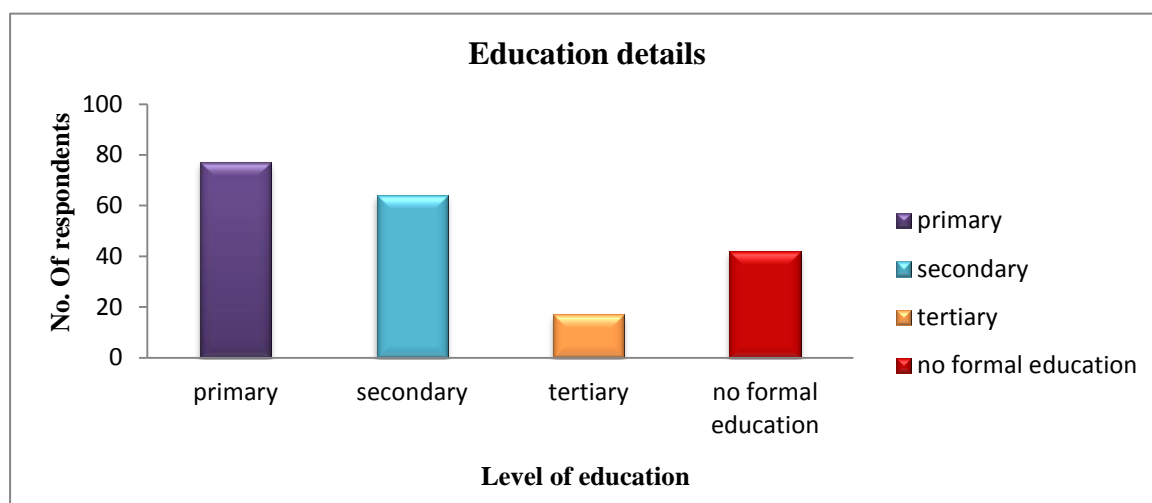


Figure 1: Pregnant woman education details

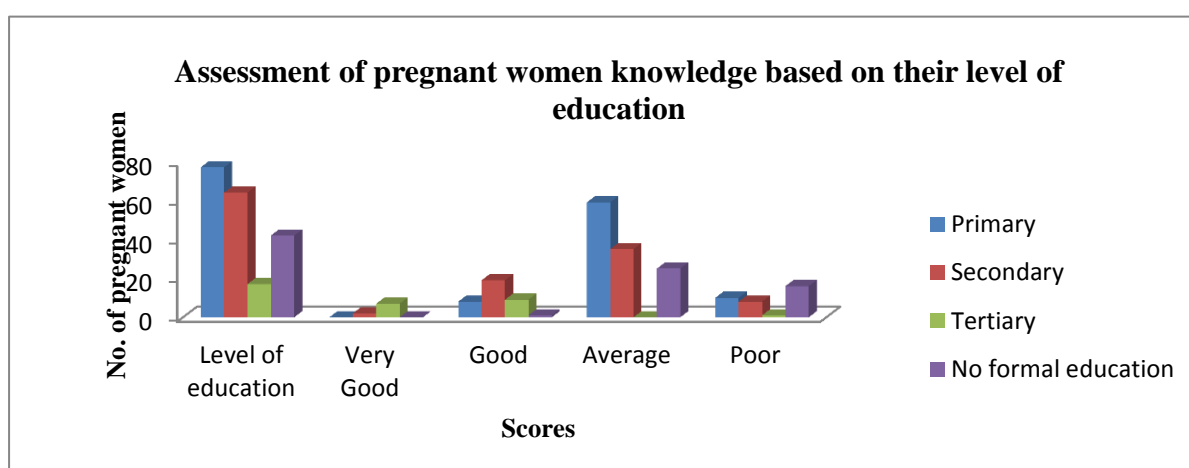


Figure 2: Assessment of pregnant women knowledge based on their level of education

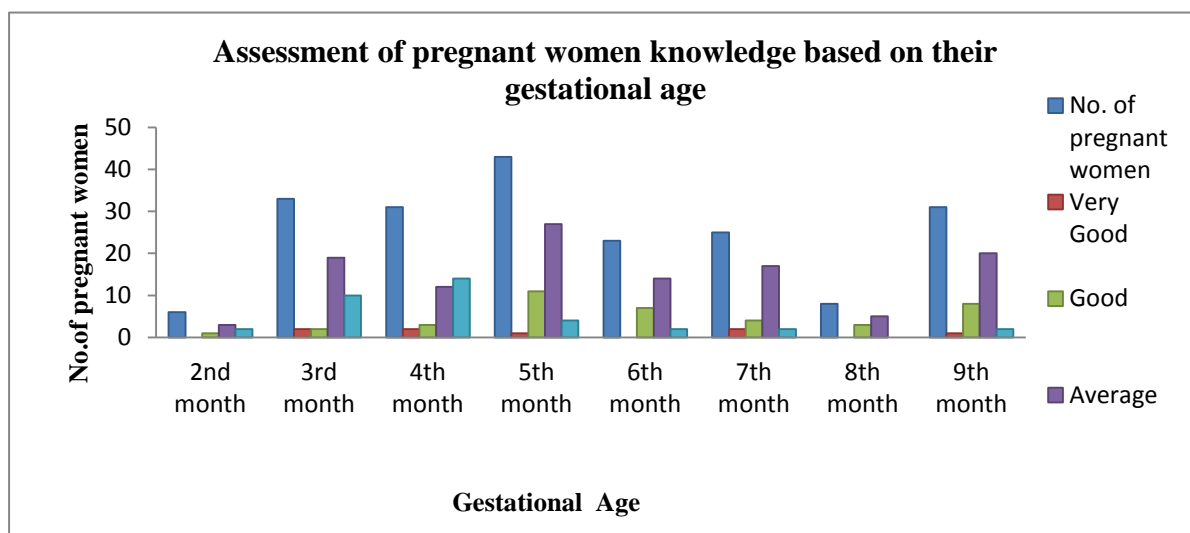


Figure 3: Assessment of pregnant women knowledge based on their gestational age

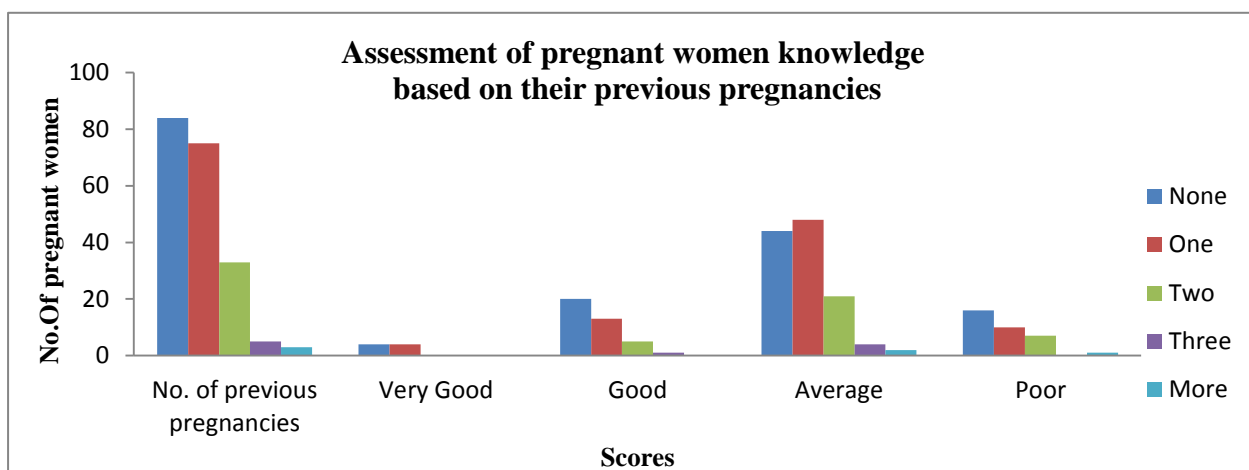


Figure 4: Assessment of pregnant women knowledge based on their previous pregnancies

DISCUSSION

It is already known that folic acid supplementation prior to pregnancy and during the first trimester of pregnancy effectively prevents neural tube defects. Taking 0.4 mg folic acid per day could prevent neural tube defects. However its consumption level correlates with the level of awareness in the women of childbearing age. Results showed that a high percentage of educated women (40.5%) were not aware on the importance of folic acid in preventing neural tube defects. High (Tertiary) level of knowledge was only found in a few numbers of participants, but most of them revealed the intermediate (Secondary) level of knowledge and the low (Primary) level of knowledge. Most of the pregnant women heard of folic acid, but only some of them knew that it could prevent birth defects,

and the same percentage had good knowledge about folic acid rich foods. The women with high educational level had intermediate and high level knowledge. Low level of knowledge was found in the women with elementary education. As mentioned in our study increasing in educational level has indirect relationship with improving of awareness about folic acid consumption.

CONCLUSION

In the present study women with higher educational status and multi gravida have heard of folic acid but very few of them use it peri-conceptionally, due to unplanned pregnancies. Periodical counseling, awareness lectures, posters, messages between television programs by health authorities and professionals are required to emphasize importance

of folic acid peri-conceptionally among all child bearing women. Even though this study cohort may not be completely representative of general population but the findings could be useful to implement appropriate intervention programs. Although taking a folic acid tablet per day (0.4 mg) is a simple measure to prevent severe birth defects it is under promoted in the media, under-recommended by health care providers and under used by women of childbearing age. Therefore further effort is required and it is necessary to start early on probably during premarital counseling or even during high school education. There is a need to increase the awareness of the importance of folic

acid among females childbearing age. Medical student's involvement in educating college students was an effective way to increase their awareness. Further counseling programs could increase the level of awareness among this group and increase the consumption of folic acid in the correct time to prevent neural tube defects. Ultimately food fortification with folic acid will be necessary to reduce the number of neural tube defects afflicted patients where the fortification is not implemented. The primary prevention of neural tube defects by peri-conceptual intake of folic acid is a major public health opportunity and has wide implications in reducing mortality and morbidity.

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