

Knowledge Attitude & Practice of Folic Acid Consumption in Pregnant Women

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Abstract

Purpose and Background: This study aims to evaluate knowledge, attitude and practice towards folic acid consumption among pregnant female population of Karachi, Pakistan. The daily requirement of folic acid should be increased in pregnancy to prevent pregnancy complications specifically neural tube defects, anencephaly and other birth defects

Methodology: A cross sectional population based study was conducted on two hundred healthy pregnant women through a close ended questionnaire for assessing their knowledge, attitude and practice regarding consumption of folic acid in pregnancy. All the results were analyzed through SPSS.

Result: Out of 200 questionnaires, 170 were returned duly filled. It showed that 54% of the women had knowledge about the importance of folic acid in pregnancy whereas only 29% knew about the complications of folic acid deficiency in the developing fetus. The results revealed adequate consumption in 18% of the population, 42% insufficient consumption while 40% didn't consumed any source of folic acid. Dietary intake of folic acid was carried out only by 50% of the selected women. 42.9% women had wrong practice of consuming folic acid during pregnancy. There seems to be no significant association between the age and knowledge of participants as well as education and practice regarding folic acid consumption.

Conclusion: The results clearly stated that educating women about folic acid consumption during pregnancy will help in prevention of pregnancy complications and fetal abnormalities.

Keywords: Awareness, Folic Acid, Neural Tube Defects, Pregnant Women

Introduction:

Folic acid also referred as folate, folacin or vitamin B9 is an essential nutrients and its chemical name is pteroyl-L-glutamic acid, and pteroyl-L-glutamate^[1].

Folic acid is vital for several functions of the body as it is used to protect cells in the body. To synthesize DNA, it's repairing, replication and methylation human body needs folic acid. Human body cannot be synthesized by own so it can be needed outside from the body through diet by supplementation or fortification^[2]. Folate is a water soluble vitamin and found in large amount in leafy green vegetables and citrus fruit. The bioavailability of folic acid (stable form of folate) is 70% more than that of folate found in naturally in foods^[3].

Folate deficiency caused megaloblastic anemia which had large

peculiarly nucleated erythrocytes. The symptoms of this anemia are fatigue, irritability, heart palpitations, headache and shortness of breath. Its deficiency also causes soreness in the oral mucosa, tongue ulceration and also effects on skin, hair and nails^[4,5].

Deficiency of folic acid in pregnant women increased chances of birth defects like neural tube defects, low birth weight and fetal growth retardation^[6,7].

Neural tube defects (NTDs) are the congenital defects of CNS occur at the early stage of parental development and because of these birth defects shape of cells and division is formed abnormally^[8].

It was stated in several literature that folic acid consumption in first trimester of pregnancy or before conception reduces the chances of neural tube defects (NTDs), anencephaly or spina bifida. In control

trial studies it was shown that folic acid uses decreases the possibility by 72% of neural tube defects in those women who have history of these birth defects^[9, 10].

Folic acid is obligatory in pregnancy because it is vital for both mother and fetus. In fetus it is necessary for growth and development and its deficiency leads to congenital abnormalities while in mother its deficiency causes anemia and peripheral neuropathy^[11] and it is also shown there is link between less folic acid uses leads to autism^[12] and in some studies it is stated it also cause Down syndrome^[13].

These birth defects are the second most widespread defects after congenital heart defects and affecting 0.5–2/1,000 pregnancies worldwide^[14, 15]. In British a large scale epidemic study was conducted and stated that folic acid consumption lessen the chances of birth defects 50-70% in women who have history of NTDs^[16, 17]. The US Public Health (USPHS) advised the child bearing age women for the use of 400µg of folic acid daily in the form of foods or supplements^[18]. After a study conducted in US that show folic acid consumption not only decreases the occurrence of NTDs but also decreases the limb and facial defects, obstructive urinary tract abnormalities and congenital hypertrophic pyloric stenosis. After that a worldwide campaign was carried out to teach the women for the importance of folic acid in child bearing age^[19]

In 2010, a prevalence study was done in Swat (Pakistan) for NTDs and it shown 11.33/1000 births having anencephaly and 0.72/1000 births having Spina bifida^[20, 21]

The requisite of this study was to evaluate the awareness of importance of folic acid especially in child bearing women, to create awareness in our community towards the importance of this vital vitamin and to analyze the ratio of intake of folic acid in pregnant women.

Subjects and Methods:

A cross sectional survey based study was conducted in Karachi, Pakistan from January 2017 to June 2017. Pre and post natal 170

women age above 18 years are included. It is a population based, a closed ended questionnaire was given to women who are free to give answer or left any question if they are not willing to do answer.

Inclusion Criteria:

Married women age above 18

Pre or post natal women

Exclusion Criteria:

Unmarried women

Women are married but having fertility problems

Questionnaire:

Questionnaire was comprised of following section. First we ask demographic information like age, education, number of children etc. In next section we asked about the knowledge of pregnant women about folic acid, its importance in pregnancy, sources of folic acid, and then we asked about the attitude towards supplements (folic acid) and practice of consumption of folic acid during pregnancy.

Statistical Analysis:

Result was obtained are analyzed by SPSS tools i.e., statistical package of social science version 20. Chi square method was also performed. Frequency and cross tab tools are also used to evaluate the data.

Results:

Table: 1 shows the socio-demographic information about participant women, according to our result from age 18-27 years are 33% and from 28-37 years of age having most number of participants that are 65.9%. If we observe education it is found 45% participants are done Graduation and 34% are completed their Masters. Acoing to our result 13% women having their first pregnancy and 32% have 1 or 2 children. When we asked about previous miscarriages 66% women having no history of miscarriage while 17% having 1 miscarriage 7% having history of 2 or more miscarriages.

Table 1: Demographic information of Participants

Characteristics	Frequency	Percentage
Age		
18-27yrs	57	33.5
28-37yrs	112	65.9
38-47yrs	1	0.6
48-57yrs or more	0	0
Total	170	100
Education		
Primary	7	4.1
Secondary	25	14.7
Graduation	78	45.9
Master	59	34.7
PhD	1	0.6
Total	170	100
Previous children or miscarriages		
Previous children		
first pregnancy	23	13.5
1 children	55	32.4
2 children	56	32.9
3 children	27	15.9
4 or more children	9	5.3
Total	170	100.0
Previous miscarriage		
none	112	65.9
1 miscarriage	30	17.6
2 miscarriage	13	7.6
3 miscarriage	7	4.1
4 or more miscarriage	8	4.7
Total	170	100.0

Knowledge:

For assessing of knowledge of pregnant women we asked several questions about folic acid, its importance, sources of folic acid, and what complications are occurred due to deficiencies of folic

acids. According to result it is clearly shown that these women had sound knowledge regarding folic acid and they know its importance very clearly. (Results are shown in table: 2)

Table 2 knowledge of Folic Acid in pregnant women (N=170)

knowledge:	Variables	Frequency	Percent
Do you know importance of folic acid in pregnancy	yes	93	54.7
	No	77	45.3
Do you know food containing Folic acid	yes	93	54.7
	No	77	45.3
Folate occurs naturally in which of the foods	Dark green leafy vegetables	68	40.0
	Dried beans and peas (legumes)	6	3.5
	Citrus fruits and juices	8	4.7
	All of the above	39	22.9
	Don't know	49	28.8
Folic acid deficiency may cause	Anemia	74	43.5
	Mouth ulcers	4	2.4
	Poor growth	32	18.8
	All of the above	37	21.8
	Don't know	23	13.5
Folic acid supplements are more important	pre pregnancy	29	17.1
	1st trimester	112	65.9
	3rd trimester	11	6.5
	Don't know	18	10.6
What complications having because of folic acid deficiency in pregnancy	Neural tube defects	50	29.4
	Anemia	39	22.9
	All of the above	36	21.2
	Don't know	45	26.5

Attitude:

The attitude of pregnant women about folic acid is not satisfying; according to our result almost 50% women don't used folic acid. But most disturbing situation is this that more than half percent

women also don't use green foods in their diet. Almost 95% these women are recommended by physician to used folic acid. (Results are shown in table: 3)

Table: 3 Attitude of Folic Acid in pregnant women (N=170)

Attitude	Variables	Frequency	Percent
Have you ever taken folic acid supplement	Yes	89	52.4
	No	81	47.6
Do you take enough folic acid from your diet by using green vegetable	Yes	88	51.8
	No	82	48.2
Who recommend you taking folic acid	Physician/gynecologist	162	95.3
	Pharmacist	8	4.7
If don't use folic acid when you were pregnant what is the reason	didn't answered	17	10.0
	I don't like to take pills every day	92	54.1
	Nobody recommend me	40	23.5
	Don't know folic acid importance	3	1.8
	I used folic acid	18	10.8

Practice:

According to our result 94% women are using folic acid before pregnancy and 5% start using in their first trimester of pregnancy.

These results are satisfying as it is known that folic acid is most important in first trimester of pregnancy to prevent neural tube defects. (Results are shown in table: 4)

Table: 4 Practice of Folic Acid in pregnant women (N=170)

Attitude	Variables	Frequency	Percent
When you start taking folic acid	Before pregnancy	160	94.1
	1-3 month of pregnancy	8	4.7
	4-6 month of pregnancy	2	1.2
How frequently are you supposed to take your folic acid supplement	Twice a day	59	34.7
	Every day (single tablet)	97	57.1
	5-6 times a week	5	2.9
	2-3 times a week	9	5.3

Relationship between age and knowledge:

When we compare age of women and their knowledge regarding folic acid it is shown there is no effect of different age towards knowledge. From 18-27 years women 78% known about folic

acid and from 28-38 years women 86% known about folic, the chi square value is 0.605 (greater than 0.05) which is also shown that there is no significance between age and knowledge. (Results are shown in table: 5)

Table: 5 Relationship between age & knowledge:

Do you know importance of folic acid in pregnancy				
	Yes N (%)	No N (%)	Don't know N (%)	Chi- Square
age	18-27yrs 45 78.9%	10 17.5%	2 3.5%	0.605
	28-37yrs 86 76.8%	15 13.4%	11 9.8%	
	38-47yrs 1 100.0%	0 0.0%	0 0.0%	

Relationship between education and practice:

When we compare educational status of participant women versus consumption of folic acid, it is clearly shown that education has positive impact on practice. According to our result it is observed

those women had bachelor or Master degree, start taking folic acid supplement before pregnancy and having percentage of 68 & 59% respectively as compare to lower educational women. The chi square value was found to be 0.102 as shown in table: 6

Table: 6 Relationship between education & practice:

When you start taking folic acid				
	Before pregnancy	1-3 month of pregnancy	4-6 month of pregnancy	Chi- Square
Education Primary	7 100.0%	0 0.0%	0 0.0%	0.102
Intermediate	25 100.0%	0 0.0%	0 0.0%	
Bachelor	68 87.2%	8 10.3%	2 2.6%	
Master	59 100.0%	0 0.0%	0 0.0%	
PH.D	1 100.0%	0 0.0%	0 0.0%	
Total	160 94.1%	8 4.7%	2 1.2%	

Discussion:

A descriptive cross sectional study was conducted in Pakistan, Karachi to find out the knowledge, attitude and practice of consumption of folic acid in pregnant women. Data of 170 married women are analyzed and it is found only 54% women known about importance of this vitamin in pregnancy and only 30% women give correct answer about deficiency of this vitamin lead to neural tube defect or congenital disease.

By analyzing their attitude towards folic acid it is shown only 52% women using folic acid supplement and 51% women using green vegetables or folic acid rich foods in their diet. Here gynecologist play basic role because 95% women are recommended by their gynecologist to use folic acid supplement. But main concern is most of women go to their gynecologist after 4-5 week of pregnancy so at this point it is very important that women should itself using folic acid before conception. It is clearly stated that folic acid should consume before conception or 1st trimester of pregnancy to

prevent congenital or birth defects^[22].

In 2012 a survey based study was conducted in US for assessing knowledge and counseling of folic acid by community pharmacist it was found pharmacist having good knowledge about this vitamin and disease related to deficiency to this vitamin but only 30% pharmacist said they always recommend child bearing age women to take folic acid supplement^[23].

In past year several studies was performed for assessing knowledge of child bearing age towards folic acid it is found in 1996 only 41% women are known importance of this vitamin in UK, then in Ireland in 1997 study the knowledge rate was found to be 63.6%. In 1999 in USA only 57% women having awareness, in 2000 in Spain the awareness rate is 50% and so on, the complete result is shown in figure: 1 which shows different studies performed in different countries and the knowledge rate of their women^[24]



Fig:1 Folate Awareness (%) in different countries^[24]

Conclusion:

In our study it is shown educated women having sound knowledge as compared to non educated women, so it is advisable that women should be educated so they may take good care of her. The role of pharmacist is also not negligible, pharmacist should counsel pregnant or child bearing age women about importance

of vitamin. Community pharmacy should play their role but most disappointing situation is this in our society community pharmacy is not developed so health care provider must take such measure to develop community pharmacy. Media should also play their parts for providing health related news to society.

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