Original Article

Awareness of Preconceptional Folic Acid Supplemenation Among Pregnant Woment at a Referal Hospital in Kathmandu

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Abstract

Folic acid deficiency can lead to Neural Tube Defects (NTDs). Preconceptional folic acid supplementation, 1 month prior to 12 weeks after the conception has shown to decrease both the occurrence and recurrence of NTDs among the children. The objective of this study was to find out the awareness and practice regarding preconceptional folic acid supplementation among pregnant women at a referral level hospital in Kathmandu.

The descriptive, cross sectional study design was adopted among 95 pregnant women visiting at Antenatal/Gynae outpatient department (OPD) of Tribhuvan University Teaching Hospital (TUTH), Kathmandu, Nepal. Non probability purposive sampling technique was used for data collection with interview method by using a semi structured interview schedule. Data was analyzed using descriptive and inferential statistics.

The majority (82.1%) of respondents were of the age group of 20 to 30 years, 75% had secondary level of education & above, majority (85.3%) of women were from middle socioeconomic status, 33.7% women had adequate level of awareness about health benefit of folic acid consumption, 46.3% thought that folic acid has beneficial for the growth of fetus and 17.9% answered the correct period of supplementation is prior to conception. Higher level of awareness was found among women with 20-30 years, middle socioeconomic status and primigravida women.

The level of awareness on preconceptional folic acid consumption found to be low among pregnant women. More than half of the participants were taking folic acid as soon as pregnancy was detected. An awareness program regarding preconceptional counseling and folic acid supplement incorporation is needed in formal secondary level curriculum. This information should be incorporate to sensitize the girls. An emphasis on strategies to improve the level of folic acid supplementation among the reproductive age women is recommended to the policy makers.

Key words: Awareness, Folic acid, Neural Tube Defects, Pregnancy

Introduction: Globally, approximately 300,000 babies are born each year with Neural Tube Defects (NTDs) resulting in approximately 88,000 deaths and 8.6 million disability-adjusted life years (DALYs). In low income countries, NTDs may account for 29% of neonatal deaths due to observable birth defects (Zaganzor, Sekkaire, Tsang & Williams, 2016).

Worldwide incidence of NTDs ranged 1.4 -2 per 1000 births, this figure fourfold higher in low income setting. Anencephaly is not compatible with life & treatment, but 80 - 90% of infants with spina bifida survive with varying degrees of disability (Nawapun & Phupong, 2007). Among the delivered babies, congenital neural tube birth defects found 37% at Maternity hospital Kathmandu (Malla, 2007).

NTDs are serious birth defects of the brain & spine, major cause of death & lifelong disability worldwide. The relationship of folic acid deficiency

during pregnancy and neural tube defect (NTDs) is well established; encephalocele, anencephaly and spina bifida, result from failure of neural tube closure during first month of embryogenesis. The efficacy of adequate amounts of supplementary folic acid periconceptionally, before and during in early stages of pregnancy, has been shown to be highly effective around 70% in preventing both occurrence and recurrence of these congenital anomalies (Czeizel & Dudas, 1992). The periconceptional use of daily supplementation of 0.4 mg folic acid has been shown to prevent 40–80% of cases of spinabifida and anencephaly (Berry et al., 1999). Neural tube defects has an elevated risk of a subsequent NTD-affected pregnancy so high dose (4 mg/day) of folic acid taken around the time of conception prevents most recurrences of NTDs (Grosse& Collins, 2007).

Most of the women in developing country are unaware of the correct time of folic acid supplementations compared to developed nations. Even though 70% American & 95% Canadian women and 40 % Nepalese childbearing aged women of Kathmandu (Poudel, 2011) had heard about folic acid, very few reproductive aged women knew that folic acid prevents birth defects 28% American & 25% Canadian women (Canfield, 2006), 8.7% of women from United Arab Emirates (Abdulrazzaq, 2003), 20.3% Arabian Qatari women (Bener, Maadid, Al-Bast & Al-Marri, 2006). Similarly 16.3% Nepalese childbearing aged women of Kathmandu knew that folic acid affected fetal health & 5% knew that it should be taken before pregnancy (Poudel, 2011).

Women from different country, had different degree of awareness, 5.5% among Israeli women (Ringel, 1999), 46.4% women of United Arab Emirates (Abdulrazzaq, 2003), 53.7% Arabian Qatari women (Bener, Maadid, Al-Bast & Al-Marri, 2006), 76.1% Thai women (Nawapun & Phupong, 2007). Only 24.4% Thai women knew about important of folate (Nawapun & Phupong, 2007) and 72% Croatian women aware about benefit of it (Gjergja, Stipoljev, Hafner, Tezak, &Stiffler, 2006). Though taking folic acid during preconceptional period found very low even in developed world, 9.7% Thai women (Nawapun & Phupong, 2007), 25% childbearing aged American women (Canfield, 2006), 2.8% Israeli women (Ringel, 1999), 14.41% in unplanned & 75.53% in planned pregnancies of Croatian women (Gjergja, Stipoljev, Hafner, Tezak, & Stiffler, 2006), 45.5% United Arab Emirates took the folic acid during pregnancy.

Only one-fourth of women had good knowledge of folate-rich foods (Canfield, 2006). Well educated, upper middle class, child bearing aged married women of India indicated a poor knowledge of potential benefits of preconceptional folic acid supplementation (Gupta & Gupta, 2000). The poor level of awareness as evidenced by different studies, demands the need of the dissemination of information regarding benefit of folic acid supplementation. Education is the strongest significant predictors of rising awareness of daily folic acid supplementation during preconception period and is crucial to reduce the burden of NTDs.

Methods

Descriptive cross sectional study was conducted in April, 2017 at Antenatal/Gynae outpatient department of Tribhuvan University Teaching Hospital, Kathmandu, Nepal. Ninety five pregnant women were selected with non-probability purposive sampling technique, who visited the hospital for antenatal follow up and met the eligible criteria for the study. A pretested semi structured interview schedule was used for data collection. Collected data was analyzed by using SPSS version 16 and interpreted on the basis of research objectives by using descriptive and inferential statistics. The ethical approval was obtained from Institutional Review Board (IRB) of Institute of Medicine, Tribhuvan University.

Results

Table 1: Socio-demographic Information

(n=95)

Socio-Demographic Information	No.	Percent
Age (in completed year)		
Less than 20 years	5	5.3
21-30 years	78	82.1
31-40 years	12	12.6
Ethnic group		
Brahmin/Chhetri	62	65.3
Others (Janajati + Dalit +Madhesi)	33	34.7
Religion		
Hinduism	83	87.4
Buddhism	6	6.3
Christianity	6	6.3
Educational status		
Illiterate	2	2.1
Up to Secondary level	41	43.2
Higher Secondary& Above	52	54.7
Occupation		
House maker	56	58.9
Others (Business + Service)	39	41.1
Economic status		
Sufficient for 6 -12 months expenditure	81	85.3
Sufficient for 12 months expenditure& surplus	14	14.7

Regarding the socio-demographic information, the majority (82.1%) of the participants were from age group 20-30 years, 65.3% belonged to Brahmin & Chhetri ethnicity, 87.4% believed in Hinduism, education wise 54.7% participants passed higher secondary & above level education. Similarly 85.3% said that their income was sufficient for 6 -12 months expenditure and 58.9% were involved only in household activities.

Table 2: Awareness on Folic acid Supplementation

(n=95)

Descriptions	No.	Percent
Meaning of folic acid		
Vitamin	72	75.8
Protein & Mineral	15	15.8
Don't know	8	8.4
Sources of information		
Health personal	70	73.6
Family and relatives	14	14.7
Mass Media	11	11.7
Folic acid necessary for		
Development of brain & Spinal cord	48	50.5
Development of Heart, Lungs & Kidney	40	42.1
Don't Know	7	7.4
Effects of folic acid deficiency		
Fetus	44	46.3
Both	33	34.7
Mother	11	11.6
No idea	7	7.4
Timing of folic acid supplementation		
As soon as pregnancy is detected	64	67.4
Prior to Conception	31	32.6
Timing of folic acid supplementation		
Till first trimester	56	58.9
Till third trimester	22	23.2
Till second trimester	4	4.2
No idea	13	13.7

Majority (75.8%) of the participants told that folic acid was vitamin and 73.6% stated the health person as main source of information. Similarly half of the participants told that folic acid was necessary for development of brain & spinal cord of the fetus. 46.3% participants believed that its deficiency affected the fetus. Only 32.6% were aware about that folic acid supplementation be started prior to conception and 58.9% said it needed to be continue till the first trimester.

Table 3: Practice on Folic Acid Intake

n=95

Descriptions	No.	Percent
Visited for preconceptional counseling	6	6.3
Not visited for preconceptional counseling	89	93.7
Folic acid intake before pregnancy		
Taken	7	7.4
Not taken	88	92.6
Taken for good health of baby	7	7.4
Not Taken due to lack of awareness	88	92.6
Timing of folic acid intake		
As soon as pregnancy is detected	52	54.7
Didn't take	36	37.9
1 month prior to pregnancy	6	6.3
3 month prior to pregnancy	1	1.1

Regarding the practice of folic acid use among pregnant women, only 6.3% participants visited preconceptional counseling. Similarly only 7.4% women had taken folic acid for good health for baby before pregnancy. Just more than half (54.7%) of participants took folic acid as soon as pregnancy was detected while only 1.1% took 3 month prior to pregnancy.

Table 4: Level of Awareness on Folic Acid Supplementation

n=95

Level of Awareness	Number	Percent
Inadequate Awareness (Less than mean)	63	66.3
Adequate Awareness (More than mean)	32	33.7

Regarding the level of awareness, the total score of awareness related questionnaire was 20 and mean score was 10, who got more than mean interpreted as adequate level of awareness that was 33.7% and 66.3% of the participants had inadequate level of awareness mean achieved the score less than mean regarding preconceptional folic acid supplementation.

Table 5 : Association between Level of Awareness and Socio Demographic Characteristics

n=95

Characteristics	Level of Awareness		P Value
	Inadequate	Adequate	
Age (in completed year)			
Less than 20 years	2(40)	3 (60)	0.37**
20-30 years	52(67)	26 (33)	
31-40 years	9(75)	3(25)	
Economic Status			
Sufficient for 6 -12 months expenditure	52(54.73)	29(30.52)	0.29*
Sufficient for 12 months expenditure & surplus	11(11.57)	3(3.15)	

*Chi-square test **Fisher's Exact test

Regarding the association between level of awareness of folic acid supplementation and age & economic status, no significant association was found.

Discussion

The preconceptional folic acid supplementation is very essential concept for prevention of congenital neural tube defects. In this study 64.2% of the pregnant women had heard about the folic acid. In a similar study conducted by Canfield (2006), 78% women of Texas and 95% of Canadian women had heard about folic acid. In this study 33 % pregnant mother of 20-30 years of age had adequate level of awareness; the study done by Bener (2006) in Qatarin women had highest (30.5%) awareness and another study by Amitai et al., (2008) found highest level of awareness (90%) among 20-30 years age group pregnant mother.

Regarding the education, this study showed that women with at least Bachelor level of education had more (47.3%) than primary level 33%. In a similar study by Bener (2006) in Qatar showed that 41.3% women had university level education, similarly another study by Canfield (2006) in Texas found higher level (45.6%) of awareness among college graduate. This study showed that primigravida were more (37.8%) aware than multigravida women 28.5% about the necessity of the folic acid supplementation, similar results by Alozie (2003) found that primigravida were more (71.6%) aware than multigravida 66.6%. Regarding the source of information majority, 73.6 % received the information from health personnel and 11.7% from mass media. Studies conducted in China by Aiguo (2006) found 33.7%, in Croatia by Romana (2006) 38.24% and in Thailand, by Nawapun (2007)48.6% women learned through mass media.

Regarding the sources of folic acid the majority (54.7%) of participants identified green vegetables as a source of folic acid. The study conducted by Bener (2006) in Qatar 40.6% aware about the green leafy vegetables as source of folic acid. About the timing for folic acid use one third of (32.6%) participants said that folic acid should be started prior to conception and two third (67.4%) were thought it should used as soon as pregnancy detected. A study done in UK by Brough (2009) showed 12% women took folic acid before pregnancy, 76% in first trimester. Another study conducted in Ireland by McNulty (2011) found 19% took folic acid before pregnancy and 84% in first trimester.

Conclusion

On the basis of this study, only one third of women had adequate awareness of preconceptional folic acid supplementation and nearly half of the participants were aware about its beneficial effect to the fetus. However, very few women mentioned correct time period of supplementation and visited for preconceptional counseling. Less than half of the participants thought that folic acid deficiency affects the development of nervous system. Similarly the level of awareness was higher among women of age group 20-30 years, women with higher level of education and primigravida women.The major source of information was health personnel. In practice very few pregnant women take folic acid prior to pregnancy and more than half of the participants taken as soon as pregnancy detected

Recommendation

Mass advocacy or health education about the importance of preconceptional folic acid supplementation especially reproductive age women and their belongings should be done.

Incorporate this issue in the reproductive health section of secondary level education to increase awareness among girls is highly recommended.

Encouraging women to visit preconceptional counseling is a most essential to minimize neural tube defect burden.

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