KNOWLEDGE OF PERICONCEPTIONAL FOLIC-ACID AMONG WOMEN OF CHILDBEARING AGE VISITING TERTIARY CARE HOSPITAL IN NEPAL

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ABSTRACT

The value of periconceptional folic acid supplementation in reducing the incidence of neural tube abnormalities in newborns is widely known. Yet, Nepalese women of childbearing age are mainly ignorant of it. The current study examined different sociodemographic and health factors related to women's level of knowledge about folic acid among women visiting Obstetrics and Gynaecology outpatients at a Tertiary Care Center in Nepal. It also evaluated the awareness and relevance of knowledge regarding folic acid and its periconceptional supplementation. A total of 400 women aged 18 and 45 who sought Obstetrics and Gynecology outpatient consultation at the tertiary care facility participated in this cross-sectional study. Sociodemographic information was gathered with the help of a self-report questionnaire and processed in IBM-SPSS software at a significance threshold of 0.05. Results of the studies showed that while 47.3% had heard of it, only 34.25% had adequate knowledge of periconceptional folic acid supplementation. Also, besides age (p=0.493), knowledge of folic acid was significantly associated with factors including education (p=0.026), ethnicity (p=<0.001), income (p=0.011), employment (p=0.001), marital status (p=0.007), past pregnancies (p=0.031) and ANC visits (p=<0.001). The study demonstrates the need for more public awareness to boost folic acid knowledge, adherence, and intake and ultimately lower the prevalence of related birth abnormalities. To quantify the hidden issue, further studies on the prevalence of NTDs in Nepalese society and the contribution of folic acid to their reduction are required.

KEYWORDS

Folic acid, periconceptional, supplementation, neural tube defects (NTDs)

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INTRODUCTION

Folic acid (Vitamin B9) is an essential nutrient required for DNA replication and as a substrate for various enzymatic reactions involved in amino acid synthesis and vitamin metabolism. Its deficiency may present abnormalities in both fetuses (congenital abnormalities) and mothers (anemia, peripheral neuropathy).[1] It is naturally concentrated in the liver and green leafy vegetables with an adult requirement of approximately 100 mcg/day.[2] During the initial weeks of gestation, folate deficiency has been implicated as a risk factor for neural tube defects. Its deficiency affects cell division during critical periods that coincide with the closure of the neural tube.[3]

Neural tube defects account for the largest proportion of congenital anomalies of CNS and result from failure of the neural tube to close spontaneously between the third and fourth week of in-utero development. The major neural tube defects (NTD) includes spina bifida occulta, meningocele, meningomyelocele, encephalocele, anencephaly, caudal regression syndrome, dermal sinus, tethered cord, syringomyelia and rarely iniencephaly. Human neural tube defects result from both genetic and environmental factors. Though genetic factors have not been well understood, folic acid supplementation during pregnancy has been identified as prevention for human NTD.[4] Wald *et al*,[5] suggested that every doubling of serum folate concentration roughly halves the risk of an NTD. An increase of 0.4mg/day folate intake would reduce risk by about 36%,1 mg/day by 57%, and taking 5 mg tablets daily would reduce risk by about 85%.[5] Therefore studies suggest, all women who may become pregnant should take daily 400-800 mcg of folic acid orally before conception and throughout the first trimester.[6-8]

Globally, approximately 3 lakh babies are born each year with NTD leading to approximately 88,000 deaths and 8.6 million disability-adjusted life years (WHO: Global Health Estimates (GHE)-Disease Burden 2015). According to a study conducted in 2015, in Nepal, The prevalence of selected NTD was 4.0 per 10,000 children.

Encephalocele, myelomeningocele, and dermal sinus were the major NTD with almost equal prevalence in hills and terai regions.[1]

METHODS AND MATERIALS

Four hundred women of childbearing age (18-45 years) participated in this descriptive cross-sectional study from November 2022 to March 2023 at Nepal Medical College Teaching Hospital, Gokarneshwor Municipality, Nepal. The hospital's Institutional Review Committee (NMC-IRC) provided ethical approval before the study. After obtaining verbal consent, participants who met the inclusion criteria were subjected to the convenience sample approach and asked to complete an interview form. Experts in the same field examined the questionnaire's validity. Pilot research with 40 participants was also carried out to evaluate the reliability and viability of the questionnaire. The data analysis did not include the subjects used in the pilot trial. Consent was taken from the patients verbally before filling up the questionnaire.

Three sections make up the questionnaire. The first portion covered sociodemographic data where age, age at marriage, education level attained, and monthly family income, the second part covered details about her most recent pregnancy, ANC visits, and the practice of taking supplements throughout pregnancy, and the third part covered general information about knowledge and awareness of folic acid. Awareness regarding folic acid was obtained from the question "If ever heard of folic acid?". Level of knowledge was graded on a scale of 0 to 5 based on the information provided on knowledge of folic acid as an essential supplement during pregnancy, knowledge of its food sources, understanding of its benefits, and knowledge of the proper time to use it. Each accurate response received a score of "1," while incorrect and "don't know" responses received a score of "0." Women scoring 3 or more were deemed to have acceptable knowledge, while those scoring less than 3 were deemed to have inadequate knowledge, using a median value of 3. The scale's internal consistency and reliability were guaranteed by Cronbach's Alpha, which was 0.792, and the inter-item correlation coefficient, which was 0.610. A minimum sample size of 368 was obtained taking 40% prevalence and taking the confidence interval of 95% using the formula $(Z^2pq)/d^2$.

Data were entered into the SPSS-16 program. Continuous values were reported as mean, median, and standard deviation, whereas categorical variables were provided as frequency and percentage. Pearson's correlation coefficient was used to establish a correlation between knowledge of folic acid and other scale variables, and the chi-square test was performed to determine the validity of the results. Statistical significance was defined as a p-value of 0.05.

RESULTS

Among the 400 women of childbearing age (18-45 years), the mean age of the participants is 28.2±5.57 years and the average age of marriage is 26.8±19.18 years. While 47.25% of the women have heard of "folic acid", only 34.25% of the women have adequate knowledge regarding its periconceptional use, benefits, and time of

administration. The majority of women have learned about the vitamin via either doctors or hospitals, with television and radio being the least prevalent sources of information (Fig.1).

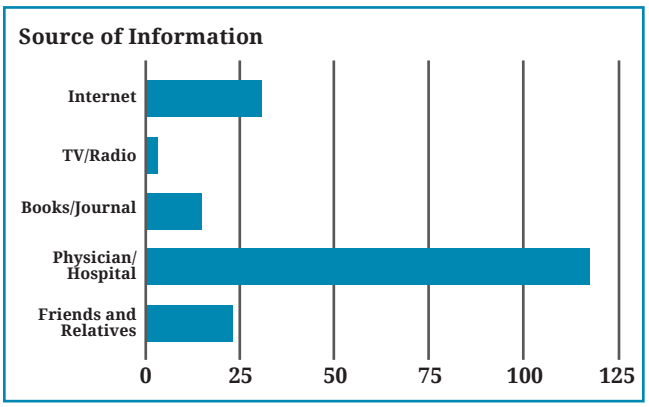

Fig. 1: Sources of information about folic acid

The majority of the study's population (45%) is between the ages of 26 and 32. Among the various age categories, individuals between the ages of 18 and 25 have the most adequate understanding of folic acid, while those over 33 have the least. However, we found that age has no statistically significant relationship to the periconceptional use of folic acid (p-value=0.493).

A 93% of individuals polled had been married at least once in their lives, compared to 7% who have never been married. 10.7% of single women are adequately informed about the vitamin. Women who are married are more knowledgeable about folic acid (36%). There is a significant relationship between the level of knowledge of folic acid to the marital status of the women (p-value=0.007).

37.5% of the participants were either *Chettris* or *Brahmins* and of those, 44.7% had a sufficient understanding of folic acid while 55.3% lacked it. The remaining 62.5% are made up of minorities and women of other ethnicities. The bulk of them (72%) lacked sufficient folic acid expertise. More so than any other ethnic group, *Brahmins* and *Chhetris* are knowledgeable of the usage of folic acid during pregnancy. There is also a significant relationship between the women's ethnicity and their awareness of folic acid consumption during pregnancy (p-value= <0.001).

The awareness of periconceptional folic acid usage among the women we surveyed is observed to be significantly associated with income and occupation (p-value=0.011 and p-value=0.001, respectively). Nearly half (40.9%) of the 45.25% of those with incomes over Rs. 36,551 have an adequate understanding of periconceptional folic acid consumption. Although only 34% of women are working, 44.9% of them had an excellent comprehension of folic acid, which is higher than the 28.8% of adequate knowledge among the unemployed or student women.

Table 1: Demography of study population

Variables		n	%
Age	18-25	140	35
	26-32	180	45
	≥33	20	20
	Total	400	100
Marital status	Never married	28	7
	Ever married	372	93
	Total	400	100
Ethnicity	*Brahmin* and *Chhetri*	150	37.5
	Adibasi Janajati and others	250	62.5
	Total	400	100
Education	No education	53	13.3
	Primary education (upto 8)	106	26.5
	Secondary education (upto 12)	163	40.8
	Above secondary education	78	19.5
	Total	400	100
Income	≥36,551	181	45.3
	≤36,550	219	54.8
	Total	400	100.0
Occupation	Employed	136	34.0
	Student and homemaker	259	64.8
	Unemployed	5	1.3
	Total	400	100
Pregnancy status	Never Pregnant	58	14.5
	Ever Pregnant	342	85.5
	Total	400	100
Total pregnancy	≤2	334	83.5
	>2	66	16.5
	Total	400	100
Preconceptional consult	Taken	28	7.0
	Not taken	138	34.5
	Ineligible	234	58.5
	Total	400	100
Total ANC visit	<4	59	14.8
	≥4	271	67.8
	Ineligible	70	17.5
	Total	400	100
Awareness of folic acid	Heard	189	47.3
	Never heard	211	52.8
	Total	400	100

Table 2: Adequacy of knowledge among various categories					
Variables		**Adequate Knowledge n (≥3)**	**Inadequate Knowledge n (<3)**	**Total**	**p-value**
Age	18-25	51 (36.4%)	89 (63.6%)	140 (100%)	p= 0.493
	26-32	63 (35.0%)	117(65.0%)	180 (100%)	
	≥33	23 (28.7%)	57(71.3%)	80 (100%)	
	Total	137 (34.3%)	263 (65.8%)	400 (100%)	
Marital Status	Never married	3 (10.7%)	25 (89.3%)	28 (100%)	p= 0.007
	Ever married	134 (36.0%)	238 (64.0%)	372 (100%)	
	Total	137 (34.3%)	263 (65.8%)	400 (100%)	
Ethnicity	*Brahmin* and *Chhetri*	67 (44.7%)	83 (55.3%)	150 (100%)	p=<0.001
	Adibasi Janajati and others	70 (28.0%)	180 (72.0%)	250 (100%)	
	Total	137 (34.3%)	263 (65.8%)	400 (100%)	
Education	No education	11 (20.8%)	42 (79.2%)	53 (100%)	p=0.026
	Primary to above secondary education	126 (36.3%)	221 (63.7%)	347 (100%)	
	Total	137 (34.3%)	263 (65.8%)	400 (100%)	
Income	≥36,551	74 (40.9%)	107 (59.1%)	181 (100%)	p=0.011
	≤36,550	63 (28.8%)	156 (71.2%)	219 (100%)	
	Total	137 (34.3%)	263 (65.8%)	400 (100%)	
Occupation	Employed	61 (44.9%)	75 (55.1%)	136 (100%)	p=0.001
	Unemployed (including student and homemaker)	76 (28.8%)	188 (71.2%)	264 (100%)	
	Total	137 (34.3%)	263 (65.8%)	400 (100%)	
Pregnancy status	Never pregnant	8 (13.8%)	50 (86.2%)	58 (100%)	p=<0.001
	Ever pregnant	129 (37.7%)	213 (62.3%)	342 (100%)	
	Total	137 (34.3%)	263 (65.8%)	400 (100%)	
Total pregnancy	≤2	122 (36.5%)	212 (63.5%)	334 (100%)	p=0.031
	>2	15 (22.7%)	51 (77.3%)	66 (100%)	
	Total	137 (34.3%)	263 (65.8%)	400 (100%)	
Preconceptional consult (among planned)	Taken	12 (42.9%)	16 (57.1%)	28 (100%)	p=0.003
	Not taken	61 (44.2%)	77 (55.8%)	138 (100%)	
	Ineligible	64 (27.4%)	170(72.6%)	234 (100%)	
	Total	137 (34.3%)	263 (65.8%)	400 (100%)	
Total ANC visit	<4	15 (25.4%)	44 (74.6%)	59 (100%)	p=<0.001
	≥4	114 (42.1%)	157 (57.9%)	271 (100%)	
	Ineligible	8 (11.4%)	62 (88.6%)	70(100%)	
	Total	137 (34.3%)	263 (65.8%)	400 (100%)	
Awareness of folic acid	Heard	136 (72.0%)	53 (28.0%)	189 (100%)	p=<0.001
	Never Heard	1 (0.5%)	210 (99.5%)	211 (100%)	
	Total	137 (34.3%)	263 (65.8%)	400 (100%)	

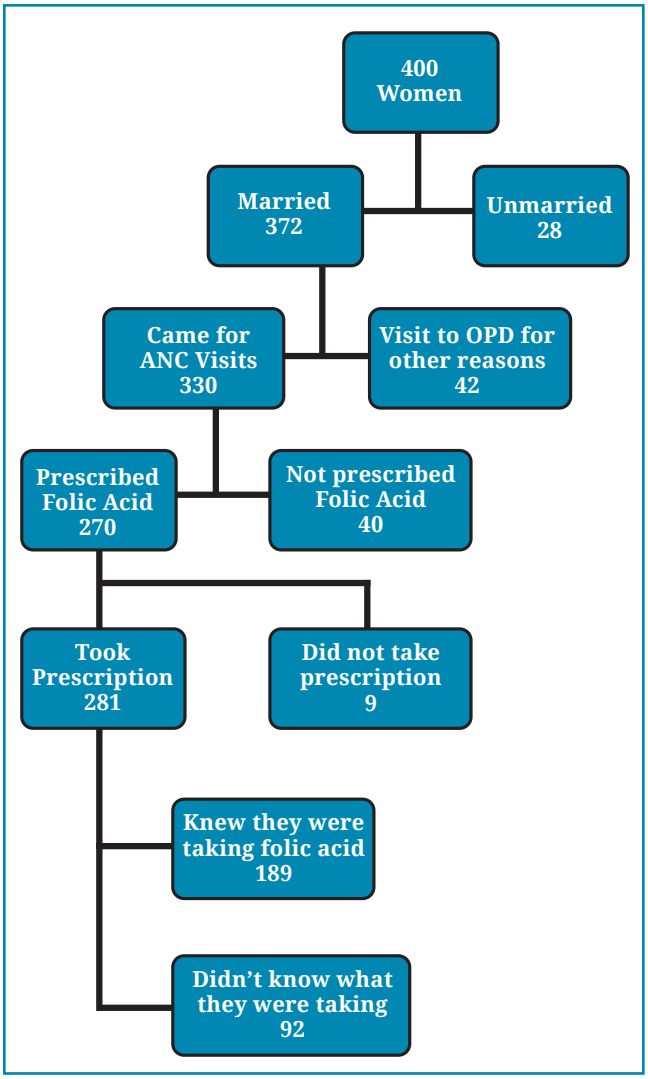

Fig. 2: Periconceptional folic acid supplementation practice.

In the studied population, literacy rates are 86.75% while illiteracy rates are 13.25%. Among the literate, 26.50% have completed primary school, 40.75% have completed secondary school, and 19.50% have completed higher education. Those with at least some education know more about periconceptional folic acid and its usage (36.3%) than the community of illiterates. The majority (79.2%) of the illiterate population lack an adequate understanding of periconceptional folic acid supplementation. Education significantly impacts women's knowledge and practice regarding periconceptional folic acid supplementation (p-value=0.026).

A 14.5% of the participants in the study had never been pregnant, and the majority (86.2%) of them lacked the necessary information about periconceptional folic acid supplementation. Of the 85.5% of women who have experienced pregnancy at least once, 62.3% still lacked the necessary understanding to take folic acid. When compared to nullipara, knowledge level is seen to be more significant among women who have already given birth (13.8% and 37.7% respectively). It is observed that a woman's understanding of periconceptional folic acid supplementation is considerably influenced by whether or not she has previously given birth (p-value =<0.001).

The majority (83.5%) of the individuals in our research have had a maximum of two pregnancies, while 16.5% have had more than two. While the majority of women in both categories still lack adequate knowledge (63.5% and 77.3% respectively), the level of awareness regarding proper periconceptional folic acid supplementation appears to be higher among women with 2 or fewer pregnancies than among women with more than 2 pregnancies (36.5% and 22.7%, respectively). The number of births among the women and their awareness of periconceptional folic acid supplementation is shown to be very statistically significantly related in this research (p-value=0.031).

Only 342 of the 400 participants have ever given birth. Only 166 (48.54%) of them were qualified for preconception counseling. Only 16.87% of the women among them underwent pre-conceptional counseling; the other 83.13% did not. The extent of awareness and lack of understanding of periconceptional folic acid supplementation is found to be equivalent in both categories (42.9% and 44.2% and 57.1% & 55.8%, respectively). The study also effectively demonstrated a significant link (p-value=0.003) between preconception consults with physicians and women's knowledge of periconceptional folic acid supplementation

Of the 400 participants, 330 (82.5%) attended prenatal appointments. 74.24% of them had more than 4 ANC visits, whereas 25.76% of them had no more than 4 ANC visits. The majority of women who had received more than four ANC visits had the most information about the use of folic acid during pregnancy (43.7%). The majority of women who had 4 visits or fewer had insufficient knowledge about periconceptional folic acid supplementation (74.1%). The number of ANC visits by pregnant women is significantly associated with their knowledge of periconceptional folic acid supplementation (p-value=<0.001).

DISCUSSION

The purpose of our study was to estimate public awareness of and understanding of folic acid use during pregnancy. The present study explored the disparity between knowledge and practice among women of childbearing age regarding periconceptional use and benefit of folic acid in a tertiary care hospital in one of the municipalities of Bagmati district. This study suggested that there is a wide gap in knowledge, attitude, and practice regarding this important micronutrient in the most vulnerable age group of women. The

findings revealed a considerable lack of adequate knowledge with a suboptimal attitude regarding the vitamin but good practice regarding folic acid supplementation.

The current study among 400 women of childbearing age, with a mean age of 28.2±5.57 years, shared similarities in study settings, study participants, and study designs with multiple national and international studies,[11,12,17-19] except for a Japanese study in which the sample size was double.[10]

According to the current survey, less than half of the respondents have come across the term "folic acid" at some point. This was comparable to another study done in Nepal at Kathmandu Model Hospital (40%, Paudel *et al*[15] 2012). Internationally, our folic-acid awareness of 47.3% was higher than that of studies conducted in other low-income settings, including China's Shanxi Province (36%; Ren *et al*[23] 2006), Delhi, India (20%; Gupta *et al*[25] 2000), and Adet Northwestern Ethiopia (15.9%; Goshu *et al*[28] 2018) but lower than that of Pakistan (58.8%; Rehan *et al*[17]) and Bingham University, Nigeria (64.6%; Anzaku *et al*[18]) The level of awareness we observed was quite low compared to the findings of studies conducted in higher-income nations, such as Canada (95%; French *et al*[22] 2003), Japan (91.2%; Yamamoto *et al*[10] 2017), Australia (90%; Mohammed *et al*[19]) Saudi Arabia (88.4%; Al-Akhfash; 88.9%; Bukhari *et al*[11] 2017), the USA (78%; Canfield *et al*[29] 2006), Thailand (76%; Nawapun and Phupong *et al*[30] 2007), and Egypt (71.6%; Hassan *et al*[31] 2015). In line with the Pakistani study by Rehan *et al*[17] although our results were similar to those of our South Asian colleagues, they were still significantly lower than those of the Middle East, Africa, and Australia.[17] This may be because residents of wealthy countries have greater access to information, campaign media, and health services, raising their awareness of folic acid.

Although 47.3% of participants had folic acid awareness, only 34.25% had a sufficient understanding of the supplement's correct use, advantages, and administration demonstrating that even though women had heard of folic acid, they lacked sufficient understanding of its advantages, proper timing, and dietary sources. Similar results were found in a 2018 research conducted in Nepal (34.4%).[14] In contrast to our study, Saudi Arabia (60%), Nigeria (64%), Turkey (63.2%), Qatar (53.7%) and Pakistan (43%) reported respondents who were more adequately informed about folic acid and its benefits.[11-13] Similarly, only 2% of participants in the current research were aware of its sources. In contrast, research conducted in Pakistan (26.5%), Thailand (32.4%), and Turkey (39.3%) found that, on average, 32.7% of women of reproductive age were aware of the sources of folic acid.[13,18] This lack of knowledge emphasizes the need to boost folic acid intake among reproductive-age women in our society by fortifying foods like bread, sugar, and salt with folic acid. This is supported by research conducted in industrialized countries, where this approach has shown promise in lowering the prevalence of NTDs.[18]

Only 32.8% of survey participants correctly recognized the optimal date as both, whereas 48% of respondents who were asked about the best time to start taking folic acid offered the response "three months before conception" or "first three months of pregnancy". Only 15.75% of the participants, however, were aware of the requirement for folic acid supplementation before conception. The findings were close to those of another Nepalese study conducted at Kathmandu Medical College (20.0%)[18] but lesser than that of KMC (5%).[15] Studies conducted in impoverished nations such as Pakistan (43%, 31.6%, 23.3%), China (23%), and Nigeria (23.6%) revealed somewhat higher while that in Ethiopia (6.1%) and India (Gupta *et al*[25] 2000) showed much less periconceptional folic acid supplementation awareness than that of our study. In contrast, studies done in developed countries like Western Australia (89%; Oddy *et al*[32] 2007), the USA (88%; Sharp *et al*[33] 2009), Norway (60%; Daltveit et al,[34] 2004), Lebanon (60%; Hage *et al*[35] 2012), Spain (50.6%; Coll *et al*[36] 2004), Turkey (48.2%; Köken *et al*[37] 2013), Queensland (Mohammed *et al*[19] 47.3%), United Arab Emirates (46.4%; Abdulrazzaq *et al*[38] 2003), Honduras (46.4%; Milla *et al*[39] 2007), and China (36%; Ren *et al*[23] 2006), however, showed much higher awareness of periconceptional folic acid use. This could be because people in industrialized nations have more access to health services and information, which helps them learn more about pregnant dietary supplements.

Similar to research conducted at Kathmandu Model Hospital in 2011 and Kathmandu Medical College in 2018,[14,15] the current study concluded that hospitals and physicians were the most prevalent sources of knowledge on folic acid. This was in line with research done in Ethiopia, Pakistan, Nigeria, and other developing countries.[11-13,16,17] Much like in our study, numerous research conducted worldwide came to the same conclusion that people who had learned about folic acid from health professionals had a superior understanding of its usage, dosage, and proper timing of administration.[11] However, it was discovered that the Internet and media, such as magazines, newspapers, television, and radio, were the more popular sources of knowledge regarding folic acid in industrialized nations like Japan and Canada.[10,22] In this study, the findings also suggested that

educational institutions were seldom involved in the dissemination of knowledge regarding folic acid supplementation. Therefore, pregnancy supplements have to be featured in the core curriculum to help disseminate the necessary knowledge about them. There is also no link between knowledge level and the informational medium (books or journals), which only showed a weakly positive correlation (0.245).

Additionally, compared to past Nepalese studies (16.3% and 16%), we discovered that only 9.5% of the women were aware that folic acid deficiency during the preconception period may result in birth defects (NTDs) in the infant.[14,15] In other Asian research, 3 out of 10 women in China knew the same fact, compared to none of the women in India,[15,25,23] whereas, multiple Pakistani studies showed varying findings (5%, 13.8%, and 40.25%).[13,17,20] Although other developing nations also saw the same results (Nigeria, 26.9%), developed nations like Australia (70.5%) had a better understanding of how failure to supplement folic acid in pregnancy might cause NTDs.[18,19]

The results of the current study revealed that although the majority of respondents (86.75%) had at least a primary education, only 36.25% of educated respondents had sufficient awareness about the advantages of periconceptional folic acid consumption. This was comparable to multiple previous national and international studies.[12,13,17] Even though the majority of the participants had some form of formal education, the low level of understanding of the use, advantages, and timing of folic acid administration is concerning since it would likely result in poor utilization of the vitamin, which would raise the risk of developing NTDs.[12] This highlights the necessity of educating women of reproductive age about the benefits of folic acid as a supplement in our environment, particularly during prenatal care visits The current study also demonstrated a substantial link between education and folic acid practice, much as the two Pakistani studies.[13,17] Higher educated women had a greater understanding of folic acid, and a higher level of education was positively related to KAP in Nepal, as well as around the world.[14,20] We may thus conclude from this study that literate women were better aware of the value of folic acid and its periconceptional benefits. Media access as well as access to health services can be used to explain the causes of this variance. A lack of education may also be a factor in the low degree of awareness, as education is a source of information.[16] This study reinforced the need to continue educating and motivating women of childbearing age about the importance of this micronutrient and encouraging its consumption before conception and throughout the first trimester of pregnancy to prevent congenital defects in newborns, which is similar to earlier studies conducted in other parts of South Asia.[13] However, unlike the studies by Koirala *et al*[14] and by Rehan *et al*.[17] We were unable to find a connection between age and respondents' awareness of and usage of folic acid.

Only 330 of the study's participants were eligible for folic acid prescription and only 82.5% were prescribed the vitamin. Except for 3.1%, the rest were compliant with the medication. This demonstrates a high level of practice among the women despite having suboptimal knowledge regarding periconceptional folic acid supplementation. In contrast, compliance with folic acid supplementation was relatively poor in other developing countries like Nigeria (1.7% and 7.4%), Ireland (2.7%), Iran (20.1%), and Pakistan (56.6% and 51.25%) (17,24). Even in industrialized countries like Canada and the USA, women's folic acid consumption during the periconceptional period was only moderate (25-45%).[12,18] The Wollongong University research in Australia, however, produced results that were similar to ours (81.6%).[13,17] The study concluded that, despite their lack of information and awareness regarding vitamin supplementation, patients who are prescribed medicine often follow best practices. The remarkably high compliance to folic acid supplementation throughout this protective period, despite the moderate awareness rate, may be related to the increasing frequency of planned pregnancies among pregnant women in our modern environment.

In the present study, 76% of the respondents visited the OPD for prenatal care. The mean gestational age of 1st ANC visit was 8.9±4.91 weeks. This demonstrates that they encounter a medical facility a little too late to receive adequate folic acid supplementation. Most of them had supplements given to them by their doctors, and the majority took the prescription as directed; nevertheless, only 47.3% of them knew what they were taking. This showed a communication gap that may be improved by proper counseling of the expectant moms during prenatal visits. The mean number of ANC visits during pregnancy was 6.56 ±4.91 which shows fewer visits have occurred than the minimum 8 ANC visits required by the WHO. This also contributes to a low level of appropriate knowledge regarding periconceptional folic acid supplementation. Furthermore, the majority of women attended ANC after the second trimester, which reduced the number of visits overall. Even though they may have gotten folic acid prescriptions in these situations, neurulation is finished by the first trimester, therefore this would be essentially

ineffectual in preventing NTDs. Similar to studies conducted in other low-income nations like Ethiopia, Nigeria, and Sudan, women who had at least four ANC visits appeared to know more about the use and advantages of folic acid.[16] The similarity may result from the fact that interacting with healthcare providers increases the chance of learning about services and issues linked to health. The more frequently people interact with healthcare professionals, the more likely they are to learn, which in turn encourages health-seeking behavior.[16] Consistent with the findings of Pakistani research,[17] women who had at least one child were better knowledgeable about the benefits of folic acid supplementation. This could be because women who had at least one prior pregnancy already had interaction with medical professionals and had previously taken folic acid supplements.

The results of the current study showed that higher levels of awareness of folic acid and its periconceptional usage were related to education, income, employment, ethnicity, marital status, and past pregnancies. Multiple studies corroborated this.[11,14,15,18] High rates of unemployment, low levels of education, and lower family income were linked to less awareness of periconceptional folic acid supplementation, consistent with the findings of the study by Yasmin *et al*.[18] A further finding of this study was that women from the Brahmin group and those who had finished at least secondary education had a superior grasp of folic acid (correlation coefficient off =0.375, weak connection).

In conclusion, the limited awareness regarding periconceptional folic acid supplementation in Nepal may be attributed to low educational attainment, insufficient guidance from healthcare professionals, and a lack of impactful public health initiatives. Although the advantages of folic acid in preventing neural tube defects (NTDs) are well-documented, this study indicates a significant gap in knowledge and inadequate consumption practices among women. Factors that significantly affect awareness include education level, income, employment status, marital circumstances, and previous pregnancy experiences.

To remedy this situation, it is imperative to enhance awareness among women of reproductive age, with healthcare providers and media playing crucial roles. Healthcare professionals should actively advocate for folic acid supplementation and its dietary sources, while public health initiatives should prioritize educating women about its significance. Furthermore, fortifying common food items with folic acid and incorporating it into educational curricula can contribute to a decrease in NTD prevalence. Ongoing campaigns are vital to ensure comprehensive awareness and to benefit all women.

We propose initiatives aimed at improving public understanding of the benefits of folic acid and its critical role in preventing NTDs, with the goal of increasing periconceptional folic acid intake and reducing the incidence of NTDs.

LIMITATIONS OF STUDY: As the study involved women visiting the outpatient department of only a single tertiary care center, the data may not be representative of the general population.

Conflict of interest: None

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