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ASSESSMENT OF FOLIC ACID AWARENESS AMONG WOMEN OF REPRODUCTIVE AGE IN KIRAR KHAN SOLANGI VILLAGE, HYDERABAD: A FOCUS ON PREGNANT AND NON-PREGNANT WOMEN

Original Research

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Abstract

Background: Folic acid, or vitamin B9, is essential for women of reproductive age, particularly during pregnancy, as it plays a crucial role in the synthesis of RNA and DNA in body cells. A deficiency in folic acid can lead to neural tube defects (NTDs), affecting approximately half a million infants annually. The WHO recommends 400 mcg daily of folic acid before conception and during the first trimester to prevent NTDs, with higher doses suggested for women at elevated risk. However, many women lack awareness of folic acid's significance, highlighting the need for improved educational interventions.

Objective: This study aimed to assess the awareness of folic acid among reproductive-age women, both pregnant and non-pregnant, in Kirar Khan Solangi Village, Hyderabad.

Methods: A cross-sectional survey was conducted from July to September 2024, involving 60 women of reproductive age selected through non-probability convenience sampling. Data were collected using a structured questionnaire that assessed both demographic and awareness-related information on folic acid. Descriptive statistics and relevant study variables were analyzed using IBM SPSS version 23.

Results: The study revealed that 28.3% of respondents were aged 17-25 years, and 61.4% had no formal education. Among the participants, 76.7% reported having heard of folic acid, but only 10.0% were aware of its role in preventing neural tube defects. While 58.3% reported using folic acid supplements during pregnancy, only 11.7% knew the correct timing for initiating supplementation.

Conclusion: Findings indicate that awareness of folic acid among participants was insufficient, particularly regarding its preventive benefits for NTDs and proper supplementation timing. The results underscore the necessity of implementing educational programs to enhance folic acid awareness and promote maternal and child health.

Keywords: Awareness, Folic Acid, Health Education, Maternal Health, Neural Tube Defects, Pregnancy, Preventive Medicine.

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INTRODUCTION

Folic acid, or vitamin B9, is an essential nutrient recognized for its role in preventing severe birth defects, particularly neural tube defects (NTDs) like spina bifida and anencephaly. Each year, approximately 300,000 infants worldwide are born with these life-threatening or severely debilitating conditions, affecting the brain and spinal cord (1). Research indicates that folic acid supplementation, if initiated before conception and continued through the first trimester, can reduce the incidence of congenital defects by nearly half (1, 2). This nutrient is naturally available in green leafy vegetables, broccoli, peas, grains, and cereals, and is crucial for red blood cell formation, enzyme production, and the synthesis of amino acids, DNA, and RNA—all essential for cellular functions and development (2, 3). At certain stages of life, particularly during periods of rapid cellular division and growth, the body requires higher levels of folic acid.

The World Health Organization (WHO) recommends a daily intake of 400 micrograms of folic acid for women from preconception through the first twelve weeks of pregnancy. For women with a history of diabetes, a previous child affected by an NTD, or who are undergoing treatment with anticonvulsants, WHO advises a daily intake of 5 mg of folic acid, alongside nutritional counseling on folic acid-rich foods (4, 5). Such adherence can significantly reduce fetal complications and maternal anemia, as the maternal nutritional status during pregnancy impacts fetal health. Inadequate folate intake is associated with risks including hemorrhage in late pregnancy, fetal deformities, placental abruption, growth retardation, spontaneous abortion, toxemia, and maternal anemia. In women, folic acid deficiency during pregnancy is often linked to NTDs in the fetus and megaloblastic anemia in the mother (6).

The prevalence of neural tube defects is notably higher in developing countries, with children in these regions being four times more likely to be affected than those in developed countries. This discrepancy is attributed to socioeconomic factors, suboptimal prenatal care, and limited access to safe abortion services. The rehabilitation and treatment of NTDs not only present significant clinical challenges but also impose a substantial financial and emotional burden on affected families and society. The complexity and high mortality rate associated with surgical interventions for NTDs emphasize the necessity of preventive measures over corrective treatments (7, 8). Environmental and genetic factors contribute to the risk of NTDs, with studies suggesting that non-genetic factors play a primary role, accounting for approximately 80% of cases. These environmental influences significantly impact folic acid deficiency, making consistent folic acid intake a preventive strategy for NTDs both before and during pregnancy (9, 10).

Despite these findings, global research indicates that a majority of women are still unaware of the importance of folic acid in preventing birth-related complications (12). This study aims to assess the awareness of folic acid among women of reproductive age in Kirar Khan Solangi Village, Hyderabad, with particular attention to pregnant and non-pregnant women, identifying potential gaps in knowledge and highlighting the need for formal education on folic acid's crucial role in maternal and fetal health.

METHODS

In 2024, a quantitative cross-sectional survey was conducted from July to September to assess awareness regarding folic acid among women of reproductive age in Kirar Khan Solangi Village, Hyderabad. This research focused on women residing in the specified village who were either pregnant or planning to become pregnant. A total of 60 women participated, selected through non-probability convenience sampling. Eligible participants included women of reproductive age who resided in the village, consented to take part in the study, and could communicate their awareness of folic acid’s role in preventing neural tube defects. Women who declined to participate or were unavailable during the data collection period were excluded from the study.

Primary data were collected using a structured, self-developed questionnaire comprising two sections. Section A gathered sociodemographic information, while Section B assessed folic acid intake and awareness, featuring 12 specific questions focused on knowledge and practices related to folic acid. Informed consent, both written and verbal, was obtained from all participants prior to their completion of the questionnaire, which adhered to ethical standards for research involving human subjects. Questionnaires were collected immediately upon completion to ensure accuracy, completeness, and confidentiality in accordance with ethical guidelines.

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RESULTS

The demographic analysis of the study sample showed that the largest age group among participants was 17–25 years, representing 28.3% of the population, followed closely by women aged 31–35 years, accounting for 27%, and those aged 26–30 years, comprising 26.7%. Women aged 36–40 years made up 10% of the sample, while those over 40 years constituted 6.7%. Educational attainment among participants indicated a high prevalence of limited formal education, with 61.4% having received no formal education, 23.3% having completed primary education, 13.3% reaching secondary level, and only 1.6% having pursued higher education. This low educational attainment highlighted the need for targeted educational interventions.

Table 1 Demographic Classification of Participants

Characteristic	Category	Frequency (%)
Age	17–25	17 (28.3%)
	26–30	16 (26.7%)
	31–35	16 (27.0%)
	36–40	6 (10.0%)
	Above 40	4 (6.7%)
	Total	60 (100.0%)
Educational Level	No Formal Education	37 (61.4%)
	Primary	14 (23.3%)
	Secondary	8 (13.3%)
	Higher Education	1 (1.6%)
	Total	60 (100.0%)
Occupation	Housewives	57 (95.0%)
	Healthcare Worker	1 (1.7%)
	Private Sector Employee	2 (3.3%)
	Total	60 (100.0%)
Socioeconomic Status	Low	23 (38.0%)
	Middle	18 (30.0%)
	High	19 (32.0%)
	Total	60 (100.0%)
Number of Children	No Children	11 (18.3%)
	One to two	19 (31.7%)
	Three to four	18 (30.0%)
	Five to six	8 (13.3%)
	More than six	4 (6.7%)
	Total	60 (100.0%)

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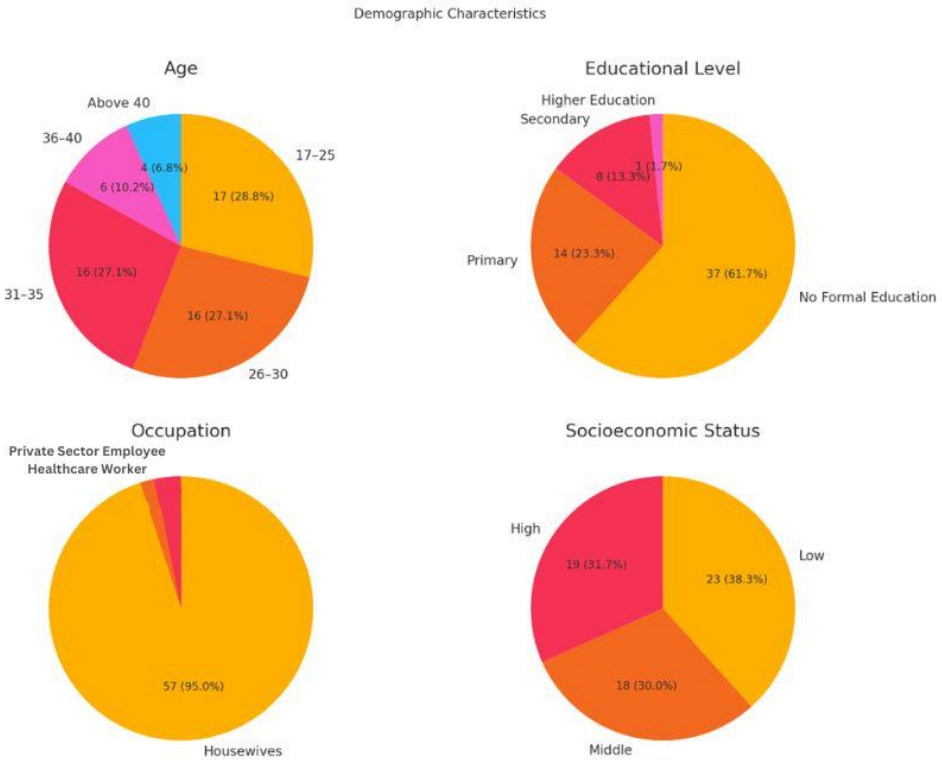

Occupation-wise, the vast majority of participants (95%) identified as housewives, reflecting traditional gender roles within this community, while a small proportion worked in healthcare or the private sector. Socioeconomic status varied among participants, with 38% categorized as low-income, 30% as middle-income, and 32% as high-income. This distribution suggests a significant proportion of the community faces economic constraints, which may influence access to healthcare and nutrition. Regarding family size, 31.7% of women reported having one or two children, indicating a tendency toward smaller families, while 30% had three to four children. Smaller percentages had either no children (18.3%) or a larger number of children, with 13.3% having five to six children and 6.7% having more than six.

Table 2 AWARENESS AND INTAKE FOLIC ACID AMONG PARTICIPANTS

STATEMENT		Yes	No	DK	Mean	St. Devi.
Are you currently pregnant now?	Freq	16	44	-	1.73	.445
	%	26.7	73	-		
Have you ever pregnant before?	Freq	60	-	-	1.05	.219
	%	100	-	-		
Have you ever experienced any miscarriage/abortion?	Freq	35	24		1.43	.532
	%	58.3	40	-		
Numbers of unplanned pregnancies?	Freq	6	54	-	1.90	.302
	%	10.0	90	-		
Did you inform your family doctor about your pregnancies?	Freq	49	11	-	1.18	.390
	%	81.7	18	-		
Have you heard of folic acid?	Freq	46	14	-	1.23	.426
	%	76.7	23	-		

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STATEMENT		Yes	No	DK	Mean	St. Devi.
Can folic acid prevent neural tube defect (NTDs) anencephaly / spina bifida?	Freq	6	54	-	1.90	.302
	%	10.0	90	-		
Do you know when folic acid should be started and for how long to prevent birth defects?	Freq	7	45	8	1.88	.323
	%	11.7	75	13.3		
Did you use folic acid supplement during your previous or current pregnancy?	Freq	35	25	-	1.41	.497
	%	58.3	41.7	-		
Are you still using folic acid supplement?	Freq	11	49	-	1.81	.390
	%	18.3	81.7	-		
Are you aware of the folic acid dosage that is advised both before and during pregnancy?	Freq	15	45		1.75	.436
	%	25.0	75	-		
Have you ever given birth to a baby with neural tube defect (NTDs) or spina bifida?	Freq	7	53	-	1.88	.323
	%	11.7	88	-		

In terms of folic acid awareness and intake, only 26.7% of the participants were currently pregnant, while 73.3% were not. All participants had experienced pregnancy in the past, reflecting a mean score of 1.05 (SD = 0.219). While 76.7% of participants reported having heard of folic acid, only 10% understood its role in preventing neural tube defects (NTDs), underscoring a substantial gap in awareness. This lack of knowledge about folic acid's preventative efficacy against NTDs was evident in the low mean score of 1.9 (SD = 0.302), indicating that many women may not be informed about folic acid's critical role in maternal and fetal health.

Regarding supplementation practices, 58.3% of women reported using folic acid during past or current pregnancies, with a mean score of 1.41 (SD = 0.497). However, only 18.3% of participants continued to use folic acid at the time of the study, with a mean score of 1.81 (SD = 0.390), suggesting poor compliance. Furthermore, knowledge of the recommended folic acid dosage before and during pregnancy was limited; only 25% of participants were aware of the correct dosage, with a mean knowledge score of 1.75 (SD = 0.436). Notably, 11.7% of participants reported having given birth to a child affected by an NTD, indicated by a mean score of 1.88 (SD = 0.323). These findings suggest an urgent need for improved educational efforts in this population to enhance understanding and compliance with folic acid intake recommendations, which could contribute to reducing the incidence of NTDs and improving maternal and child health outcomes.

DISCUSSION

This study assessed the awareness and practices related to folic acid intake among women of reproductive age in Kirar Khan Solangi Village, Hyderabad. While 76.7% of participants reported having heard of folic acid, only 58.3% had used folic acid supplements during pregnancy, indicating a significant gap between general awareness and practical application. This discrepancy highlights a common phenomenon in public health, where awareness alone does not necessarily translate into healthy behaviors (13, 14). The mean scores for awareness-related questions ranged from 1.05 to 1.9, showing variation in knowledge levels. Although 81.7% of participants reported their pregnancies to a family doctor, only 10% understood that folic acid could prevent neural tube defects (NTDs), demonstrating a lack of detailed understanding of its benefits. Similar findings in previous studies reinforce that while general awareness may exist, comprehension of specific health benefits is often limited (15).

The study further revealed that only 11.7% of respondents knew the appropriate timing and duration for folic acid supplementation to prevent birth defects, with a mean score of 1.883. These findings are consistent with previous research that identifies education level as a significant factor influencing women's understanding of folic acid usage (16). The observed lack of detailed knowledge underscores the need for more comprehensive educational strategies that extend beyond awareness campaigns to include specific information about recommended practices. Research suggests that providing targeted, time-specific guidance on folic acid intake can not only enhance

awareness but also improve adherence rates (17). In line with this, a study conducted in Pakistan demonstrated that integrating health literacy interventions into school health education programs significantly improved pregnant women's knowledge and compliance with folic acid recommendations, underscoring the effectiveness of structured educational approaches.

The importance of culturally sensitive health education was also evident. Studies have shown that cultural beliefs and personal factors can influence compliance with health interventions (18, 19). To increase the impact of folic acid campaigns, educational programs must address cultural perspectives and involve not only women but also their families to foster supportive environments that encourage adherence. This could be achieved by mobilizing community resources to facilitate family-centered discussions on the role of folic acid in preventing NTDs. Moreover, healthcare providers should be empowered to deliver consistent and accurate information during prenatal counseling, which could enhance both understanding and compliance.

The strengths of this study include its focus on a community with limited resources, providing valuable insights into barriers to folic acid awareness and compliance in similar populations. Additionally, the use of a structured questionnaire enabled a systematic evaluation of both general and specific knowledge. However, the study's limitations should be acknowledged, including the small sample size and the reliance on self-reported data, which may be subject to recall bias. Furthermore, as a cross-sectional study, it could not establish causality or track changes in behavior over time.

The findings underscore a pressing need for enhanced educational initiatives at the community level, especially those that communicate folic acid's role in preventing NTDs and encourage consistent supplementation practices. The success of such interventions will depend on the integration of culturally appropriate approaches that address the unique beliefs and practices within this community, along with strengthening healthcare providers' roles in delivering vital prenatal information.

CONCLUSION

The findings of this study reveal that while many women of reproductive age have heard of folic acid, their understanding of its benefits—particularly its role in preventing neural tube defects—remains limited. The mean scores indicate a lack of awareness regarding the correct timing and dosage for folic acid supplementation. This gap in knowledge underscores the importance of targeted educational programs to raise awareness and provide clear, accessible information. Such initiatives have the potential to enhance maternal and infant health outcomes by empowering women with the knowledge needed to make informed health decisions.

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