

The Effect of Health Educational Program for Pregnant Women about Knowledge and Use of Folic Acid Supplementation

Awatef Abd El Razek Mohamed⁽¹⁾, Azza Mohamed Hafez,⁽²⁾
Tahany Elsayed Elsayed Amr⁽³⁾

¹Assistant Professor of Community Health Nursing, Faculty of Nursing, Minia University.

²Assistant Professor of Maternal and Child health Nursing- Faculty of Nursing, Minia University.

³Lecturer of Maternal and Newborn health Nursing, Faculty of Nursing, Menoufia University. Egypt.

Abstract:

Introduction: Vitamin B₉ (folic acid and folate) is essential to numerous bodily functions. The human body needs folate to synthesize, repair, and methylate Deoxyribonucleic acid (DNA) as well as to act as a cofactor in certain biological reactions. It is especially important in aiding rapid cell division and growth, such as in infancy and pregnancy.

Aim: The aims of this study were to assess the knowledge and effect of the educational program regarding folic acid supplementation among pregnant women.

Method: Pre-Posttest design was utilized in this study.

Setting: this study was conducted at the Child Health (MCH) centers at Minia City.

Sample: 100 pregnant women who are randomly selected were included in this study.

Tool: A Structured interview questionnaire was used in this study which included personal data socioeconomic data and knowledge related to folic acid.

Results: 75% of studied sample not taken folic acid during the pregnancy period. Also the results show that there were high differences between pre and post educational program among them as regard mean of total knowledge scores.

Conclusion: There were poor knowledge about folic acid among pregnant women and increase mean total knowledge scores after the educational program. So, we recommend that, development of health education program is essential for pregnant women regarding folic acid usage.

Keywords: Educational program, Folic Acid, Knowledge, Pregnant women

I. Introduction

Folic acid (FA) is a vitamin found in certain foods, including dark green leafy vegetables, peanuts and oranges (Safi and Chalouhi 2012). Folic acid is the fully oxidized monoglutamy form of the water-soluble vitamin commercially used and fortified foods. In terms of metabolism, folic acid is converted into coenzyme forms required in numerous one-carbon transfer reactions involved in the synthesis, inter-conversion and modification of nucleotides, amino acids, and other essential structural and regulatory compounds. Interference with Deoxyribonucleic acid (DNA) synthesis, reduced cell growth and destruction of cell division are possible effects of an absence of folic acid. Folic acid supplementation before and during early pregnancy can reduce the prevalence of neural tube defect (NTD) (Simone et al., 2006).

Folic acid was known under different names from 1933 by its curative effects in deficiency states in human and animals and it is essential for the maturation of red blood cell foods such as liver, meat, dairy products, eggs, milk, fruits and cereals are good dietary source as leafy vegetables. "Women of child-bearing age, are recommended to consume 0, 4 mg/day of FA, to reduce the risk of congenital defects. The intake of folic acid should start at least one month before the conception and should continue for the first quarter of pregnancy" (American College of Medical Genetics Foundation 2004 & Salerno et al., 2013).

Deficiency of folic acid has been associated with anemia and other adverse outcomes in pregnancy such as neural tube defects (NTD). The recommendations for prevention of outcomes are difficult to achieve through diet only, and folic acid supplement and food fortification are feasible public health strategies. It is necessary to determine the usual diet and supplement use among women of reproductive age, including an accurate assessment of other dietary micronutrients (Almeida and Cardoso 2010).

Congenital abnormalities (CAs) concern all diseases of organs or body parts developed in utero. They can be either isolated localized in one organ or multiple affecting at least two organs grouped into a syndrome, a sequence, or an association. Their prevalence is about 14% of all human fetuses considering all types of abnormalities (Bethany et al., 2012). Among major CAs, are congenital heart diseases account for 25%, limb defects for 20%, and nervous system abnormalities for 10% (Simone et al., 2006). Moreover, CAs represent the

first cause of infant mortalities, with an increasing proportion (more than 25%) in both developed and developing countries (Safi and Chalouhi 2012). Prevention of CAs is defined by individual and public health strategies that can reduce their prevalence.

These active strategies include nutritional interventions, prevention of maternal infections and diseases, peri-conceptional care of sick mothers (epileptic or diabetic), control of professional and environmental exposure to teratogens, and special attention to pregnancies exposed to major health determinants such as obesity, tobacco, alcohol, and drugs (Safi and Chalouhi 2012). Congenital anomalies play a significant role in perinatal and neonatal morbidity and mortality. The frequency of these congenital anomalies varies in different populations. As many infectious diseases have been controlled by use of vaccines and antibiotics (Nadia et al., 2007).

It is difficult and costly to treatment and rehabilitate the morbidity children ((Simone et al., 2006).& Salerno et al., 2013). Finding the variation in the frequency of congenital anomalies may be helpful for us in planning healthcare measures for possible prevention of such anomalies. The major causes of perinatal and neonatal death, both in developed and developing countries are congenital anomalies. They are presumed to be more prevalent in populations with cousin marriages. Congenital anomalies are either single isolated defects or present as multi - pleanoma lies in a single individual. A syndrome is defined as a pattern of multiple abnormalities that are related by path physiology and result from common, defined etiology (Gillani et al., 2011).

Congenital anomalies are a major cause of admission and prolonged stay in nursery; they are also an important cause of early and late neonatal deaths. The causes for these anomalies are multimactorial (Gillani et al., 2011).

II. Significance Of The Problem

There was lack of knowledge among families and the health authorities about the importance of genetic counseling in the prevention of congenital malformations. Primary or true prevention is at present limited, for example folic acid can prevent only a small proportion of congenital anomalies (Safi and Chalouhi 2012). Tertiary prevention (corrective surgery or medical treatment of anomalies) is successful and curative for some malformations (Malak and Al-Hakeem 2012). The pattern and prevalence of congenital anomalies may vary over time or geographical location, thereby reflecting a complex interaction of known and unknown genetic and environmental factors including sociocultural, racial and ethnic variables (American College of Medical Genetics Foundation 2004 Nadia et al., 2007).

III. Aim Of The Study

1. Assess the knowledge regarding folic acid supplementation among pregnant women.
2. Assess the effect of applying educational program on pregnant women knowledge and use of folic acid supplementation

IV. Methodology

This pretest-posttest study measured changes in pregnant women knowledge and use of folic acid. Pregnant women who were admitted to Maternal and Child Health (MCH) centers at Minia city were the study sample. The number of women who were found eligible for participation was 100 pregnant women who agree to participate in the study. The study assessed women's knowledge and use of folic acid as follows: before and post the intervention The time interval between the pre-test and the post-test was (12) weeks; a period long enough to minimize the effect of the pre-test on the results and conclusions of the experiment.. Data was collected within 12 months from January to December 2015, two days/week at official time from 8 am: 12 pm. The researchers met the subjects at MCH centers.

Ethical approval was obtained from the responsible authorities of. MCH centers. Participants' consent was obtained early of the study and steps to ensure confidentiality and anonymity were attained. A pilot study to assess the clarity of the study tools was carried out on ten women.

V. Instruments

An interview questionnaire which included personal socioeconomic questions as age, educational level, trimester and socio- economic level also questions about the knowledge related to definition of folic acid, resources, harmful effect of its lack, amount and requirement of folic acid, importance of its, and source of knowledge. The scoring system was designed 20 questions, every question equal two scores and total scores equal 30 scores. After the calculation of each subject's scores the subject who was has: less than 50% (less than 20 scores) have poor knowledge, 50- 70% (20 – less than 28 scores) have satisfactory knowledge and more than 70% (28 scores) have good knowledge.

Reliability of the instrument

To ensure the test reliability, the researcher followed test/retest technique. The researcher applied it to a pilot sample of (10) women who were excluded from the study with a two-week period between the test and the re-test. The reliability of the test was calculated using correlation coefficient and it was 0.89 which is appropriate for conducting such a study.

Validity of the instrument

The researcher validated the instrument by submitting it to a jury of three supervisors of maternity nursing and medical at Minia University. The researcher followed the recommendations of the referees and made amendments accordingly.

Folic acid education program

This three hours interactive learning session was delivered to those women admitted to MCH centers. The program consisted of a formal lecture and discussion about folic acid knowledge and how to use.

VI. Results

Table: (1). Shows that a total of 100 pregnant women participated in this study, their mean age (Standard Deviation) were 23.0 ± 4.08 years old. Around one third of study sample were primary education, at third trimester and middle socioeconomic status. This table also shows that the majority of subject not taking a folic acid during pregnancy period and this considered as a serious indicators.

Table (2) demonstrates the knowledge about folic acid among studied sample; as regards to concept of folic acid; fourthy fifth percent of the studied sample told that is vitamin. (21%) of the studied sample don't know the source of folic acid. About two third (63%) of them don't know harmful effect of its deficiency. More than two third (70%) of the sample don't know how to avoid the deficiency of folic acid. In relation to how to avoid side effect of folic acid deficiency; two third of the sample don't know. As regards to the quantity of folic acid, about two third (63.5%) of the sample don't know the proper amount. In relation to knowledge about the importance of folic acid near to three quarter (73.5%) of the studied sample don't know the importance of folic acid. The most (82%) of them need health education. the most percentage of sources of knowledge about folic acid from health care provider were doctors and nurses (78.0%).

Table (3) . Shows the distribution knowledge level in pre& post educational program among studied sample. it was observed that there an improvement in women level of knowledge regarding folic acid post program .

Table (4). Demonstrate the relation between level of knowledge regarding folic acid post program and level of education among studied sample with statistical significant

Table 1: Demographic characteristics of the studied sample

Variable	No	%
Mean age (years) Mean + SD	23.04 ± 4.08 years	
Level of education		
Primary	37	37
Secondary	29	29
High education	34	34
Trimester		
1 st	20	20
2 nd	30	30
3 rd	50	50
Folic acid taken Intake		
Yes	25	25
No	75	75
Socio-economic level		
Low	3	3
Middle	61	61
High	36	36

Table 2: Distribution the knowledge about folic acid among studied sample

Variables	No	%
Concept of folic acid		
• Vitamin	45	45
• Type of mineral	34	34
• Don't know	21	21
Sources of FA		
• know	25	25
	75	75

• Don't know		
Know harmful effect of its deficiency		
• Yes	37	37
• No	63	63
Required quantity		
• 400 micro/day	20	20
• 400 milligram / day	16	16
• Don't know	64	64
Know importance of folic acid		
• Yes	26	26
• No	74	74
Avoid deficiency of FA		
• Know	30	30
• Don't know	70	70
Take folic during pregnancy		
• Yes	60	60
• No	40	40
You need health education		
• Yes	82	82
• No	18	18
Source of knowledge		
• Doctor or Nurse	78	78
• Internet	8	8
• T.V/media	6	6
• brochure	8	8

Table 3: Distribution knowledge level in pre& post educational program among studied sample

Item	Pre Program No.	%	Post Program No.	%
Good	18	18	56	56
Satisfactory	19	19	22	22
poor	63	63	22	22

Table 4: Relation between level of knowledge regarding folic acid post program and level of education among studied sample

Level of Knowledge	Level of education			P-Value
	primary	secondary	High education	
Good	9	15	32	0.001
Satisfactory	10	11	1	0.001
Poor	18	3	1	0.003

VII. Discussion

This pre-posttest study was aimed to assess the knowledge regarding folic acid supplementation among pregnant women in Minia city and assess the effect of the educational program on their knowledge and uses of folic acid. Their mean age (Standard Deviation) were 23.0 ± 4.08 years old as shown in table1. Two third (68%) of them was high socio-economic level .

About two third of the studied sample know little knowledge about the folic acid and the most of them need health education. so it is important to implement educational intervention .This agree with study conducted by bagheri, behnampour, and ghaemi (2010) who stated that, there is a strong need for immediate public health education initiative. Information to specifically inform women about the need to take folic acid for the prevention of NTDs by all tiers of healthcare system and media, can improve the intake of folic acid during the protective period.

Participant in this study reported that, the health care providers were the main source of knowledge about folic acid. This agree with study conducted by Murad, (2013) who mentioned that, main source of knowledge about folic acid among the women was through the health workers (Al-Holy 2013).

About two third of pregnant women in this study don't know harmful effect of folic acid deficiency, because there is no educational intervention about folic acid supplementation before; this agree with studies conducted (National Institute of Population Studies 2007, Wade and McBeth 2012) stated that, no studied of educational intervention on folic acid topic delivered to the females in college for women.

In relation to knowledge about the importance of folic acid; in near to three quarter of the studied sample don't know the importance of folic acid. This agree with (Jamela et al.,2008) who stated in her study that, a high percentage of educated women were not aware by the importance of folic acid.

The study has highlighted a good level of knowledge among highly educated women whereas those women who were exposed health education about folic acid with positive correlation was observed ($P < .001$). On the contrary study carried out in Malaysia showed that education was positively associated with vitamin/mineral

supplementation (Pon et al., 2006). A study conducted by (Mohamed et al., 2012) the knowledge of iron rich foods was poor. Higher level of knowledge was observed in subjects with higher educational background ($p < .001$). Another study carried out in India by (Kuar and Singh) to see the effect of education on knowledge, attitude and practice of pregnant women showed that 93% of the educated women were in favor of including iron rich foods in their diet as compared to 67% in the group with no education ($p < 0.001$).

These results indicate that, immediate health program consisting oral presentation and handout about folic acid is effective in increasing knowledge about uses of folic acid and importance of folic acid to prevent congenital anomalies and other complication of its deficiency.

VIII. Conclusion

According to the results of this study there was poor knowledge about folic acid among pregnant women and increase mean total knowledge scores after the educational program. So, there is need to increase the knowledge of females about the using and importance of folic acid in all setting of the community especially MCH centers.

Recommendations

1. Development of health education program is essential for pregnant women regarding folic acid usage.
2. Repeated the educational program after 3 & 6 months to evaluate the retained knowledge regarding folic acid supplementation.

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