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A Cross-Sectional Study on the Knowledge, Attitude and Practice of Folic Acid Supplement Status in Women of Childbearing Age in Dongguan City

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Abstract

Objective: To understand the knowledge, attitude and practice (KAP) of folic acid supplement status among women of childbearing age in Dongguan city so as to provide evidence for developing a strategy of health education and promotion.

Methods: A questionnaire survey was conducted among 1445 women of childbearing age who sought medicine services in The Third People's Hospital of Dongguan City with situation of folic acid supplementation.

Results: Among the respondents, 95.54% had heard about of folic acid, 70.59% knew that folic acid was vitamin, 88.47% knew that supplement of folic acid could prevent neural tube defects (NTDs), 86.35% knew the correct frequency, 45.26% knew the recommended daily dose, 78.37% knew the optimum time for taking and 32.35% could take folic acid in right way. Chi square test results showed that age, education, occupation and income were associated with awareness rate of the effects of folic acid ($\chi 2$ value was25.03, 103.04, 52.81, 48.53, respectively, all $P<0.05$). Education, occupation and income were associated with the correct use of folic acid ($\chi 2$ value was 17.90, 7.48, 12.77, respectively, all $P<0.05$).

Conclusion: The women of childbearing age in Dongguan city have deep understanding of the knowledge of folic acid supplement, but only a few women of childbearing age could take folic acid in right way. There is a separation between knowledge, attitude and practice. KAP in health education is inefficient. It is necessary to enhance health promotion to provide good social environment and strategy for reducing incidence of NTDs and improving quality of newborns.

Keywords: Folic Acid; Knowledge, Attitude and Practice (KAP); Women of Childbearing Age

Introduction

Birth defects refer to anatomical structural and functional abnormalities in the development of embryos or fetuses due to genetic, environmental factors or a combination of both before pregnancy or during pregnancy [1]. Neutral tube defects are one of the most common and severe group of malformations. The main manifestations are the presence or absence of brain malformations and spina bifida. It is one of the main causes of miscarriage, stillbirth, stillbirth and lifelong disability in women of childbearing age [2,3]. The number of birth defects in China is as high as 900,000 per year, and the incidence of some birth defects is on the rise. According to estimates, China's annual Neural tube defects will increase by about 18,000, and the annual direct economic losses caused by Neural tube defects exceed 200 million yuan [4,5].

Folic acid, also known as pterophyllin, is a group B water-soluble vitamin that participates in the metabolism of nucleic acids, proteins and phospholipids and plays a major role in cell division and proliferation. The human body's demand for folic acid increases rapidly during embryogenesis and fetal development. At this time, if the mother does not provide enough folic acid, it may cause fetal NTDs and maternal anemia. Studies at home and abroad have shown that rational addition of folic acid can significantly reduce the incidence of neural tube defects [6,7]. It can also prevent adverse pregnancy outcomes such as premature birth, low birth weight, and congenital heart disease [8-10]. Therefore, the health promotion work of folic acid supplementation in women of childbearing age is conducive to ensuring the life and health of newborns.

Materials and Methods

Research Object

This study was conducted from May 2015 to March 2016. According to the research purpose and research content, the field survey subjects used multi-stage sampling method. The

first stage was randomly selected from the obstetrics clinic and obstetrics department of Dongguan Third People's Hospital. The four departments of the laboratories, gynecology and reproductive centers are used as survey sites. In the second stage, 200 to 600 women of childbearing age were selected from each survey point through systematic sampling. The third stage was sampled according to the criteria for inclusion of women of childbearing age in this study. A total of 1,445 questionnaires were distributed in this study. The criteria for inclusion in this study were:

a) Age between 18 and 45 years of age.

b) All foreign-born women living or working in the country for at least 6 months.

c) Plan to become pregnant or pregnant.

d) Exclude mobile workers for the purpose of long-term visits to friends, family visits, convalescence, and schooling.

e) Those who meet the above conditions at the same time are included in the survey.

Survey Tool

Combining the classic "knowledge, belief, behavior" theory, with reference to relevant research at home and abroad, customize the knowledge, belief and behavior (KAP) questionnaire. The questionnaire was collected and verified by two on-site investigators who were strictly trained by the anonymous self-administered questionnaire. At the same time, this research questionnaire refers to the prevention of birth defects, knowledge-letter-related investigation literature and reports [11,12]. According to the research objectives and research content, the questionnaire contains three parts: the first part is social information (including age, educational background, hukou nature, monthly income, family income, birth history); the second part is folic acid awareness, folic acid Knowing the preventive effect, the specific dose of folic acid, the time of folic acid supplementation, and whether it is supplemented during pregnancy (folic acid administration compliance). The third part is what is known about folic acid.

Related Definition

"Know folic acid prevention" refers to knowing that folic acid has the effect of preventing birth defects; "know folic acid supplementation time" refers to 3 months before pregnancy to 3 months after pregnancy; "correct use of folic acid" mainly refers to "1 to 3 before pregnancy" Start taking folic acid in the month and "keep taking it every day".

Statistical Method

All data in this study were analyzed and analyzed using Empower Stats and R software. (Copyright 2009 X & Y Solutions, Boston, MA, USA) [13], Statistical methods include general descriptive analysis and χ^2 test, test level α=0.05。

Ethical approval

The study has been approved by the Medical Ethics Committee of the Third People's Hospital of Dongguan and the Ethics Committee of Reproductive Medicine. All questionnaires are in hard copy. Participants in this study are voluntary, and the questionnaires are filled in anonymously.

Result

General Demographic Characteristics

The subjects were 20 to 45 years old, with 25 to 35 years old, accounting for 62.67%. Those younger than 25 years old accounted for 25.70%, and those older than 35 years old accounted for 11.63%. 32.24% of the junior high school and below, 34.82% of the senior high school and secondary school, 32.94% of the junior college or above. Dongguan household registration accounted for 30.27%, non-Dongguan household registration accounted for 69.73%. The residents of Dongguan City accounted for 6.34%, the residents of the township accounted for 61.48%, and the rural residents accounted for 32.18%. Unemployed/farmers/small traders accounted for 34.52%, teachers/staff/medical workers/civil servants/militaries accounted for 29.64%, and workers/business service personnel/individual/full-time wives and others accounted for 35.84%. The monthly income is less than 2,000, accounting for 15.30%, 2000-4000, accounting for 59.32%, 4000-6000, accounting for 19.14%, and higher than 6,000, accounting for 6.24%.

Awareness and Attitude of Folic Acid Related Knowledge

Among the 1445 women of childbearing age surveyed, 95.54% had heard of folic acid, 70.59% knew that folic acid was a vitamin, 88.47% knew that folic acid could prevent birth defects, 86.35% knew the correct frequency of folic acid, and 45.26% knew the correct dosage of folic acid, 78.37% know the best time for folic acid supplementation, 88.83% think it is necessary to add folic acid (Table 1).

Table 1: Awareness and attitude of folic acid related knowledge.

Investigate subject	Number of people(n)	Percentage (%)
heard of folic acid	1372	95.54
Know that folic acid is a vitamin	1001	70.59
Know that folic acid can prevent birth defects	1274	88.47
Know the correct frequency of folic acid	1246	86.35
Know the correct dosage of folic acid	654	45.26
Know the best time to add folic acid	1127	78.37
Necessary to add folic acid	1280	88.83

Note: Some items have missing values

Folic Acid Supplementation

Among the women of childbearing age surveyed, 82.88% had folic acid supplementation; 52.43% had folic acid supplementation before pregnancy; 47.84% were able to take folic acid regularly every day, and 32.35% could take folic acid correctly (Table 2).

Table 2: Folic acid supplementation.

Investigate subject	Number of people (n)	Percentage (%)
Add folic acid		
Yes	1181	82.88
No	244	17.12
Start to add folic acid time		
Pre-pregnancy	637	52.43
After pregnancy	578	47.57
Increase the frequency of folic acid		
Take it daily	565	47.84
Taking intermittently	616	52.16
Folic acid taking compliance		
Supplementing folic acid population	1181	
Taking folic acid correctly	382	32.35

Note: Some items have missing values

Univariate Analysis of Knowledge Rate of Folic Acid Related Knowledge

The statistical results show that women of different ages have different rates of awareness of "folic acid can prevent neural tube defects", and the difference is statistically significant (P<0.05). The "25-35 years old" age group has the highest awareness rate. It was 91.67%, followed by the ">35 years old" age group (85.63%) and the "<25 years old" age group (82.11%). The awareness rate of "folic acid can prevent neural tube defects" increased with the increase of academic qualifications, and the difference was statistically significant (P<0.05). The highest awareness rate of "college junior college and above" was 98.31%, followed by "high school and technical secondary school". "Education group (89.78%), once again "junior high school and below" academic qualifications (77.27%). There was a difference in the awareness rate between occupation and "folic acid can prevent neural tube defects", and the difference was statistically significant (P<0.05).

The highest awareness rate was "teacher/staff/medical staff/civil servant/military" (96.71%), followed by for "workers/business service personnel/individual/full-time wife/other" (88.72%), once again "unemployed/farmers/small vendors" (81.41%). The awareness rate of "folic acid can prevent neural tube defects" increased with the increase of income, and the difference was statistically significant (P<0.05). The awareness rate of ">4000" income group was 95.43%, and "2000~4000" income group was known. The rate was 89.12%, and the "<2000" income group awareness rate was 76.30%. In addition, there was no correlation between the household registration, residence and the awareness of "folic acid can prevent neural tube defects" (P>0.05) (Table 3).

Table 3: Univariate analysis of the influence rate of folic acid related knowledge [n (%)].

Demographic characteristics	Supplementation of folic acid can prevent NTDs		χ^2	P
	Yes	No		
Age				
<25	303(82.11)	66(17.89)	25.03	<0.001
25~35	825(91.67)	75(8.33)		
>35	143(85.63)	24(14.37)		
Education				
Junior high school and below	357(77.27)	105(22.73)	103.04	<0.001
High school and secondary school	448(89.78)	51(10.22)		
College and above	464(98.31)	8(1.69)		
Household registration				
local	391(90.72)	40(9.28)	2.69	0.10
Field	871(87.71)	122(12.29)		
Place of residence				
Urban area	81(90.00)	9(10.00)	1.55	0.46
town	779(89.23)	94(10.77)		
Rural	398(87.09)	59(12.91)		
Career				
Unemployed / farming / small vendors	403(81.41)	92(18.59)	52.81	<0.001
Teacher/staff/medical staff/civil servant/military	411(96.71)	14(3.29)		
Worker / Business Service / Individual / Full Time Wife / Other	456(88.72)	58(11.28)		
income				
<2000	161(76.30)	50(23.70)	48.53	<0.001
2000~4000	729(89.12)	89(10.88)		
>4000	334(95.43)	16(4.57)		

Note: Some items have missing values

Univariate Analysis of the Correct Rate of Folic Acid Intake

The statistical results showed that the higher the education level, the higher the folic acid intake rate of women of childbearing age, and the difference was statistically significant (P<0.05). The college degree or above was 100%, and the high school and technical secondary school group was 93.33%, "junior high school and below" academic degree is 88.31%. There was a difference in the correct rate of folic acid intake between occupational and women of childbearing age, and the difference was statistically significant (P<0.05). The highest rate of folic acid intake was "teacher/staff/medical staff/civil servants/military" (98.75%), followed by "Unemployed/farmers/small vendors" (93.26%), again "workers/business service personnel/individual/full-time wife/other" (92.42). The correct rate of folic acid intake in women of childbearing age increased with the increase of income, and the difference was statistically significant (P<0.05), the income of ">4000" was 99.19%, and the income of "2000～4000" was 95.15%, "<2000 The income group is 86.05%. There was no correlation between age, household registration, residence and folic acid intake rate (P>0.05) (Table 4).

Table 4: Univariate analysis of the effects of correct folic acid administration [n (%)].

Demographic characteristics	Taking folic acid correctly		χ^2	P
	Yes	No		
Age				
<25	68(93.15)	5(6.85)	0.91	0.63
25~35	247(95.74)	11(4.26)		
>35	48(96.00)	2(4.00)		
Education				
Junior high school and below	68(88.31)	9(11.69)	17.90	<0.001
High school and secondary school	126(93.33)	9(6.67)		
College and above	170(100.00)	0(0.00)		
Household registration				
local	148(94.27)	9(5.73)	0.60	0.44
Field	215（95.98）	9(4.02)		
Place of residence				
Urban area	33（100.00）	0(0.00)	3.49	0.18
town	210（95.89）	9(4.11)		
Rural	398（92.80）	59(7.20)		
Career				
Unemployed / farming / small vendors	83(93.26)	6(6.74)	7.48	0.02
Teacher/staff/medical staff/civil servant/military	158(98.75)	2(1.25)		
Worker / Business Service / Individual / Full Time Wife / Other	122(92.42)	10(7.58)		
income				
<2000	37(86.05)	6(13.95)	12.77	0.005
2000~4000	196(95.15)	10(4.85)		
>4000	122(99.19)	1(0.09)		

Note: Some items have missing values

Discussion

This study found that 95.54% of women of childbearing age had heard of folic acid, 88.47% of women of childbearing age knew that folic acid could prevent birth defects, 86.35% of women of childbearing age knew the correct frequency of folic acid, and 78.37% of women of childbearing age knew folic acid. The best time to add. Referring to the folic acid cognition survey in other parts of China, Wang Zhan investigated the women of childbearing age in Gaozhi, Beijing, and found that 99.37% of women of childbearing age had heard of folic acid, and 84.91% of women of childbearing age knew that folic acid could prevent neural tube defects, 92.79 % of women of childbearing age know the best time to add folic acid[13]. Zhou Yaling surveyed Huairou women of childbearing age in Beijing and found that only 28.80% knew the correct way to supplement folic acid, and only 20.70% knew the correct time to add folic acid [15].

Sun Kuikui conducted a questionnaire survey on pregnant women and pregnant women in Tianjin. Only 64.1% knew the role of folic acid, and only 34.8% knew that folic acid could prevent NTDs [16]. The comparison found that the folic acid-related awareness rate of women of childbearing age in Dongguan township is not only higher than that of women of childbearing

age in the middle-developed areas of China and has reached the level of Kochi population in developed areas in China. According to the analysis, the knowledge level and education level and health education work of folic acid awareness may be There is a certain relationship between the two places. At the same time, some studies have pointed out that even in the multi-factor correction state, individuals with higher education level (above college) have the same knowledge of folic acid and the possibility of taking folic acid for other subjects 3.17 and 1.77, respectively [17]. This is consistent with the results of this survey.

Women of childbearing age with high school education or above are aware of folic acid supplementation with NTDs and correct supplementation of folic acid in women of childbearing age who are significantly higher than junior high school and junior high school ($P<0.05$), and for middle class occupations and high income. The knowledge of the population supplemented with folic acid to prevent NTDs and the correct supplementation of folic acid was significantly higher than other occupations and low-income people ($P<0.05$). In this survey, it was found that although the rate of folic acid supplementation in women of childbearing age was 82.88%, only 52.43% of women of childbearing age began to supplement folic acid before pregnancy, while 47.84% of women of childbearing age were able to take folic acid every day and correctly supplemented. The folic acid rate was 32.35%. This is consistent with the research by Ji Guoping and Wang Zhan et al. [15,16,18]. In addition, researchers in China reported that the average serum folate level of women of childbearing age was 9.74 ng/ml [19,20].

About 20% of women have folic acid deficiency, and the survey population's replenishment rate is only 30%, similar to the results of this study, suggesting that the process of transforming knowledge and beliefs into behaviors in health education needs to be strengthened. The critical period of neural tube development is within 28 days after pregnancy [21], If folic acid deficiency can lead to embryonic neural tube defects and congenital heart disease malformations, it can also lead to increased maternal homocysteine concentration, which will cause fetal growth retardation, increased risk of premature birth and low birth weight, and maternal habitual spontaneous Abortion and increased pregnancy complications [22,23]. Therefore, it is of great significance to encourage women of childbearing age to start correcting folic acid before pregnancy. This study finds that the theory of knowledge and belief in economically developed areas is not high, high awareness, good beliefs, may not lead to correct behavior.

Traditional knowledge and belief theory divides behavior change into three processes: knowledge acquisition, belief change, and behavior change. In real life, the conversion of belief into behavior is the most difficult and is affected by many factors. In this study, women of childbearing age in economically developed areas have acquired more knowledge and have correct beliefs, but there are few correct behaviors. Therefore, it is a question worthy of further study to strengthen the transfer of beliefs to behaviors and do a good job in health promotion. For those in economically developed areas, while maintaining the original health education work, the focus should be shifted to health promotion work, providing support for multi-faceted resources for women of childbearing age to supplement folic acid, and promoting the conversion of knowledge and belief into behavior. In summary, this study shows that women in childbearing age in Dongguan have a good knowledge of folic acid supplementation, and the rate of folic acid supplementation is also high, but the correct rate of folic acid supplementation is still low, and there is a disconnect between cognition and behavior, suggesting that health promotion should be strengthened. Work mobilize social resources to reduce the occurrence of neural tube defects and improve the quality of the birth population.

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