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Folic acid supplementation among students

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Abstract:

Introduction: Pregnancy is a period in which the supply of vitamins, micro- and macroelements is essential for the proper growth of the fetus. One of the most important substances, which is believed to have a considerable influence on the proper fetus growth is folic acid. Folic acid (i.e. vitamin B9) plays a significant role in rapidly dividing cells and lack of this vitamin causes serious fetal defects - for example neural tube anomalies. Supplementation is important not only during pregnancy but also during the period of pregnancy planning.

Methods: Students' knowledge regarding the importance of folic acid supplementation was verified using anonymous Internet questionnaire. The obtained results were analyzed using statistical methods and checked on the basis of scientific literature.

Results: The percentage of students who supply folic acid is 18,1% and only 9,5% do this regularly. The most common cause of supply is due to the fact that that folate can be found in vitamin kits students usually take. Part of respondents claim that they plan the pregnancy and want the fetus to develop correctly. Other causes of vitamin B9 intake is prevention of arteriosclerosis, vascular system diseases, anemia, lung, esophagus and uterus cancer.

Conclusion: Outcomes showed that students are not fully aware of the importance of vitamin B9 during pregnancy and there is a great need to share knowledge about folic acid supplementation among people in procreative age.

Key words: folic acid, pregnancy, supplementation among students, dietary supplements

INTRODUCTION

Folates play a crucial role in homeostasis [1]. They are necessary for purines and pyrimidines synthesis, hydroxylation of long-chain fatty acids and conversion of amino acids [2,3]. The demand for folates is different for various groups of patients; it varies in women in reproductive age, women who breast feed, pregnant women, the elderly, and alcoholics.

Folic acid supplementation is especially important during pregnancy planning, pregnancy and confinement [1,4]. The right demand is essential for many processes occurring in fetal organism - for example closure of neural tube, DNA synthesis, erythrocytes growth or nervous system functioning.

Recommended daily dose of folates for adults is 400 micrograms, however it can be two times higher for pregnant women [1,4].

The main source of folic acid are raw green vegetables - spinach, asparagus, and brussels, fruits and fruit juices, nuts, beans, peas, seafood, eggs, liver, dairy products, meat, poultry, and grains [3] However, the vitamin B9 assimilability from food is less than half comparing to the assimilability of synthetic folate - thus, even the optimal diet does not cover the recommended daily allowance [1,3].

Folic acid deficiency causes megaloblastic anemia, defects in cell division, higher level of homocysteine in blood, altered nervous system function, for instance hyperactivity, fatigue, problems with sleeping and memory loss, insomnia, concentration deficit and depression [4-6].

The most common complications associated with folic acid deficiency are neural tube defects in fetus, which include spina bifida and anencephaly. These either lead to serious disability or are lethal. Neural tube closure occurs between 16 and 28 day from conception [5-7]. If this process is impaired, it causes miscarriage or disabilities in the-early development.

The aim of the study was to analyze opinions of 392 students on folic acid supplementation.

METHODS

The research was conducted on the group of 392 respondents, who filled out the internet questionnaire. The study was conducted from 3rd November 2018 to 31st December 2018. Participation in the experiment was voluntary.

The results were analyzed using statistical methods and checked on the basis of scientific literature.

RESULTS

319 women and 73 men (Figure 1) aged 18-27 years (Figure 2) filled out the internet questionnaire.

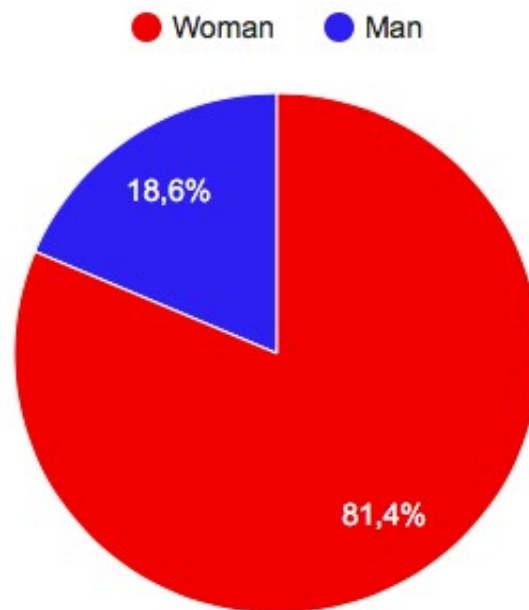


Figure 1. The gender distribution of the studied group

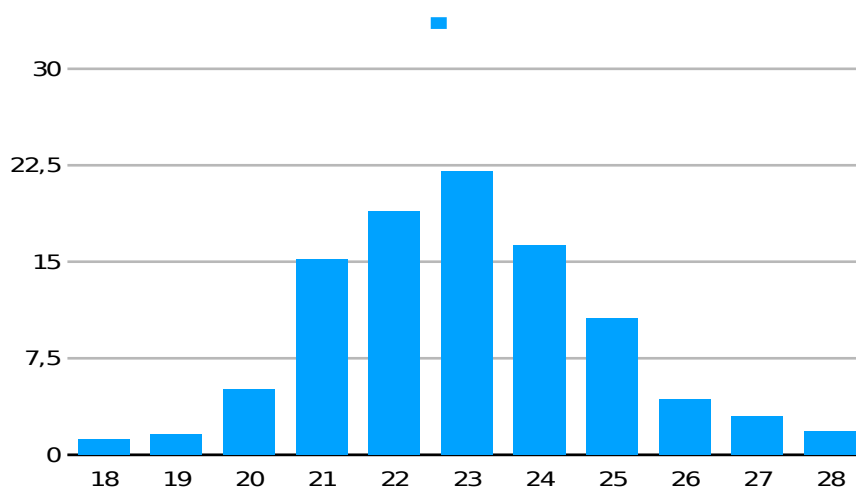


Figure 2. Age of the respondents %

The majority of participants study at universities located in Lublin (82% of them; Table 1).

Table 1. Academic localization of the students

University	%
Medical University of Lublin	55,9
Lublin University of Technology	12,8
Maria Curie-Sklodowska University in Lublin	9,2
Medical University of Warsaw	9
Lublin University of Environmental and Life Sciences	6
The John Paul II Catholic University of Lublin	4,9
Medical University of Lodz	1,4
Rzeszów University of Technology	0,8

The percentage of students who supply folic acid is 18,1%. Only 9% of participants do this regularly (Figure 3)

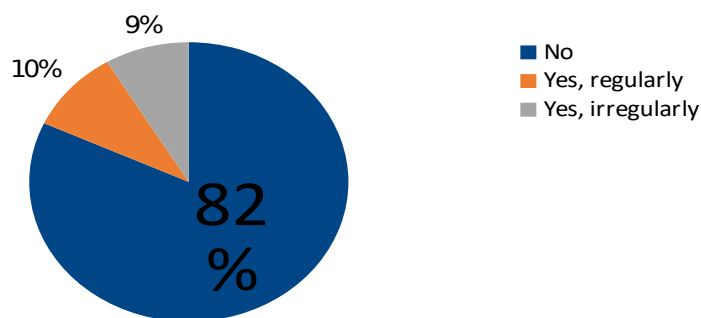


Figure 3. Folic acid supplementation

The most common reason of supply deals with the fact that vitamin kits taken by students also contain folic acid (Table 2). Only 17% of respondents claim that they plan pregnancy and want fetus to develop correctly. Another reasons of vitamin B9 intake are arteriosclerosis and vascular system diseases prevention, prevention of anemia and cancer.

Table 2 Reasons of folic acid supplementation

Why do you supplement folic acid ?	%
Vitamin kits that I take contain folic acid	49
I want to prevent the progression of atherosclerosis and other cardiovascular diseases	23
I want to my baby to be healthy in case of unplanned pregnancy	17
I want to prevent a lung cancer	7
I plan pregnancy	4

DISCUSSION

The number of students who took part in the study was 392. The majority of them - almost 82% (319) were women. Respondents were young and in procreative age - 18-28 years old. More than 2/3 of them studied in medical universities.

The goal of our research was to check students' knowledge about the necessity of folic acid supplementation, especially in women. Only 10% of respondents supply folic acid and a majority of them do not do that regularly. Only every second student knows why there is a need of vitamin B9 supplementation, especially in procreative period.

Similar researches were conducted in many parts of the world over the last years. In the Federal state of Saxony-Anhalt, Germany between March and June 2004 6000 students of 33 schools, aged 15 to 21 years, were interviewed about their knowledge of folic acid [8]. 61% of students reported that they had heard of the term “folic acid” but only 20% of students knew of sources of folic acid. 51% of students knew that folic acid had an important function during pregnancy. Only 22% of students knew the importance of folic acid intake before and during early pregnancy.

Better results were obtained in a private college in western North Carolina, USA 2007 [9]. Almost 60 percent of students knew that folic acid prevents spina bifida but most of them did not supplement folic acid regularly [9,10].

Surveys from 2002 year conducted among pharmacy students at Midwestern University's Chicago College of Pharmacy in the USA, showed that only 50% of pharmacy students had correct knowledge of the optimal time for folic acid supplementation [11]. The outcomes of the questionnaire conducted in 2018 at Medical University of Lublin are very similar.

Investigations display that although students' knowledge about the importance of folic acid supplementation grows, it is still incomplete. The outcomes of questionnaires conducted in Germany and Western North Carolina are comparable to our results [8-11].

The analysis of the obtained results indicates the significant problem among young people in procreative age - the lack of knowledge about folic acid. There is a need to perform educational projects in order to improve people's knowledge. They should focus on the knowledge about vitamin B9 improvement among young people in schools, universities or doctor's offices. It is important to make society aware of the healthy, balanced diet during pregnancy and show them possible consequences of lack of basic vitamins and minerals supplementation [12-14]. Young people should know that there is a possibility to prevent many fetus defects practicing proper supplementation [13,14].

CONCLUSIONS

Results of surveys are slightly alarming. Unfortunately, only 9% of the students take folic acid regularly. The investigation was conducted among students, so people in procreative age who should be responsible and aware of the consequences of their decisions; but researches show that they are not. What is more, the majority of respondents (more than 66%) were students of medical universities, it could seem that they should have wider knowledge about the importance of folic acid.

Our study shows that there is a need for a widely available information about folic acid importance and health risks associated with its insufficiency.

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