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The role of antenatal education as a prevention of emerging disorders during pregnancy

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Abstract

Introduction. The presented work is the result of a literature's studies in the field of feeding pregnant women and experimental analysis on their knowledge and health behaviors. The study highlighted the importance of preventive actions by medical staff and school instructors in giving birth to the education of future mothers. The aim of the study was to determine the knowledge of pregnant women about the principles of proper nutrition. The analysis verified the ability to use the obtained data in the daily life of the respondents.

Materials and method. The research group consisted of 101 pregnant women, including 51 patients from one of the Poznan's Hospitals of Gynecological and Obstetrics Department and 50 participants of Birth School in the same city. The research tool was an authoritative questionnaire that included questions about the knowledge of pregnant women about the impact of a rational diet for a developing fetus.

Results. On the basis of the data obtained it can be stated that students of childbirth schools were more willing and more likely to undertake pro-health activities than those who were never participants in such courses. The effectiveness of knowledge transfer by professionals is an important element of prevention of disorders during pregnancy. In educational programs, emphasis should be placed on the practical application of the acquired knowledge.

Conclusions. The future mother should have clearly defined goals and principles in the rush of all the information. Thanks to them she will be able to consciously and without risk of complications as a result of bad eating habits, survive the period of nine consecutive months and enjoy the correct course of pregnancy and its completion.

Key words: pregnant women, diet, dietary habits, health behaviour, prenatal education

INTRODUCTION

Human health is already getting form at an early stage in fetal life. Psychomotor development of a child and its occurrence of possible diseases emerging in the following decades are conditioned during pregnancy [1]. Over the past years, the attention of gynecologists, obstetricians, neonatologists and dieticians is focused on the relations between health status, lifestyle and diet of pregnant women, the normal course of pregnancy, the condition of the newborn after childbirth and its development in the future [1, 2, 3]. Guardianship for the future mother should include the period before pregnancy, pregnancy and childbed. Very important role is played by education, carried out among others in Birth Schools, which is the stage of preparation for childbirth and care of a newborn [1]. Among the tasks of prenatal care are educational programs. Their goal is to promote health both among future parents as well as in their families. Properly designed programs not only broaden the knowledge about the course of childbirth and childbed. They also point out the principles of proper nutrition or the possible risks of taking drugs or uncontrolled pharmacotherapy [4, 5, 6]. Educational projects based on childbirth psychoprophylaxis are very important as they create the expectations of parents about their future role. This is a great help in responsible and active care of the newborn. Pregnancy is the time when people are particularly susceptible to changes in their lives while expecting for a baby. Therefore it is important for learners to be trustworthy and competent in their field [4]. Properly balanced diet ensures optimum human development, both physically and psychologically [7]. The rational way of feeding, which is a guarantee of physical and mental wellbeing, has a great importance for women of childbearing age [5]. Child's health depends on a great extent on the nutritional status of the mother as well as the intrauterine factors [8]. World Health Organization's experts emphasize that the quality of nutrition of a pregnant woman is very important in the prevention of emerging civilization diseases in her child's adult life [9]. Malnutrition observed during pregnancy positively correlates with growth inquirment prenatore birth between 33 and 37 weeks [10].

Abnormalities often refer to the first trimester of pregnancy, the implantation period, when there is a great increase in the placenta [9, 11]. Maternal malnutrition is closely linked with the risk of vitamin and mineral deficiencies. Considering that the mother's organism is the only source of essential nutrients for the fetus, the greater effort should be made to complement the observed deficits [11]. Among the most important constituents, where insufficient intake is associated with the risk of fetal damage and whose supply should be protected are protein, folic acid, iodine, iron and zinc [5, 12]. Properly balanced diet, created on the social opinion, that pregnant women should "eat for two" is a consequence of abnormalities related to excessive supply of nutrients [12, 13]. Positive energy balance promotes the development of obesity. On the other hand, the excessive weight of the mother's body before pregnancy and its excessive increase over the following months are associated with a higher incidence of fetal macrosomia [12]. Maternal obesity is a factor hindering proper development of the baby. In addition, excessive body weight during pregnancy may cause a higher risk of mortality and morbidity among newborns [9]. It is very important to promote healthy behaviors among indigent and poorly educated backgrounds where we can observe deficiencies in hygiene habits [4].

The issue of correct feeding of a pregnant woman is still valid and there is no tendency to decrease its popularity. Undoubtedly, the only task of perinatal medicine cannot be just an attempt to treatment, but above all, minimizing the risk of developing pathology during and after pregnancy. One way to prevent the disorder is a proper nutrition, therefore, in the recommendations of nutrition specialists, which are included in the nutritional standards, the group of pregnant women was separated as a separate population [14, 15]. Pregnancy, the planning period and subsequent lactation are the states in which a woman's body manifests an increased requirement on energy and other nutrients. Particularly noteworthy are not only fats, protein and carbohydrates, but also vitamins and minerals. Observed deficiencies are the cause of maternal diseases as well as birth defects in neonates. Properly balanced diet, both quantity and proportion of each component of the diet and possible supplementation, guarantee the health of the woman and the proper development of her child. In the case of nutritional deficiencies, the risk of miscarriage and preterm labor increases. Properly designed diet also affects the course of childbirth and later childbed [15, 16, 17, 18]. Growth of fetal and maternal tissue contributes to an increase demand for nutrients. With following weeks and child's development, the supply of essential ingredients should increase [15]. It is not necessary to change the calorie content in the pregnant woman's diet if it is properly nourished during the first trimester of pregnancy. It is important that, when forming systems in the child's body takes place, the pregnant woman attaches more importance to the quality of the selected products [18]. The amount of delivered calories increases in the second and third trimesters of pregnancy by about 300 kcal and by the time of feeding by about 500 kcal depending on age, weight and physical activity. Higher energy demands are due to increased fetal's growth during these periods. At this time, it is important to ensure sufficient supply of ingredients, paying special attention to macro- and microelements such as calcium, iron, magnesium, zinc and vitamin D. It was established that the average energy requirement of a pregnant woman is about 2200-2000 kcal [1, 18]. The energy supply of 30 to 35 kcal / kg of body weight results in a weight gain of 8 to 12 kg, which is about 1 kg / month. However, we have to remember that establishing the energy requirements for a future mother is conditioned by her nutritional status measured by the BMI (Body Mass Index - indicator used i. a. in the classification of overweight and obesity I, II and III degree) [19].

AIM OF THE ARTICLE

The purpose of the work was to systematize the information about the role of diet among pregnant women. The study was also intended to indicate the importance of antenatal education as a prevention of disorders arising during pregnancy.

Bearing in mind recent scientific reports on the impact of women's lifestyle on course of pregnancy, the primary purpose of the experimental part of this work was to assess the degree of knowledge of the principles of healthy eating and their practical use in daily life among the group of future mothers. The study included an overview of the benefits from applying healthy nutrition during as well as the consequences from deficiencies of individual food ingredients. In the second part of the study (the experimental one), observations were obtained from a questionnaire survey, designed for the researcher's needs and the discussion was finalized by the summary notes.

MATERIALS AND METHOD

The survey was conducted from February to April 2012, and designed to gather information on the frequency of taking pro-healthy behaviors by pregnant women. The research group enrolled of patients from the Gynecological and Obstetric Department of the "Hospital of the Holy Family" in Poznan and participants of the "Good Start" school of childbirth in the same city. The criterion for qualifying for the study was an ongoing pregnancy. Participants were informed about the purpose of the study as well as the confidentiality of the provided answers. The interviewer was not present during the questionnaire. For statistical analysis were qualified 101 questionnaires, 50 from the childbirth school and 51 from the hospital's branch. The average age of the studied population was 27.7 ± 4.17 (27.58 ± 3.69 for the childbirth school, 27.82 ± 4.63 for the hospital's branch). The oldest participant during the survey was 40 years old, the youngest was 19. The structure of the population from the childbirth school was 36 women in the third trimester (72%), 11 in the second (22%) and 3 of them in the first trimester (6%). Among hospital patients these values were respectively 76%, 20% and 4%. For the majority of subjects in both groups, this was the first pregnancy (65%). A significant number of pregnant women for the very first time (78%) were participants of the childbirth school. The smaller proportion were women pregnant for third time or more, which were accounted for 8% of the general group.

For the research was used particular, specially designed questionnaire, which was consisted of two parts: one containing 27 questions concerning the health behavior of pregnant women and their knowledge of the principles of proper nutrition and the other (7 questions), which collected the general data of the respondents. The initial part contained 25 open questions, where participants could've found alternative questions (choice between yes/no/I do not know), disjunctive (choice of one answer) and conjunctive questions (multiple choice), two more were semi-open. The person taking part in the study, if selected a particular answer out of the possible, was asked to supplement her opinion. The second part of the questionnaire concerned general data. The questions about age and the current week of pregnancy were open, while the rest (residence and education) were closed. The respondents also answered the question, what number of pregnancies they have had before and they have identified their financial situation.

STATISTICAL ANALYSIS

Microsoft Excel 2007 and Portable MiniTab v16.1 were used to analyze the material and produce the results. The study population of pregnant women was described using the table of numbers and contingencies. The statistical significance of the hypotheses was tested using the non-parametric Pearson χ^2 test. The results were statistically significant at $p < 0.05$. Results of statistical analysis of defined features are presented in descriptive and graphical form using

bar charts and columns. Some of the data were presented as a percentage of the study group, while other parameters were compared within the subgroup: participants in the childbirth school and patients in the gynecological and obstetric department.

STUDY RESULTS AND DISCUSSION

Studies show that the majority of the study population of women changed their diet during pregnancy. 62% of women (n = 31) were participants of the childbirth school and 76% of women (n = 39) reported this change were patients in hospital's branch. Similar observations did not make 32% (n = 16) and 20% (n = 10) of the respondents. Only 5% of the respondents could not determine if the new rules were introduced in their menu.

The opinion that pregnant woman "should eat for" is less and less common in society, which was shown as results of respondents' answers to the question of how the model of future mother's diet should look like. Almost everybody was consistent and responded that the quality of the products should determine the daily diet of the mother to be (94% for n = 47 – respondents in childbirth school and 90% for n = 46 – pregnant women in hospital's branch).

Only 6% of childbirth school participants were surrendering to their cravings (n=3) and 8% from hospital's branch (n=4). Only one person from second group thought that a pregnant woman "should eat for two". There were no statistically significant differences ($p > 0.05$) in the analysis of the response to this question. Respondents were asked how they learned about the principles of healthy nutrition they should apply during pregnancy. Participants could choose several answers and the analysis shows that the students of the childbirth school gain information primarily from the Internet, books and scientific journals. Their doubts also dispersed by articles in the so-called "women's press", medical staff, friends and family. During the course of the study the researchers were aiming for information about pregnant women's knowledge on factors impeding the absorption of folic acid. In the first place 36% (n = 46) of the students and 51% (n = 44) of the patients in the hospital's department placed an alcohol. Approximately 25% (n = 32) and 35% (n = 30) women thought that smoking could reduce the absorption of this ingredient. In the third place (34%) of all participants of the survey, (n = 34), respondents placed coffee. Only 29 women have thought that birth control pills may inhibit the action of folic acid during its absorption by the organism.

In the literature we can find similar findings. The results obtained by Emczyńska and others shows that the majority of women (85%) were in favor of negative alcohol's impact on absorbing folic acid, 70% pointed out coffee, 51% cigarettes and only 44% for contraceptives. Similar results were obtained in the case of researcher on ethanol alone. The remaining elements can observe incompatibilities [20].

In the available literature, there is a lot of information about the disturbed use of folic acid as a result of alcohol intake. According to Cylwik and others, folate deficiencies in the case of excessive consumption of ethanol are not only associated with impaired absorption but also liver changes and increased removal from the body with urine. In the case of increased demand for folates in mothers' to be bodies, such mechanisms can be a crucial risk factor for the occurrence of deficits [21]. Stark and others have shown that concentration of folate in blood's serum depends on the daily intake from nourishment, but also on the active smoking of cigarettes. The results of their study indicate that folate saturation in mother's smokers was 21% lower than non-smokers [22]. Similar results were achieved by Özerol and others who observed elevated homocysteine levels in the mothers smokers compared to non-addicts (control group). Particularly low concentrations occurred most often around the 30th week of pregnancy. The authors linked the fact of hyperhomocysteinemia with low levels of folic acid in the blood's serum of the study group [23].

The vast majority of the population taking part in the study claimed to consume 5 meals a day. Among the participants of the childbirth school it was 54% of women (n = 27) and 47% (n = 24) among hospitalized respondents in the “Holy Family Hospital”. 4 meals a day were consumed by 32% (n = 16) participants of the childbirth school and 29% (n = 15) among women in hospital’s department. Six respondents from each subgroup (12% childbirth school, 12% hospital) have had more than five meals a day. There was also an analysis performed of the statistical significance of the pregnant women` responses. The fact of participation in the classes of the childbirth school did not significantly influence the decision about the amount of food eaten by pregnant women ($p > 0.05$). According to the guidelines of the Institute of Nourishment and Nutrition the regularity of meals during the day, in the amount of 4-5 times protects the pregnant woman from fluctuations of the glucose concentration in blood which are unfavorable because they results in hyperinsulinemia, a factor predisposing to excessive weight gain due to the anabolic effect of insulin hormone. The controlled increase in the weight of the future mother protects her from complications related to obesity. The most common, as the authors pointed out, are hypertension and mother`s diabetes, also fetal hypothyroidism and macrosomia or intrauterine and perinatal deaths [24, 25].

Both populations most often decided to eat breakfast, lunch and dinner. In the group of participant`s of the childbirth school it was 22% (n = 50), 22% (n = 50) and 21% (n = 48) were women. In the subgroup of the hospital`s branch 22% (n = 50), 23% = 51) and 20% (n = 46) women. In addition, smaller meals as brunch or afternoon snack in the first group had 18% (n = 41) and 15% (n = 34) respondents. The hospitalized population was more likely to take the afternoon snack (n = 42; 19%) than brunch (n = 33, 15%). Snacks were chosen by only 11 respondents (2% of the population) – $n_{sch}=8$ (n_{sch} – number of participants in childbirth school) and $n_{hb}=3$ (n_{hb} – number of population in hospital`s branch). (Figure 1). It has not been shown that education in the school of childbirth influenced the type and frequency of meals ($p > 0.05$).

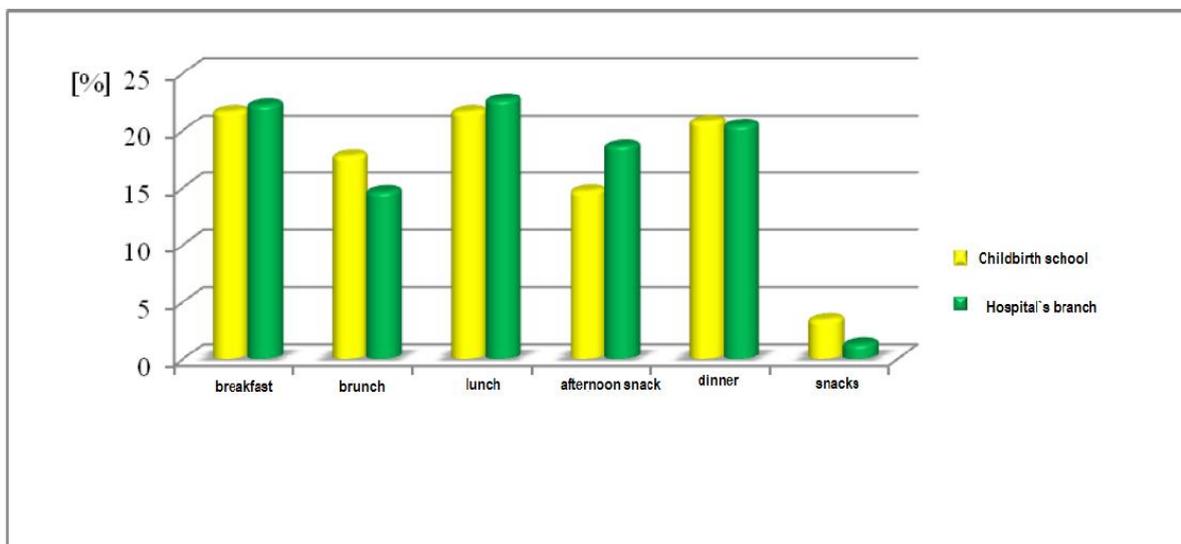


Figure 1. Type of nourishment intake in the studied population
Source: Individual study based on questionnaire`s surveys

The favorite snacks of the childbirth school`s participants were fruits (34%; n = 11) and sweets (28%; n = 9) dairy products (13%, n = 4), vegetables (9%, n = 3), sandwiches (6%, n = 2) and nuts and delicacies (6%; n = 2). The last place in the list remained for salty snacks (3%; n = 1). Non of the subgroup`s respondents admitted to having “junk food” during pregnancy. Among the hospital`s patients favorite products were dairy products (34%; n = 13) and fruits

(18%; n = 7) and sweets (16%; n = 6). Less popular were sandwiches (11%, n = 4), vegetables (8%; n = 3), crisps / crackers (8%; n = 3) and fast food (5%; n = 2). None of the respondents claimed to consume nuts and delicacies (Figure 2).

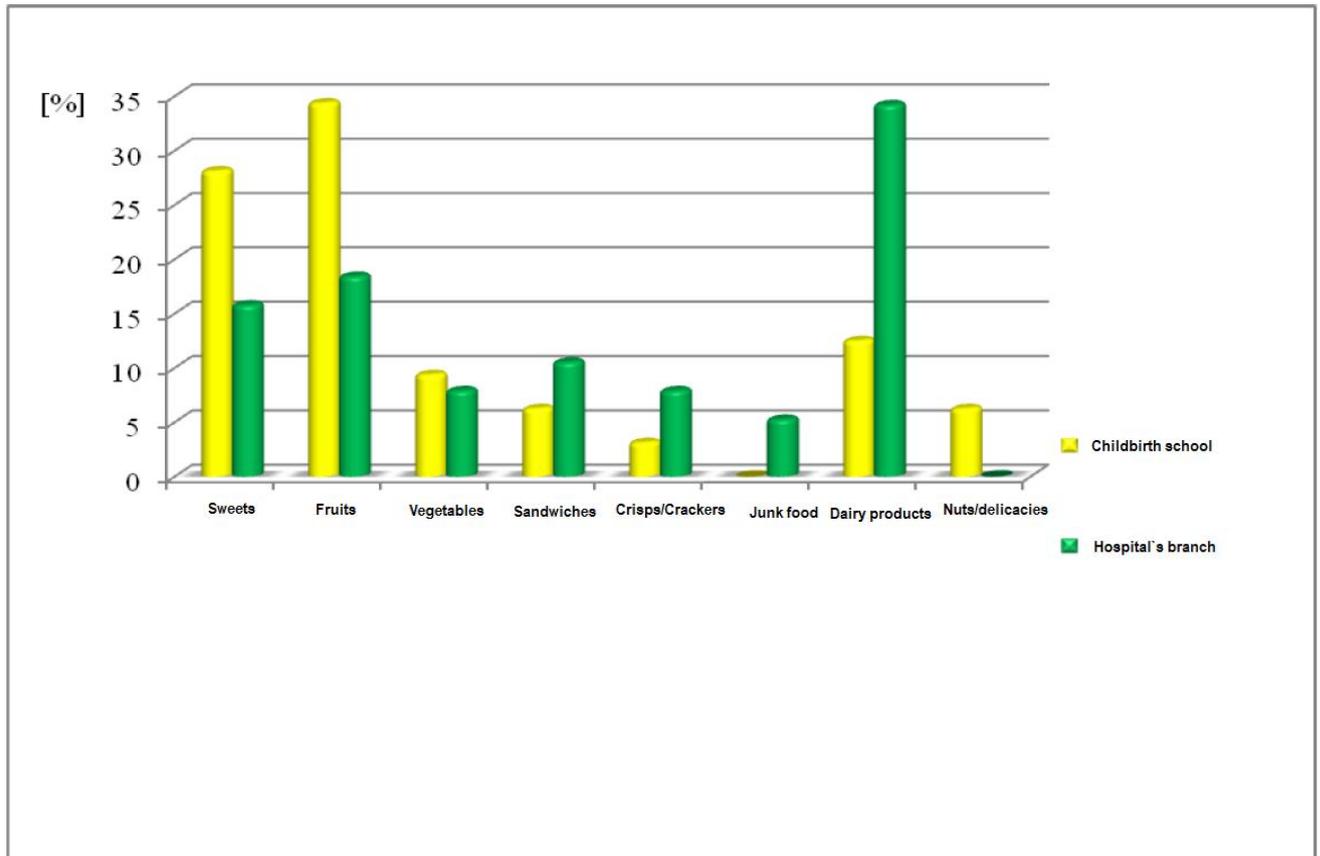


Figure 2. Favorite snacks for pregnant women of the studied population
Source: Individual study based on questionnaire`s surveys

In the studies conducted by Godala and others was shown that the favorite snack of the analyzed pregnant population turned out to be sweets. 17% of respondents used to go to it most often, several times a day. Salty snacks several times a week were subjected to 30% of the respondents [26].

In the course of individual research, the frequency of consumption of individual products from selected food groups was analyzed. Statistical analyzes included beef and pork, poultry and fish as a source of wholesome protein. The information available in the literature indicates that milk and its products are a primary source of calcium. They contain a favorable ratio of calcium to phosphorus and the lack of substances that impede the calcium`s absorption and that was the reason why it was decided to assess whether the diets of future mothers allow the recommended intake of calcium in their diets [27].

It was shown that beef meat, pork meat and sausages were consumed several times a day by 16% of the childbirth school attendants (n = 8) and 2% of the hospital patients (n = 1). These articles appeared in the diets of 20% (n = 10) and 18% (n = 9) respondents once a day, 20 women in both subgroups (40% childbirth school, 40% hospital) consumed them several times a week. 22% of students (n = 11) and 25% of patients (n = 13) declared consumption of pork and beef several times a month. Among the patients, 4% (n = 2) of them eat such products less than once a month. Meat of these species did not consume 7% of respondents (n_{sch} = 1; n_{hb} = 6). There were no statistically significant differences between the analyzed groups (p > 0,05).

Gacek studied the nutritional behavior of pregnant women and concluded that only 6% consumed red meat during pregnancy. In our individual studies the percentage was significantly higher and achieved 28%. Discrepancies were also found in the percentage of women consuming these products less than once a week, respectively 12% and 24% [28]. Another source of wholesome protein is poultry and fish. Among the total of respondents 40% of them (n = 40) declared consuming poultry at least once a day, 50% of this group were participants in the childbirth school. 40% of pregnant women from childbirth school consumed this kind of meat several times a week (n = 20) and 45% from hospital's branch (n = 23). At lower frequencies, white meat appeared in the diet of 20% of the students (n = 10) and 6% of the patients (n = 3). In the last subgroup, 10% of future mothers (n = 5) declared that they never eat meat. What should be emphasized is the fact that vegetarians are often deficient in protein, vitamins B12, D, iron, calcium and zinc. The exclusion of animal origin's products contributes to deepening this state, especially in the case of a future mother [25, 29]. However, high consumption of red meat, even though it is a very good source of iron, is also not advisable. According to experts from the Institute of Nourishment and Nutrition beef and pork dishes should appear on the pregnant's plate 2-3 times a week. In their place, it is better to plan fish that are the source of essential unsaturated fatty acids, as well as, poultry that are considered healthier than other species or seeds of legumes [30]. A large proportion of pregnant women consumed fish several times a week. However, the highest percentage declared that this type of food is in their menu only a few times a month. It is important to remember that fish products are an excellent source of high-quality, bio-rich protein. Dieticians and physicians recommend fish consumption 2-3 portions a week (portion = 150 g) that covers the need not only for protein but also for omega-3 fatty acids that largest quantities are concentrated in sea fish, such as salmon, mackerel, sardines and herring. These ingredients are part of the prevention of ischemic heart disease and metabolic disorders [25, 30]. Statistical analyzes shows that while comparing two groups, there are no significant differences ($p > 0.05$) in the level of knowledge of the benefits coming from fish and white meat consumption or its practical application in everyday life.

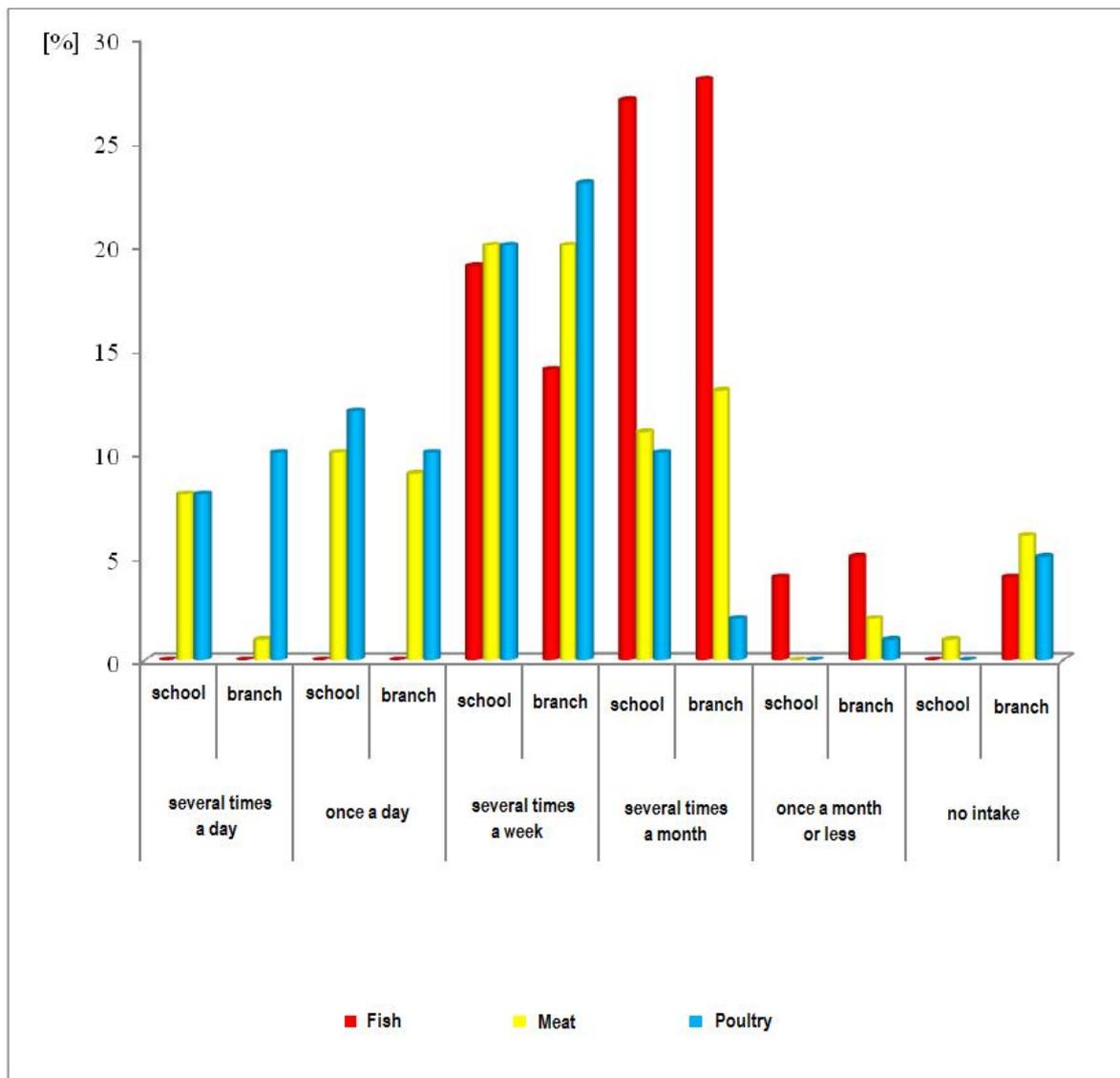


Figure 3. Structure of fish, pork and beef and poultry consumption by the population of pregnant women.

Source: Individual study based on questionnaire`s surveys

A similar situation occurred with the supply of calcium coming from dairy products. Milk and its products several times a day in their diet included 56% of respondents ($n_{sch} = 27, n_{hb} = 30$), once daily 21% ($n_{sch} = 13, n_{hb} = 8$) and several times a week 17% ($n_{sch} = 7, n_{hb} = 10$). Only 4% ($n = 2$) of the population participating in the antenatal course have had dairy products once a month or less, 4% ($n = 2$) of the hospital patients completely excluded them from their diet. Differences between groups were not statistically significant.

Kozłowska-Wojciechowska and others found in their studies that daily milk and its products have been consuming 58% of pregnant women, which is consistent with Gacek's observations (55%) but not with our individual studies. In the presented analyzes was noted that over $\frac{3}{4}$ of respondents reached for dairy products daily or several times a day. Differences can also be observed in the number of women declaring consumption of this type of food occasionally. Kozłowska-Wojciechowska et al. obtained a score of 32% and for comparison, in the present study this percentage was only 16% [5, 28]. Milk and its products are a good source of easily absorbable calcium necessary for the baby's development and ensuring a good state of calcium and phosphate during lactation. Women who are allergic to milk and its

products should take care of a diet high in calcium from other sources or they should take supplements. Moreover, dairy products provide our body with magnesium, potassium and in trace elements such as iron and copper [31].

In the case of fast food products, the respondents most frequently declared that they have been consuming them once a month or less, with 40% (n_{sch} = 20) and 41% (n_{hb} = 21) responding in both groups. 16% (n = 8) of childbirth school participants decided to have “junk food” more often - several times a month and only (n = 8) 16% of hospital’s patients (n = 8). In total, 43% of pregnant women give up visiting snack bars entirely (n_{sch} = 22, 44%; n_{hb} = 21, 41%). One participant of the study preferred fast food meals even several times a week (hospital’s patient).

In Gacek’s studies 39% of respondents declared consumption of “junk food” occasionally, and 4% of them have had it regularly. Our individual observations differ from this information, as only 1% declared high frequency of intake of high-processed products [28].

In Godala’s and others research group ¼ of the respondents abandoned such food [26]. This is 20% lower percentage than the analyzed group of students and hospitalized pregnant women. Fast products are rich in saturated fat acids and trans fat acids. Intake of this kind of fats is not recommended especially for pregnant women, as it can be associated with the development of dyslipidemia, increased production of lipid peroxides and hyperhomocysteinemia. These are components that promote the preeclampsia appearance or hypertension induced by pregnancy. In addition, there are reports of a positive correlation between high trans fat acids intake and the incidence of children having allergies and asthma because their mothers have been consuming “junk food” during pregnancy [32].

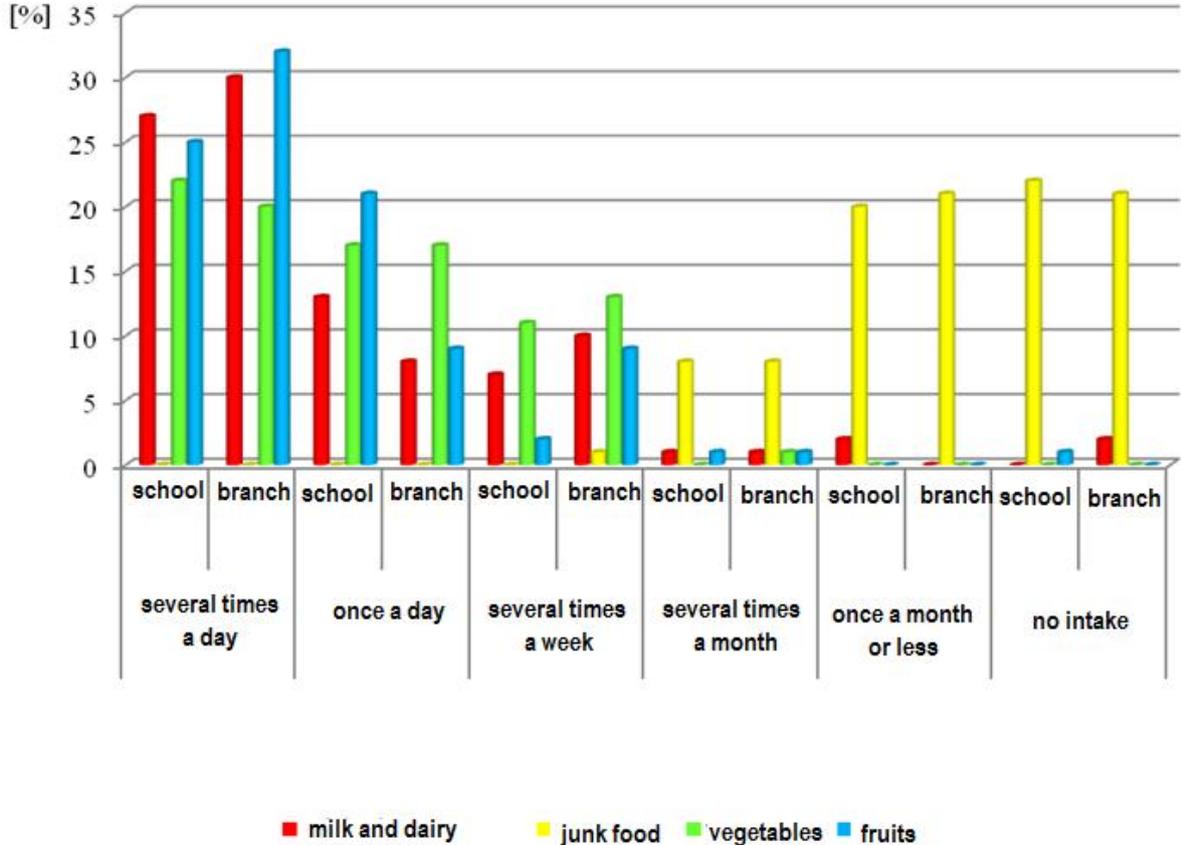


Figure 4. Structure of consumption of fruits, vegetables, milk and dairy and junk food products by pregnant women.

Source: Individual study based on questionnaire’s surveys

Our studied population answered the question whether the consumption of vegetables and fruits is the most beneficial or perhaps easier and more necessary is to replace vitamins and minerals by diet supplements. First response chose 98% of pregnant participants in childbirth school ($n = 49$) and 94% of hospitalized patients ($n = 48$). Vitamin and mineral supplements preferred only 4% of pregnant women ($n_{sch} = 1, n_{hb} = 3$).

To investigate whether there are statistically significant differences between the analyzed groups, the analysis was performed. Its result ($p > 0.05$) indicates that the knowledge about the benefits of eating vegetables and fruits by future mothers is not due solely to participation in educational activities. Presumably, this is due to the general public opinion about fruits and vegetables being a source of health and all drugs contain "bad chemistry."

The statistical analysis shows that, as in the case of the level of knowledge about the benefits of consuming products of plant origin, the number of vegetables pregnant women received was not dependent on the fact that they have been attending childbirth school ($p > 0.05$). The high content of plant fibers in the diet counteract the constipation often found among pregnant women. For this reason, it is very important that they supplement their diet with large amounts of water and consume adequate amounts of fiber in the form of bran, raw vegetables and starch products from thick milling [33].

There was statistically significant difference in the case of fruit supply, ($p < 0.007$) between the childbirth school attendants and pregnant women from hospital's branch. This type of products was more likely used by women attending childbirth school. This is probably due to the fact that fruits were the most popular group of snacks among this population and not necessarily the knowledge of the subject.

High consumption of this type of product is not recommended, especially for pregnant women with obesity who are more likely to develop diabetes mellitus. Fruits are a source of simple carbohydrates with a high glycemic index that contribute to weight gain. In addition, the main fruit's sugar is fructose, which according to numerous studies, causes the state of insulin resistance observed in subjects with a high body mass index (BMI). The excess of fructose derived from fruits and their products correlates positively with the development of hypertriglyceridaemia in obese individuals, which is a risk factor for both diabetes itself and its late complications [24].

Studies have shown that courses in a childbirth schools does not always translate into pregnant women's knowledge about the principles of proper nutrition and practical use of these principles in everyday life. Statistically significant differences were shown only in the frequency of snacking and having fruits. However, it can be concluded that both parameters are dependent on each other, as it has been shown that the most frequent snacks pregnant participants in organized courses have had are fruits. It is very important that people working with a future mother can effectively transfer their necessary knowledge. As shown by Medrela - Kuder it is one of the most important elements of the prevention of deficiency and disorders due to excess of nutrients [7].

What is important, as shown in the studies by Hamulka and Wawrzyniak, the most nutrient deficiencies (especially folic acid) in refectations are observed during the first and third trimesters of pregnancy. It is noteworthy that in the first weeks folic acid deficiency favors development of neural tube defects and in the last one may result in premature labour [34].

CONCLUSIONS

1. Preventive actions carried out both, in hospital's branches and organized schools of childbirth contribute to reducing the risk of complications resulting from the risky behaviors caused by pregnant women and women in reproductive age.
2. Properly balanced pregnant woman's diet allows to protect the woman and her child from complications resulting from deficiencies or over-supply of particular ingredients.

3. There were no significant differences in the majority of the dietary habits of pregnant women in childbirth school and in-hospital population. Much of the studied group changed its diet after receiving information about pregnancy. A small percentage of the respondents could not determine whether any changes in their diet had been introduced.
4. There was a statistically significant dependence between the fact of not eating between meals and attending childbirth school. The differences between the studied groups in the frequency of fruit consumption were significant. Such dependence was not found in the case of vegetables, meat, poultry, fish, dairy products and junk food products consumption.
5. Instructors of childbirth schools and medical staff of gynecological and obstetric clinics and hospitals should pay special attention to whether their education model is effective and whether the knowledge transferred onto pregnant women is used in practice after leaving the institution.

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