Ewa Kostrzewa-Zabłocka[1,2], Piotr Dziemidok [2,3], Wioletta Wolańczyk[4]

[1]Chair of Nursing at the Faculty of Physiotherapy and Pedagogy, Higher School of Management and Administration in Zamość
[1]Katedra Pielęgniarstwa Wydziału Fizjoterapii i Pedagogiki, Wyższa Szkoła Zarządzania i Administracji w Zamościu
[2]Department of Diabetology, Institute of Rural Health in Lublin
[2]Oddział Diabetologii, Instytut Medycyny Wsi im. Witolda Chodźki w Lublinie
[3]Department of Health. John Paul II State Higher School in Biała Podlaska
[3]Instytut Zdrowia. Państwowa Szkoła Wyższa im. Papieża Jana Pawła II w Białej Podlaskiej
[4]Student at the Faculty of Nursing, Higher School of Nursing and Administration in Zamość
[4]Studentka Wydziału Pielęgniarstwa Wyższej Szkoły Zarządzania i Administracji w Zamościu.

Nurse as an active contributor in prevention of obesity among junior high school youth

Pielęgniarka jako osoba biorąca czynny udział w profilaktyce nadwagi u młodzieży gimnazjalnej

Summary
In the forthcoming decades, one can expect an epidemic of obesity among children, growing number of obese adults as well as complications associated with obesity. Faced with the problem of overweight and obesity among children and youth, the first step should be to educate, since it is basic foundation of a healthy lifestyle. Prevention of obesity should be promoted among parents/guardians and teachers by dissemination of the correct attitudes at school and at home. Cooperation between school nurses and school staff involves mutual support, complementing the school's objectives as well as protection and promotion of healthy lifestyle of among students and staff.

Key words: adolescent health, physical activity, obesity, prevention, treatment

Streszczenie
Epidemia otyłości u dzieci pozwala spodziewać się w najbliższych dziesięcioleciach większej liczby otyłych dorosłych, a także powikłań towarzyszących nadwadze. Stając przed problemem nadwagi i otyłości u dzieci i młodzieży, należy w pierwszej mierze rozpocząć od edukacji, gdyż jest ona podstawowym fundamentem zdrowego stylu życia. Prewencja otyłości powinna być przeprowadzona wśród rodziców/opiekunów i nauczycieli poprzez promowanie prawidłowych postaw w środowisku szkolnym i domowym. Współpraca między pielęgniarką szkolną, a pracownikami szkoły polega na wzajemnym wspieraniu się, uzupełnianiu w ramach zadań, które realizuje szkoła w ochronie i promocji zdrowia uczniów i pracowników.

Słowa kluczowe: zdrowie młodzieży, aktywność fizyczna, nadwaga, profilaktyka, leczenie

Introduction

Over the last years, the perception of children with excess body weight has clearly changed. For some time, press, books, and medical publications reveal frightening statistics. Overweight and obesity have become a scourge of the twenty-first century (Jarosz, 2009). During the past 25 years, the number of obese school-age children has doubled. In 1997, the World Health Organization identified obesity as a disease. It is now believed that one in five children is overweight or obese. Changing the nutritional habits and encouraging physical activity increases the chances of achieving the weight suitable to the height, sex and age by children suffering from overweight (Jóźwiak, 2011). The role of genetic factors is not the same among all people, but genes have a strong impact on the family history of obesity. It is believed that the interaction of the foregoing with environmental factors discloses an innate tendency for this disease (Zgliczyński, 2011). The development of industry, advances in technology and modern means of transport created ideal conditions for the development of obesity. Increased availability of food, more calorific value and increased size of meals are just some of those mistakes that are made (Wajszczyk, 2008). Computer games significantly reduce the physical activity of young people. Lack of exercise in the open air contributes to the development of overweight and obesity. Obese children are less physically fit, so even small effort can be troublesome for them (Chomicz, 2006). It is more and more often claimed that obesity is a "ticking time bomb" and that a generation of young and sick people will grow, who will die before their parents. There is an association between obesity and increased general mortality. The real objective of the fight against obesity is not just a normal body weight, but a reduction of body weight to the extent achievable for a patient (Sikorska-Wisniewska, 2007). Faced with the problem of overweight and obesity among children and youth, the first step should be to educate, since it is basic foundation of a healthy lifestyle. (Białosz-Kalinowska, 2010). Prevention of obesity should be promoted among parents/guardians and teachers by dissemination of the correct attitudes at school and at home. Also, the media should play an important role in changing lifestyles through a broad impact on society. Obesity of a child can be seen as a failure to exercise proper parental child care. More and more often the attention is drawn to the psycho-emotional aspects, including reactions to stressful situations (Żaczek, 2008). The health promotion and disease prevention programmes define multiple tasks based on the transferring knowledge to young people, shaping the skills or motivation to incite interest in health issues, to be maintain good health as long as possible as well as opportunities to improve it (Wójta-Kempa, 2011). A school nurse has special abilities and opportunities for such interactions, particularly with young people, because she spends more time with them than other health professionals. She has an opportunity to watch young people in a variety of situations. It is easier for her to assess their needs and willingness to learn and change their habits (Marcysiak, 2010).

Purpose of the paper:

The aim of this paper is to identify and determine the impact of the school nurse's prevention activities on changing the body weight among junior high school children.

Material and research methods:

The method, which was used to carry out own research was a diagnostic survey method. The advantage of this method is its anonymity, which allows the respondents to express their own opinions without any fear, and also facilitates gathering valuable material for research.

The technique was a survey, and the research tool was a questionnaire of our own design, which addressed the impact of socio-economic factors on overweight and obesity. The questionnaire was designed after reading the literature on factors determining overweight and comprised of 23 closed-end questions.

The questions pertained to: age, weight, height, waist circumference and hip circumference, diet, regularity of meals, ways of spending leisure time physical activity and knowledge about the causes of overweight and obesity. The survey was conducted twice, before and after the discussions on the impact of nutrition and physical activities on health of contemporary teenagers. The discussion was enriched by personally prepared project on the prevention of overweight and obesity. The discussion lasted 45 minutes.

The survey was conducted in January and February 2013, and then it was subject to statistical analysis. 64 randomly selected middle school students in Narol were involved in the survey.

The results were subject to statistical analysis.

Discussion of results

The survey on nutrition and physical activity was conducted among adolescents aged 15 years old, attending the junior high school [Gimnazjum im. Bohaterów Września 1939] in Narol. The study involved 64 people, including 34 boys and 30 girls. 16 people came from the town. The following measurements were taken: weight, height, waist and hip circumference. The diversity of the results shows different body structure and degree of development of fifteen-year olds. Among the smallest ones, there were very slim people, but also those with higher weight than the tallest ones. This trend was observed among both sexes (Table 1).

Tab. 1. Results of body weight and body measurements of the respondents

Boys				Girls			
Height (cm)	Weight (kg)	Waist circumferen-ce (cm)	Hip circumfe-rence (cm)	Height (cm)	Weight (kg)	Waist circumfe-rence (cm)	Hip circumferen-ce (cm)
158-170	41-60	56-78	65-85	150-160	46-55	71-74	90-97
170-175	52-84	60-100	70-109	160-165	40-51	60-71	75-91
176-185	55-92	61-133	59-125	166-176	50-69	67-76	86-94

When asked: “Do you think that your weight is normal?”, 46 people, including 24 girls and 22 boys answered ‘yes’. 15 people gave a negative answer, 5 of whom were girls, and 10 were boys. Three people admitted to be overweight: one girl and two boys.

Question: “Do you have breakfast before school ?” The answers to this question were very surprising. Although the 45 responses answered: “yes” (21 - girls, 24 - boys), but 11 people (6 boys and 5 girls) gave a negative answer. In addition, four girls and four boys answered that they have breakfast occasionally, 2-3 times a week. It appeared that 30% of junior high school students do not have breakfast - the most important meal of the day.

When asked: “How often is your diet dominated by vegetables?”, the responses were differentiated by gender. The results show a higher consumption of vegetables by girls. Boys pay less attention to this component of their daily diet (Table 2).

Tab. 2. Consumption of vegetables by respondents

Answers	Girls	Boys	Total
Once a day	18	11	29
2-3 times a week	11	18	
I usually do not eat vegetables	1	5	6

The next question was: “Do you eat fruit?” In this case, the responses were similar. 18 girls and 12 boys included in the survey have fruit once a day ,12 girls and 15 boys have fruit 2 - 3 times a week. Only two boys answered that they rather not eat fruit. When asked: “How often do you drink milk and eat dairy products?” 15 boys and girls answered: “Once a day”, 13 girls and 16 boys answered 2 - 3 times a week, and five people, including two girls and three boys do not like milk and diary products.

For the next question: “What do you drink most often when you are thirsty?”, most respondents answered that they drink water (18 girls and 20 boys). Beverages such as: Coca-Cola, Red Bull were chosen by 8 girls and 12 boys. 4 girls and 4 boys chose other beverages. This part of the question was open. Respondents chose juice and other sweetened beverages.

For the question, “What you are most likely to choose from the school store?”, the respondents chose one answer from several ones, with the option of their own response, incompatible with the suggested ones. Numerical results are presented in Table 3

Tab. 3. The products most often purchased by junior high school students in school stores

Answers	Girls	Boys	Total
Fruit	0	0	0
Bread	11	12	23
Crisps	2	11	13
Bars	14	10	24
Other, what kind?	3 sticks, candy	1-sweets	4

Choosing unhealthy food in school stores is connected to the product range, which contributes to the formation of unhealthy habits among children and adolescents. Nobody marked fruit, because they are simply not in stock in school stores.

The question "How much time do you spend on food consumption (provide the number of minutes)?" was a basis for the conclusion that a very large proportion of young people eat in a hurry. As many as 13 respondents (6 girls and 7 boys) eat meals for 1-5 minutes, which has an impact on the deterioration of the overall health of the body. 18 respondents of each sex responded that the duration of the meal is 6 - 11 minutes, and only 6 girls and 9 boys answered that the duration of the meal is 12 or more , which constitutes only 23% of respondents.

Another issue was: "In what position do you have meals most frequently?". There were three options to choose from: sitting, standing, lying position. They all said that they have meals in a sitting position.

Different answers were provided to the question: What do you do most often while having a meal? " One should choose one out of several options. It was possible to enter a student's own response, which was different from those proposed ones. As many as 66% of the respondents watch television while eating, which is undesirable and conducive to the overweight (Table 4).

Tab. 4. Activities of the respondents while eating

Answers	Girls	Boys	Total
I am reading	0	0	0
I am watching TV.	19	23	42
I am listening to the radio.	7	2	9
I am using my computer.	3	2	5
Other, what kind?	1- I am talking to my parents	7-nothing	8

Each student of junior high school knew that "Fast-Food products were: Burgers, fries, hot dogs". The question: "Do you know the expression 'Junk food'?". Not all the students could give an affirmative answer. Six girls and ten boys marked a definite "no", while seven girls and eight boys gave the answer "I heard something about it". This represents a total of 48% of respondents, and shows the need to raise awareness of this issue.

It was a similar case for the following questions: "Do you know that eating fast food leads to the development of diseases such as obesity, diabetes and cancer?" 100% girls responded: "Yes," the answers among boys were similar, only three answered: "I did not think about it." In case of question ("Overweight and obesity often causes:"), the responses were not consistent. While 72% of respondents answered that it was "overeating and low physical activity", however, four girls and three boys pointed to the disease, and 6 girls and 5 boys said that the reason were genes from their parents.

The question: "Do you know what a pyramid health is ?" did not cause any difficulties for the respondents. The vast majority said yes, only 8% (2 girls and 3 boys) answered: "I heard something about that." But not everyone can independently arrange the correct menu, which one can learn by following question: ("Can you arrange your daily menu? ').

Five girls and eight boys cannot do it, representing 20% of the group. When asked about bad fats; ("Unhealthy fats can be found in:"), all students provided the answer: "Chips, French fries" alternative answers were: "Fish" and "vegetable oil".

One major challenge for this study was the following question: "Do you think that being overweight has a psychological aspect?". The condition of psychological knowledge about being overweight needed to be completed, which was one of the priorities for prevention activities. Answer: "No" was given by 12 girls and 15 boys, representing 42% of the respondents.

The scale of physical activity and ways of spending free time was covered in the question: "Do you like to participate in physical education classes?" The majority of respondents answered: "yes". There is a group that does not like such classes for various reasons. This represents 17% of all respondents, including the majority of girls (8 negative replies). Two boys marked: "No". These are the boys declared to be overweight.

Preferences for leisure activities have been tested in the question:

"How do you prefer to spend time after school?". Among girls the most popular way of spending free time is sitting in front of a computer (19 responses), doing sports prevails among boys (22 people). However, eight girls do sports, three reads books, and among boys, 10 like to spend time at the computer, and the two like to read books. Despite, the undoubtedly educating effect of reading on the intellectual development, one should pay more attention to physical activity.

Having implemented preventive measures after a month, the survey was repeated among the same young people and the results of the survey were compared with the previous ones. During quantitative and qualitative analysis of the repeated surveys, substantial positive changes were observed in many aspects. Thanks to discussion and evocative wall project, junior high school students understood the importance of prevention to health, beauty and well-being. This resulted in tangible results in the responses. Currently, 92% of the respondents declared having breakfast before school, which is a 33% increase among girls and 29% increase among boys. 80% of students had vegetables once a day (previously 45%), the rest was convinced to eat these rich sources of vitamins 2-3 times a week. 81% of respondents declared eating fruit once a day (previously 47%), all others eat fruit 2-3 times a week. We managed to convince all students to eat these products so that no one said that they did not eat vegetables and fruit.

Less spectacular, but satisfactory results were achieved for the consumption of milk and dairy products. The rate of 47% of respondents who drink milk once a day, rose up to 76%. We were unable to convince two people who are allergic to drink milk. Students most often drink water: the 59% ratio increased up to 91%. The consumption of carbonated and sweetened soft drinks decreased.

Thanks to the promotional campaign organized with students, fruit appeared in school store stock so the demand for sweets, chips and other salty snacks decreased. Since then, 78% of respondents marked fruit, as the product that is purchased most often. Students learned how to eat healthy , slowly, without hurry , 16 girls and 17 boys said they spent 12 minutes or more for a meal . In comparison to the previous survey it is a huge improvement by 28%. We also taught the youth how to concentrate on a meal without concentrating on such things as: TV, computer, book, newspaper, etc. To eat

healthy, one must do it slowly, chew thoroughly and with full attention, so that the brain had a chance to receive a satiety signal. Out of the previously declared 88%, now 32% of respondents have meals doing other things. The result was improved by 56%.

One hundred percent success was achieved in the field of health education: everyone knows the meaning of "junk food" and the consequences of eating junk food, the students are able to enumerate the examples of unhealthy food. The students are able to make proper health-promoting menus in 100%, as they demonstrated during the practical exercises. In the category of great success, it is worth to note a full understanding of the psychological aspect of the tendency for overweight and obesity. Previously, only some of the respondents were aware of the scale of the problem, now we all agree that this is an important element in the prevention of this disease.

Physical activity of respondents was definitely increased. In the previous survey only 22% of girls dealt with sport in their free time. Currently,63% of them do sports. Among boys, the rate increased from 65% to 88%. In total, 77% of respondents preferred physical activity during their leisure time.

Given these data, we find that prevention efforts are needed in any educational institution. The role of a school nurse in this regard is invaluable. Prevention of overweight and obesity can save many people struggling from excessive weight gain.

Discussion

Improvement of nutrition habits among children and youth at school plays an important role in the prevention of obesity and chronic diseases. It also plays a role in preventing another negative phenomenon of malnutrition. One should have meals regularly 4-5 times a day, and the gap between the meals must not be longer than 3-4 hours. Many students do not have breakfast, which is the most important meal of the day and should be eaten before leaving home for school. Many students do not have lunch a hot meal at school, which complements the energy and nutrients throughout the day. Good habits are formed from an early age, so children should be taught how to eat properly (Jarosz, 2011). After the school starts, the diet often becomes worse. Probably because children spend more time out of their homes, they also become more independent. Irregular meals may not only cause shortages of some nutrients, but also a risk of a reduction in energy expenditure of the body. People who have meals irregularly have less effective thermogenesis, and therefore are exposed to positive energy balance and consequently, to an increase in body weight (Jodkowska, 2011).

Children and young people often buy food in school stores which offer many unhealthy products in terms of good nutrition patterns. Students most often choose candies and snacks such as chips, sweet fizzy drinks. They are not aware of the effect these products have on their body. These products suppress the feeling of hunger without providing the body with adequate amounts of nutrients. Sweet fizzy drinks limit healthy intake of dairy drinks and cause lower intake of calcium or vitamin C. In addition, they have high calorific and low nutritional value. These products are also more popular than other meals rich in beneficial health nutrients (Otto-Buczkowska, 2006).

At school, especially during physical activities, through perspiration, a child may lose 0.3-0.5 l of water per hour. The risk of dehydration and sodium loss as a result

of increased sweating is particularly high during physical education classes at high temperatures in summer. Dehydration impairs the functions of cells of the central nervous system, causing concentration of urine and bile, which can cause constipation, urinary stones, and bile ducts (Jarosz, 2011).

Regular physical activity of children and adolescents has many advantages in the prevention of diseases in adulthood. It stimulates respiratory and cardiovascular functions, especially the flow of blood to the cardiac muscle, helps to maintain muscle strength and flexibility of the joints. Regular physical exercise stimulate children growth. Physical movement improves fine motor skills and improves the condition of the body, helps to fight anxiety and nervous tension. Outdoor activities regulate appetite and contribute to efficient working and learning (Chomicz, 2006).

The obesity epidemic is a major reason to fight this disease from an early age. In this respect medical care representatives of the local area play an important role in fighting this disease. For school-age child a school nurse is such a person. Some of the nurse's tasks include systematic diagnosis and prevention activities as well as emergency assistance and referral to appropriate clinic when there is such a need. During a routine physical examination, BMI is determined for individual children, and the results indicate high risk of being overweight. One should take actions to help children to return to normal weight, which is not an easy task (Hannon, 2006).

That's why prevention is so important. To stay healthy and enjoy normal body weight, one should follow the recommendations given by a school nurse at the meetings with students. Meetings with the exchange of views and answering questions from the audience can be initiated during weekly class meetings, biology lessons or organized general meetings for the whole school community. Individual talks in the office, giving advice, recommending educational materials, providing contacts with nutritionists, and cooperation with parents, who shall be advised how to apply new rules to their family life are also very important. A pivotal role of the school nurse is to make the parents aware that that if there is a problem of overweight, treatment is long-lasting and the whole family must be included in it. Only on this condition there is a chance to achieve good results (Kułaga 2012).

It is also important to examine school environment of an obese child: position in the classroom, relationships with peers, teachers approach. School nurse should through discussion make other people realize the plight of such a child and to try to reduce potential tensions (Kułaga, 2012)

Cooperation between a school nurse and school staff consists of mutual support, complementation of school tasks in protecting and promoting healthy lifestyle among students and staff. Wherever the tasks of health promotion, disease prevention, health education and health education refers to the impact on the attitudes, beliefs, teaching youth, nurse participating in these programs function performs the task of education. For efficient implementation of these tasks school nurse needs comprehensive knowledge and pedagogical skills (Marcysiak, 2010).

Conclusions

1. Education is the basic foundation for the promotion of a healthy lifestyle.
2. School period is the time in which helps to develop a positive interest in the health, shape the skills, attitudes, behaviour and eating habits that contribute to strengthening and improving health.

3. Educational activities of a school nurse have a positive effect on the improvement of nutrition and increase physical activity among junior high school students.
4. Young people who apply the recommendations of the school nurse, enjoy health and good shape, which significantly increases self-esteem.

Bibliography

1. Białosz-Kalinowska I. (2010) Profilaktyka otyłości u dzieci „Pediatria po Dyplomie", 14. p. 96.
2. Chomicz R. (2006) Młodzież a aktywne postawy w czasie wolnym – studium badań o przyczynowości zachowań, „Lider", 6, p. 21.
3. Hannon T. S. (2006) Otyłość w wieku dziecięcym a cukrzyca typu 2, „Pediatria po Dyplomie", 4, p. 26.
4. Jarosz M. (2011) Praktyczny poradnik dietetyki, IŻ i Ż, Warszawa, p. 330.
5. Jarosz M., Kłosiewcz-Latoszek L. (2009) Otyłość. Zapobieganie i leczenie, PZWL, Warsaw, p. 35.
6. Jodkowska M., Tabak I., Oblacińska A. (2011) Ocena częstości występowania nadwagi i otyłości u młodzieży w wieku 13 -14 lat w Polsce przy zastosowaniu trzech różnych narzędzi badawczych, „Przegląd Epidemiologiczny", 61. p. 590.
7. Jóźwiak S. (2011) Otyłość u dzieci i młodzieży, PZWL, Warszawa, p. 54.
8. Kułaga Z., Świąder A. (2012) Wskaźnik masy ciała u dzieci z otyłością prostą, „Pediatria po Dyplomie", 16 (4), p.76.
9. Marcysiak M. (2010) Rola pielęgniarki szkolnej w promowaniu zdrowego stylu życia w ocenie uczniów, „Problemy Pielęgniarstwa" 18 (2), p. 190.
10. Otto-Buczkowska E., Mazur U. (2006) Czy nadwaga jest zagrożeniem dla zdrowia dzieci i młodzieży?, „Lider", 1, p. 6.
11. Sikorska-Wiśniewska G. (2007) Nadwaga i otyłość u dzieci i młodzieży, „Nauka. Technologia. Jakość", 6 (55), p.2
12. Wajszczyk B. (2008) Zwyczaje żywieniowe młodzieży związane częstotliwością spożywania posiłków a nadwaga i otyłość, „Zdrowie Publiczne", 116 (3), p. 491.
13. Wójta-Kempa M., Lewandowska O. (2011) Środowiskowe uwarunkowania otyłości u dzieci ze szczególnym uwzględnieniem środowiska lokalnego, „ Zdrowie Publiczne", 1(4), p. 334.
14. Zgliczyński W. (2011), Endokrynologia, Medical Tribune Polska, Warszawa, p. 832.
15. Żaczek R., Dobrowolska B. (2008) Profilaktyka nadwagi i otyłość w populacji wieku rozwojowego, „Przegląd Medyczny Uniwersytetu Rzeszowskiego", 3, p. 259.

Number of signs with spaces: 25 613