

## THE STUDY OF HEALTH BEHAVIORS OF CHILDREN AS THE BASIS FOR THE DEVELOPMENT OF HEALTH EDUCATION PROGRAMS IN RURAL AREAS

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**Abstract.** Unfavorable living conditions of the population, particularly in rural areas, and the relatively low level of health culture, expressed by bad nutrition, insufficient physical activity, alcohol abuse, and smoking, are not conducive to maintaining the health of the population. The health status of the population, including children and young people, is assessed as highly unsatisfactory.

The aim of this study was to evaluate the research on health behavior, serving as a basis for formulation of health education programs in rural areas.

Literature reports seem to indicate that this sphere of life and education is a bit neglected, probably highly diverse and determined by the influence of various factors, both environmental and individual.

Therefore, identification of hazards, understanding their life situation, diagnosing the situation, especially in a group of school children, is particularly desirable and expected. The development of health promotion and prevention programs among adolescents must be based on a fully reliable diagnosis of social situation, documented and monitored.

Circulating information from newspaper reports and the school environment suggests the need for particular actions in the field of school health education, conducted by prepared, authoritative staff of educators. Such are the expectations and needs of young people and those who consider the health issues of children significant.

The problem of great importance is the issue of research on the health behavior of young people, including rural areas, and the development of compatible research tools. The lack of such tools makes the comparison of the results obtained by different authors difficult.

The acquired theoretical knowledge and implementation of various health programs have often failed to produce practical results.

What is needed are the actual steps to promote health in schools and homes, and the skills to use the existing knowledge to make the analysis and search for the determinants of health behavior of young people. The skillful linking of thinking, action and knowledge of the determinants of health behavior, will prevent from one-sided trends in education, and will bring more focus on the skills and versatility in the harmonious development of young people.

To develop the action strategy for health education, addressed to a group of children and young people of school age in rural areas, it is important to know the perception of health in this environment.

**Key words:** child, rural environment, health situation, social situation

## Introduction

Every man has the right to live, dwell, eat, and be respected. This should apply to all people in the same way.

The last decade has shown that in our country the situation is slightly different. This applies particularly to the rural environment of the former State Farms. The changes that have occurred over the years have transformed the environment for the worse. People lost their jobs, day by day they were impoverished and left without any support. From birth, the children from families of such social status come into contact with the specific conditions of life. Their living conditions are far worse than those of children living in the city. They have a limited access to culture, education, and health care. Their lives are also influenced by the family and local environment deprived of life goals and aspirations (Szymanowska 1996).

In many families, in spite of such a difficult situation, especially the financial one, the child is still regarded as the most important value and the greatest happiness and focus of parents' lives.

In these families, caregivers complain about the fact that they cannot give their children what they deserve, which would ensure proper child development in accordance with their needs and interests (Radaj et al. 1999).

## Aim

The aim of this study was to develop the guidelines for formulation of the educational programs, on the basis of the results of research on health behavior of children and young people living in rural areas.

## Results and discussion

When determining the sample size and random selection, the desired precision of evaluation and representativeness of data for the investigated West Pomeranian Voivodship was provided.

1. From the total number of poviats (20), seven were selected for the study.
2. In the selected poviats – the study covered all schools from rural areas, attended by children aged up to 14 and adolescents aged 15–19 (information obtained from the Board of Education).
3. In primary schools, the research included children up to 14 years of age-all of them in the 5th grade.
4. In middle and high schools, the research comprised of adolescents aged 15–19 years – all of them in the 2<sup>nd</sup> and 3<sup>rd</sup> grades.

Thus, the selection of the research sample had a targeted-random character (targeted – as it referred only to middle school classes, and random – it did not apply to individuals but a group of people-students of the given class, inhabiting rural areas).

The necessary sample size was 5,321 subjects (children up to 14 years old and 15–19-year-olds in this study had a common name: the rural child).

Information on the behavior, health needs, and living conditions, consisted of information obtained from three surveys, i.e. from 6,971 children, 6,971 mothers, and 6,971 fathers.

Of the total number of 27,193 questionnaires – 20,193 were returned (return rate of 73.2%), but after the rejection of incomplete (680) and blank (27) copies, there was a total number of 20,196 classified questionnaires-surveys for further analysis, containing 63,610 different pieces of information describing the research problem.

Representativeness of the study was maintained.

To investigate the data collected during the study, electronic computing technology was used. Appropriate design of questionnaires and developed coding allowed for entering the data into a computer directly from the questionnaires, with a full control of the formal and logical information. The analysis of data included the calculation of intensity ratios describing the socio-medical situation and health-related behavior of the studied subjects, and the analysis based on universal variables.

For the purpose of statistic analysis, depending on the needs, the following statistical tests based on STATISTICA 6.0 were used, assuming the level of  $p = 0.05$ , which means that the probability of error of some kind, i.e. rejection of hypothesis when it is true, does not exceed 5%.

1. Test of independence –  $\chi^2$  and  $\chi^2$  test with Yates' correction. Strength of the relationship was examined by calculating the coefficient of Yule that was a measure of correlation between the quality variables in the table  $2 \times 2$  or, in case of a larger number of features, Cramer's V coefficient and Pearson's C contingency coefficient were calculated.

2. Tests for two independent samples i.e. nonparametric, the equivalents of Student's t-test for unrelated variables: Mann-Whitney U Test.

3. Test for n-samples, i.e. the nonparametric equivalents of analysis of variance: Kruskal-Wallis rank sum test and  $\chi^2$  median test.

4. Nonparametric correlations: Spearman's rank correlation coefficient is used to describe the strength of correlation of quality characteristics that can be ordered. Like the Pearson correlation coefficient, it takes on a value of  $-1 \leq r_s \leq 1$ .

5. To analyze the reliability of the questions used to describe the health-related behaviors of rural children, the Cronbach's  $\alpha$  coefficient was used.

### Health situation of children from rural areas

Children and young people make up for more than 30% of the Polish population. Analysis of the age structure of children and young people with regard to place of living shows that there is an increase in the size of the youngest age group in rural areas, while a decrease in the size of these groups in urban areas (Tables 1, 2).

**Table 1.** The number of age groups of children and young people, by place of residence (in thousands and percentages)

Age group	Total		City		Village	
	in thousands	in %	in thousands	in %	in thousands	in %
0–4	2387.2	100.0	1331.4	55.8	1055.8	44.2
5–9	2936.6	100.0	1672.6	57.0	1264.0	43.0
10–14	3337.3	100.0	2017.9	60.5	1319.4	39.5
15–19	3253.9	1000.0	2054.8	56.2	1199.0	36.8

Source: condition of the health of the Polish population in 1999; Central Statistical Office 2006 (GUS 2006).

According to the data of Ministry of Education, in the school year 1997/1998, the number of students was 8,198,898, including 4,891,578 of primary school, 756,552 students of secondary schools and 1,512,078 of vocational schools.

In the school year 1998/1999, in the West Pomeranian Region, there were 348,275 students.

Unfavorable living conditions of the population, particularly in rural areas, and the relatively low level of health culture, expressed in bad nutrition, inadequate physical activity, alcohol abuse, and smoking, are not conducive to maintaining the health of the population. The health status of the population, including children and young people, is assessed as highly unsatisfactory.

In the population of children, this is reflected in continuously high infant mortality, high rates of births with all kinds of defects, while in older children and adolescents – with high morbidity (Table 2), a high degree of disability and mortality (Carlton et al. 1987; Opatz 1985).

**Table 2.** Data on the health status of children and youth in the West Pomerania Province

Total number of children and youth	School year 1998/1999	1	2	3	4	5	6	7	8	9	10	11	12
348,275	Zachodniopomorskie province	14,161	28,847	5,008	40,557	10,745	4,548	3,407	2,123	82,726	77,375	7,848	272,000
	% of the total number of children	40.7	8.3	1.4	11.6	3.1	1.3	1.0	0.6	23.8	22.2	2.3	0.1

Key: 1 – children with disparities in overall health status, 2 – somatic disorders, 3 – mental disorders, 4 – defects and diseases of the eyes, 5 – chronic ear diseases, 6 – chronic respiratory diseases; 7 – cardio vascular diseases, 8 – chronic urinary tract diseases, 9 – permanent damage to the musculoskeletal system, 10 – including disorder of the body static, 11 – other diseases requiring active care, 12 – including diabetes.

Source: compiled on the basis of materials sent from the medical facilities from the West Pomerania Province.

The trends in morbidity and mortality in the population of Polish children and young people are quite long-lasting.

The summarized structure of hospitalizations by age and major causes of morbidity indicate that respiratory diseases are the cause in 23.4% of all hospitalized cases.

- Injuries and disorders – 16.2%,
- Diseases of the digestive system – 14.7%,
- Infectious diseases – 7.6%,
- Diseases of the urinary tract – 7.0%,
- Diseases of the nervous system – 6.9% (Szymanowska 1996).

Six major causes of hospitalization constitute 75% of hospitalizations of people aged 1–19. With age, the incidence of hospitalization decreases due to:

- a) respiratory tract diseases (from 37.2% in the group of 14 years to 8.5% at age 15–19 years),
- b) congenital defects (from 6.1% to 1.7%), while increasing the incidence of hospitalization due to injury (from 12.3% to 22.4%).

Obstetric factors, such as complications of pregnancy, labor, and childbirth (Barnekow et al. 2000; Sygit and Sygit 2008) are important causes of girls' hospitalization at the age of 15–19 in Poland and abroad.

The comparison of hospitalization rates in terms of the place of residence of hospitalized patients indicates that in major causes of morbidity, except for complications of pregnancy and childbirth, significantly higher hospitalization rate is in the city than in rural areas (Szymanowska 1996).

Mortality of children and adolescents, despite the decrease, is still higher in Poland than in the European countries, especially in the population of boys. In 1996, 4,127 deaths of children and young people were registered,

resulting in the coefficient of 36.3% – 100,000 – 1.1% lower than in 1995. There were 2,267 deaths of children and young people from cities and 1,960 deaths from villages respectively, with the coefficients of 32.4% and 42%/100,000 population. As much as 65% of fatalities in this age group are the deaths of boys.

The most common causes of death in children and young people are accidents, poisoning and injuries (51.9% of all deaths), cancer (14.4%), nervous system diseases (8.6%), congenital malformations (7.5%), and circulatory system diseases (Wojnarowska 2000). Suicide is a disturbingly rising trend responsible for the deaths of children and young people.

According to CSO data, the health condition of almost 85% of children aged 0–4 in the opinion of parents is very good or good. The study also shows that 1/4 of children are suffering from at least one chronic disease. The highest percentage of chronically ill children is in the age group 4–10, the lowest in the group of 0–4-year-olds (GUS 2006).

According to parents, children often suffer from chronic allergic diseases (9.9%), postural problems (7%), lung diseases (including bronchitis, asthma) – 4.7%, and neuroses (2.4%) (especially at the age of 10–14 years).

Boys suffer more often than girls. As many as 11.2% of children have problems with hearing, vision, and speech – with a higher trend in the city (13%) than in rural areas (8.8%).

According to A. Szymanowska (1996), young people living in cities show deficits of the body weight more often than in rural areas (13%; 7%). The health status of children and young people from the cities was rated as worse compared to the children and young people from rural areas- regardless of the family wealth. For example, bad and very bad health characterized 3.6% (aged 0–14) and 2.0% of boys (15–19 years old) from cities, and 2.5%, 1.0% of boys from the country in the respective age groups. Children living in rural areas are more often characterized by a short stature, compared to children from the urban areas (15%; 11%). Vitamin and mineral supplements are 1.5 times less likely to be used by children and young people living in rural areas.

### **Health-related behaviors of children from the rural environment**

The deteriorating health situation of a society, as well as a number of health risks and health problems, make people seek ways to improve the condition. One's health should be equally taken care of at every stage of life: in childhood and in old age. The importance of one's own health, its preservation and improving, should start with the Health Education at school. When acquiring habits, one cannot forget about the protection of one's own health, a healthy lifestyle, and health education (Boutilier et al. 1997).

Literature reports seem to indicate that this sphere of life and education is a bit neglected, probably highly varied, determined by the influence of various factors, both environmental and individual (Barlak 2000; Currie et al. 2008; Parson et al 1997).

Therefore, identification of hazards, understanding their determinants, diagnosing the situation, especially in a group of school children, is particularly desirable and expected. Creation of programs of health promotion and prevention among adolescents must be based on a fully reliable diagnosis of social situation, documented and monitored.

Circulating information from the school backgrounds, as well as newspaper reports, suggest the need to take concrete actions in the field of school health education conducted by the prepared, authoritative staff of educators. Such are the expectations and needs of young people and those to whom health issues of young people are not indifferent (Pułtorak et al 1995).

According to B. Woynarowska, health – related behavior can be defined as a conduct, actions (or their negligence) that directly or indirectly affect the health and well-being of men (Woynarowska and Mazur 2000).

There are two kinds of health behaviors:

a) favoring health (health education, positive):

- physical activity,
- rational nutrition,
- keeping the body and the environment clean,
- keeping safety,
- maintaining proper relationship between people,
- coping with stress,
- undergoing preventive examinations;

b) threatening to health (anti-healthy, negative):

- smoking,
- alcohol abuse,
- the use of other psychoactive substances,
- risky sexual behavior (Panasiuk et al. 2010).

Healthy behaviors of young people, especially in recent years, have become a subject of interest of many studies (Barlak 2000).

This issue is very current and important in terms of searching for the causes of the unsatisfactory state of health of children and young people. Research on healthy behaviors of school children has been launched in Europe in 1982, in three countries: Finland, Norway and England. The research program was approved by the WHO as a program of comparative research in Europe, repeated every 4 years. The first series of investigations was carried out in the years 1983–1984 in 4 countries, the second – in the years 1985–1986 in 11 countries, the third – in 1989–1990 in 14 countries, and the fourth – in 1993–1994 in 22 countries and Canada.

Poland joined as a full member of the international group in 1989 and participated in the third and fourth series of studies (Sygit and Sygit 2008).

In Poland, the healthy behavior is a problem with a particular focus, and resolving it or taking important decisions in this regard seems to be a matter of extreme urgency. It is proved by the data on the situation of morbidity and, consequently, the numbers illustrating disability and deaths, that the reason for 75% of all deaths are diseases of the cardiovascular system, cancer, and traumas (Woynarowska and Mazur 2000). The report of the National Health Program states that when linear growth of mortality continues, the death rate per 100 thousand people in the year 2011 will be 800.

Increased expenditure on medical care is notable to control this phenomenon. It is important to use the fact that the restorative medicine influences health to a small percentage. Therefore, opportunities arising from the sphere of primary prevention, implemented by appropriate modification of human behavior, improving the awareness and health culture of the society, look better (Korczak 2000).

In the current reality in Poland, many negative behaviors related to health are observed in school children in both urban and rural areas, and it becomes increasingly difficult to observe healthy behaviors conducive to health. Health and education of children and youth population means yet a healthy and prosperous future (Panasiuk et al 2010).

In Poland, the number of children and young people reaches 12.2 million, which represents 32% of the total population of the country, whose physical and mental condition is not the best, because the average 15-year-old person has a chance to live 6–7 years less than his peer in developed countries. Polish youth assess their health in a worse and worse manner; as many as 13% of students aged 11–15 believe that they are “not very healthy”, while for example in Hungary the figure is only 1%. Health of individuals and population depends on four groups of factors, of which the most important for humans is lifestyle and healthy behavior (they determine the potential health to 50–60%), followed by physical and social environment (20–25%), genetic factors (about 20%), and health care (10%). Health education introduced to rural schools in particular, may help to solve the problem (Szymanowska 1996).

School education provides an excellent opportunity for transferring knowledge to children about health and education skills and values that are important to healthy living in the future. Education prepares children for independence and the role of a healthy and productive person. Health education should, therefore, be the most important example not only in terms of health, but also the education itself (Sygit and Sygit 2008; Curry et al. 2002).

Satisfying most important needs targeted to health promotion will ensure the health of society. The deteriorating health of the Poles suggests such a practice (Korczak 2000).

Healthy behavior of students, as is apparent from numerous studies, is not fully formed. It is characterized by many incorrect behaviors and in order to eliminate or reduce the extent of their impact, one needs to teach students how to actively implement such rules of conduct, which will give self-esteem, responsibility for one's own health and health of others. To make it happen, a young person should know that to protect and strengthen health, one needs to know and respect the Ten Commandments on Healthy Lifestyle by Cendrowski, which is not easy because most of our society is accustomed to unhealthy lifestyle and ignores the warnings of doctors – which causes deterioration of the health of children and adolescents (Sygit and Sygit 2008; Woynarowska 2000).

The problem of great importance is the issue of research on youth health behavior, also from rural areas, and the development of compatible research tools. The lack of such tools results in problems in comparing results obtained by different authors.

The theoretical knowledge and implementation of some of health programs often failed to produce practical results.

Concrete steps are needed to promote health in the school and the family, and the ability to use existing knowledge to analyze and search for the determinants of healthy behavior of young people. Skillful linking of thought, action and knowledge of the determinants of health behavior, will prevent one-sided trends in education, and focus more on the skills and versatility in the harmonious development of young people. This is necessary, since the present school system does not fully prepare its students for life. “Polish school acts as if the child's brain attended it, and not all of it” – Marcin Kacprzak's statement is still valid (Korczak 2000).

To achieve this, education of the child should be started from an early age, and on the basis of proper health education program, the health-promoting behaviors should be developed. “Education is the foundation of freedom” (J. Tischner), because only a free man can work creatively and solve current tasks, including those related to their own health. Health education clearly supports this process and is involved in everything pertaining to child, making the child more independent in action, experiencing the truth, and choosing the way of conduct to maintain and even strengthen their health and improve the health status of rural youth (Sygit and Sygit 2008).

### **The practical significance of research and analysis to enable understanding of health behaviors – for the purpose of health education in rural areas**

For the strategy of taking action, health education addressed to a group of children and young people of school age in rural areas, it is important to know the perception of health in this environment. Studies on the so-called health awareness of students can be divided into the following groups: self-image of health, confronting the classic definitions, taking into account age, gender, etc.

It is believed that health education in school is the most cost-effective, long-term investment in the health of the society. By providing children with knowledge about health, educating the skills, beliefs and attitudes, we can facilitate healthy lifestyles and improve health and quality of life. When developing educational programs, it is assumed that health education is to acquire knowledge, formation of skills, beliefs, and attitudes necessary to maintain and improve an individual and other people.

Therefore, the aim of school health education must be to accompany students in:

- making responsible decisions, enabling them to harmonious development and health,
- education of a healthy lifestyle,
- identification of one's own health problems and taking actions to resolve them.

The concept of a comprehensive health education in schools (recommended by WHO, UNESCO and UNICEF) assumes:

- taking into account a holistic approach to health care (all aspects) and health determinants related to people, the environment and living conditions,
- the use of all the circumstances for health education,
- aiming to harmonize health information that a student receives from a variety of sources-family, school, peers, media, advertising,
- encouraging students to a healthy lifestyle and creating conditions and health promoting behaviors in school (Sygit and Sygit 2008; Woynarowska 2000; Mühlendahl 2008).

### **The role of parents in health education**

Parents are an important element in the health education of children and youth, according to the WHO slogan "Health begins at home". Parents are the first educators of their children's health and continue to play this role during the child's education at school (Parson et al. 1997).

The effectiveness of this parental education depends on their education, social status, perception of health issues, attitudes towards health issues, economic situation, beliefs, etc. Thus, definitive effectiveness of health education depends on the extent to which the school will initiate and develop cooperation with parents, which should consist of:

- a) consulting with the parents in the most important issues and joint analysis of feasibility to implement;
- b) creating opportunities for parents to be informed about what the child learns at school, what are the effects of school education;
- c) encouraging parents who have appropriate knowledge and skills to join carrying out of certain classes at school;

d) common organization of health events at school (Pułtorak et al. 1995; American Academy of Pediatrics Policy Statement 2010).

Last few years have been marked by the development of educational programs offered to schools on various health topics. The leading program is "The environmental health education program in primary and secondary schools" (edited by M. Charzyńska-Gula), which implies that the knowledge transmitted in the classroom is reinforced by the school and non-school environment (mainly parents) (Sygit and Sygit 2008).

According to M. Demel (1990), each school should "work out their own health protection program for children." Because of the procedure to develop specific educational programs, health education should allow the children, but also other members of the school community, the teachers and parents of students, to:

- acquire or verify knowledge about ways of staying healthy,
- develop or modify the so-called life skills (in the context of health regeneration),
- develop or change beliefs,
- form or verify attitudes necessary to preserve and restore one's own health and the health of other people (Sygit and Sygit 2008; Onis et al. 2007; Rowland 2005).

In the life of a young person, there are situations directly related to health behavior (e.g., vaccinations or decision to visit a doctor), and others (many more) indirectly referring to health (various elements of lifestyle: rest, nutrition, physical activity).

These situations are accompanied by certain behaviors – either directly or indirectly affecting health. The program of health education of students should therefore apply to these situations and behaviors.

## Conclusions

The education system provides a great opportunity of influencing the health of children and young people. Naturally one cannot forget that in the process of socialization the dominant importance to a child is the family, and such patterns of the transfer may enhance but also be in conflict with the standards of healthy lifestyle.

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