

ANNOTATION

o the dissertation work of Abildina Akbota Suleymanovna on the topic
“Improving the comprehensive health promotion program for Kazakhstani
schoolchildren using the concept of the World Health Organization” for the
academic degree of Doctor of Philosophy (PhD)
in specialty 8D10103 – “Public Health”

Relevance of the research. The Ottawa Charter for Health Promotion states that "health is created and maintained by people within their daily lives, where they study, work, play and live" (WHO, 2019). The school is a fundamental institution in building educational achievements and creating opportunities for students to improve their health and be active community participants (St Leger L., 2001; Owen M., 2017; Dabravolskaj J., 2020).

Many foreign studies have shown the potential of an approach based on the principle of environmental conditions in improving health indicators in schools using the concept of a "School that promotes health" (Darlington et al. D., 2018). Well-designed SPH programs are cost-effective because they encourage children to choose behaviors in favor of health and reduce unhealthy habits (Laxminarayan et al.).

The principle of implementation of the concept of SPH is based on the use of assessment and planning tools covering six key areas (health policy, physical and social environment, public relations, personal health skills, and medical services), which were developed to assist schools in strategically solving specific school health problems. Each key area has several components and corresponding sets of relevant, adaptable, and achievable indicators, taking into account the context specific to each region.

In 2017, with the support of the World Health Organization (WHO) in the Republic of Kazakhstan, a pilot implementation of SPH was carried out in 6 schools in the Mangystau, Kyzylorda, regions and the cities of Almaty and Astana, which resulted in an increase in the quality of knowledge and improvement of health indicators in classrooms, activation of extracurricular activities for the formation of a healthy lifestyle (HLS), improving the quality of nutrition for schoolchildren; water dispensers and drinking fountains with a filter have been installed; sports uniforms, sports equipment, methodological literature have been purchased; new mugs have been opened and more.

One of their successes is reducing the number of overweight students: at the beginning of the project, there were 88 such students; by the end of the project – 63 people. Another success factor was a 25% increase in students interested in engaging in any health-enhancing sports.

According to the results of a national study, 19.1% of Kazakhstani children aged 8 and 9 years are overweight, 6.0% of children are obese, 1.1% are overweight, 3.4% of children are underweight (Battakova et al., 2017)

In order to consolidate the obligations of all interested parties, the implementation of SPH was included in the state program "Quality and affordable

healthcare for every citizen "Healthy Nation". In addition, this study is a mandatory part of the implementation of the SPH project in Kazakhstan, enshrined in the Roadmap for the implementation of the project "Schools that promote health" (№01-1-0/9305-vn of 11.09.2020). The project is a priority area for preserving and strengthening students' health, teaching and non-teaching staff in the school environment.

Thus, the relevance of this topic contributed to a more detailed analysis of health promotion programs for Kazakhstani schoolchildren.

The aim of the research

To evaluate the school healthcare system of Kazakhstan based on comparisons of the effectiveness of health promotion programs using the WHO concept of "Schools that promote health" and the traditional school-based health promotion program for primary school students.

Research objectives

1. To study the needs of children in health promotion issues within the framework of school medical services;
2. To evaluate the effectiveness of measures within the framework of the concept of SPH based on body mass index (BMI);
3. To determine the factors of lifestyle, nutrition, and physical activity level based on a survey of parents;
4. To develop recommendations for implementing a comprehensive health promotion program for Kazakhstani schoolchildren using the WHO concept of "Schools that promote health".

Materials and methods of research

1. Literature review. The data of current published studies in the international databases MEDLINE (PubMed), Springer, EMBASE, Cochrane, Elsevier, Web of Science were analyzed. A systematic review of the evidence on keywords using the PDCA methodology was carried out. We have completed the systematic review in accordance with the PRISMA statement.

The analysis of methodological and framework documents of the World Health Organization is carried out.

The analysis of normative legal acts regulating the conditions for the sale of school medicine services in the Republic of Kazakhstan was carried out by the retrospective study, the analysis of reporting data of authorized bodies and departments in the field of healthcare was carried out by the desk study.

2. The study of the needs of children and parents within the school health system was carried out by the method of a single-stage qualitative research. As a basis for the assessment of the national school health system, the standards of the WHO "European Concept of Quality of School Health Services and Competencies of School Health Professionals" were taken, which include the following components: accessibility, acceptability and quality of services, participation, social justice, compliance, medical information.

To analyze the data, the responses were grouped according to the matrix method. To check the statistical significance, we used the ANOVA analysis method, which is used to compare the average values of three or more groups with a probability threshold value (p) at 0.05.

3. Evaluation of the effectiveness of measures within the framework of the concept of SPH based on BMI was carried out by the method of a cross-sectional randomized controlled trial. To calculate the BMI of children, anthropometric measurements were carried out according to the adapted methodology of the WHO European Initiative for the Surveillance of Childhood Obesity COSI.

Target group: children aged 8, 9, 10, students of grades 2, 3, 4 of secondary schools.

Based on the previously formed inclusion and exclusion criteria, the study participants were recruited, who were then distributed into experimental and control groups by randomization. For the experimental group, activities aimed at strengthening the health of students according to the principles of the SPH were used, for the control group, standard programs on healthy lifestyle were conducted within the framework of the planned thematic school calendar. The children were divided into groups according to BMI indicators: underweight group, normal weight group, overweight group. After the groups were formed, the school-wide approach of the SPH was applied to the children of the experimental group. Behavioral goals were developed for each group in relation to nutrition, physical activity, social school environment, personal skills and competencies in relation to health and family support.

The results of the study were processed using statistical methods in the IBM SPSS Statistics 22 version program. Descriptive and analytical statistics methods were used.

To compare two dependent samples, the criterion of paired samples was applied. A 95% confidence interval for the difference was also calculated.

The normality of the distribution of variables was verified by the Kolmogorov-Smirnov single-sample criterion. The t-Student criterion was used to determine a statistically significant difference before and after the event in the parameters of height, weight and BMI. To check the statistical significance in the BMI indicators of children in the context of weight statuses in experimental and control groups, the Mann-Whitney U criterion was used for independent samples.

4. As part of the cross-sectional study, a questionnaire was conducted among parents and school administration aimed at determining the indicators of the diet and physical activity of children. The Optional Family Registration Form COSI was used to survey parents.

5. Based on the analysis of the data obtained in the empirical part of the study, as well as international experience in improving the health of schoolchildren, various methods of improving technologies for preserving the health of schoolchildren were proposed. Section 6. "Recommendations for the development of strategies for the school health system" describes in detail the possible methods and necessary steps that can be applied to preserve and strengthen the health of children.

Scientific novelty

For the first time, on the basis of an integrated approach and a systematic analysis of the effectiveness of the WHO–SPH concept in Kazakhstan, priority risk factors were identified: health indicators, socio-economic indicators.

For the first time, the implementation of a multidimensional approach of preventive programs based on the BMI indicator in terms of strengthening the health of schoolchildren at the National level, in contrast to the calendar-thematic approach

of a healthy lifestyle (HLS), during which the BMI of children did not change, was scientifically substantiated.

Practical significance of the study

The results of the study can be used to develop and improve the quality of school medicine services, and to develop standard operating procedures, algorithms for providing medical and social assistance to children and adolescents.

The data obtained will allow us to develop a strategy for the effective expansion of the SPH initiative in Kazakhstan within the framework of the state program "Quality and affordable healthcare for every citizen "Healthy Nation". The project is defined as a priority area for preserving and strengthening the health of students, teaching and non-teaching staff in the school environment.

Theoretical significance of the study

The theoretical significance of the work is determined by a deep analysis of the existing system of school medicine in Kazakhstan. The proposed recommendations can be used to strengthen its potential and improve the quality of medical services friendly to children and adolescents.

The factual material can be used in the development of policies and strategies in the field of health promotion of children and youth, as well as to form the opinions of decision-makers and other stakeholders; to develop standards of school medicine, algorithms for providing medical and social assistance to friendly children and youth; to create educational materials on school medicine and training of regional coordinators SPH.

Basic provisions for defense:

1. The existing school health care system does not fully cover the needs of children in matters of health promotion.

2. The indicators of overweight among students who have applied a school-wide approach are lower than among students with thematic short-term approaches to a healthy lifestyle based solely on awareness.

3. Existing indicators of lifestyle factors, nutrition and the level of physical activity of children require measures to form skills in favor of healthy choices and eating behavior.

4. The school-wide approach has a greater effect on health than thematic short-term approaches based solely on awareness.

Approbation of the dissertation

The main provisions of the dissertation work are presented in:

– International Adolescent Health On-line Conference 2020/IV-th biennial National Conference in adolescent health «Protection of the adolescent health and development in context of COVID-19 crisis» (Chisinau, 2020 – 26-27 November).

– III online conference "Modern Science. Management and standards of scientific research", collection of articles and abstracts, "Assessment of the national school health system for the implementation of an integrated approach to improving the health of schoolchildren in Kazakhstan" (Prague, 2021 – April 22-23).

– "Next steps – measures taken after the assessment: Kazakhstan". The final conference. Project to Improve School Health Services (SHHS) in the WHO European Region (Moscow, 2021 – November 18-19).

– 2022 HEPA Europe Conference: An ecosystem approach to health-enhancing physical activity promotion. September 2022. Volume 32 Supplement 2. ABSTRACT SUPPLEMENT. «Physical activity surveillance across the life-course: from data to policy». European Public Health Association 2022.

– V International Scientific and Practical Conference "Innovative Technologies in Pharmacy", collection of articles and abstracts, "Relevance of school health services to the actual needs of children and parents" (Prague, 2022 - March 29-30).

Personal contribution of the dissertation student

Conducted the collection of material, discussion in focus groups, adaptation of the guidelines for schools on the implementation of SPH in Kazakhstan.

Took a direct part in conducting trainings for regional coordinators of S, participated in an international study on the study of national school health systems in the European region.

Conducted coding of confidential personal data of the study participants, analysis and formatting of the data obtained, statistical processing, and also conducted a search for literary sources according to the topic of the dissertation.

The author's contribution to the work is confirmed by publication in scientific journals and participation in scientific conferences, according to the tasks of the dissertation work.

Implementation into practice

The results of the dissertation work are put into practice in the following organizations:

1. RSE on PCV "National Center of Public Health" of the Ministry of Health of the Republic of Kazakhstan.

2. "Secondary school №12" of the Department of Education in the Munailinsky district of the Department of Education of the Mangystau region.

3. LLP«Clinic Miras», Karaganda city.

4. "City polyclinic №11" of the Akimat of Astana.

5. "City polyclinic №14" of the Akimat of Astana.

Publications

11 scientific papers have been published on topic of the dissertation, of these:

– 3 articles are in journals indexed in the Web of Science and Scopus databases;

– 3 in publications recommended by the Committee for Quality Assurance in Education and Science of the Ministry of Education and Science of the Republic of Kazakhstan (MES RK);

3 abstracts and 2 reports at the international scientific and practical conference;

– 1 methodological guide for the implementation of the SPH project in "Implementation of the principles of health and well-being in schools in Kazakhstan in the context of existing conditions";

– 1 certificate of state registration of ownership of the object of copyright.

Conclusions

1. The analysis of international practices for the implementation of the principles of the school-wide approach allowed us to identify convincing arguments regarding the effectiveness of the implementation of the SPH. School children's

indicators of adaptability of social and emotional skills increased by 25%, a 10% reduction in bad behavior in the classroom, anxiety and depression, as well as an improvement in academic performance by 11% compared to standard health promotion programs in schools. In addition, children acquire healthy eating skills: in 42% of cases, they do not choose simple carbohydrates in their diet and 67% choose clean drinking water instead of sweet juices and carbonated drinks.

2. The results of a study in focus groups to study the needs of children in the framework of school medical services showed that ensuring social equality for children is implemented only by half both in the city - 61.1%, and in rural areas - 56.1%; ensuring equal access to school health services for children was 69.4% in the city, on in rural areas - 44.4%; access to specialists in rural areas is slightly lower than in urban areas - 57.6 and 71.2%, respectively; in urban areas, information about SHS services is available to 76.6% of children and parents, while in rural areas only 23.3%; confidentiality of examination of children is less acceptable in the city - 33.3% than in the countryside - 50.0%. The analysis also showed significantly low rates of conducting training sessions on health promotion: in cities -33.3% and villages – 26.7%, respectively.

3. It is established that the application of the concept of SPH is a factor affecting the change in the BMI of schoolchildren ($t = -6.622$, $P = 0.000$). In particular, the BMI of schoolchildren significantly changed in the experimental group: among 8-year-old children with a lack of weight, BMI increased ($U = 305$, $Z = -6,462$, $p = 0,002$) in Akmola region (0.3%), in Atyrau region (2.2%), in East Kazakhstan region and Nur-Sultan reached the target level of the norm of weight; BMI decreased in overweight children ($U = 374$, $Z = -8,857$, $p = 0,011$) in Akmola region (1.8%), Atyrau region (2.2%), Nur-Sultan city (2.16%). The BMI of children significantly decreased in the experimental group among overweight 9-year-olds ($U = 145$, $Z = -7,043$, $p = 0,016$) in Atyrau region (2.2%) and in the city of Nur-Sultan (3.16%), also among overweight 10-year-olds BMI decreased ($U = 3182$, $Z = -3,119$, $p = 0, 042$) in Akmola region (3.6%), in Atyrau region (3.2%), in East Kazakhstan region (2.1%) and in the city of Nur-Sultan (6.24%).

4. It was revealed that only 41.4% of children devote time to physical activity during the week; 40.5% of children do not comply with the recommended norms of time per week, while urban children are more likely to play sports or dance regularly than rural ones, however, girls are less active in rural areas. Only 11.5% of children devote time to breakfast 1-3 days a week 3.3% never have breakfast. Increased consumption of spicy and spicy foods, such as potato chips, corn chips, popcorn and peanuts more than 3 times a week was found in children in rural areas (23.5%) according to a survey of parents.

5. A model with indicators and practical recommendations have been developed for the implementation of a comprehensive health promotion program for Kazakhstani schoolchildren using the WHO concept of "Schools that promote health" at the national and local levels through the appointment of national coordinators from the health and education sectors, which will allow closer intersectoral interaction in the interests of health in the school community.

Practical recommendations

To the Government of the Republic of Kazakhstan

- create conditions for the provision of information and communication technologies (Internet) across the country, including in remote rural areas for full-scale automation and digitalization of school medical services;

- to strengthen the requirements for effective intersectoral work of all key authorized bodies and departments in order to work in sync in order to increase the potential of the school health system in the republic. Ensure regular monitoring and evaluation of indicators for the implementation of key activities.

To the Ministry of Health of the Republic of Kazakhstan

- strengthen the priorities of school health care in the PHC system by creating (if there is capacity-building) a specialized department for providing medical services to children in educational institutions, with an approved multidisciplinary staff structure consisting of a head, a pediatrician/general practitioner (at the rate of 1 per 1500-2000 students), a senior nurse, a statistician manager, nutritionist-nutritionist, specialist in physical therapy, physiotherapist, nursing staff (at the rate of one official unit per 500 students);

- to introduce uniform quality standards for school medical services and competencies of school healthcare personnel with clear regulation of qualification requirements and job responsibilities of SPH specialists, working hours, algorithms for providing medical services;

- to introduce the direction of school medicine and adolescent health services in the list of priority programs for advanced training of healthcare personnel;

- - - to ensure the full integration of medical information system with the operational processes of the SPH throughout the country, taking into account the opinions of SPH specialists on the relevance, adaptability and ease of operation of information support;

- - to provide standards that will ensure complete confidentiality of inspection and informing students in the SPH;

- - implement up-to-date and informative systems and revised reporting forms in order to effectively monitor and evaluate the work of the SPH;

- - to train the staff of the SPH with additional skills and competencies in working with adolescents to provide them with the medical services they really need, in particular, the skills of professional counseling in matters of personal hygiene, sexual, mental and physical health, taking into account age characteristics;

- - to create stimulating and motivational mechanisms for SPH specialists in order to increase staffing, including the provision of competitive wages;

- - to introduce a norm of load distribution for the secondary medical worker of the SPH, taking into account the working regime of the organization of education and the current labor legislation of the Republic of Kazakhstan (to consider the possibility of introducing a shift work regime of 5-6 hours a day).

Content and structure of the dissertation

The dissertation work is presented on 112 pages, consists of the following sections: introduction, literature review, research materials and methods, theoretical and practical parts of own research, conclusion, appendices. The work is illustrated with 34 tables, 18 figures. Reference list includes 113 sources, from of which 83 (73%) are in English.