

SLAUGOS MOKSLAS

School nurses' contribution to schoolchildren's future health

Elvyra Grinienė, Neringa Liutaitė¹

Lithuanian Academy of Physical Education, ¹Kolping College, Lithuania

Key words: child and adolescent health; school nursing practice; school nurses; school health service.

Summary. In the changing contemporary society, certain demands for health care system become evident. In recent years, declining health indicators of Lithuanian schoolchildren prompt to analyze the situation of schoolchildren's health care: whether health care at schools is sufficient and effective and how school nurses deal with schoolchildren's health problems on a daily basis.

Objective. To analyze how school nursing specialists work at school and what problems they encounter while providing health care to schoolchildren.

Material and methods. A total of 202 school nurses from five main Lithuanian cities participated in the survey in 2005. More than three-fourths (77.7%) of the respondents had been working at school for more than 10 years. For the survey, an original closed questionnaire, consisting of 28 questions, was used.

Results. The survey showed that most of school nurses were approached by schoolchildren with the following health problems: visual impairment, anomalous posture, and scoliosis. More than three-fourths (75.5%) of the school nurses noted that schoolchildren's health was getting worse over the last five years. School nurses usually provide care to 11–30 schoolchildren per day. Most of their time is spent on schoolchildren's health check-ups, health education, and documentation. The school nurses noted that the efficiency of health care system at school was reduced by a number of problems, including poor working conditions, the lack of medical equipment, inadequate computer systems. Therefore, the cooperation among nurses, school administration, and parents must be substantially improved.

Conclusions. The competence of school nurses should be maintained through an educational approach by developing their qualification, as well as through a social approach by improving their cooperation with school community and parents.

Introduction

Children and teenagers spend the biggest part of their time at school; therefore, their health and behavior is greatly influenced by school environment (1–3). School environment affects young person's health status and his or her intellectual and social development (4, 5). Contemporary school often becomes the place of schoolchildren's risk behavior (6). Thus, the creation of a healthy school environment and health education of schoolchildren should be on the agenda of every school community.

Usually, three types of specialists are employed by the school health system: nurses-general practitioners, school nurses, or nurses with a specialization in public health. In the recent studies, a number of problems have been identified in the work of school nurses in different countries. There is a tendency to provide

practical health care, while participation in the development of schoolchildren health system and realization of various projects are insufficient (7). For instance, the number of children who need treatment at school in Pennsylvania is growing. In Florida, the competence of school nurses to provide a proper administration of treatment is questioned (8, 9). School nurses in Sweden are seeking more analyses of their opinions and their experience. They have indicated the importance of ethics, among other factors, in their work improving children's health and avoiding their growth problems (10, 11).

In Lithuania, there are more than 2100 secondary schools with about a half million children studying there (12). According to the data provided by different municipalities (13), 712 specialists were involved in health care at schools in 2004. In the Strategic Guide-

lines for Children's and Schoolchildren's Health issued in 2000 (14) and the order of the Lithuanian Minister of Health Care passed in 2004 (15), it is stated that schoolchildren's health must be preserved and strengthened, and a system needs to be developed that would form schoolchildren's appropriate attitude to their personal health. Methodological Guidelines for School Nurses was prepared in 2000 (16). However, studies on the effectiveness of work of school nurses in Lithuania and on the problems they are facing are limited. Šurkienė et al. (17) published a study, which describes working conditions of school nurses and indicates the need of improving their qualification and necessity to create favorable working conditions.

The aim of this study was to analyze how school nursing specialists work at school and what problems they encounter while providing health care to schoolchildren.

Material and methods

Methods. Study respondents were nursing specialists who work at school, provide health care to schoolchildren, and therefore, are able to assess their own achievements, shortcomings, and possibilities. A survey was conducted with the aim to make a quantitative evaluation of school nursing practice. A closed questionnaire used for the survey was developed based on scientific literature (18, 19) and Methodological Guidelines for School Nurses (16). In the initial phase of the research, 10 respondents were surveyed and consulted personally in order to determine the validity of statements listed in the questionnaire. Questions that lacked clarity were clarified according to the critical remarks of the respondents, while several questions were completely withdrawn. The final questionnaire consisted of 28 original questions, eight of which focused on demographic characteristics of school nurses (29 statements). Seven questions were aimed at the assessment of schoolchildren's health (41 statements), and 13 questions were aimed at evaluation of school nurse work (94 statements). In their answers, the respondents had to indicate only one or several choices. A total of 242 copies of the questionnaire were distributed by e-mail to secondary schools and gymnasiums located in five main Lithuanian cities. The filled-in written questionnaires were received from 202 school nurses (83%).

Subjects. Table 1 shows demographic characteristics of school nurses. The majority of respondents were public health specialists with non-university higher education and working experience of more than 10 years. Their age ranged from 36 to 45 years. The school was primary working place for 194 (or 96%) of nurses

Table 1. Respondents' demographic characteristics

Characteristic	N (%)
Age	
18–25 years	4 (2.0)
26–35 years	49 (24.2)
36–45 years	105 (52.0)
46 years and more	44 (21.8)
Education level	
Higher non-university	158 (78.2)
University	33 (16.3)
Vocational	11 (5.5)
Specialty	
Public health specialists	102 (50.5)
General practice nurses	94 (46.5)
Other specialization	6 (3.0)
Work experience	
Up to 1 year	30 (14.9)
1–10 years	15 (7.4)
More than 10 years	157 (77.7)

who were enrolled into this study. The demographic distribution of the respondents corresponds to the distribution observed among Lithuanian school nurses (13). Thus, the selection of respondents for this study meets the statistical requirements of representativeness.

Statistical analysis. The data were analyzed using SPSS 12.0 for Windows software. Descriptive statistics were used in the study. Nonparametric Kruskal-Wallis criterion was used to compare distributions of analyzed variables in three groups (work experience less than 1 year, 1–10 years, and more than 10 years), and Dunn's test was used for pairwise comparisons. The Mann-Whitney test was used to compare the distributions of analyzed variables in two data groups (public health specialists and general practice nurses). Significance level for criteria was set at $P < 0.05$.

Research ethics

Subjects had a free choice whether or not to participate in the survey. Anonymity of the respondents was guaranteed, and contact information was provided to them (the investigator's name, surname, institution, and e-mail address).

Results

The study data in Table 2 show that the majority of school nurses estimated schoolchildren's health in their schools as fair and indicated that schoolchildren's health was getting worse over the last five years. School nurses thought that lifestyle, environment, and nature had a great influence on schoolchildren's

health. School nurses noticed schoolchildren's addiction to smoking, drinking alcohol, and taking drugs. In the opinion of nurses, more than half of schoolchildren in their schools had the above-mentioned addictions.

The majority of school nurses (80.2%) stated that prophylactic check-ups of schoolchildren's health were held once a year in most schools. In the opinion of school nurses, health check-up practice when schoolchildren go to health (family) centers for their health check-up and then take a health note to their school nurses is more complicated and is not always complete.

Table 2 shows that the majority of school nurses observed the following schoolchildren's health problems: visual impairment, anomalous posture, and scoliosis. Most often schoolchildren ask school nurses for help, when they have headache or stomachache. Half of the schoolchildren asked for help when they were injured or had a cold, but also when they had other health problems, such as overweight, digestive system problems, high blood pressure, pain in the area of the heart, nosebleed, skin troubles, faintness, or other problems. Schoolchildren also approached school nurses when they wanted to have consultation, professional advice on different health issues.

The survey showed that school nurses experienced the greatest workload at the beginning of a new academic year. Table 2 indicates that during one working day, the majority of the school nurses provided care for 11–30 schoolchildren. In Fig. 1, it can be seen that school nurses spent a considerable amount of time on health education and documentation. Half of the respondents noted that much time is consumed by the prophylactic screening of schoolchildren and first aid. A smaller number of the respondents indicated time spent for disease and immunoprophylaxis. The survey findings in Table 2 show that half of the school nurses thought that the quality of their work was determined by their knowledge, their work experience, and their working conditions. All respondents have improved their qualification in order to be able to perform their work well. Once a year all school nurses participated in training courses. All school nurses attended specialized conferences; half of them attended more than 4–5 times per year. A very similar number of school nurses took part in specialized seminars. Despite the opportunities to improve their qualification, only 64.4% of the respondents had sufficient knowledge about their duties and responsibilities, while 17.3% of them noted that the lack of such knowledge hindered their ability to perform their work successfully.

According to school nurses, schools did not have

Table 2. Estimation of school nurses about schoolchildren's health and health care

Characteristic	%
Schoolchildren's health	
Good	12.4
Fair	79.9
Bad	7.5
Changes in schoolchildren's health over five years	
Improving has been getting	3.5
Declining has been getting	75.7
Unaltered, has not changed	20.8
Factors influencing schoolchildren's health	
Environment	64.4
Lifestyle	88.1
Nature	50.0
School health care	11.4
Reasons of schoolchildren's visits to their school nurses	
Anomalous posture	77.7
Visual impairment	87.1
Scoliosis	57.9
Respiratory system	12.4
Stomachache	98.3
Headache	87.6
Are injured	47.7
Have cold	44.6
Number of schoolchildren given care by nurses during one day	
Less than 10	8.4
11–30	73.8
More than 30	17.8
Factors affecting the quality of nurse work	
Work experience	50
Knowledge	60
Working condition	41.1
Workload	36.6
The need for closer cooperation with	
School teachers	52.4
School administration	58.4
Schoolchildren's parents	67.8
Other specialists	66.3

sufficient medical supplies and equipment (Fig. 2). In addition to the mentioned problems, school nurses noted that sometimes their work was hindered by the negative attitude of school administration, cold rooms, inadequate salary, and the law restricting school nurses to provide any medicaments to schoolchildren without prior parents' permission. Nurses would like to have better cooperation with schoolteachers, schoolchildren's parents, and other specialists who also provide health care for schoolchildren.

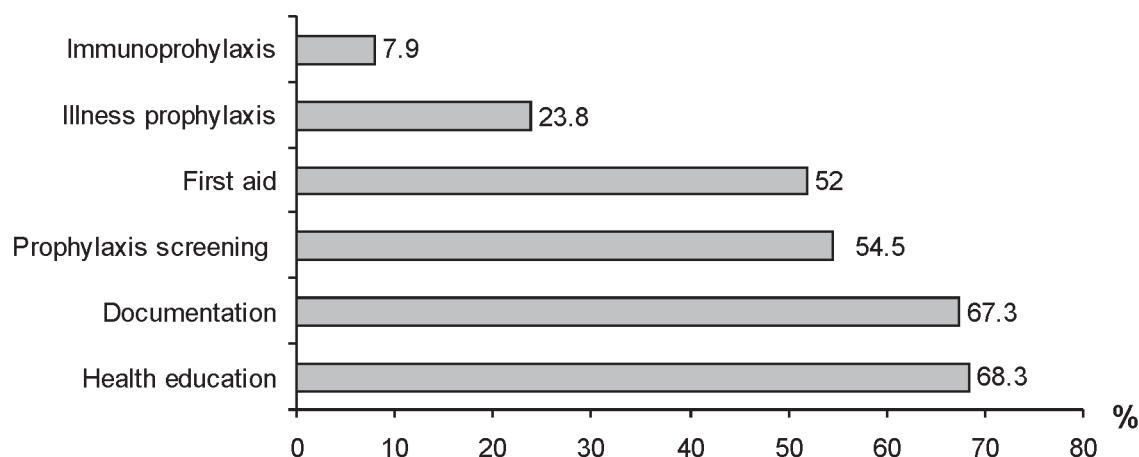


Fig. 1. The distribution of time spent by school nurses on different activities in their work

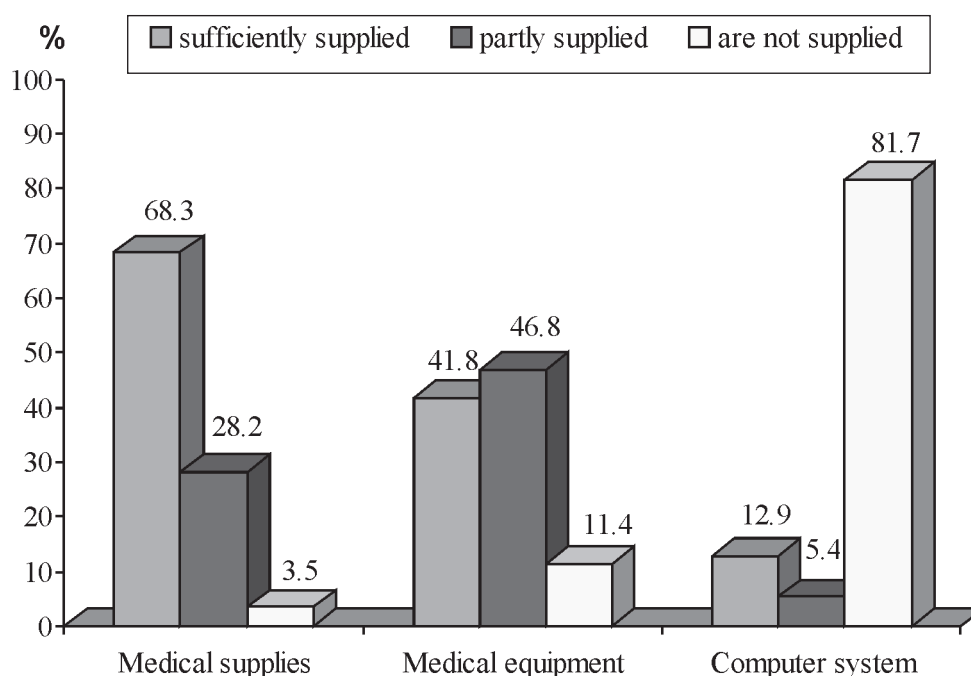


Fig. 2. Responses of school nurses about work conditions at school

Table 3 illustrates the extent of influence that work experience had on the attitude of school nurses toward health care. The survey shows that nurses who had less experience compared to those who had more experience more often stated that they knew their duties sufficiently, that they spent more time on prophylactic check-up and diseases prophylaxis, and that the work of school nurses was burdened by the negative attitude of school administration. Nurses with experience of more than 10 years reported that their work quality increased with their qualification development, moderate workload, and greater attention from school administration and staff.

As it is seen in Table 4, the approach of the school nurses to schoolchildren's health differed depending

on their specialization, i.e. if they were public health specialists or general practice nurses. Public health specialists noted that the most significant factor in schoolchildren's health was their lifestyle. They believe that they do not have sufficient information about their duties and responsibilities. These respondents set more time for first aid and immunoprohylaxis. They are not supplied sufficiently with special medical equipment and tools. Public health specialists reported that their workload was too high, and that knowledge and qualification had the highest influence on school nurses' work. These specialists desired to keep better relationships with other medical specialists. General practice nurses, unlike public health specialists, noted that heredity influenced schoolchildren's health. They

Table 3. The influence of work experience on the attitude toward health care at school and its problems
(Checked with nonparametric Kruskal-Wallis test; only statistically significant results are showed)

Question and answers	Work experience			Difference	P value
	up to 1 year n=30	1–10 years n=15	more than 10 years n=157		
Do you know exactly your duties and responsibilities at work?	115.25	18.00	–	97.23	<0.01
Which activity in your work requires most time?					
Prophylactic check-up	156.5	–	90.24	66.26	<0.01
Immunoprophylaxis	62.37	–	106.28	–43.91	<0.05
Disease prophylaxis	125.5	–	94.62	30.88	<0.05
What problems do you usually encounter in your job?					
Negative attitude of school administration and staff to my work	64.37	–	108.28	–43.91	<0.05
What makes the greatest influence on school nurse's work quality?					
Medical instruments and equipment	77.00	127.50	–	–50.50	<0.05
Work conditions	79.03	143	–	–63.97	<0.01
Knowledge	124.97		96.38	28.59	<0.05
Workload	–	138.50	95.4	43.1	<0.05
Qualification	–	137.5	95.68	41.82	<0.05
Staff and administration of school	–	66.37	105.14	–38.77	<0.05

knew precisely their duties and responsibilities and set less time for first aid and immunoprophylaxis. General practice nurses more frequently mentioned the lack of computer systems and medical tools, inappropriate working conditions, and all other factors that influence the work of school nurses. In their opinion, schoolchildren's health care would be better, if parents and schoolteachers changed their attitude toward the school nurse's job and if the cooperation between schoolchildren's parents and teachers improved.

Discussion

More than 10 years ago in Lithuania, the necessity of a medical consulting room at school was questioned, and there were plans at certain schools to close them. However, the decreasing indicators of schoolchildren's health raise the need to ensure proper health care for children. According to the survey by Zaborskis and Lenčiauskienė (3), Juškelienė and Kalibatas (20), the number of unhealthy schoolchildren in Lithuania is constantly increasing. The WHO report (2) indicates that in 35 countries, where the HBSC study of young people's health was carried out, the results of the study differed across countries: from 8 to 32% of boys and from 13 to 63% of girls reported their health to be fair

or poor. In Lithuania, more than 42% of schoolchildren reported their health to be fair or poor. The view of schoolchildren's health by school nurses across countries ranged in a similar manner. In Clausson's et al. (10) opinion, schoolchildren's health is good, because the interviewed school nurses viewed schoolchildren as physically healthy. Larson and Zaluha (21) reported that most often schoolchildren sought medical help from school nurses when they had headache. In Lithuania (17) during prophylactic check-ups, school nurses noticed the increasing number of schoolchildren who had visual impairment, anomalous posture, and other health disorders. Most of the respondents in our survey indicated that schoolchildren's health in their schools was only fair and it was getting worse over the last five years. According to the study, the most frequent reasons of schoolchildren's visits to their school nurse were common health disorders as visual impairment and anomalous posture and complaints about headache, stomachache, injury, or common cold. Thus, similarly to the findings of other authors, the school nurses surveyed often observed similar schoolchildren's health problems and were approached for medical help by schoolchildren with very similar health complaints.

Table 4. The impact of the specialty on the attitude toward health care at school, its problems, and development possibilities (checked with nonparametric Mann-Whitney test)

Question and answers	Public health specialists n=102	General practice nurses n=94	Difference	P value
What factors have the greatest influence on schoolchildren's health?				
Lifestyle	109.56	86.50	23.06	<0.001
Nature/Hereditry	89.43	108.34	-18.91	<0.01
Do you precisely know your duties and responsibilities at work?	92.07	105.47	-13.40	<0.05
For which activity do you spend most of your working time?				
Immunoprophylaxis	102.66	93.99	8.67	0.02
First aid	109.69	86.36	23.32	<0.001
What problems do you usually encounter in your job?				
Lack of special medical instruments and equipment	106.61	89.70	16.92	0.02
Unsuitable work place	83.44	114.84	-31.40	<0.001
What factors have the greatest influence on the quality of school nurse's work?				
Medical instruments and equipment	87.99	109.90	-21.91	<0.001
Workload	107.64	88.59	19.05	<0.01
Working conditions	82.24	116.15	-33.91	<0.001
Qualification	114.21	81.46	32.75	<0.001
Knowledge	111.80	84.06	27.74	<0.001
Do you cooperate at your work with?				
Other medicine specialists	112.90	82.87	30.03	<0.001
What could improve health care situation at school?				
A better communication with school teachers, schoolchildren's parents, other medical specialists	82.55	115.81	-33.26	<0.001
Positive attitude of school administration / authority to school nurse's work	89.58	108.18	-18.60	<0.01
Better training/education for school nurses as medical specialists	116.70	78.76	37.94	<0.001

According to the regulations of general education schools, hygiene standards regulating health care and other legal acts (15, 16), school nurses are responsible not only for the creation of healthy environment at school, organization of primary health care, first aid, but also for schoolchildren's health enhancement, provision of consultations on health issues, cooperation with schoolchildren's parents, teachers, and health care institutions. Despite the duties and responsibilities foreseen for school nurses, a trend toward a biomedical model of schoolchildren health care is observed. A number of authors notice a prevalent desire of school nurses to provide primary health care (8–10). Šurkienė et al. (17) determined that the biggest part of school

nurse work in Lithuania consists of prophylactic check-ups and documentation. A very similar response was reported by half of the surveyed nurses. For most of them, the greatest workload is experienced at the beginning of a new academic year. According to our study, school nurses also spent a considerable part of their time for schoolchildren's health education, what was not observed in earlier studies (17).

The school nurses surveyed pointed to the lack of closer cooperation with schoolchildren's parents and teachers. In their opinion, schoolchildren's health care suffers because of it. Other authors (22, 23) also note that schools need more active involvement of school nurses in health projects and that school nurses should

better understand their work profile (duties and responsibilities), expand their activities, and try to assist school administration and parents. This is also emphasized by Whitehead (7) in his critical review of literature on the role of school nurses participating in the Health Promoting School project. The author indicates that it is necessary to consolidate the activities of school nurses participating in this project in the area of health protection through cooperation with school society, parents, health and social care institutions.

In the opinion of the surveyed nurses, schoolchildren's health care is hindered by such problems as poor working conditions and lack of supply with medical equipment. The majority of nurses have no access to a computer. According to Murphy (24) in the United States, school nurses use handheld computers and software applications to solve various issues of schoolchildren's health care. The use of a computer helps them to practice evidence-based nursing and make right decisions based on accurate and up-to-date information. The majority of the school nurses surveyed indicated that their job was often hindered by the negative attitude of school administration, high workload, and low salary. The studies of other researchers point to very similar problems. According to Junious et al. (23), school nurses in the United States are usually content with their job, but complain about low salary.

The study shows that the ability to teach schoolchildren on healthy lifestyle and other health-related issues depends significantly on school nurse's education, experience, and seniority (19, 25). It has been assumed that basic competence and continuing education are important factors for the professional competence of school nurses, which guarantee that when schoolchildren's health care needs are encountered, nurses will be able to apply their knowledge correctly depending

on schoolchildren's age and that they will know how to manage a healthy school environment (18, 26). The study also shows that the quality of school nurse work depends greatly on school nurse's qualification, knowledge, work experience, and seniority. General practice nurses compared to public health nurses knew more precisely their duties and responsibilities, they more frequently noted the need of computer equipment, and they thought that schoolchildren's health care would improve by changing the approach of school community to health care. Public health specialists were more oriented to immunoprophylaxis and health first aid. In general, it has been found out that the effective development of schoolchildren's health care at school is only possible by developing nurses' competence through an educational approach and strengthening their cooperation with school community through a social approach.

Conclusions

During schoolchildren's annual health check-ups, school nurses observed that the most frequent health problems were visual impairment, anomalous posture, and scoliosis. Schoolchildren usually asked school nurses for medical help when they had headache, stomachache, common cold or were injured.

Schoolchildren's health care is hindered because school nurses have a heavy workload since most of their working time is spent on medical documentation, schoolchildren's health prophylaxis screening and first aid and because of insufficient cooperation of school nurses with school community and parents.

The most appropriate way to achieve good results in schoolchildren's health care is the development of school nurses' professional, educational, and social competences.

Mokyklos slaugos specialistų vaidmuo ir problemos prižiūrint moksleivių sveikatą

Elvyra Grinienė, Neringa Liutaitė¹

Lietuvos kūno kultūros akademija, ¹Kolpingo kolegija

Raktažodžiai: mokinių sveikatos priežiūra, mokyklos slaugytojų darbo patirtis ir problemos.

Santrauka. Besikeičiančioje visuomenėje ryškėja tam tikri reikalavimai sveikatos priežiūros sistemoje. Pastaraisiais metais blogėjantys Lietuvos vaikų sveikatos rodikliai skatina įvertinti, ar bendrojo lavinimo mokyklos vykdoma mokinių sveikatos priežiūra yra pakankama ir tikslinga, kaip mokyklos slaugytojos sprendžia sveikatos problemas.

Tyrimo tikslas – ištirti mokyklos slaugos specialistų veiklos ypatybes ir problemas prižiūrint moksleivių sveikatą.

Tyrimo metodai. 2005 m. penkiuose Lietuvos miestuose apklaustos 202 mokyklose dirbančios slaugos specialistės. 77,7 proc. apklaustų mokyklos slaugytojų dirbo daugiau kaip 10 metų. Apklausiai naudotas originalus 28 klausimų uždaro tipo klausimynas.

Rezultatai. Daugumos mokyklos slaugytojų nuomone, dažniausi moksleivių sveikatos sutrikimai yra rega, netaisyklinga laikysena ir stuburo iškrypimai. 75,7 proc. apklaustųjų nurodė, kad per pastaruosius penkerius metus moksleivių sveikata pablogėjo. Mokyklos slaugytojoms tenka didelis darbo krūvis: per dieną priima 11–30 moksleivių, daug laiko skiria moksleivių sveikatai tikrinti, sveikatai ugdyti ir dokumentacijai tvarkyti. Apklaustųjų nuomone, moksleivių sveikatos priežiūrą sunkina prastos darbo sąlygos, nepakankamas aprūpinimas medicinine įranga, neprieinama kompiuterinė įranga, mažas darbo užmokestis. Pasigendama geresnio bendradarbiavimo su mokyklos bendruomene, moksleivių tėvais. Mokyklų slaugytojų darbo kokybė labiausiai priklausė nuo jų kvalifikacijos ir darbo kokybės. Bendrosios praktikos slaugytojai tiksliau žinojo savo pareigas, daugiau jų pasigedo kompiuterinės įrangos, jų nuomone, būtina aktyvinti mokyklos bendruomenę. Visuomenės sveikatos specialistės daugiau orientavosi į biomedicininį sveikatos priežiūros modelį.

Išvados. Moksleivių sveikatos priežiūros gerinimas mokykloje įmanomas keliant mokyklos slaugytojų kvalifikaciją rengiant specialistus darbui mokykloje bei stiprinant bendradarbiavimą su mokyklos bendruomene ir tėvais.

Adresas susirašinėti: E. Grininė, Lietuvos kūno kultūros akademija, Sporto 6, 44221 Kaunas. El. paštas: e.griniene@lkka.lt

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