

Original Paper

Supporting Students with Special Dietary Needs in School

Nursing

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Abstract

When it comes to students who have special dietary needs in relation to the provision of school catering, their nutritional requirements should be taken into account. As the incidence of chronic diseases in children is on the rise, the role of school nurses in student catering is becoming ever more important. This qualitative study describes the school nursing support of students who have special dietary needs. The final targeted sample consisted of fifty-seven school nurses who were working in general education schools. Findings show that the responsibilities of these school nurses are multifaceted when they are tasked with supporting students who have special dietary needs. The participation of school nurses in terms of being able to provide advice for the provision of school catering for students who have special dietary needs tends to vary greatly in schools, and participation levels are generally low. The research revealed that the workload of school nurses is uneven across schools. The more students there are in the school, the less nutritional counselling is provided. The results point to the potential health risks which can be associated with providing unsuitable food to students. The necessary competence of a school nurse in the field of nutrition should not be underestimated.

Keywords

special dietary needs, support, student, nutrition, school nursing

1. Introduction

Children spend a considerable amount of their daytimes at school. This has an important role in shaping their eating habits (Mei et al., 2016). Providing school meals for all students helps to promote health and learning (Burrows et al., 2017). This includes taking into account the nutritional needs of those students who have special dietary needs. Special diets should be based on the individual's medical

status, plus their specific characteristics, and any treatment regimen for them which may have been prescribed by their doctor (Elia et al., 2015).

In recent decades the prevalence of chronic diseases in children has been on the rise. As a consequence of this, the role of school healthcare is becoming a more important area of concern (Bai et al., 2017). However, it has been found that school nurses are involved as nutrition advisors in only half of documented cases (Summary of the..., 2019). Studies also confirm that the depth of knowledge regarding special diets is insufficient for school nurses, and that they would like to be able to undertake more training on the subject of nutrition (Henning, 2009; Ljubicic et al., 2017).

Nurses' levels of awareness of the topic, their self-assessment of nutritional issues, and their desire to undertake further education regarding the topic have all been widely studied, but Ljubicic et al. (2017) highlight the low levels of awareness in nurses when it comes to nutritional therapies. Shin and Roh (2020) have examined the competency framework for school nurses, and have found evidence of a demand in school nurses for continuing their education. The latter demand highlights the fact that the levels of working experience in school nurses, along with their clinical experience and level of training, are important factors in their work. It emphasises the importance of continuing education when it comes to being able to develop and maintain school nurse competence levels.

The exact role of Estonian school nurses in terms of supporting students who have special needs has not previously been studied. In Estonia, those tasks which are normally undertaken by school nurses include monitoring the health of students who have been diagnosed with chronic illnesses, and providing counselling for such students, as well as offering them nutritionally related activities such as suggesting ways in which student diets could be improved and advising students in regard to special diets for disease-free periods (Code of practice..., 2010). The working hours of a school nurse in Estonia depends upon the number of students that nurse has under their care: one school nurse may serve anywhere between 600 to 1,200 students when working full-time. In schools which have lower numbers of students, a school nurse may work in several schools at the same time. A school nurse must have an office in a school if that school supports more than 200 students. In small rural schools the school nurse and the family nurse are usually one and the same person. School nurses are either concentrated in different institutions which regulate the school health service or have gathered under the umbrella of a general practitioner.

The aim of this study was to describe those support services which are being offered to students who find themselves requiring special care in terms of school nursing services:

- To describe those activities which are related to the provision of nutritional counselling by school nurses for students who have special dietary needs.
- To describe the school nurses' assessment of their own areas of knowledge in regard to the counselling of students who are on special diets, and the self-developmental needs of those school

nurses in this area.

2. Method

2.1 Design

The aim of the study was to describe the levels of support a student receives in terms of their special care requirements within the area of concern of a school nurse. In order to be able to achieve this aim, a quantitative study was carried out using a structured questionnaire. Permission to conduct the research obtained by Tallinn School Health Care Foundation (SA Tallinna Koolitervishoid, in Estonian).

2.2 Survey Design and Information Collection

With the support of Tallinn School Health Care Foundation, an electronic survey was conducted amongst school nurses in Tallinn's schools between March and April 2020. The questionnaire was sent to the various school nurses who took part in the study via the connect.ee internet link.

The questionnaire consisted of three parts, totalling seventeen (out of which five were open-ended). In the first part school nurses were asked about their backgrounds (which totalled four questions), while the second part focused on their experience in terms of nutritional counselling and their participation in school meals (which covered another four questions). In the third part of the survey, the levels of self-perception of school nurses were examined, along with their training requirements in terms of special diets (which totalled nine questions). The questionnaire was accompanied by an introductory section which contained a brief description of the research and the contact details for the study authors, so that respondents could contact those authors if they so wished. There was no time limit in which the questionnaire had to be completed, although the expected completion time was only about ten minutes.

2.3 Ethical Considerations

The aim of the study was to describe the levels of support a student receives in terms of their special care requirements within the area of concern of a school nurse. In order to be able to achieve this aim, a quantitative study was carried out using a structured questionnaire. Permission to conduct the research obtained by Tallinn School Health Care Foundation (SA Tallinna Koolitervishoid, in Estonian).

2.4 Sampling

As mentioned, the largest institution involving school nurses in Estonia, Tallinn School Health Care Foundation, was involved in this research. This organisation employees a total of 85 school nurses. A purposive sample was used to conduct the research. An electronic questionnaire was sent to all 85 school nurses. The purposive sampling method makes it possible to select the most appropriate representatives so that the best research results can be obtained (Rämmer, 2014). 57 school nurses (67.1% of the total) responded to the questionnaire.

Those individual school nurses who met the sampling criteria were working as a school nurse as part of the Tallinn School Health Care Foundation. All nurses had been working as a school nurse for at least a

year, whilst all were willing to participate in the survey and were able to use the internet.

2.5 Data Analysis

Descriptive statistics were used as the method of data analysis. SPSS 19.0 was used for statistical analysis purposes. A chi-square (χ^2) test was used to examine differences between background variables and counselling in order to analyse group differences (McHugh, 2013). Within this research, those correlations which came back with a result of <0.05 were considered to be significant. When searching for associations, the authors have followed the recommendation which was published by Dahiru (2008). Although answering all questions was compulsory for anyone undertaking to complete the questionnaire, there were inconsistencies in the responses which required a database clean-up. However, where possible, responses from all 57 respondents were included in the analysis.

3. Result

3.1 Participants

In the study a total of 57 questionnaires were completed by the school nurses and all were analyzed. However, due to conflicting information being provided, only 54 of the questionnaires could be included in the results. The mean age of the school nurses was 56 ± 12.19 years, while the mean length of service as a nurse was 28 ± 16.79 years, and the mean length of service as a school nurse was 10 ± 13.76 years. The total number of students at each school varied. At the same time, some school nurses worked in more than one school. Therefore, the number of students who were required to be included in the duties of each school nurse tended to vary. The maximum number of students for each school nurse was 2,000, while the minimum was 120, and the average was 790.

During the data analysis process, the workload of each school nurse was divided into four groups according to the number of students at that particular school: if this was under 200 students then two school nurses would be calculated (3.5% of the total figure); while if the number of students was between 201-600 then 11 school nurses would be calculated (or 19.3% of the total); between 601 and 1,200 students and thirty-six school nurses would be calculated (or 63.2%); and over 1,200 students would mean five school nurses being calculated (or 8.8%) (Table 1).

Table 1. The Distribution of Schools by Number of pupils (N=54)

<i>Total number of students in school</i>	<i>n</i>	<i>%</i>
Less than 200	2	3.5
201-600	11	19.3
601-1,200	36	63.2
More than 1,200	5	8.8

Most schools had under their care students who had food allergies, totalling 56 of the overall number of schools to be included in the survey based on the number of survey respondents (or 98% of the total), while 54 schools (or 95%) had students who suffered from lactose intolerance, and 49 (or 89%) had students who have diabetes. Other diagnoses or conditions included obesity (involving two cases), CHARGE syndrome (one case), or Prader-Will syndrome (one case), while there was also one case of a student being an affirmed vegetarian (Table 2).

Table 2. The Prevalence of Nutritional Diagnoses which are Known to School Nurses in Schools

Diagnosis	n	%
Food allergy	56	98
Lactose intolerance	54	95
Diabetes	49	89
Coeliac disease	27	47
Phenylketonuria	6	10
Other	5	9

However, 10 school nurses had no details on any children who may have required special care, and two school nurses stated that there were no such children at their schools. 22 (or 38%) of the total number of school nurses responded that they had up to five such children in their school. 10 (17%) responses reflected that the school nurses involved had between 6 and 10 children who were in need of special care. Four nurses (7%) responded that there were between 11 and 15 such students at their schools. In a few cases, specific numbers of students were indicated in the responses: 21, 22, or 34 respectively.

3.2 Activities which can be Related to Nutritional Counselling in School Nursing Duties for those Students who have Special Dietary Needs, and the Task of Monitoring the Suitability of the Food which is being Offered to the Students in the School Canteen

When it comes to counselling and providing support for students who have special dietary needs, a total of 36 nurses (or 63% of the total) advised their students in regard of the suitability of the school menu, while 17 nurses (or 30%) indicated that they had not been asked for advice (Table 3). Under the response option “other”, school nurses indicated the following:

“Caterers are usually reluctant to prepare special menus, so children bring in their own ingredients.”

“I was approached by parents to help them resolve misunderstandings in the school canteen.”

“I mediated between the parent and the caterer about the school lunch options for a child who was on a special diet. I received feedback from the parents that their child was having problems with the special school meals.”

Table 3. School Nurse Roles in Feeding and Counselling Pupils who have Special Dietary Needs

School nurse tasks	n	%
Advising students on the suitability of the school menu (individual counselling)	36	63
Checking what pupils with special dietary needs are eating in the school canteen	28	49
Advising parents on the suitability of the school menu	28	49
Advising the class teacher (or other school staff) on the nature of the special diet, restrictions, and possible risks	26	46
Helping to calculate the amount of carbohydrates which have been consumed	22	38
No one has asked me for advice	17	30
In cooperation with the dietician and parents, I adapt the normal menu to suit pupils who have special dietary needs	12	21
In cooperation with the caterer and parents, I help to prepare a special menu (one which is different from the standard menu).	10	17
I organise information days at school in terms of special diets	9	16
Other	3	5

The most frequently requested advice when it came to the suitability of school meals was in relation to diabetes, with 13 nurses (or 23%) having been asked every day for advice. When it came to phenylketonuria, no advice was sought of 52 nurses (or 91%) (Table 4).

Table 4. The Frequency at which Counselling is Given to Students regarding the Suitability of School Meals

Counselling topic	Every day		Once a week		Once every two weeks		Less than once every two weeks		No one has asked for advice	
	n	%	n	%	n	%	n	%	n	%
Diabetes	13	23	5	9	3	5	15	26	21	37
Food allergies	3	5	2	4	0	0	31	54	21	37
Coeliac disease	2	4	1	2	0	0	17	30	37	65
Lactose intolerance	1	2	3	5	2	2	28	49	23	23
Phenyl-ketonuria	1	2	0	0	0	0	4	7	52	91

The data analysis reflected a statistically significant correlation between the workload of school nurses and the frequency in which they had to provide individual counselling for students. The higher the number of students in the school, ie. the higher the school nurse's workload, the less often school nurses provided nutritional counselling to individual students who required special dietary advice. A

similar situation was observed in terms of celiac disease ($\chi^2=19.236$; $p=0.023$), phenylketonuria ($\chi^2=13.478$; 0.036), and food allergies ($\chi^2=17.776$; 0.038). There was no statistically significant difference in any of the other domains.

When asked about the suitability of food which was being provided in the school canteen for students who had special dietary needs, a total of eight nurses (or 14% of the total) checked that suitability on a daily basis, seven nurses (12%) checked weekly, five nurses (9%) checked when necessary, and two nurses (4%) checked fortnightly. 24 nurses (or 42%) checked the suitability of school meals less frequently than once a fortnight, and 11 nurses (or 19%) did not check the suitability of school meals at all.

3.3 School Nurses' Assessment of their own Areas of Knowledge in Terms of Counselling Students who have Special Needs and the Need for further Training

School nurses feel most confident in the field of diabetes. They have received the majority of their training in this area. They admit the greatest areas of uncertainty when it comes to phenylketonuria, with this being the area in which they have received the least amount of training and the area in which they would like to receive the most amount of training (Table 5).

Table 5. Continuing Education in Nutrition has been Completed or Requested by School Nurses

Topic	Feels confident in the field		Has received continuing education		Has not received continuing education		Would like to receive continuing education	
	n	%	n	%	n	%	n	%
Diabetes	39	68	41	72	4	7	15	26
Food allergies	33	58	35	61	13	23	15	26
Lactose intolerance	37	65	29	51	17	30	16	28
Coeliac disease	24	42	23	40	21	37	18	31
Phenylketonuria	9	16	6	10	36	63	24	42

The fewer the number of students at school, the higher the level of knowledge in school nurses when it comes to diabetes ($\chi^2=12.887$; 0.045). They also wanted training on nutrition for underweight children, along with coverage of sugar consumption, nutrition for gastroenterological problems, nutrition for hyperactive children, mental health, and general nutrition. One nurse thought that no training was needed in these areas, and one nurse replied that training was provided with sufficient frequency.

4. Discussion

According to Bai et al. (2017), the number of students who have chronic illnesses is increasing, so the role of the school nurse is becoming increasingly important. The authors of this study agree with this view. The role of school nurses in providing nutritional advice to students and, thereby, maintaining their good health is becoming increasing significantly. The research showed that the involvement of school nurses in terms of supporting students who had special dietary needs is somewhat modest. This is a worrying finding, one which indicates potential health risks which may be associated with the provision of inappropriate food to students.

The study found that school nurses provide individual counselling to students (including helping students who have diabetes to calculate their carbohydrate intake); checking what students who have special diets are eating in the school canteen; and advising parents and class teachers on the suitability of the school menu. In addition, the school nurses adapt the normal menu to suit students who have special dietary needs, while also participating in the preparation of special menus and organising information days in terms of special diets. The study shows the multifaceted role of the school nurse in supporting students who have special dietary needs. The authors consider that the necessary competence of school nurses in the field of nutrition is something which should not be undervalued. This was also emphasised by Yalcin et al. (2013) in their study, when they argued that nurses need to have a thorough knowledge of how to manage patients' needs-based nutrition.

The research showed that the workload of school nurses tends to be uneven across schools, and it depends upon the number of students who attend each individual school. There are also quite a large number of students in schools who require special care. The authors believe that this may be one of the reasons behind some school nurses having to devote more time to nutrition-related issues than others. School nurses have stressed in the survey the fact that, due to a lack of time, nutrition-related activities tend to take a back seat.

The analysis of the information reflected a statistically significant and expected relationship between the size of schools and the frequency of individual counselling for students. The larger the number of students in the school, the less frequent the nutritional counselling for students who had special dietary needs. Overall, the frequency of counselling being provided for different diagnoses is, for the most part, equal. With regard to the frequency of counselling being provided for students, it is noteworthy that school nurses provide the highest levels of counselling, and the most frequent counselling for students who have diabetes. This result had been expected by the authors, as students who have diabetes are present in almost every one of the schools which were included in the survey. The authors share the view of Mogre et al. (2015) in which nurses can be seen as playing an important role in raising the nutritional awareness of people who have diabetes. As the study showed that, in addition to students who have diabetes, the number of students in schools who are lactose intolerant and who have food

allergies is about the same, so the level of nutritional counselling being provided by school nurses should be the same. However, the information revealed that the number of counselling sessions for children who have had one or more of these problems diagnosed tends to be significantly lower. The authors suggest that this may be due to a lack of parental awareness when it comes to the option of being able to consult a school nurse about their child's condition.

The survey also examined school nurses' levels of awareness and self-perception when it came to nutrition issues. It was found that a large proportion of school nurses sometimes feel insecure when it comes to providing nutritional advice. This suggests that further training in nutrition could help nurses to refresh and update the level of knowledge they have previously acquired, and therefore ensure their confidence. School nurses were found to have a strong interest in nutrition education. Diabetes and food allergies are the most common topics being covered. To a lesser extent, training on lactose intolerance and coeliac disease has also been received. School nurses have received the least amount of training when it comes to phenylketonuria. The study's authors are of the consideration that the survey of school nurses clearly shows the need for further training in terms of special diets, and a great deal of potential for the application of nutritional knowledge in school nursing duties. A similar view is expressed by Shin and Roh (2020), who emphasise the importance of the level of experience and training of school nurses, and the importance of continuing education in developing and maintaining the competence of school nurses.

5. Conclusions

The tasks which are involved in the duties of school nurses when it comes to supporting students who have special dietary needs includes providing them with individual counselling, monitoring their nutrition process in the school canteen, counselling parents and class teachers, calculating the carbohydrate intake for individual students, adapting the normal menu to the individual concerned, participating in the preparation of special menus, and organising information days at school which cover special diets. The involvement of school nurses in advising students on special diets tends to vary widely between schools, and overall involvement figures are generally low. The higher the number of students in the school, the less nutritional counselling is being provided to students who have special dietary needs.

The self-perception of school nurses has shown them that their awareness of nutrition issues is unevenly distributed. School nurses felt most confident when it came to advising on diabetes, lactose intolerance, and food allergies. In areas which included coeliac condition and phenylketonuria, school nurses considered their levels of knowledge to be insufficient. School nurses had received more training on diabetes, food allergies, and lactose intolerance, but less on coeliac condition and phenylketonuria. These school nurses would like to receive further training in terms of nutrition, both

in relation to phenylketonuria and coeliac condition.

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