

School Nurses' Perspectives on Health among School-Aged Children and Adolescents During the COVID-19 Pandemic

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Abstract

The aim of this study was to investigate school nurses' perspectives on students' health during the COVID-19 pandemic in Sweden in 2021. A cross-sectional survey design was used with school nurses ($n = 225$) working in schools in Sweden from elementary to upper secondary levels. The Clausson School Nurse Perception Questionnaire was used with two additional questions about the COVID-19 pandemic. The school nurses rated students' physical health as very good or good in 78% of the cases and their mental health as very good or good in 64%. There was also a negative trend in mental health during the pandemic, especially among girls. School nurses working in vulnerable areas (i.e., areas with a high proportion of immigrants and those receiving financial assistance) rated students' physical and mental health significantly worse compared other areas.

Keywords

school nurses, perception, school-aged children, adolescents, health, mental health, physical health, COVID-19

Introduction

In 2020, the SARS-CoV-2 virus spread and developed into a pandemic worldwide. Sweden and many other countries introduced recommendations and restrictions to reduce the spread of infection. Schools in Sweden were open for students aged 6–15, but those aged 16–19 were provided distance education, in contrast to many other countries, in which schools for all age groups used distance education (Martinsson et al., 2021). School nurses have a crucial role in creating trust and security for students and paying early attention to their ill health (Hilli & Pedersen, 2021). Thus, it is important to investigate school nurses' perceptions of students' physical and mental health during the COVID-19 pandemic.

Background

The COVID-19 pandemic has had a huge impact on the mental health of school-aged children and adolescents worldwide (Samji et al., 2022). This also increased the risk of mental health problems and isolation among students. In another study examining school nurses in Sweden, nurses indicated that students were concerned about spreading the infection, becoming infected themselves, and their academic performance, as well as longing for socialization (Martinsson et al., 2022).

Swedish law requires a school nurse to be present at every school for children and adolescents, but there are no

mandates regarding the number of students each school nurse should be responsible for (The Education Act, 2010). A survey by Ellertsson et al. (2017) revealed that each school nurse was responsible for an average of 484 students. The qualifications for being a school nurse in Sweden are to be a registered nurse (three years of bachelor's-level education in nursing) with one year of post-graduate education at the master's level. Three post-graduate programs are authorized for school nurses: district nurse, pediatric nurse, and school nurse education. The survey by Ellertsson et al. (2017) revealed that 43% of participating school nurses were educated as district nurses, with 38% educated as pediatric nurses, and 10% educated as school nurses.

A school nurse has pervasive knowledge that can contribute to opportunities to understand what resources are needed to help children and adolescents (Garmy et al., 2021). Given the pandemic and the restrictions that have been introduced,

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it is of great importance to examine school nurses' perspectives on schoolchildren's health. By highlighting school nurses' perceptions of the health of school-aged children and adolescents, this study contributes to the knowledge needed for school nurses' health-promotion work.

Aim

The overarching aim of this study is to investigate school nurses' perspectives on students' health during the COVID-19 pandemic in Sweden in 2021. The specific research questions are:

- (1) What are school nurses' perceptions of the physical and mental health of school-aged girls and boys?
- (2) Does the perception of the health of students differ between school nurses working in vulnerable areas and those in other areas?
- (3) How do the school nurses assess the impact of the COVID-19 pandemic on students' physical and mental health?
- (4) What do the school nurses consider to be the most common reasons for health consults among girls and boys?

Methods

A cross-sectional survey design was used. The study was approved by the Swedish Ethical Review Authority (2021-00946). The study is a part of a larger research project, and the results from the open-ended questions included in the survey have been published elsewhere (Persson et al., 2022).

Data Collection

This web-based cross-sectional study was conducted from May to December 2021 during the COVID-19 pandemic in Sweden. The software Evasys was used to distribute the web-based survey, which began with information about the aim of the study, its voluntary nature, and that it would be filled out anonymously. Information about the survey and its voluntary nature was posted in a Facebook group for school nurses in Sweden, which had 2,600 members. Informational letters with a link to the web-based survey were also emailed to 25 healthcare administrators for schools in Southern Sweden, who then forwarded them to the school nurses. One reminder was sent out. Since the survey was filled out anonymously, there is no possibility of linking any responses to certain individuals. Further details about the data collection are presented by Persson et al. (2022).

Questionnaire

The Clausson School Nurse Perception Questionnaire was used with two additional questions about the COVID-19

pandemic. This instrument is a well-proven questionnaire that has been used in two earlier studies involving school nurses in Sweden (Clausson et al., 2008; Ellertsson et al., 2017). The first 10 items deal with the school nurses' background information. Items 11–16 delve into the perceptions of school nurses about the physical and mental health of children and adolescents. The last two of these items were the added items regarding school nurses' perceptions of the impact of the ongoing COVID-19 pandemic on girls and boys.

Analysis

Descriptive and analytical statistics were used, and the results are presented with the standard deviation, frequency, and percentage. Bivariate analysis was conducted using a chi-squared test. The statistical program IBM SPSS version 26 was used, and a *p*-value < .05 was considered significant in the analysis.

Results

There were 225 school nurses who chose to participate in the study. The majority had some form of specialist education at the master's level, such as that for district nurses (50%), pediatric nurses (34%), or school nurses (13%), as shown in Table 1. The school nurses who answered the questionnaire worked in schools ranging from elementary to upper secondary levels. The participants comprised 99% women, 87% working in public schools, and 13% working in tuition-free private schools. School nurses who were considered as working in vulnerable areas were grouped together. Vulnerable areas were designated as those with high proportions of inhabitants of

Table 1. Background Characteristics of School Nurses (n = 225).

Background characteristics	
Work experience as a school nurse, years (SD)	7.9 (6.4)
Age, years (SD)	49 (8.5)
Post-graduate education	
District nurse	49.8%
Pediatric nurse	34.2%
School nurse	13.3%
Other specialist nurse/midwife	12.0%
RN but no specialist nurse education	1.8%
RN and ongoing study to be a specialist nurse	0.9%
Employment, % (SD)	88.7 (17.4)
Number of students for which the school nurse is responsible, n (SD)	434 (137.5)
Number of students for which the school nurse is responsible when working 100%, n (SD)	489 (122.5)
Employed in private school, n (%)	28 (12.4)
Working in a vulnerable area, n (%)	92 (40.9)
Working in rural areas, n (%)	63 (28.0)

Missing: 0–1.3%. SD = Standard deviation.

foreign origin or receiving financial assistance, as shown in Table 1.

A total of 78% of the school nurses rated their students' physical health as very good or good, while 64% rated students' mental health as very good or good. There was a negative trend in mental health during the pandemic, especially among girls (Table 2).

When comparing the students' physical and mental health in vulnerable and other areas, there was a significant difference in how school nurses rated students' health. Those working in vulnerable areas rated health as worse than their colleagues in other areas did. According to the school nurses, the pandemic's impact on students' health was equivalent in the different areas (Table 3).

The most common reasons for girls to visit the school nurse spontaneously were temporary or recurrent stomach pain and headaches, while those for boys were wounds and sports injuries (Table 4). Girls more often consulted the school nurses for problems regarding relations with peers or family (42%) compared with boys (12%). Although this study was conducted during the ongoing COVID-19 pandemic in 2021, infections were not a common issue for school-nurse consultations (2% among girls and 4% among boys).

Discussion

The aim of the study was to investigate school nurses' perspectives on students' health during the COVID-19

Table 2. School Nurses' Perceptions of Students' Health (n = 225).

School nurses' perceptions of students' health	
<i>School nurses' perceptions of students' physical health</i>	
Very good, n (%)	31 (13.8)
Good, n (%)	145 (64.4)
Less good, n (%)	48 (21.3)
Poor, n (%)	1 (.4)
<i>School nurses' perceptions of students' mental health</i>	
Very good, n (%)	2 (.9)
Good, n (%)	142 (63.1)
Less good, n (%)	77 (34.2)
Poor, n (%)	4 (1.8)
<i>School nurses' perceptions of change in girls' mental health during the pandemic</i>	
Much better, n (%)	0 (0)
Better, n (%)	1 (.4)
No change, n (%)	113 (50.2)
Worse, n (%)	102 (45.3)
Much worse, n (%)	5 (2.2)
<i>School nurses' perceptions of change in boys' mental health during the pandemic</i>	
Much better, n (%)	0 (0)
Better, n (%)	1 (.4)
No change, n (%)	130 (57.8)
Worse, n (%)	85 (37.8)
Much worse, n (%)	3 (1.3)

Missing: 0–2.7%.

pandemic in Sweden. The three main findings were related to school nurses' perceptions of mental health during the pandemic among girls and boys, health differences between vulnerable and other areas, and common reasons for spontaneous visits to the school nurse. The results

Table 3. School Nurses' Perceptions of Students' Health in Vulnerable and Other Areas.

Health	% Other area (n = 133)	% Vulnerable area (n = 92)	p-value
<i>Physical health</i>			<.0001
Very good	27 (20.3)	4 (4.3)	
Good	90 (67.7)	55 (59.8)	
Less good	16 (12.0)	32 (34.8)	
Poor	0 (0)	1 (1.1)	
<i>Mental health</i>			.001
Very good	2 (1.5)	0 (0)	
Good	97 (72.9)	45 (48.9)	
Less good	33 (24.8)	44 (47.8)	
Poor	1 (.8)	3 (3.3)	
<i>Girls' mental health during the pandemic</i>			.137
Much better	0 (0)	0 (0)	
Better	0 (0)	1 (1.1)	
No change	66 (50.0)	47 (52.8)	
Worse	65 (49.2)	37 (41.6)	
Much worse	1 (.8)	4 (4.5)	
<i>Boys' mental health during the pandemic</i>			.327
Much better	0 (0)	0 (0)	
Better	0 (0)	1 (1.1)	
No change	75 (57.3)	55 (62.5)	
Worse	55 (42.0)	30 (34.1)	
Much worse	1 (.8)	2 (2.3)	

Missing: 0–2.7%.

Table 4. School Nurses' Total Ranking Order of the Three Most Common Reasons for Schoolchildren's Spontaneous Visits to the School Nurse in 2021.

Consulting reasons	Girls (%)	Boys (%)
Occasional headache	64.0	49.3
Occasional stomach pain	46.2	20.0
Recurrent headache	37.3	10.2
Recurrent stomach pain	35.6	7.1
Sports injuries	33.3	79.1
Wounds	33.3	68.4
Disturbed schoolmate relations	32.0	7.6
Worries about own body	15.6	9.3
Disturbed family relations	10.2	4.4
Allergy	6.2	9.3
Eating disorders	6.2	0.4
Obesity	4.0	4.4
Infections	1.8	4.4

show that school nurses perceived that mental health problems are common among school-aged children and adolescents. The cross-sectional study by Ellertsson et al. (2017) and the qualitative interview study by Jönsson et al. (2019) found that school nurses perceived that mental health problems as common among students. The current study, however, indicates that the pandemic has had an impact on children's and adolescents' mental health.

We found that 45% and 38% of school nurses rated mental health as worse during the pandemic than before it among girls and boys, respectively. This result is consistent with those of Hörbo et al. (2021), who found that increased mental health problems during the pandemic were partly due to students' worries about the future and the fact that leisure activities had ceased. Martinsson et al. (2022) found that the change in the school situation during the pandemic brought about a slower pace and, for some students, less anxiety. Guessoum et al. (2020) found that children and young people felt bad during periods when they needed to be quarantined and could not go to school. These periods were associated with less physical activity, more screen time, irregular sleep, and poor eating habits. Some children and adolescents experienced concern about their relatives' health, separation from friends, and thoughts about death (Guessoum et al., 2020).

According to Dymecka et al. (2021), the sense of coherence (SOC) (Antonovsky, 1987) played an important role in dealing with the COVID-19 pandemic as it enabled stress management and decreased anxiety levels, affecting people's mental wellbeing and quality of life. Dymecka et al. (2021) believe that individuals with high SOC were better equipped to handle difficult situations, reducing their probability of developing stress. A cross-sectional study from Ethiopia used the health belief model to predict COVID-19 preventive behavior among adolescents and found that the model explained more than 40% of the COVID-19 preventive behavior (Shitu et al., 2022). With this in mind, it is important to follow up on students who have developed stress and mental health problems during the pandemic to avoid negative consequences.

The results confirm that mental health problems and stress are common in children and adolescents and that school nurses are aware of the problem. In the current study and a study done by Ellertsson et al. (2017), mental health problems were more common among girls than boys, but further research is needed to identify the cause. One way to investigate the differences between girls and boys is to do a new study based on students' experiences of stress. The results also show that the pandemic has had a major impact on the mental health of children and young people.

There were significant differences between the ratings from the school nurses working in vulnerable areas and those working in other areas. School nurses working in vulnerable areas rated both physical health and mental health among the schoolchildren as significantly worse ($p < .05$)

compared with school nurses working in other areas. Pareliussen et al. (2018) showed that income inequalities have increased in Nordic countries in recent years. A systematic review by Mock-Muñoz de Luna et al. (2019) found that non-Western immigrant children had poorer overall outcomes than ethnic-majority children in Denmark, Norway, and Sweden regarding diabetes, obesity, oral health, mental health, and wellbeing. These results can only partly be explained by socioeconomic status and show that ethnic inequalities in health are present among children and adolescents in Scandinavian welfare states (Mock-Muñoz de Luna et al., 2019).

The reasons for spontaneous visits to school nurses differed between boys and girls. Pain was the most common reason for girls (headache and stomach pain), whereas sports injuries and wounds were most common for boys. A recent focus-group study with Swedish schoolchildren found that children linked bullying, noisy school environments, grief, and remorse with headaches, stomachache, and heartache (Persson et al., 2021). An interview study with school nurses from New York, USA, found that school nurses were aware that bullying was related to students with chronic health conditions, especially those with behavioral health issues (Cohen et al., 2022).

Other common reasons for spontaneous visits to the school nurse included disturbed relations with peers and family, as well as worries about one's own body, but there was a difference between boys and girls. It was more common for girls than boys to visit the school nurse and discuss relations or worries about their own bodies. Although the survey was distributed during the COVID-19 pandemic in 2021, infections were a rare reason for spontaneous visits (2% among girls and 4% among boys). This may be due to the organization of the school health system in Sweden. Infections are typically handled at healthcare centers.

The main focuses for school nurses are health promotion and preventing ill health (Persson et al., 2022). Several studies among Swedish school nurses show that school nurses are highly involved in working with mental health problems among children and adolescents (Berglund Melendez et al., 2020; Jönsson et al., 2019; Musliu et al., 2019; Persson et al., 2022). Despite this, no specific response options were provided for spontaneous visits regarding anger management, depression screening, suicidal ideations, or substance abuse.

Strengths and Limitations

The strengths of the study are the relatively large sample size and the well-proven instrument (the Clausson School Nurse Perception Questionnaire with two additional questions about the COVID-19 pandemic). Although the instrument has not been psychometrically evaluated, it has been used earlier in 2005 (Clausson et al., 2008) and 2015 (Ellertsson et al., 2017) and was found to be reliable and valid. School

nurses have expertise in the health of school-aged children and adolescents, so it is a strength to collect information from them. However, one of study limitations was that less than 10% of school nurses in Sweden responded to the survey. Nevertheless, the response rate is at about the same level as in earlier studies with surveys among Swedish school nurses (Clausson et al., 2008; Ellertsson et al., 2017).

Another limitation is that no specific response options were available for anger management, depression screening, suicidal ideations, or substance abuse. Furthermore, the study investigated the perspectives of school nurses and not objective measures of the health of school-aged children and adolescents. Recall bias could have occurred regarding the questions about mental health during the study period in comparison with before the pandemic. All other questions were “here and now,” however, so the risk of recall bias is limited.

Conclusion

Among school nurses, 78% rated student’s physical health as good or very good, and 64% rated student’s mental health as good or very good. More than half of the school nurses indicated that there was no change in girls’ and boys’ mental health during the pandemic (51 and 58%, respectively). School nurses working in vulnerable areas rated students’ health as worse than school nurses working in other areas did.

Implications for School Nursing and Future Research

School health administration should be aware of the different health situations for girls and boys, as well as students in vulnerable areas versus other areas. Universal health-promoting work should continue for all students, but selective and indicative interventions should also be offered to those who need some extra support. The current study was conducted among school nurses in Sweden, and similar studies from other countries are called for. Future research should investigate differences in health between girls and boys and between different locations. Furthermore, school nurses’ health-promotive work should be investigated and evaluated. Researchers should consider conducting a similar study after the pandemic ends.

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Author Contributions

Conceptualization: PG, EE; Data curation: LP, CR, PG, EE; Formal analysis: PG; Funding acquisition: PG, EE; Investigation: LP, CR, PG, EE; Methodology: PG, EE; Project administration: PG, EE; Resources: PG, EE; Supervision: PG, EE; Writing—original draft: PG, LP, CR; Writing—review & editing: LP, CR, PG, EE.


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