School nurses’ experiences and challenges of working with childhood obesity in Northern Sweden: A qualitative descriptive study

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Abstract
Childhood obesity is increasing in Sweden. All children are offered regularly spread health visits to a school nurse. As health visits include a measure of height and weight and a health dialogue, school nurses can discover, disclose, and treat a child’s weight gain. The aim of this study was to describe school nurses’ experiences and challenges in working with childhood obesity. This qualitative study collected data through focus-group discussion and semi-structured interviews with ten female school nurses from six municipalities. Data were analysed inductively using manifest qualitative content analysis. The study was reported using the COREQ guidelines. Stigmatization and lack of resources are major challenges for school nurses working with childhood obesity, and they experience frustration, powerlessness and feel that they provide unequal treatment. The present study concludes that obesity stigmatization is a widespread challenge for school nurses. They cannot alone generate all the resources needed or conquer all challenges. Evidence-based guidelines, increased knowledge, time for reflections and peer support could potentially empower school nurses, reduce frustration, and improve the quality of and equality in childhood obesity treatment.

Keywords
guidelines, nursing, school health, stigmatization

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Introduction
Obesity is a disease defined as ‘abnormal or excessive fat accumulation that presents a risk to health’ and childhood obesity is associated with an increased risk of mortality in early adulthood.1,2 It is also a strong predictor of obesity, diabetes, cardiovascular disease, and musculoskeletal pain in adulthood.1,3 In Sweden, the proportion of 11–15-year-olds who are overweight or obese is 9–20%; a figure which has doubled since the 1990s.4 The prevalence of overweight and obesity in children aged 6–9 years has been reported to be 24%.5

The World Health Organization classifies obesity as a preventable disease.6 Systematic reviews of lifestyle treatment for childhood obesity conclude that a multi-component lifestyle treatment could have a small, short-term effect in decreasing body mass index (BMI) in children aged 6–11 years, but the evidence is of low or very low quality.7 For children aged 12–17 years the systematic review found low or moderate quality evidence for reduction of BMI or weight loss using a multidisciplinary intervention.8

The differences in counties’ healthcare systems and school systems could contribute to variations in access to and demands on school healthcare staff to work with childhood obesity. Sweden is a nation divided into 290 self-governing municipalities, located in 21 self-governing regions.9 The regions govern healthcare, such as child healthcare (BVC), primary and specialist healthcare, while the municipalities in the regions govern social services, schools, and school healthcare.9 All healthcare for children is free of charge.

In Sweden, all schools must make sure children have access to a school physician, school nurse, psychologist, and counsellor.10 The counsellor is a guidance counsellor for psychosocial health issues.11 The school physician and psychologists are rarely on site at schools. School nurses and counsellors commonly have offices or visiting hours at schools, making them the children’s primary school health contacts. Schools in Sweden are legally bound to offer every child at least three regularly spread health visits between the first and ninth grade,10 at which the school nurse examines the child’s development and health. Among other physical examinations, height and weight should be measured at these health visits, a health dialogue should be conducted, and limited extra visits can be offered to follow suspected health issues.11 Through health visits and dialogues, school nurses have an important role in children’s current and future health.

As school nurses measure the children, they can be the first to raise the concern of any weight gain to the child and parents. Since overweight and obesity are stigmatized and increase,4 the disclosure could be an intricate and important

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task for the school nurses. One qualitative study from southern Sweden discovered that school nurses work together with the families to stop the trajectory of weight gain rather than work towards a weight loss.\textsuperscript{14} Another qualitative study from central Sweden also found that the relationship with the parents and children was important in their role of referring the child to treatment for overweight or obesity.\textsuperscript{15} To our knowledge there are no reports or studies on how school nurses in northern Sweden work with childhood obesity. In the Västerbotten region in northern Sweden, specialist treatment of childhood obesity is provided in the regional hospital, located in the region’s most eastern municipality. Treatment can also be provided at local healthcare centres. School nurses are authorized to refer children with obesity to primary or specialist healthcare.

The study from southern Sweden discovered that school nurses find childhood obesity a complex and sensitive topic.\textsuperscript{14} This was also found in the study from central Sweden where school nurses were worried about how a conversation about the child’s weight could ruin the relationship with the parents.\textsuperscript{15} A study from Australia showed that nurses tried to address childhood obesity sensitively and use a tactful language since parents react in various ways.\textsuperscript{16} Parents reacting with anger to the disclosure of obesity is a finding in several studies.\textsuperscript{14,16–18} The nurses in Australia also used the child’s growth chart as a tool for communication and highlighted the importance of developing a trusting relationship.\textsuperscript{16} School nurses in the USA described that lack of knowledge, institutional support and time, as well as fear of reactions and difficulty establishing relationships with the children were barriers for disclosing a weight issue.\textsuperscript{18}

As the study from Sweden mainly highlight the methods used by school nurses in Sweden,\textsuperscript{14} it remains unknown how school nurses experience their work with childhood obesity and what challenges they face. To our knowledge, there are no studies that answer this question.

**Study aim**

The aim of this study was to describe school nurses’ experiences and challenges of working with childhood obesity.

**Methods**

This study used a qualitative descriptive design\textsuperscript{19} with an emergent and inductive approach,\textsuperscript{20} which is suitable for studying experiences. Data were collected through focus-group discussion (FGD)\textsuperscript{20} and semi-structured individual interviews\textsuperscript{21} and analysed using manifest qualitative content analysis.\textsuperscript{22,23} The study was reported using the Consolidated Criteria for Reporting Qualitative Research (COREQ).\textsuperscript{24}

**Study setting**

The setting for this study was the Västerbotten region, located in northern Sweden. The region is the second largest in Sweden based on its area, yet only 2% (217,487) of the Swedish population in 2019 lived in Västerbotten. The region’s 15 municipalities had between 2432 and 130,034 inhabitants, and together the two largest municipalities had 201,157 inhabitants.\textsuperscript{25} The number of school nurses identified in the region’s municipalities range from one school nurse to 33.

**Informants and recruitment**

This study used a purposive and convenience sample.\textsuperscript{26} For diversity of perspectives, a variety in school nurses’ work life experience as well as regional location was aimed for. Recruitment of informants to the FGD was carried out in the region’s largest municipality. The Head of School Health forwarded the invitation via email to 33 school nurses who could contact the researchers directly. Invitations to individual interviews were sent by the first author to all 57 identified school nurses in elementary and high schools in all municipalities in Västerbotten. Multiple reminders of the invitation were sent to the school nurses via email, and some were reminded via telephone calls. When asked for contact information to the school nurses, the Head of Education in one municipality replied that their school nurses would not participate. Five school nurses did not reply to telephone calls or had out-of-office messages for sick leave. Three declined to participate and the others did not reply to the emails.

Three school nurses participated in the FGD and seven were interviewed. Collectively, the informants worked with children aged 6–18 years in large city schools and small schools in rural villages in six municipalities. Some of the informants worked in both city and village schools. All informants were registered nurses, female, over 25 years old and had been working as school nurses from two to more than 15 years. To ensure confidentiality, limited description of the informants is provided.

**Data collection**

The FGD and semi-structured interviews were used to ensure a diversity of data.\textsuperscript{21} Focus-group discussions use group interaction to capture experiences\textsuperscript{20,21} whereas interviews can address sensitive and complex issues.\textsuperscript{25} The approximately 100-minute-long FGD was conducted in March 2019 and the 39–70-minute-long interviews during August to November 2019. The discussion and interviews were led by the first author and were audio-recorded. In the FGD, informants were asked to write down and discuss what first came to mind from the term childhood obesity. After all their topics had been elaborated on through probing questions, a mind map containing the subject areas parents, children, healthcare, society, professional tasks, and leadership was used to guide the FGD.

Semi-structured individual interviews were conducted at the school nurse’s office or in a private room at a library. Two interviews were carried out via telephone. After elaborating on their initial thoughts of childhood obesity, an interview guide with open-ended questions on the areas parents, children, professional tasks, and ideal work situation as well as probing questions, were used.

**Data analysis**

Data were analysed inductively\textsuperscript{20} using manifest qualitative content analysis as described by Graneheim and
Lundman,22,23 a method appropriate for descriptive studies. Transcriptions were made by the first author. The FGD and interviews were listened to and the transcripts were read several times. Transcriptions were divided into meaning units which were coded by the first author. Transcriptions and coding were carried out continuously throughout the data collection period20 in NVivo 12.6 (QSR international). The codes were kept close to transcriptions and discussed with the second author for triangulation.20

After seven individual interviews, few new codes were found, and data were considered enough to give a nuanced and collective result.20 The analysis resulted in categories and subcategories, which were discussed with the second author and developed further before consensus was reached. To ensure trustworthiness, quotations are presented in Table 1 and in the results section.24 All informants have been sent the results and invited to provide feedback for triangulation via member check,20 and one informant did.

Pre-understandings

Before and during the data collection, the first author worked as a physiotherapist for children with obesity in the regional hospital. She did not have any contact with the school nurses in this position before, during or after the study. The author’s work position was disclosed to the informants before the FGD and interviews. The impact of the author’s knowledge of treating childhood obesity was critically considered during the whole study period by keeping codes close to the transcript, constantly comparing codes and categories to the transcript and through triangulation via reoccurring peer-debriefing with the second author.20

Ethical considerations

This study was conducted as a master’s thesis and in compliance with the Declaration of Helsinki27 and the Ethical Review Act.28 Informants were sent the informed consent which stated the purpose of the study, the right to withdraw at any time and contact information for the responsible researcher. Informed consent was obtained written or verbally and the signed consent forms were stored securely in compliance with the Data Protection Act.29 Audio files were stored on password safe devices and transcriptions were pseudonymized.

Results

The informants invited children to health visits at regular, yet varying intervals. Prior to these visits, children filled in a questionnaire about their health and lifestyle habits. At the health visit, the child was weighed and measured and a computer system provided the growth curve. The treatment initiated by the informants was lifestyle advice, such as to eat more vegetables, consume less candy and soda, and increase the amount of physical activity. With younger children, this lifestyle advice was directed to the parents.

Two major challenges were identified as the categories Access to and use of impactful resources and Stigmatization in addition to the two categories Frustration and powerlessness and Unequal treatment describing experiences of school nurses’ work with childhood obesity. Table 1 shows meaning units, codes, subcategories, and categories describing school nurses’ experiences and challenges of working with childhood obesity in northern Sweden.

Access to and use of impactful resources

This category describes the diversity of resources which can be used by school nurses when treating childhood obesity. If present, the resources support school nurses and if absent, they are a challenge.

Relationships with parents and children. Informants stated that a relationship with the parents and children was valuable and important. Since obesity and lifestyle factors can be sensitive topics, a long and trusting relationship with the child and parents made communication easier. To find out which lifestyle changes are relevant and possible for the individual family, their lifestyle must be openly discussed with the school nurse. Important challenges were to influence the parents, entice them to make lifestyle changes and come for continuous visits.

In one municipality there had been a large turnover of school nursing staff in a short period of time, and school nurses had been relocated to new schools. Informants considered these changes to have had a negative impact on their work, since building trusting relationships requires time. Informants considered extra visits between the regular health visits to be ‘worth the time in the end’ (Interview, 7) as they are important for building relationships. Informants in rural municipalities said they could not act as a ‘policeman’ who judges the shopping carts at the local store, and that you naturally build long relationships in villages.

Informants stressed the importance of having relationships with the children. One informant said that she and her colleague usually had their coffee break where the children were having breaks. This way, the school nurses would be approachable for building relationships with. Relationships with children manifested in spontaneous visits to school nurses about other things than weight, and children came to visit them despite failing their weight goals.

Parental responsibility. Informants stated that all adults must set boundaries for children, and parents have an important responsibility to provide their child with breakfast, nutritional food, and guidance to be physically active. Informants deemed that parents had a larger responsibility for younger children. In the informants’ view, motivated parents wanted to collaborate with them, while parents who lacked motivation did not take responsibility.

It’s us as parents that have to teach the kids that you are outdoors and move around and that you walk here and you walk there or you take the bike, that you shouldn’t get a ride. (FGD, 1)

They noticed how some parents found it hard to take the time for meetings and wanted to rush through information.
Informants also indicated that the stress the parents expressed affected their ability to take responsibility for and prioritize their child’s health.

There is like the societal stress. I mean, we also have parents who rather not maybe come to the [child’s] health visits. They don’t have time, or they call and ask ‘how long is this going to take? Is it like more than fifteen minutes?’ (FGD, 1)

**Information sharing and collaboration.** Informants expressed the importance of acting promptly when a child’s BMI is increasing, and that their work would have been helped by information from previous healthcare providers. An informant in a rural municipality felt welcome to ask BVC about information and guidance on how to communicate with families. Another informant said it was common to be informed of issues around a child rather than assets and previously successful strategies.

School nurses commonly collaborate with the school counselor, and having support from a colleague made the informants feel calm. One informant stated that she consulted her colleague regarding borderline cases.

<table>
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| Meaning units, codes, subcategories, and categories describing school nurses’ experiences and challenges of working with childhood obesity in northern Sweden. |
|-------------------|-----------------|-------------------|
| **Meaning unit**   | **Code**        | **Subcategory**        |
| ‘It can be easier to approach a problem when you feel that you have some sort of relation to the family since before or that you, that they trust you.’ (FGD, 2) | Relationship and trust | Relationships with parents and children |
| ‘With small children, it’s the parents you go through because it’s really their responsibility to think ‘what do we have at home?’’ (FGD, 3) | make it easier | Access to and use of impactful resources |
| ‘The quality of the care you give is also that you have two perspectives. Because it’s also … you want to give like … good help. And if you’re all alone then there is no one who can critically review what you’re thinking.’ (Interview, 10) | Parents decide over home environment | Parental responsibility |
| ‘It wasn’t just the overweight and obesity, but they were smoking, and they had bad home conditions, and everything is a cluster and then you can sometimes wonder about where do I start?’ (FGD, 2) | Two nurses’ perspectives for review and quality | Information sharing and collaboration |
| ‘It’s just that, there are no guidelines. It gets a bit like fumbling in the dark sometimes.’ (Interview, 10) | Fumble in the dark | Guidelines |
| ‘There is food everywhere, I think, so it is not easy both on like individual level and societal.’ (FGD, 3) | Food is everywhere in society | Societal structures |
| ‘…it hurts their eye a bit I think on those parents. Like well “that’s you. You look like that and we look like this”. I mean that it then becomes very clear that you can experience this stigmatization.’ (FGD, 2) | Being thin can be stigmatizing | Contribution of own prejudices and appearance |
| ‘It’s like sensitive. So, it becomes in a way like balancing on a thin line to continue to have the family and child with you.’ (FGD, 1) | Balancing the words | Fear to miscommunicate |
| ‘Some can’t see, and some can’t hear, and some have a jump in their height, and some have [weight increase] and then we check again and there is nothing weird about that, this is completely normal.’ (Interview, 7) | Normalize weight gain | Striving for neutral approach and communication |
| ‘We’re pretty helpless I think, in school, to do anything that really has an effect. You can highlight but then you can’t do a lot more.’ (Interview, 5) | Hopeless | Frustration and powerlessness |
| ‘It is horribly different how we work /…/ But then there is just that, that it’s not equal (light laugh). We don’t do the same things. We have different experiences.’ (FGD, 1) | They work differently | Unequal treatment |

**Time for tasks.** School nurses did everything ‘from chafed feet to psychosis’ (FGD, 1) and having many tasks and responsibilities made the workload scattered. Informants wanted to evaluate their obesity treatments but could not find the time. They felt that vaccinations and health visits took a lot of their time and expressed lack of time for reflection, updating materials, consulting with colleagues, preventive work or for developing methods to work from. Informants asked managers for clearer prioritizing of tasks, yet felt they were not getting enough help. In the informants’ opinion there was lack of time for the important follow-up meetings between the regular health visits. When informants met adolescents with obesity, there was usually a cluster of problems, such as sleep habits and smoking, to prioritize between.

I can’t start with my own strategy here and work with this because I have to manage all other students too. I must go all the way and do … Manage all vaccinations and all health visits and (stressed inhale) all that, the year around. So, eh … It’s not possible … to stop it really and work with this. (Interview, 9)
Guidelines. A common issue was lacking strategies, tools, and guidelines of when and how to act regarding weight gain and obesity. Informants felt uncertain of what methods to use and they asked for effective, evidence-based treatments as well as guidelines on the responsibilities of school nurses and the regional healthcare providers. Some informants said it was unclear when to refer the child to another and to which healthcare provider.

Informants described that regional guidelines, which included both treatment methods, responsibilities, and referrals for treatments, were developed and suggested by primary and specialist healthcare providers in Västerbotten. These guidelines were not officially agreed upon by the region’s municipalities, primary and specialist healthcare. Despite developed guidelines not being officially agreed upon, some informants had access to and used them to support their decisions for treatment and referrals. They used the developed guidelines since they felt they had nothing else to refer to. Informants called for clear and officially agreed treatment guidelines, especially for adolescents, children with intellectual disabilities and neuropsychological disorders.

Societal structures. A society structured to support a healthy lifestyle could have been a valuable resource in school nurses work, but informants considered this resource to be absent. They emphasized that societal attitudes and environmental factors are increasing childhood obesity. Informants noticed that the digital development was disrupting children’s ability to rest and made sedentary behaviour start at younger ages. They also highlighted that daily physical activity has been replaced by a few exercise sessions a week. Informants expressed how another obstacle for giving advice on sport activities was financial restrictions in some families. This made it harder to find physical activities that suited both the child’s interest and their family’s financial limits. Informants also highlighted grocery stores’ large effect on unhealthy diets, such as consumption of energy drinks and snacks.

Stigmatization

This category describes the challenges related to obesity stigmatization, which has a substantial effect on how school nurses approach and communicate about childhood obesity.

Contribution of own prejudices and appearance. While some informants acknowledged their own deeply rooted prejudices of obesity, and found it important to be aware of this when meeting families, one informant made a statement that indicated a stigmatizing view of obesity: ‘This hasn’t become something by itself but … It is what they have put in their mouths that make them look the way they look’ (Interview, 9).

Informants experienced that their own weight affected their communication with children and parents. Normal weight informants found it difficult to understand how stigmatization feels and said it was extra important to be humble regarding experiences of obesity. Those who identified themselves as lean considered their weight to interfere when they were talking about what a healthy lifestyle is. The informant with obesity considered her size as a resource when talking to children and parents with obesity, since their worry of being judged by the school nurse faded: ‘I usually say that my biggest … asset that is that I am fat. Because they know when they come in, they know that she knows what it is about’ (Interview, 7).

Fear to misconcommucate. Informants had an underlying fear that what they said would be taken as an offense and that misinterpretations would increase stigmatization. They shared experiences of parents becoming angry when school nurses disclosed the child’s weight gain, and parents were telling them off in a rude way. One informant considered words so powerful and obesity so sensitive that she never used letters or emails to disclose the child’s weight gain. Another informant avoided the subject of weight in order not to get into conflict with parents.

The informants felt worried that disclosing obesity to the child would set off an eating disorder or decrease the child’s confidence and happiness. Informants experienced that even if the child and parents initially reacted with resistance, denial, or negative emotions, there had been a seed planted that could be left to grow and families could eventually implement a lifestyle change on their own initiative.

Striving for neutral approach and communication. Some informants considered that approaching the child and parents about weight issues must be done in a natural way, while other informants did not see approaching the child as an issue. Regular health visits for all children were perceived to decrease the risk for stigmatization of being called to the school nurse’s office. The health visit was considered a natural setting for discussing weight, and the questionnaire about lifestyle and health was a good conversation starter. Shame and guilt associated with weight and lifestyle choices made it hard for informants to balance the communication so as not to be perceived as judgemental.

The growth curve was used with diverse methods to illustrate and inform the parents and child in a neutral, objective way. One informant showed both the parents and the child the growth curve but did not provide any comments, while another informant found it crucial to interpret, explain and clarify that this is an individual growth curve. Another informant did not involve younger children in the growth curves at all, because of their vulnerability and discomfort.
Informants tried to keep neutral expressions during the visits. One informant, however, focused on confirming to the child that their weight was individual and normal for them. Another approach to neutrality was to talk in general terms about weight and lifestyle while not talking about the specific child. Some informants tried to decrease stigmatization by comparing obesity to any other disease and clearly explained the rationale for continuously measuring the child’s weight during repeated health visits.

**Frustration and powerlessness**

This category describes experiences of frustration and powerlessness among informants. One source of frustration was societal judgment of people with obesity, and another appeared when parents were not considered motivated to participate in the treatment. Informants became frustrated when they felt they failed to counteract some parents’ argument that ‘weight issues will grow away’, while informants knew that delayed treatment could negatively affect the child. They found it uncomfortable to approach parents without an evidence-based treatment strategy, and without agreed guidelines to support them. Lack of agreed guidelines contributed to the feeling of being powerless and played a substantial role in frustration.

> We have a methods book, we have this plan around overweight, and we have a lot of tools but how should we use them? That is where the frustration has been. (FGD, 1)

Informants found it difficult to act in a way that had an impact when obesity had developed, and this made them feel powerless. They felt powerless when they were not invited to work preventively in the classroom and when children had obesity already before their first health visit. Informants found it possible to work with younger children’s lifestyles but felt more helpless with older children.

> Maybe we have [methods] but … yeah, the plate model to show that one, … Yeah … But what does that help? (Interview, 9)

All school nurses tried their best to help children, but if they were to fail, they felt as if the following school nurse or healthcare provider accused them of not ‘doing enough’. Informants felt frustrated with the families who did not show motivation and felt helpless when they were unable to motivate the child.

> BVC have offered dietician support and eh … psychologist and I mean to like help with getting the weight down. But the parents have not wanted to accept that for one reason or another. And of course, that is … A bit frustrating. (Interview, 10)

**Unequal treatment**

Informants experience that school nurses provide unequal treatment of childhood obesity, for several reasons. While some informants claimed to have methods and tools but no information on how they should be used, some informants said they lacked knowledge. Some had been creative and used the freedom of not having guidelines to develop their own methods. However, informants called for evidence-based treatment methods and agreed guidelines to increase equality: ‘You should feel you have something to lean against and feel that, well, if I do like this then it will be good or then I at least do what everyone is doing or that you get like equality in it’ (FGD, 2).

There was inequality in how available the specialist healthcare for childhood obesity was within the region. Due to the long distances, informants in rural municipalities collaborated with primary healthcare or habilitation services instead of the specialist healthcare.

As school nurses did their own prioritizing of tasks, worked alone, had different collaborators, and used very different methods, informants concluded that attention to and treatment of obesity was unequal between schools and between school nurses. All school nurses made individual judgements and assessments for individual children and this created inequality. Informants asserted that childhood obesity treatment would have felt easier if all school nurses acted equally. Still, informants concluded that there are no templates for communicating with people.

> I haven’t got a template for [communication] and it’s like there are no templates. It’s individual and every parent and student is an individual. (Interview, 9)

**Discussion**

The aim of this study was to describe school nurses’ experiences and challenges of working with childhood obesity. The main findings are that obesity stigmatization, along with the absence of useful resources such as collaboration, time, and guidelines, are major challenges. Some challenges are beyond the school nurses’ ability to solve, making them complex. The combined challenges contribute to the complexity and lead to experiences of frustration and powerlessness. As school nurses have access to, and use the resources differently, they experience that they are providing unequal treatment.

The findings in this study indicate that childhood obesity treatment is affected by stigmatization. There are qualitative studies of nurses and childhood obesity from Sweden, Australia and the USA that had similar findings to the present study. As found in the present study, the use of the child’s individual growth curve to reduce the risk of the school nurse calling the child ‘fat’ has been found in previous studies. The qualitative studies from Sweden showed that school nurses think carefully about how they talk to avoid insulting parents and children, which the present study can confirm. Despite these strategies to manage the effects of obesity stigmatization, it is still a frustrating challenge for school nurses which needs to be overcome.
Interestingly, as stigmatization is a challenge that seems to unite nurses across the world, it is also where individual informants in this study differed most from each other. Some informants acknowledged their own prejudices towards people with obesity, an acknowledgement which has not been found in other studies. It is unlikely that the lack of studies with similar findings means that other school nurses do not have prejudices or that they are not influenced by society’s stigmatizing view of obesity. Instead, this finding could point to the high level of reflection and self-awareness the informants in the present study have and it demonstrates the deep and open information that has been captured.

Even though stigmatization is a major challenge for communicating childhood obesity, school nurses also need multiple and diverse resources to facilitate treatment. Similar to the findings in this study stress, a community promoting unhealthy foods and sedentary behaviour, a shift in what is perceived as a normal food portion or normal weight and a family’s limited financial resources, have previously been found as barriers to treatment of childhood obesity in the USA. School nurses in the present study emphasized parents’ responsibility for lifestyle changes as a crucial resource, whereas school nurses in southern Sweden felt as if they were responsible for encouraging the children to a healthy lifestyle. Regardless who is responsible for families achieving a lifestyle change, it is unrealistic to expect that school nurses alone can generate many of the absent resources, such as parental responsibility, information being shared with school nurses, joint guidelines and above all the lifestyle-related norms in a society.

Unsurprisingly, the lack of joint guidelines is contributing to the experiences of unequal treatment, frustration, and uncertainty about whether what school nurses are doing is right and has an effect. Some informants were unsure who to contact and at what stage of the weight gain, and there could be an increased difficulty in collaborating between regions’ healthcare providers and the municipalities’ school nurses without guidelines on how to divide the responsibilities. Just after this study was finalized, the National Board of Health and Welfare decided to develop national guidelines for treatment of obesity in children and adults, which shall be presented during autumn 2021. It remains unclear how detailed the guidelines will be on the division of responsibility between municipalities’ school health and regional healthcare. Since healthcare in Sweden is governed by the regions and school healthcare is governed by the municipalities, the division of responsibility for childhood obesity treatment could be left out of the national guidelines. Additionally, only providing guidelines is probably not enough to achieve equal treatment of childhood obesity, as efficient guidelines also require successful implementation. Studies have shown that childhood obesity guidelines in the USA are not followed for reasons such as lack of knowledge and individuals’ attitudes towards obesity. Despite education and availability of a weight loss programme, only 5% of the school nurses implemented the programme. These studies highlight how childhood obesity is too complex to be solved solely by developing programmes and guidelines. As indicated in the present study, the individual school nurses and their prejudices can still have a major impact in what treatment is offered to the children, and guidelines are merely one of the challenges in school nurses’ work with childhood obesity.

The categories of challenges include factors that lead to the experience of frustration and powerlessness. It is not the aim of this study to identify which of these factors contributes the most to frustration. However, lack of time, especially for complex health issues or families in need of support, is a common cause of frustration. Methodological strengths and limitations

The inductive, qualitative descriptive design was suitable to capture experiences. Data were collected using both FGD to find norms and diversity, and interviews to collect complex and sensitive experiences. The combination provided deep and rich information. The manifest qualitative content analysis was appropriate for the design.

There could be experiences and challenges we were not able to capture. However, informants with a range of ages and work life experience, from small and rural to the largest municipality gave a diversity of perspectives, experiences, and attitudes and this contributes to the credibility of the result. Informants’ sex reflects the distribution in the population, as only two school nurses of the 57 found in Västerbotten at the time of invitation were identified as male.

A generous time frame for the FGD and interviews was important for the amount of data and for developing a trusting conversation. A short time frame could lead to missing out on sensitive information the informants do not feel safe to share in fear of judgement. The emergent design in continuously interviewing more school nurses until few new codes were found is a strength of the study. Several quotations are presented for transparency and trustworthiness. One informant provided positive feedback on the results, and the others did not reply. Considering the described lack of time, this was expected.

Conclusions and implications

The experiences and challenges of school nurses working with childhood obesity in Västerbotten do not differ substantially from those found in previous studies, despite the specific setting of northern Sweden. Obesity stigmatization contributes to the difficulty of disclosure and could be why parents react with anger. Additionally, the guidelines which school nurses ask for are important, yet probably not enough to solve the challenges faced and resources needed. It is also unrealistic to assign the whole responsibility and possibility of generating several of the resources to the school nurses. Importantly, the complex challenges described in this study cannot be conquered by school nurses alone.

The present study has important implications, especially for policy makers. School nurses need support from evidence-based guidelines for treatment of childhood obesity and the guidelines should be made possible to implement. Several other resources are also needed, which school nurses cannot generate alone, and a collective change is needed. The ubiquitous stigmatization of obesity must be acknowledged and could decrease with increased, widespread knowledge that obesity is
a chronic, complex disease. Together with national or regional guidelines and decreasing stigmatization, time for reflection and support from peers and the school health team could potentially empower school nurses, decrease frustration, and help to improve the quality of and equality in treatment of childhood obesity.

**Conflict of interest**
The authors declare that there is no conflict of interest.

**Author contributions**
This article is based on a master’s thesis by the first author. Through the whole process, JG has been supervised by HJ. JG has been responsible for collecting and analysing data and for writing the manuscript. HJ has participated in the analysis process and has made substantial revisions of the article manuscript. Both authors agree on the content of this article.

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