

Implementing guidelines for preventing, identifying and treating adolescent overweight and obesity; - school nurses' perceptions of the challenges involved.

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ABSTRACT

Aims and objectives. We aimed to gain a better understanding of school nurses' perceptions of the challenges involved in implementing national guidelines on managing overweight and obesity in adolescents.

Background. National guidelines for the management of childhood overweight and obesity are developed in many countries to translate scientific knowledge into practice. However, several challenges are involved in their implementation.

Design and Methods. A qualitative design with focus group interviews was chosen for data collection. Six focus group interviews with 21 school nurses were conducted. Data were analyzed by qualitative content analyses.

Results. National guidelines provided new directions for managing overweight and obesity in school health services. School nurses were assigned new tasks and responsibilities, which they felt they were not sufficiently prepared for, nor were they supported by extra resources. Challenges in implementation of the guidelines were identified at various levels: system level (implementation strategy, available resources, training and support, professional collaboration, referral options); individual school nurse level (perceived competence, burden of responsibility, attitudes and emotions); subject level (sensitivity of weight-related issues); and professional level (skepticism to a BMI cutoff of 25 kg/m² as the starting point for intervention).

Conclusions. School nurses felt overwhelmed in terms of implementing the guidelines. This indicates barriers not being sufficiently identified or acted upon during implementation.

Further, the nurses' skepticism about the BMI cutoff for intervention, and their experience

that measuring and follow-up of adolescents' weight development was their responsibility alone, indicate that important discussions are needed on this as an adequate measure as well as on the professional division of responsibilities.

Relevance to Clinical Practice. Having a proper strategy for implementation, and ensuring that necessary clinical structures and resources are available, is crucial. Including school nurses in developing and implementing such strategies is vital for success in implementing national guidelines.

Key words: guideline implementation, overweight and obesity, adolescents, school nurses

What does this paper contribute to the wider global clinical community?
<ul style="list-style-type: none">• Important knowledge about the significance of involving key personnel (school nurses) to succeed in national guideline development and implementation• Knowledge about needs and barriers experienced by school nurses in implementing guidelines in the management of overweight and obesity in adolescence• Raises discussions about BMI as an adequate measure and about the BMI cutoff at 25 for intervention in school health care

BACKGROUND

Overweight and obesity have grown over the past 20–30 years to become among the world's greatest public health challenges (Ebbeling *et al.* 2002, Lobstein *et al.* 2004). Children and adolescents are particularly vulnerable. There is wide variation in the prevalence of overweight and obesity in childhood; nevertheless, the prevalence remains high across countries. There is some evidence that the rise has reached a plateau, however, several studies show increasing socioeconomic inequalities in overweight and obesity (Rokholm *et al.* 2010, Olds *et al.* 2011, Biehl *et al.* 2013, Cheung *et al.* 2016, Chung *et al.* 2016). To meet these challenges, the World Health Organization (WHO) has recommended global, regional and local actions to prevent the obesity epidemic from evolving further. Many countries have responded by developing national clinical guidelines for the management of overweight and obesity in adults, adolescents and children, including strategies for prevention, identification and treatment. In general, clinical guidelines based on existing best knowledge are developed to translate scientific knowledge into action that can enhance good quality clinical practice (Gagliardi & Alhabib 2015).

Most guidelines recommend screening of body mass index (BMI) for assessing and monitoring of overweight and obesity among children and adolescents (Lock & Hillier 2010). BMI screening is a useful tool to identify those at risk of becoming overweight and obese; however, it has not shown effectiveness as an obesity prevention strategy in itself (Gee 2015). Age- and gender-specific BMI-cutoff values (isoBMI; hereafter simply BMI) have been proposed by the International Obesity Task Force (IOTF) and are widely used (Cole *et al.* 2000). Following IOTF, a BMI < 25 kg/m² is considered normal weight, 25 ≤ BMI < 30 kg/m² is considered overweight, and BMI ≥ 30 kg/m² is defined as obesity (hitherto simply BMI without units). In Norway, National Guideline for the standardized measurement of height and weight (BMI screening) and National Guideline for the prevention, identification and

treatment of overweight and obesity in children and adolescents were published in 2010 (The Norwegian Directorate of Health 2010a, 2010b). These guidelines were expected to be implemented in primary health care, with public health nurses as the key personnel. Primary health care in Norway includes child health clinics, school health services and general practitioners in the municipalities. According to the guidelines, public health nurses are responsible for measurements of height and weight in children and adolescents in primary healthcare; they make the first contact with children and parents, and offer interventions when needed. Public health nurses in school health services are hereafter referred to as school nurses. The main purpose of developing national guidelines was to ensure a professional approach to dealing with childhood overweight and obesity in primary care and to ensure collaboration across the levels of health care (The Norwegian Directorate of Health 2010b). At the time the guidelines were introduced, the evidence base for preventing childhood obesity was sparse (Lock & Hillier 2010). There is still limited evidence on which intervention components are essential; however, multiple component interventions (diet, physical activity and behavioral changes) involving child and parents are the most promising (Lock & Hillier 2010, Waters *et al.* 2011).

Despite the recognition of their important functions, national guidelines are not always easily translated into clinical practice (Gagliardi & Alhabib 2015). Research on applying guidelines shows that multiple factors often interact to challenge implementation and use, and these are frequently referred to as “barriers to change” (Gagliardi & Alhabib 2015). These various factors have been described as characteristics of the guidelines themselves (i.e., how easy they are to understand, the requirement for extra resources needed), characteristics of the professionals and the patient/user group, support from the environment (peers and superiors), as well as institutional and system-level factors (Francke *et al.* 2008, Gagliardi & Alhabib 2015). To be able to implement guidelines successfully, the barriers to change need to be

identified and challenged. Implementation strategies should be part of the development of guidelines and should target relevant barriers using a variety of strategies (Francke *et al.* 2008).

The Norwegian national guidelines appeared to be challenging to implement among staff in primary health care (Riiser *et al.* 2015, Nordstrand *et al.* 2016). There is limited research on the implementation of guidelines to combat obesity; however, barriers to such interventions in primary health care have been reported (Quelly 2014a, Regber *et al.* 2013, Steele *et al.* 2011). Because public health nurses are considered key personnel in the prevention, identification and treatment of overweight and obesity among adolescents, a focus group study with school nurses was conducted to learn more about the current barriers and implementation processes. Thus, the aim of the present study was to gain a better understanding of school nurses' perceptions of the challenges involved in implementing national guidelines related to managing adolescent overweight and obesity.

DESIGN AND METHODS

This study was part of a larger intervention study, the Young & Active study, where the overall aim was to develop and test a complex, web-based intervention to promote fitness and health-related quality of life in adolescents with overweight and obesity (Riiser *et al.* 2013). The main target group was adolescents aged 13–15 years, recruited in the school health services by school nurses who were responsible for measuring weight and height according to national guidelines (The Norwegian Directorate of Health 2010a, 2010b). The school nurses who took part in the main study were then invited to participate in an interview study focusing on implementation of the guidelines. A convenience sample was drawn from the group of 146 school nurses eligible for recruitment in the main study, meaning the first 21 nurses that agreed to participate were included in the interview study.

A qualitative design with focus group interviews was chosen as the method for data collection. Six focus group interviews were conducted. The participants were school nurses working in school health services who had experience with measuring height and weight among this target group of adolescents. The focus group interviews were conducted from January to October 2013 and were carried out at one of the participating nurses' schools. The first author (SH) moderated the discussions, and the co-moderator (KG) assisted, was a discussion partner afterwards, and summed up the discussion for the participants at the end of each group meeting. In one group, the last author (KG) and the third author (BF) conducted the focus group interview. Every session started with small talk and information about the purpose of the study. The aim was to create a relaxed atmosphere for the participants (Kvale 1996). A semi-structured interview guide with open questions was developed, containing the following themes: experiences with managing overweight and obesity in children and adolescents (positive and negative), perception of own competence and attitudes, experience with implementing guidelines (barriers and facilitators), experience of support and system-level factors (organization, leadership, inter-professional collaboration and resources). The interview guide was used to keep the conversation within relevant topics and as a "check list" to ensure that the topics were covered.

The interviews were audio-taped and have been transcribed verbatim. The transcribed text was analyzed by qualitative content analysis (Graneheim & Lundman 2004). The first step in the analysis was to read the text several times to obtain an overall understanding of the data. Then, we searched for meaningful units in each interview. The meaningful units were condensed into subthemes and then to main themes. The analysis process consisted of movement back and forth between whole and parts of the text several times. The first and the last author analyzed the material independently. Subsequently, the results were discussed and compared to establish the credibility of the authors' interpretation.

The study was approved by the Regional Committees for Medical and Health Research Ethics in Norway as a part of the main study (2010/2978). The participants received written information and signed a consent form after being reassured about confidentiality issues and the right to withdraw.

RESULTS

Twenty-one school nurses participated in six focus group interviews, with two to five participants in each group. The school nurses were aged 33–58 years, with a range of 1–39 years of clinical experience. The focus group interviews lasted 66–109 minutes (Table 1).

[Insert Table 1]

Three main themes emerged from the interviews regarding challenges involved in implementing new guidelines on preventing and treating overweight and obesity in children:

- *The burden of responsibility*
- *Skepticism to the premises of the guidelines*
- *The sensitive subject* (Table 2)

[Insert Table 2]

The burden of responsibility

According to the participating nurses, the guidelines on preventing and treating overweight and obesity in childhood were directed primarily by the authorities and they did not feel involved in decisions about when and how to implement them. Many found the guidelines too

comprehensive and demanding for them. The guidelines led to great changes in school nurses' daily practice as they reintroduced measuring of height and weight in school children at three different time points during primary and secondary school (1st grade, 3rd grade and 8th grade). Such screening had not been standard practice in Norway for several years, and the nurses claimed they had too limited resources to be able to start this screening again.

The implementation of new guidelines provoked a small rebellion among school nurses nationwide and led to a boycott of the guidelines in the first few following years. The main reason given by the participating nurses was a feeling of overload and lack of resources, as extra resources did not accompany the guidelines. To measure height and weight, and to provide follow-up on the approximately 20% of adolescents who are overweight or obese, was considered extremely time-consuming:

It's important to emphasize that every single student who has a problem with being overweight demands a lot of time. And... if you're going to do a good job. So I think that—for my students, anyway, I can only speak for mine—they don't receive a good enough service. I have 200 students in the eighth grade. 20% of them are overweight. And of course I have to follow up these young people, so I have to involve the mother and father and... often two homes. Half of them have separated parents. I have to get the parents on board to be able to make changes. There are often big differences in the two homes, so I have to work in a highly focused manner on the one home first, and then on the other. This demands so much time that I feel very guilty that I've initiated a process within the families that I won't manage to follow up. (Group 4)

Most of the nurses questioned whether they had the necessary competence to develop and perform all the tasks the guidelines assigned to them. Overweight and obesity in adolescence often mirror complex problems and might demand multidisciplinary follow-up.

However, the nurses often experienced that the burden of responsibility rested on their shoulders, with a lack of collaborators to discuss difficult cases with, and few possibilities for further referral if needed. Overall, there was general agreement that school nurses should be involved in the follow-up of overweight and obese youths. However, they felt alone. The responsibility was considered huge and they expressed a need for more back-up from colleagues and leaders.

But I think many people here also feel that they end up very, very alone. When we don't have a system around us... when you don't manage to get the doctors on board—at least in very few instances—and so I think many feel that they are left alone with quite a lot of responsibility. And perhaps where you see there are risk factors within the family, and... we've spoken about this, a little bit at least, and you feel as if you're alone with all the responsibility. (Group 1)

Skepticism to the premises of the guidelines

Some important premises for the guidelines were questioned by the nurses in this study. The most prominent guideline instruction was to intervene at BMI equal to or above 25. The nurses were aware that this is the international cutoff for overweight. However, they found it to be a demanding starting point for intervention, as adolescents with BMI just above 25 did not appear to be overweight. Another point made by many of the nurses, was that BMI is not a very exact measure and that young people with well-developed muscles may have BMI above 25. Several participants referred to situations where they had weighed and measured adolescents who were physically active and very fit and who the school nurses considered not to be overweight despite having a BMI that exceeded 25.

Of course we just measure the kilos. But we don't measure whether this is muscles or fat. And it's clear that those who play handball three to four days a week, they're solid muscle. Both

boys and girls can often be quite solid, right? And we don't take that into account. So I think it's actually quite difficult, those who I know train on four to five days a week. Because they aren't overweight in that sense, they're, well... it's muscles. (Group 2)

The nurses questioned whether it was right to label these young people as being overweight, and thereby possibly create a problem that neither they, nor their peers and families, were aware of. One of the nurses said: *I think 25 is very low, but then we are ordered to intervene at 25.* The question of what is the correct BMI value at which intervention should start raised many issues in the focus groups. On the one hand, BMI values between 25 and 30 seemed to be the area where nurses felt they had something to offer; counselling the adolescents and their parents on healthy life style, and follow-up with regular meetings. On the other hand, they also perceived this group as the most challenging to approach. These adolescents were often not aware that their BMI was “too high” and the nurses were very concerned with how they could approach the adolescents and their parents without creating a problem for the adolescent. These adolescents had not come to the school nurse asking for help; on the contrary, the nurses felt they were forcing their help on them.

...but in a way it's those who don't think that they are overweight, who I have to point out as being overweight, that's where I think the challenge is most difficult. (Group 6)

And so I think this is a problem that we point out, and that's different from those who actually come to us. The young people who come to us with all kinds of problems, they come to us because they actually want help and want to talk. But here it's us who have called them in, and we point out something that's about how you look. (Group 2)

Intervening at a higher BMI (obesity) was in a way easier, because then the adolescents themselves were aware of being obese, as were the parents, and help from the nurses was most often welcomed. Then again, obesity was challenging to follow up on, because of the

complexity of the condition and the fact that the school nurses were uncertain about what their role in obesity follow-up should be.

Even if the starting point at a BMI of 25 was questioned, the nurses also agreed that it was important with early intervention to prevent the development of obesity. Nevertheless, they called for more discussions on the right starting point for targeted interventions. Several also felt the need for guidance in how to approach the adolescents and their parents on the matter. The guidelines give directions on when and what, but less on how to follow up (the tools).

...my experience is that at high school level, where they're so insecure, taking this (overweight) up when they don't see it as a problem themselves or don't say that they feel it's a problem during the conversation, and I have to point it out... I think that's a significant challenge... an ethical challenge for me. And to do it in a good way. And I feel that I've received very little from the guidelines and others about how to conduct a good conversation, and how to gain a bit more competence in terms of vulnerable young people.(Group 6)

The sensitive subject

Being classed as overweight or obese was seen as a sensitive topic, especially when involving adolescents. The school nurses emphasized the vulnerability of adolescents, as they are in a developmental phase where appearances mean a lot and they struggle to form their identities. They claimed that if a school nurse mentioned being overweight or obese in a consultation with a young girl, this was often the only thing that got noticed: “*the school nurse said I am fat*”. The nurses were worried about the adolescents’ emotional reactions and were especially afraid of provoking eating disorders such as anorexia nervosa. In a way, the nurses felt trapped in the dilemma of wanting to prevent the development of being overweight and its negative consequences, and the fear of harming the vulnerable adolescent.

. ...of course we want to prevent a negative development, so that's why we start early. But how do you communicate with the young person and with parents without them perceiving it as "you are fat" or "your child is fat"? (Group 3)

But I find it quite difficult because I'm afraid that they'll develop eating disorders, if I tell it like it is. (Group 5)

Being overweight, and especially obese, were described as often being a minor part of more complex and significant problems and thus challenging to be approached by the school nurses. Thus, obesity could be a sign of a maladjusted adolescent, striving with problems at home and with fitting in among peers.

There's so much that's interlinked, too. It's not easy to speak to parents about the fact that their child shouldn't eat too much if it's often comfort eating, if they're not very happy otherwise... and if they're the only one who hasn't made any friends at high school... and so that I then start to nag them about this as well, which in a way is all they have... So I think it's so important to see the whole person. (Group 3)

Reflections about why overweight and obesity are such difficult subjects to discuss also led the nurses to awareness about their own attitudes. Thoughts about obesity being self-inflicted and that the overweight person could pull him-/herself together and eat less and exercise more had struck some of them. Such thoughts did not dominate, but might be part of the explanation of why so many school nurses felt it was a difficult subject to approach.

I'm absolutely certain that this has to do with attitudes. One said: "No, I pretty much only speak to people if they're underweight". So I'm absolutely certain—at least on my part I had to take a close look at what I thought. Because I think that this is generally very difficult. I have many thoughts in my head about the fact that this can... honestly, it's just about pulling

yourself together. Right? Honestly, it's just about eating healthier and exercising more. Like, don't you understand that? Stop messing around. While the others... when it's about those who are underweight, then it's suddenly all about mental health, right? Like, it isn't for those who are overweight. So I've had to work a lot on that. (Group 1)

The difficulty of dealing with this subject was also connected with the school nurses' feelings of powerlessness. The subject was difficult to approach, difficult to talk about, and in many ways they felt they had little to offer. They also expressed that it was difficult to live up to expectations from their workplace. Big positive changes were anticipated in contrast to other areas where the nurses had worked.

I think many people thought that this was difficult to talk about. At least, we talked a lot about it, about how we can take the subject up for discussion, how we can do it in a good way... so we had a lot of discussion... around it. And I think that many people dreaded that. (Group 1)

You identify and uncover a problem, and then... what then? I think that... I feel very strongly about this, that it's completely unethical. If you're going to call a young person in and identify a problem, and then have nothing more to offer afterwards. (Group 2)

Finally, even though there was a general agreement that being overweight was a challenging topic, some of the nurses did not experience it as especially difficult to approach so long as they were given the time and resources to build relationships with the adolescent and their family. Moreover, all school nurses agreed that as professionals they had a lot to offer, but they had to overcome some barriers and maybe lower their ambitions a bit.

To be completely honest: well, we're good at talking with children and young people, we're good at talking with parents. We know a lot about health behavior, we know a lot about lifestyle changes. We don't always manage to help people very much, but then again nobody

else is very good at this, either. So it's about taking stock of the situation and not demanding too much of yourself. (Group 1)

DISCUSSION

To sum up, there were seen to be many challenges involved in implementing guidelines for standardized measurements of weight and height, and for the prevention, identification and treatment of being overweight or obese in children and adolescents in primary care. Overall, it seemed that many of the challenges were structural, such as having adequate resources, available collaborators, support and sufficient competence. Such structural challenges were given as the main reasons for the solid resistance among these Norwegian school nurses in accepting and implementing the guidelines. However, the burden of responsibility experienced by the nurses, the professional loneliness and the powerlessness they reported might be interpreted as the “real” reasons for this resistance. Moreover, there was a general agreement among the school nurses that the starting point for recommended follow-up at a BMI of 25 was problematic. According to them, adolescents just above this cutoff often appeared to have normal weight. The adolescents, as well as their parents, might also be unaware of the “weight problem” and thus have not asked for help. However, the parents’ awareness of their children’s emerging weight problems has been shown to be poor in earlier studies, so the need for routine follow-up and physical measurements of weight development is important (Juliussen *et al.* 2011). Consequently, it is obvious that another significant and demanding challenge was the sensitive nature of the subject itself. Being classified as overweight or obese, according to the school nurses, was associated with negative feelings, values and attitudes, and the nurses feared harming the young and vulnerable adolescents.

According to the findings of our study, many of the challenges described above reflect *insufficient guideline implementation*, as perceived by the school nurses. We stress that this

was the nurses' perceptions and does not necessarily imply the lack of an implementation strategy from the national authorities. For guidelines to be successfully translated to clinical practice, two important factors are needed: the effectiveness of the implementation strategy and the quality of the existing evidence (Hakkennes & Dodd 2008). Based on the school nurses' stories, neither of these two factors seemed to be fulfilled when the national guidelines for BMI screening and preventing obesity were implemented. The grounds were not properly prepared for implementation, as the nurses felt overwhelmed by the authorities. Further, there was limited evidence-based knowledge to inform prevention and treatment strategies. Studies of good quality were sparse, and it was not possible to draw sound conclusions on the most effective interventions (Waters *et al.* 2011). Bearing this in mind, the skepticism toward the guidelines that appeared in the interviews is understandable.

Based on this study's findings, it is reasonable to assume that barriers to implementation were not adequately identified or managed before launching the guidelines, which is described as a major threat to successful implementation in the literature (Erickson *et al.* 2015, Francke *et al.* 2008, Gagliardi & Alhabib 2015). There are known barriers at the level of the individual care provider (e.g., competence, attitude and motivation for change), in the social setting (e.g., patients and care providers) and at the system level (e.g., organizational structure and financial reimbursement) (Schalkwijk *et al.* 2016). The nurses in this study revealed barriers or challenges at several levels: at the system level (implementation strategy, available resources, training and support, professional collaboration and referral options); at the individual school nurse level (perceived competence, attitudes and emotions); at the subject level (sensitivity of weight-related issues); and at the professional level (skepticism about a BMI cutoff of 25 as the starting point for interventions). In another Norwegian study, barriers to guideline implementation were identified at the individual nurse level (competence), the subject level (receptiveness of parents and children) and at the system level

(resources, organization, collaboration) (Nordstrand *et al* 2016). In a Dutch study, the following barriers to implementation of a health care standard in childhood obesity were found: the sensitivity of the subject, lack of motivation on the part of the parents, previous negative experiences with life style programs, financial constraints and the lack of a multidisciplinary approach (Schalkwijk *et al.* 2016). Those results were consistent with the results of our study in terms of the sensitivity of the subject and the structural barriers. However, an interesting result in our study was the barrier at the professional level: namely the nurses' skepticism to the BMI cutoff of 25 as a starting point for intervention.

The school nurses disputed the use of this BMI cutoff as a reliable indication for action on an individual level. They questioned it as being suitable for labeling an adolescent as being overweight as well as its specificity, which is its ability to prevent non-overweight subjects from being defined as overweight. Their arguments echo a long ongoing discussion in the field as well as in research regarding surveillance of, and screening for, overweight and obesity. As stressed by the informants, BMI is only a surrogate measure of obesity, as it does not distinguish between fat and lean mass. However, despite a common perception that BMI cutoffs are insufficiently specific and tend to identify non-overweight as overweight, validation studies show that the opposite—namely the failure to identify an obese child—seems to be a bigger problem (Reilly *et al.* 2000). There are measures that are more accurate than a simple height/weight index, but they are far more resource-demanding and thus have limited applicability as measurements for entire populations. The BMI is inexpensive, noninvasive and simple, all of which serve as arguments for the guidelines. Such arguments may hold for the purpose of surveillance, which has been one of the motives for re-introducing assessment of weight and height in the school health services (The Norwegian Directorate of Health 2010a). However, what seems to have disturbed the school nurses interviewed is that the guidelines also require that the BMI is to be reported to the adolescents

and their caregivers when it exceeds a specific cutoff. At this point, monitoring turns into screening, and screening is by definition identification of individuals being “at risk” who may benefit from interventions (Lock & Hillier 2010). An important criterion is that there should be scientific evidence of a screening program’s effectiveness (Andermann *et al.* 2008). However, scientific evidence is still limited regarding interventions targeting overweight and/or obesity in adolescents, which might have contributed to making BMI screening challenging for the school nurses to handle.

A given index value is thus decisive on whether actions are to be taken, either to intensify the monitoring or to initiate some kind of intervention. However, the nurses in this study raised doubts about this issue, and seemed to agree that a BMI cutoff of 25 is too low. Their concern related primarily to the discomfort of labeling adolescents as being overweight when neither the adolescents, nor their families or peers, had any pronounced weight-related worries. Moreover, they also found it unpleasant—and perhaps even unnecessary—to provide follow-up for no obvious reason, or when it was not requested by the adolescent. The guidelines stress that BMI alone is an insufficient indicator of being overweight or obese and should be used in conjunction with other findings (The Norwegian Directorate of Health 2010b). Nevertheless, the guidelines require that the adolescent and caregivers should be informed about weight status, to continue with frequent measurements, and to gather “other findings”, for example mapping of any family history of obesity, diet or level of physical activity. Obtaining such information might be seen as an intrusion into family life that does not sit well with the families’ wish to make their own lifestyle choices and consequently leaves the nurses in a huge dilemma. This reflects a much-debated topic in the area of public health ethics: can we justify imposing on an individual’s autonomy by directing actions for his or her own good (Riiser *et al.* 2015)? The guidelines base their rationale for early intervention on epidemiological data documenting a relationship between BMI and metabolic

and cardiovascular risk in young people (Weiss *et al.* 2004). However, the nurses did not elaborate on the prevention of future health risks, and nor did they dwell on the solid evidence obtained by tracking overweight people from adolescence to adulthood (Singh *et al.* 2008). Thus, their main concerns about exposing the adolescent to discomfort by identifying him or her as being overweight seemed to outweigh the arguments for prevention.

Being overweight or obese has been perceived to be a sensitive topic in several studies (Regber *et al.* 2013, Schalkwijk *et al.* 2016). The school nurses in our study were afraid to hurt the young persons' feelings, knowing that being classified as overweight or obese brings up negative associations and the danger of being stigmatized (Puhl & Latner 2007). Further, being overweight or obese has been identified as a significant factor associated with a negative body image and poor health-related quality of life in children and adolescents (Haraldstad *et al.* 2011, Helseth *et al.* 2015). The nurses hesitated to bring up the subject prematurely and thereby make the adolescents focus on it. However, by not focusing on the subject of being overweight, they might end up ignoring a negative development that in the long run might decrease the adolescent's quality of life. This was a major dilemma for the school nurses' and explains why they felt trapped between wanting to prevent a negative development and the fear of hurting the adolescents' feelings. Another issue of sensitivity was the school nurses' own attitudes. In a literature review, Budd *et al.* (2011) showed that anti-obesity attitudes persist among health care providers. Such attitudes were not prominent in our study; however, they were mentioned by the nurses among factors causing difficulties connected with the subject.

Most of the school nurses felt insecure about how to approach the sensitive subject of body weight, lacking the competence and courage to bring it up with the adolescent and his/her parents or caregivers. Still, some of them reported that they did feel efficient, that they had a lot to offer and were able to make a difference, given the time and resources needed.

Using a framework guided by Bandura's social cognitive theory, self-efficacy is described as negatively affecting the perceived barriers and positively influencing the perceived benefits of preventing childhood obesity (Bandura 1977, Quelly 2014b). Quelly (2014b) found that school nurses' perceptions of self-efficacy to perform obesity prevention among children would significantly enhance their practices. Self-efficacy is a person's belief in his or her ability to perform specific behaviors successfully that will facilitate the achievement of certain goals (Bandura 1977). The school nurses' descriptions of how confident they were in approaching the sensitive subject of being overweight can be interpreted as variations in self-efficacy. Studies have shown that that nurses' self-efficacy to engage in obesity prevention work vary; however, most school nurses feel moderately to highly confident in their ability to perform the necessary preventive activities (Hendershot *et al.* 2008). Even when mostly confident in obesity prevention activities such as measurements of height and weight, recommending appropriate diets and exercise, nurses are shown to have low confidence in some other aspects of their profession, such as their ability to talk with and motivate children and parents/caregivers to take action (Mullersdorf *et al.* 2010, Nolan *et al.* 2012). In our study, some of the school nurses felt confident in their skills and abilities and they acknowledged their role in preventing overweight and obesity in adolescents, which are factors positively affecting their role performance (Nolan *et al.* 2012). However, factors negatively affecting their role performance were also present in all of the nurses' descriptions: lack of collaborating partners and referral options; lack of skills in motivating adolescents and parents/caregivers; lack of guidance and support; lack of belief in their ability to make a difference; and lack of resources to guide their work (Nolan *et al.* 2012).

Limitations of the study

The study was performed in a Norwegian primary care setting, describing implementation of national guidelines. School nurses are assigned major responsibilities for tracking and follow-

up for preventing overweight and obesity in school children in Norway. In other countries, the work might be organized differently. However, barriers and facilitators to implement guidelines and follow-up in the obesity prevention discussed above seem to be consistent with international research. Thus, we believe our findings are transferrable to an international setting.

The school nurses in the focus groups were recruited only from the eastern part of Norway, which may have affected the results. Further, they were recruited through the main study *Young & Active*, which means they were already part of a study on overweight and obesity in adolescents and might have reflected more about the challenges concerning the implementation of guidelines than others.

Using focus group interviews, group interaction is an important part of the method. Ideally, focus groups should not be too small to be able to facilitate a dynamic conversation between the group members. One methodical limitation in our study is that some of the focus groups are relative small, due to factors like big geographic distances and late withdrawal of participants. However, even the small groups gave rich data and had valuable discussions.

CONCLUSIONS

Several barriers to the implementation of guidelines for preventing, identifying and treating overweight and obesity in children and adolescents were identified in this study, and should be considered in future implementation processes. A big challenge in guideline development and implementation is to ensure that the participants at all levels (here, specifically school nurses) are involved appropriately at all stages. Representatives of school nurses did participate in the development of the Norwegian guidelines (The Norwegian Directorate of Health 2010a, 2010b). Still, the school nurses in this study did not acknowledge their ability to have an impact on the development and implementation of the guidelines. They felt

overwhelmed by the authorities, which points to barriers not being sufficiently identified, nor acted on in the implementation process. Further, in this study, the nurses' skepticism about the BMI cutoff of 25 for intervention and their experience that measuring and follow-up of adolescents' weight development was their sole responsibility, indicate that important discussions on BMI as an adequate measure as well as on the professional division of responsibilities are needed for successful implementation of the guidelines.

CLINICAL IMPLICATIONS

Having a proper strategy for guideline implementation and making sure the necessary structures and resources are available in the clinical field are important. Furthermore, preparation of key personnel—here, school nurses—by assessing their needs for information, education and guidance is crucial. In addition, those responsible for implementing guidelines concerning sensitive topics such as being overweight or obese also need to consider how to train and support health professionals, strengthening their confidence in their ability to handle all the challenges involved.

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Table 1. Information about the study participants and duration of focus group interviews.

Focus group	Number of participants in each SN group (<i>n</i> = 21)	Age (years)	Years worked as a PHN	Duration of interview (minutes)
1	3	39–42	1–10	90
2	3	33–51	3–15	91
3	2	37–46	7–14	109
4	3	55–58	12–34	96
5	5	45–60	1–19	98
6	5	39–52	1–10	66

SN, School Nurse; PHN, Public Health Nurse.

Table 2. Overview of results.

Challenges in implementation of guidelines; school nurses' perceptions		
The burden of responsibility	Skepticism to the premises of the guidelines	The sensitive subject
<ul style="list-style-type: none"> • Feeling overwhelmed by the responsibility • Experiencing lack of resources • Feeling alone 	<ul style="list-style-type: none"> • Feeling uncertain about BMI cutoff at 25 • Feeling of imposing a problem • Missing tools for follow-up 	<ul style="list-style-type: none"> • Worrying about the vulnerability of the adolescents • Questioning own attitudes • Feeling powerless