Published in final edited form as:

Prev Med. 2007 June ; 44(6): 504–507. doi:10.1016/j.ypmed.2007.02.013.

Obesity Prevention in Schools: Current Role and Future Practice of School Nurses

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Abstract

Objective—To determine responsibilities of school nurses in delivering obesity prevention services, assess opinions and beliefs about school-based obesity prevention and determine factors associated with school nurses supporting and providing obesity prevention services

Method—In fall 2005, a self-administered survey was mailed to 275 school nurses in Minnesota; 221 were returned (response rate = 80%).

Results—Most (76%) school nurses supported the use of school health services (SHS) for obesity prevention. The likelihood of nurses supporting SHS for obesity prevention ($p=0.009$), as well as performing more child- ($p=0.016$) and school-level ($p<0.001$) obesity prevention tasks increased as perceived support for school-based obesity prevention from health care providers and school administrators, teachers and foodservice staff increased. Nurses supportive of school-based height, weight and BMI screening and parent notification were twice as likely to perform child-level obesity prevention tasks ($p=0.021$) and more than three times as likely to support using SHS for obesity prevention ($p=0.005$).

Conclusion—Our study suggests considerable support among school nurses for school-based obesity prevention efforts and a growing interest in providing primary and secondary preventive care services in the school setting. Study findings also speak to the need for preparation, time and support from the school and health provider community.

Keywords

Childhood obesity prevention; school nurses; school health services

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Introduction

Strategies to curtail childhood obesity invariably include schools (USDHHS, 2001; IOM, 2004). To date, school-based obesity prevention has been mostly implicit and achieved by targeting students' dietary and physical activity practices (CDC, 2005). The explicit identification of schools as settings for obesity prevention that includes primary and secondary prevention is a relatively new concept. Less is known about this expanded model and how oversight of school-based obesity prevention services might occur.

National survey data from the School Health Policies and Programs Study (SHPPS) 2000, indicate school health services (SHS) are mostly delivered by school nurses, primarily occur at the student level and include few services directly linked to obesity prevention (Brenner et al., 2001). Altogether, SHPPS 2000 suggests that obesity prevention is not a primary responsibility of school nurses. The purpose of the present study was to assess whether current school nursing practice reflects the growing burden of childhood obesity and determine factors associated with school nurses supporting and providing obesity prevention services.

Methods

Sample and Survey Administration

The sample consisted of active members of the School Nurse Organization of Minnesota, an affiliate of the National Association of School Nurses (NASN). Members hold a school nurse license from the Minnesota Board of Teaching, which requires a baccalaureate degree in nursing and current registration to practice as a licensed registered nurse and public health nurse.

In fall 2005, eligible participants (n=275) were mailed a survey, a stamped return envelope and \$1-bill incentive. A second survey was mailed to non-responders two weeks later. A total of 221 surveys were returned (response rate = 80%). The study was approved by the University of Minnesota Committee on the Use of Human Subjects in Research.

Survey Development

A 64-item survey was developed to determine responsibilities of school nurses in delivering obesity prevention services and assess opinions and beliefs about school-based obesity prevention. Questions were based on research literature, the NASN position statements addressing school environment (1998) and childhood overweight (2002) and researchers prior experience and knowledge. Content validity was confirmed by experts in school nursing, school-based research and child obesity. Principal component factor analysis was used to develop scales assessing child- and school-level obesity prevention tasks and perceived support from others to provide school-based obesity prevention services. See Table 1.

Statistical Analyses

Descriptive statistics were used to examine the prevalence of key variables. Logistic regression was used to assess associations between key variables and the outcomes of interest, which included school nurses supporting school-based obesity prevention (measured with the question: "School health services should not be used for obesity prevention efforts") and providing obesity prevention services (measured using the child- and school-level obesity prevention tasks scales). A stepwise selection procedure identified models with variable associations at $p < 0.05$ significance. Models included adjustments for respondent's age, education, total years nursing experience, school location and student race/ethnicity. Analyses were performed using SAS version 8.01 (SAS Institute, Cary, NC). See Table 2.

Results

Respondent mean age was 50 (SD 7.3). Most were female and Caucasian. Median number of years in current position was 6 (range: 1 month to 30 years), school nursing 9 (range: 1 to 40 years) and nursing total 25 (range: 2 to 42 years). About 70% supervised two or more schools and greater than 1000 students. One-half were responsible for students in kindergarten through 12th grade. About 42% were located in suburban schools, 30% rural and 24% urban. Twenty-two percent were in schools where $\geq 50\%$ of students qualified for free/reduced meals; 46% were in schools where $\geq 25\%$ of students were racial/ethnic minorities.

Most (76%) believed SHS should be used for obesity prevention. Several reported ‘sometimes’ providing child- and school-level tasks (See Table 1). Nearly 40% agreed schools should conduct annual assessments of student’s height/weight/BMI and provide information to parents. Only 29% believed school nurses were prepared to oversee obesity prevention services, while most (88%) felt time available for oversight was insufficient.

Nurse support for using SHS for obesity prevention and providing child- and school-level obesity prevention tasks increased as perceived support from others increased. Nurses supportive of school-based height/weight/BMI screening and parent notification were three times more likely to support using SHS for obesity prevention and twice as likely to provide child-level services. Years in current school position and total years in nursing were positively associated with performing child-level tasks. Years as a school nurse were positively associated with performing school-level tasks. Respondents who felt nurses were prepared to oversee obesity prevention efforts at school were twice as likely to provide school-level obesity prevention services.

Discussion

More than one-third of US children are overweight or at risk of overweight (Ogden et al., 2006), leaving no doubt that overweight is a reality in today’s schools and will increasingly require the attention of school and health services personnel. Because school nurses provide most school health services (AAP, 2001), it seems likely that nurses will assume responsibility for oversight of obesity prevention services. Consistent with earlier studies assessing school nurse opinion about school-based obesity prevention (Price et al., 1987; Stang et al., 1997), this study found school nurses support the use of SHS for obesity prevention. Furthermore, nursing support for obesity prevention, as well as the likelihood of performing more child- and school-level obesity prevention tasks increased as perceived support from health care providers and school staff increased, suggesting that development and implementation of school-based obesity programs will benefit from a community-guided process, inclusive of school staff, health care providers, parents and students.

Because fewer than 40% of nurses provided height/weight screening, it was not surprising that only one-third agreed schools should provide annual assessments of students’ height/weight/BMI and report results to parents. However, these nurses were more likely to perform child-level tasks and support using SHS for obesity prevention. Familiarity with height/weight/BMI screening and interpreting results may translate to added ease with implementing services for overweight children. Although school-based height/weight screening is not new, reporting BMI to parents is a recent recommendation (IOM, 2004). Providing nurses opportunities to update measurement skills and obesity-related knowledge is essential to successful implementation of school-based obesity prevention efforts. Several school nurses provided services considered school-level tasks. Although NASN (1998) recognizes the school nurse role in promoting a healthy school environment, recognition by others has been less forthcoming and would benefit from further support and development.

Nursing experience was a significant but differential correlate when providing obesity-related services. Total years as a nurse and familiarity with one's school setting facilitated delivery of child-level tasks, a primary function of general nursing and school nursing practice. The positive association between performing school-level tasks and years as a school nurse may represent awareness over time of changes in the school environment, such as the proliferation of vending machines selling low nutrient items and cuts in physical education.

Study Strengths and Limitations

Study strengths include a statewide survey of school nurses, high response rate and high internal consistency of scales used to assess school nursing practice and opinion about school-based obesity prevention. Study limitations include use of a convenience sample of nurses that were members of a professional school nursing organization, thus limiting generalizability. Although survey response rate was good, we cannot rule out response bias.

Conclusions

School nurses are vital, but underutilized participants in a nationwide effort that aims to lower childhood obesity rates. This study suggests considerable support among school nurses for school-based obesity prevention and growing interest in providing primary and secondary preventive services. Study findings also speak to the need for preparation and support from the school and health provider community as the nurses role in delivering school-based obesity prevention is further developed and defined.

Acknowledgements

This research was supported by the National Institute of Nursing Research (Grant #P20 NR008992; Center for Health Trajectory Research). This project was initiated by the investigator (lead author).

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Table 1
Scales and Response Items from Minnesota School Nurse Survey, 2005

Construct	Items	Response			
		Never	Rarely	Sometime	Often
Child-level Obesity Prevention Tasks Cronbach's alpha = 0.84 Median score: 18 Range: 9 to 36	1. Contact a parent because you have a concern about a child's weight? (n=220)	10%	57%	31%	2%
	2. Recommend that a parent contact a health provider for a child-related weight concern? (n=220)	11%	56%	31%	2%
	3. Provide counseling to a parent regarding a child-related weight concern? (n=220)	15%	52%	31%	2%
	4. Provide counseling to a child for his/her weight-related concern? (n=220)	16%	41%	40%	3%
	5. Provide consultation to a teacher about a student-related weight concern? (n=220)	18%	40%	40%	2%
	6. Monitor a child's weight because of a weight concern? (n=220)	21%	46%	31%	2%
	7. Check the blood pressure of an overweight child? (n=219)	34%	43%	20%	3%
	8. Check the body mass index of a child you "think" might be overweight? (n=220)	62%	25%	11%	2%
	9. Use body mass index percentile, based on CDC age & gender growth charts to assess a child's weight status? (n=220)	59%	23%	12%	6%
School-level Obesity Prevention Tasks Cronbach's alpha = 0.83 Median score: 21 Range: 10 to 39	1. Provide written information to parents, teachers and/or students about nutrition and physical activity? (n=220)	12%	35%	47%	6%
	2. Provide consultation to school administrators about health-related school policy? (n=220)	11%	19%	43%	27%
	3. Participate as a member of a school health council? (n=219)	40%	17%	23%	20%
	4. Provide classroom health teaching on nutrition? (n=220)	32%	35%	30%	3%
	5. Provide classroom health teaching on physical activity? (n=219)	41%	36%	20%	3%

Construct	Items	Response			
		Never	Rarely	Sometime	Often
During the school year, how often do you ...	6. Monitor school nutrition practices, like the food used in school fundraising and as incentives and rewards for students? (n=220)	39%	29%	26%	6%
	7. Monitor school physical activity practices, like whether children have access to space and equipment for play before and after school? (n=210)	50%	29%	17%	4%
	8. Assess the nutrient quality of foods and beverages offered students as part of school meals? (n=219)	36%	26%	32%	6%
	9. Assess the nutrient quality of other foods and drinks sold to students at school, such as foods offered as a la carte, in vending machines and school stores and for fundraising? (n=219)	38%	24%	30%	8%
	10. Write an article about healthy lifestyle habits for the school newsletter, website or other similar format? (n=219)	29%	29%	31%	11%
	In your opinion ...				
	1. Teachers in my school will support obesity prevention efforts at school. (n=215)	Strongly Disagree	Disagree	Uncertain	Agree
	2. School food service staff will support obesity prevention efforts at school. (n=216)	< 1%	8%	42%	4%
	3. School administrators will support obesity prevention efforts at school. (n=216)	3%	8%	46%	2%
	4. Health providers in the community will support obesity prevention efforts at school. (n=216)	1%	3%	37%	7%
Perceived Support from Others					
Cronbach's alpha = 0.75					
Median score: 14					
Range: 5 to 20					

Table 2

Associations between the opinions and beliefs of licensed school nurses in Minnesota and years and type of nursing experience and performance of child- and school-level obesity prevention tasks and nurse support for using SHS ¹ for obesity prevention. 2005.

	Child-level Obesity Prevention Tasks ² (n = 199)			School-level Obesity Prevention Tasks ² (n = 200)			Nurse Support for using SHS ¹ for Obesity Prevention ² (n = 203)		
	OR	95% CI	p value	OR	95% CI	p value	OR	95% CI	p value
Perceived Support From Others ³	1.19	1.03, 1.37	0.02	1.29	1.11, 1.49	< 0.001	1.24	1.06, 1.45	0.01
Ht/Wt/BMI ⁴ screening ⁵	2.16	1.12, 4.14	0.02	....	....	....	3.35	1.44, 7.79	0.01
Nurse prepared ⁵	....	....	....	2.29	1.17, 4.50	0.02	....	....	....
Years Current Position ⁶	1.61	1.22, 2.13	< 0.001	....	....	....	....	....	....
Years as School Nurse ⁶	....	....	....	1.27	1.01, 1.60	0.04	....	....	....
Years as Nurse, Total ⁶	1.39	1.03, 1.88	0.03	....	....	....	....	....	....

¹ SHS = School Health Services

² Adjusted for respondent age, education, total years of nursing experience, school location and race/ethnicity of students served. Task variables dichotomized at the median cut point; nurse support for SHS dichotomized as agree versus uncertain/disagree

³ Modeled as continuous variable

⁴ Ht/Wt/BMI = height/weight/body mass index

⁵ Variable dichotomized as agree versus uncertain/disagree

⁶ Estimates for years of experience are for each 5-year increment (OR = Odds Ratio; CI = Confidence Interval)