The Online Journal of Issues in Nursing
A Scholarly Journal of the American Nurses Association

Advocating for the Prevention of Childhood Obesity: A Call to Action for Nursing

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Abstract

In this article the authors provide a background for the discussion of childhood obesity, examine factors contributing to overweight and obesity in children, review the literature describing interventions and prevention strategies for childhood overweight, and describe nursing skills to prevent childhood obesity. The literature supports a family-focused approach to influencing dietary habits of very young children, prevention interventions that start early in childhood prior to established poor dietary patterns, and the need for community support and involvement. Given these findings, nurses are encouraged to develop skills, such as advocacy, collaborative leadership, and social marketing skills, that will contribute to the prevention of childhood obesity.

Citation: Berkowitz, B., Borchard, M., "Advocating for the Prevention of Childhood Obesity: A Call to Action for Nursing" *OJIN: The Online Journal of Issues in Nursing* Vol. 14, No. 1. Manuscript 2. Available: www.nursingworld.org/MainMenuCategories/ANAMarketplace/ANAPeriodicals/OJIN/TableofContents/Vol142009/No1Jan09/Prevention-of-Childhood-Obesity.aspx

Key Words: advocacy and policy role for preventing childhood obesity; childhood obesity; childhood overweight; collaborative leadership; community centered approaches to preventing childhood obesity; nursing role in preventing childhood obesity; prevention of childhood obesity; race, ethnicity, and childhood obesity; recommendations for preventing childhood obesity; social marketing

I (B.B.) recently returned to the United States (US) from a trip to Rwanda for which I served as the leader of a delegation of nurses sponsored by the People-to-People Ambassador Program. Our goal was to observe and learn from our nursing counterparts in Rwanda and to gain a better understanding of the health and societal challenges and opportunities in this remarkable country. One observation difficult to miss was the near absence of obesity in the adult or child population. Because malnutrition plays a significant role in the poor health status of many Rwandan people, we would expect issues of weight, both underweight and potentially overweight to be a problem. However, we certainly did not see evidence of obesity or overweight. We also learned and observed during our trip that the Rwandan people, in particular the women and children, have few sweets in their diet and engage in daily moderate-to-strenuous utilitarian physical activity and exercise. On returning to the US, I was struck by the overwhelming contrast of the Rwandan people and our own adult and child obesity rates.

...nurses must take a leadership role in responding to the epidemic of obesity.

Our society faces many challenges in adequately responding to the epidemic of obesity. I am now more convinced than ever that here in the US (and elsewhere) nurses must take a leadership role in responding to the epidemic of obesity. The obesity challenge does not seem to reflect a complete lack of knowledge on the part of our society because the problems associated with obesity, particularly in children, are well documented in the scientific literature, popular media, and press. Rather, the challenge relates to our society's ability/inability to act on that knowledge. A wide range of factors lessens the likelihood that our knowledge will be followed by action. These factors present nurses with the opportunity for both advocacy and action in changing those societal conditions that hamper our ability to prevent overweight and obesity, particularly in children.

This article will examine opportunities for advocacy and action by nurses. After providing background information on childhood obesity, the authors address factors contributing to childhood overweight and obesity, discuss interventions and strategies that have been used to prevent childhood obesity, and offer skills nurses can develop as they work to prevent childhood obesity, including advocacy, collaborative leadership, and social marketing skills.

Background on Childhood Obesity

Given the preponderance of evidence in the research literature that childhood obesity is a significant risk factor for future health problems, this obesity is considered a major public health problem. The risk factors associated with obesity that threaten the public's health, and the multiple and interrelated factors associated with childhood overweight and obesity, are well documented in the literature. For purposes of this article, a selection of literature that is particular to opportunities for prevention and amenable to action by nurses will be reviewed.

The Centers for Disease Control and Prevention (CDC) describes children as being at risk for overweight if they are above the 85th percentile body mass index (BMI) and defines childhood overweight as a BMI at or above the sex- and age-specific 95th percentile BMI cut points from the 2000 CDC Growth Charts. The National Center for Health Statistics (NCHS) Chartbook, *Health, United States* (2007) provides data on the prevalence of overweight for children from 6 to 19 years of age based upon national studies completed from the mid-1960s to 2004. From the early 1980s to 2004, these data are available for race and ethnic subgroups, including non-Hispanic White only, non-Hispanic Black only, and Mexican Americans. The prevalence of overweight has increased progressively, overall and within each subgroup from the early 1980s through 2004 (CDC, 2007).

Childhood overweight is becoming evident in younger ages...

Childhood overweight is becoming evident in younger ages, with studies documenting a sizable increase in the percentage of overweight children between the ages of two and three years (Nelson, Chiasson, & Ford, 2004). The prevalence of overweight among 4- and 5-year-olds increased from 5% to 10.4% between 1976 and 2000 (Patrick & Nicklas, 2005). For overweight children the probability that overweight persists into adulthood increases with a child's age, from 20% among overweight four-year-olds to 80% among overweight teenagers (Thorpe et al., 2004). Studies of prevalence of overweight show a greater increase in overweight among children four-years-old and older and less of an increase in those younger. This suggests that efforts to prevent overweight should begin in early childhood (Walker & Avis, 1999).

As stated earlier, with overweight comes the risk of further health problems. Some studies have demonstrated that childhood overweight prompts the development of biomarkers for serious illnesses later in life. Diagnosis of type II diabetes among Hispanic children, for example, is on the rise due to genetic susceptibility combined with obesity (Neufeld, Raffel, Landon, Ida Chen, & Vadheim, 1998). Poston et al. (2003) stated that Mexican Americans are predisposed to develop more atherogenic patterns of body fat distribution and that early weight gain and centralized and upper body fat have been associated with the onset of diabetes in Mexican Americans. In addition to type II diabetes, overweight children have an increased risk for developing elevated cholesterol, asthma, joint problems, depression, and anxiety. Physical and psychosocial effects of moderate to severe overweight can include: hyperlipidemia, increased growth in puberty and then stunting, early onset of puberty in females, obstructive apnea, pancreatitis, gall bladder disease, hypertension, polycystic ovary syndrome, and long-term damage to the cardiovascular system (Barlow and the Expert Committee, 2007). The 20-year epidemiologic Bogalusa Heart Study identified that atherosclerosis, a major cause of heart disease in adults, has its origins in early childhood (Myers & Vargas, 2000). The overweight problem in children is also associated with poorer gross-motor development and endurance performance according to Graf et al. (2004).

Studies linking overweight to decreased scholastic performance and absenteeism are also emerging (Action for Healthy Kids, 2004). Strauss (2000) studied mental-health-related conditions association with overweight. Strauss found that decreasing self-esteem in overweight children has been associated with increased rates of sadness, loneliness, and nervousness as well as a greater likelihood to smoke and drink alcohol compared to obese children whose self-esteem increased or remained unchanged.

Factors Contributing to Overweight and Obesity in Children

Numerous factors contribute to overweight in children including race and ethnicity, parental knowledge and dietary habits, and environmental influences. A review of these various factors will lead to a discussion on interventions for preventing childhood obesity. While the literature points to many interventions that have been attempted or are currently in progress, it is generally agreed that there is no one cause for the increase in overweight in all populations, and there is no definite certainty about the cause for the health disparity related to overweight among various populations.

Race and Ethnicity

Several researchers have described differing cultural beliefs regarding perceptions of childhood obesity. Crawford et al. (2004) pointed to culture as a factor contributing to childhood overweight, in that Latina mothers' health beliefs and attitudes toward early childhood weight issues often do not match those of health practitioners. Crawford et al. (2004) found that Latina mothers do not acknowledge overweight and hold the perception that health and weight are poorly associated. Contento, Basch, and Zybert (2003) found that although Latina women may prefer a thinner figure for themselves, they often preferred a plumper figure for their children. Myers and Vargas's (2000) study of nearly 200 Hispanic parents of obese children found that 35% did not believe their child was overweight. In addition, ethnic minorities tend to have higher attrition and lose less weight than non-minorities in behavioral weight loss trials, perhaps pointing to a lack of culturally relevant interventions (Poston et al., 2003). Although higher socioeconomic status (SES) is associated inversely with childhood obesity among whites, higher SES does not seem to protect Hispanic children against obesity (Crawford, Story, Wang, Ritchie, & Sabry, 2001).

As mentioned before, the burden of childhood obesity is not spread evenly across the population of the US. According to the National Health and Nutrition Examination Survey (NHANES), increases in childhood obesity were particularly marked in Mexican American and African American children. For these groups prevalence increased by more than 10 percentage points between 1988-1994 and 1999-2000, compared with an increase of less than 5 percentage points for white children (Thorpe et al., 2004) It is estimated that in the US, 39.9% of Mexican American 6 to 19-year-old children are at risk of overweight or are currently overweight. For Non-Hispanic White children of the same age the prevalence of at risk of overweight and overweight is 28.2%. For Non-Hispanic Black children, the risk is 35.9% (Hedley et al., 2004). Within the Mexican American subgroup, prevalence of overweight for males 6 to 11 years of age has increased from 13.3 % (Hispanic NHANES, 1982-84) to 17.5 % (NHANES III, 1988-94) and finally to 26.5 % (NHANES 1999-2002). Likewise, with Mexican American females 6 to 11 years of age the prevalence has increased from 9.8%, 15.3% and 17.1 %

respectively.

Marketing strategies may also influence differences in childhood obesity rates. Grier and Kumanyika (2008), in a review of studies on the comparison of food and beverage marketing to different racial and ethnic populations, found that African Americans were exposed to more targeted marketing of energy-dense and low-nutrition foods than Whites. The authors raised considerable concern that the use of different marketing strategies with different racial and ethnic groups could be contributing to the health disparities found among overweight and obese children.

Parental Knowledge and Dietary Habits

Parental involvement in weight control measures influence childhood obesity rates. Parental pressuring of children to eat and parental degree of concern for childhood overweight has been shown to account for 15% of the variance in a child's dietary intake (Binns & Ariza, 2004). A family-based, health-centered approach to reduce childhood obesity was re-evaluated by Golan and Crow (2004). The study compared an experimental group in which only parents were targeted in the intervention with a control group in which only children were targeted. At time of follow-up, the mean reduction in overweight for the children (now 14 to 19-years-of-age) in the experimental group was 29%; it was 20.2% in the control group. This suggested that a family-oriented intervention with the parents as the exclusive agents of change may be superior to a child-only approach (Golan & Crow). One of the few longer-term studies with a ten-year follow up showed that success factors for childhood obesity interventions included involvement of at least one parent as an active participant in the weight-loss process, increase in activity, and family and friend support (Epstein, 1996).

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Studies have shown that foods to which children are routinely exposed shape preferences and consumption. Patrick and Nicklas (2005) reviewed the literature and found that children are likely to eat foods that are available and easily accessible to them and to eat greater quantities when larger portions are provided. Studies have demonstrated that focusing on increasing intake of healthy foods (fruit and vegetables) may be more useful in decreasing overweight than focusing on decreasing fat and sugar (Perusse & Bouchard, 1999). Mothers are usually more involved in planning their child's diet than other adults, and can influence food attitudes and practices among their young children. By the time children enter kindergarten their food preferences and the social context associated with food intake are established. The American Academy of Pediatrics has suggested the provision of parent education on diet to prevent pediatric overweight (Bish, Regis, & Gottesman, 2005).

Environmental Influences

Crawford et al. (2001) pointed to the widespread increase in the prevalence of overweight and obesity among American children regardless of age, gender, or ethnic group as an indication that the unique behaviors of the members of racial or ethnic subgroups are unlikely to be the major contributing factor to obesity. Instead, Crawford and colleagues (2001) suggested that environmental changes promoting an increase in energy intake and decrease in energy output are influencing children from various backgrounds. The literature cites numerous environmental factors that are likely to affect an individual's ability to effectively sustain health behaviors. Individual financial means to acquire healthy foods, as well as the distance individuals live from both healthy and unhealthy food sources undoubtedly play a role in the maintenance of healthy dietary habits. Research related to both factors will be discussed below.

Neighborhood-level socioeconomic status (SES) and prevalence of risk factors for chronic diseases have been shown, through ecological studies, to be associated with overweight and obesity (Oliver & Hayes, 2005). Mujahid, Diez Roux, Borrell, and Nieto (2005) examined the association of neighborhood measures of SES and body mass index (BMI) in an adult cohort and found that SES was inversely associated with BMI for some populations.

Far less research has endeavored to document individual proximity to health resources (healthy foods for example) and individual health status. The U.S. Department of Agriculture (2000) did study the locations where low-income Americans obtained food and found that 82 percent of the food in low income preschoolers' diets comes from food stores (rather than restaurants and other sources). Rose and Richards (2004) found that after controlling for confounding variables, easy access to supermarket shopping was associated with increased household use of fruits. Distance from home to supermarket was inversely associated with consumption of fruit.

A different way to look at the environmental influences on obesity is through the lens of food insecurity. The definition of "food insecurity" includes three dimensions: inadequate food supply, the reduction of quality of food, and the potential for or actual hunger. Lyons, Park and Nelson (2008) studied the relationship between these dimensions of food insecurity and obesity. They found a higher prevalence of obesity among women in households that had experienced food insecurity. The authors concluded that obesity in women with food insecurity was significant, while obesity in men with food insecurity was not significant because women, who are more likely to be "emotional eaters," consumed more sweets and fatty foods when stressed.

Literature Review of Interventions and Prevention Strategies for Childhood Overweight

This section will review key pieces of literature related to childhood obesity. It will focus on the evaluation of research findings regarding the effectiveness of various interventions, and present current recommendations for decreasing childhood obesity.

Campbell, Waters, O'Meara, and Summerbell (2001) did a systematic review of interventions for prevention of overweight in childhood, searching the literature from 1985 to 1999. They reviewed four studies, only two of which showed a reduction in the prevalence of overweight in intervention groups compared with control groups. Campbell et al. concluded that there is limited data on the effectiveness of these interventions and that no generalizable conclusions could be drawn.

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More recently Wofford (2008) reviewed evidence related to prevention of childhood obesity. Consistent with other findings, she found five areas of emphasis: prevalence, prevention as the best option for intervening in childhood obesity, targeting preschoolers for prevention, implications of parental involvement, and the value of professional guidelines for intervention. The literature seems consistent in stating that prevention is more effective than most forms of"corrective" approaches once obesity is established. In addition, targeting prevention programs to preschoolers and their parents has the best opportunities for success. It was interesting to note that Wofford also found most professional recommendations or guidelines were limited by a lack of an evidence base. Clearly, there is a need for work on evidence-based guidelines, including nursing guidelines, to address obesity. Wofford stressed that limitations in evidence-based guidelines should lead us to a program of research to discover the most promising education curricula and tools for translating findings into practice. She also stressed the importance of considering policies that may inhibit the promotion of healthier behaviors.

The December 2007 issue of *Pediatrics* published two reports related to the prevention of and interventions associated with childhood obesity. One report contained the findings of an expert committee on the prevention, assessment, and treatment of childhood obesity (Barlow & Expert Committee, 2007). The other was a review of the evidence on the prevention of childhood obesity along with recommendations for clinicians (including physicians and nurses) (Davis et al., 2007). The most relevant recommendations for nurses from Barlow's report are those related to prevention at the community level including:

- Advocate for the federal government to increase physical activity promotion.
- Support efforts to preserve and enhance parks as areas for physical activity, to develop walking and bicycle paths, and to promote families' use of physical activity opportunities.
- Engage families with parental obesity in prevention activities.
- Encourage parenting styles that support increased physical activity and reduce sedentary behaviors
- Encourage parental modeling of healthy dietary choices.

These are all actions that nurses are prepared to participate in or lead within their communities.

Based on evidence in the literature, Davis et al. (2007) recommended the following approaches:

- Use social learning theory in partnering with parents to teach new ways of engaging their children in play that promotes physical activity.
- Evaluate the readiness of parents to accomplish the lifestyle changes necessary for obesity prevention including their parenting style.
- Utilize counseling techniques that engage parents in a conversation about behaviors that may contribute to obesity, informing them about opportunities and strategies for prevention, advising them of steps to take, developing a plan of action, listening to the parent's response, and reflecting on related outcomes and challenges.

These recommendations by Davis et al. are also highly relevant for nursing.

While assessing the parent's readiness for change is obviously important, a community-based approach will also require a community-readiness assessment. Findholt (2007) utilized the Community Readiness Model to initiate a childhood obesity prevention initiative in a rural county. The model engaged community members using key informant interviews to explore six dimensions of readiness (existing prevention efforts, community knowledge of the prevention efforts, leadership, community climate, community knowledge about the issue of obesity, and available resources). Findholt found that the use of the tool stimulated community interest in the issue of obesity and was an impetus for the community to support a community-based prevention effort. In addition, the tool created a database that gave the researcher insights into the community and its assets and weaknesses that were important to consider when developing the prevention interventions for childhood obesity.

In 2005, the Institute of Medicine (Koplan, Liverman, & Kraak) produced a report that examined the behavioral, cultural, social, and environmental factors related to childhood obesity and identified the approaches showing promise for preventing obesity and overweight in children. The goals in this report included those directed at both the population level and the individual level. Although the authors called for further research on evidence-based interventions to prevent childhood obesity, they recommended that because childhood obesity has become such a serious public health problem, immediate actions should be based on the best possible evidence. They made the following recommendations for immediate actions:

- Increase the number of children who safely walk and bike to school
- Improve access to and affordability of fruits and vegetables for low-income populations
- Increase availability and use of community recreational facilities
- Increase play and physical activity opportunities
- Increase the number of new industry products and advertising messages that promote energy balance at a healthy weight
- Increase availability and affordability of healthful foods and beverages at supermarkets, grocery stores, and farmers markets located within walking distance of the communities they

serve
- Change institutional and environmental policies to those that promote energy balance (Koplan et al., 2005, pg. 4)

Again, nurses can play an important role in helping children achieve this energy balance. Policies that promote energy balance could include increasing the nutritional quality of foods available to children and limiting children's access to high calorie beverages in school vending machines. Of particular importance to public health practice, the authors (Koplan et al.) recommended that state and local governments:

> ...provide coordinated leadership and support for childhood obesity prevention efforts, particularly those focused on high-risk populations, by increasing resources and strengthening policies that promote opportunities for physical activity and healthful eating in communities, neighborhoods, and schools and to support public health agencies and community coalitions in their collaborative efforts to promote and evaluate obesity prevention interventions (Koplan et al., 2005, p. 6).

As we have seen from this review of the literature, studies related to childhood overweight and obesity have used a variety of interventions that have met with some degree of success. The literature points to the positive aspects of previous work, such as benefits of family-based interventions, the positive impact of increased physical activity, the promise of early childhood interventions having a dietary component, and the incorporation of increased health literacy and culturally relevant strategies into interventions. There is also an increasing effort in the literature to report on interventions aimed specifically at preschool-aged children at risk of overweight. Unfortunately, most of these interventions were carried out for only a short time period or with a small number of participants. Studies with a larger number of participants and a longer time frame are needed. We also found that there is a continued need for research on the dynamics of race and ethnicity within childhood overweight.

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In summary, important findings from the literature that have particular relevance for nursing include: (a) prevention strategies aimed at the family (parent and child) are key to influencing dietary habits of very young children; (b) interventions aimed at preventing or reducing obesity in children must start early in childhood, prior to established poor dietary patterns; and (c) community support and involvement in developing opportunities for a healthy lifestyle needs to be combined with any intervention aimed at individuals and families.

Nursing Skills to Prevent Childhood Obesity

It is imperative that approaches nurses take to the prevention of childhood obesity consider a whole range of critical factors. Recognizing that changing conditions to improve health is difficult under the best circumstances, nurses will need to assess the level and type of prevention most appropriate for the child, family, culture, socio- economic status, environment, and language, among other factors. A prevention intervention for childhood obesity may be part of a health promotion strategy (behavior change at the individual, family, or community level that promotes positive and health-enhancing actions) or a protection strategy (behavior change at the individual, family, or community level that actively avoids poor health). An example of a health promotion strategy is the increase of physical activity for children by enrolling them in a dance class. An example of a protection strategy is the adoption of a county ordinance that bans the use of trans fat (monounsaturated or polyunsaturated fats) in the preparation of food in fast food chain restaurants.

The appropriateness and relevance of any promotion or protection strategy is highly dependent on culture and social class and is most effective when introduced at the community level (Garcia, 2006). Nurses in community-based or public health settings may be the best-positioned healthcare professionals to take action on the promotion or protection strategies aimed at the prevention of childhood obesity. These nurses are likely to have an influence in the development of programs and/or policies that impact childhood obesity prevention.

In addition to the need for evidence-based practice, nurses also need access to tools that can guide them in planning and evaluating programs. Three community-based approaches may be particularly powerful for nurses to establish as part of their professional practice. These approaches include advocacy at the policy level, collaborative leadership for leading change within a community, and skills for planning social marketing campaigns to change the conditions and behaviors of individuals or populations. Each of these skills will be discussed below.

Advocacy Skills

Planning strategies and actions to prevent childhood obesity in our communities and throughout the population will require attention to policy and advocacy. We need to find ways to expand our ability as nurses to advocate for policies at the local, state, and national level that change conditions in society. These changes, including regulatory action, should be designed so that children and their parents can make healthier choices about nutrition and physical activity.

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While many nurses have embraced the role of advocacy and/or active engagement in the development of health policy, others continue to wonder whether this is an appropriate role for

nurses. The literature is quite alive, however, with descriptors of how developing policy can, and should, be considered a nursing intervention. Gebbie, Wakefield, and Kerfoot (2000) examined a sample of nurses in America who held active health policy positions at all levels of government and organizations to understand the meaning of this practice. What they found indicated that many nurses consider involvement in policy as an extension of their roles both in speaking for those who may not be able to speak for themselves, and in finding new ways to allocate resources that impact the health of individuals, families, and communities. Since many factors that lead to obesity, such as health disparities, poor access to nutritious food, and poverty, are often best approached from a systems and health-determinants perspective, policy may be one of our most powerful tools for advocating for changes in conditions that contribute to obesity.

Collaborative Leadership Skills

The ability to lead change...is an important skill of expert nurses.

The ability to lead change whether at the individual, family, or community level is an important skill of expert nurses. Leadership at the community level takes a special approach since community participants are essential for assessing health issues, understanding the impact of those issues on the health of their community, and planning approaches that will be met with acceptance and enthusiasm by community members. Collaborative Leadership (Chrislip & Larson, 1994) is an approach to leading change that uses a shared leadership model. This model has a set of tools that helps a group establish shared leadership, trust, insight into the need for change in the community, an understanding of human behavior and power, and the capacity to use self reflection in understanding how one's own behavior impacts others. *Turning Point,* an initiative of the Robert Wood Johnson Foundation, developed a curriculum for teaching the skills of collaborative leadership and a set of tools for facilitating the collaborative leadership mode (Berkowitz & Nicola, 2003).

Social Marketing Skills

Another set of tools, also created through the *Turning Point* initiative, is based on the social marketing literature. These tools facilitate the utilization of social marketing principles, which address *product*, the behavior you desire or want to change; *price*, the cost or barriers to the desired change; *place*, where the desired behavior will happen; and *promotion*, the communication messages, materials, and activities that will help reach the audience (Social Marketing Excellence Collaborative, n.d.). Social marketing can be an adjunct to traditional health education. Social marketing focuses on the audience (individual, family, or entire community) targeted for the behavior change, the communication strategies employed to uncover the barriers and benefits of the desired change, and the "exchange" the individual, family, or community requires in-order-to make the desired change.

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A social marketing approach means that one must understand what the target audience is willing to give up or modify in terms of behavior in order to adopt (exchange) the new behavior for the former behavior. Consider the case of a public health nurse who is working with a family to decrease the amount of time their child watches television and to increase the amount of time the child spends in more active play. The desired behavior change, less television time, should be "exchanged" for something that is desirable for the family including the child. In other words, the family needs to identify "what is in it for them" so that they will make the behavior change. Perhaps the gain is a weekly outing to the park where both the parents and the child can pursue a desired activity. In this case, the public health nurse would need to begin the intervention with the following initial steps of the social marketing process:

- Clearly understand the problem (lack of adequate physical activity due in part to television watching)
- Explore the most appropriate actions that would address the problem (finding alternate desirable activities for the family)
- Define the target for the action (parents and child)
- Explore with the family the desired exchange (weekly trip to the park)

The exchange chosen must be desirable to the target audience because there will be barriers to pursuing the desired behavior that are not immediately obvious. The benefits to making a change in behavior may not be obvious either. Because both barriers and benefits are important to understand, it is important to explore why the targets (clients) behave as they do and determine what is meaningful to them.

Another example of social marketing at the community level is targeted at the building industry. Let's say that a group of neighbors wants to enlist the help of housing developers in assuring that sidewalks are a part of neighborhood design so that people can safely walk. The concept of exchange means that they will need to understand the interest of the developers and what they would need in order to add sidewalks to new housing developments. They would need to collaborate with communication experts, policy experts, and sympathetic individuals in the building trades. These neighbors could then enlist the help of their local public health nurses in order to make the health-related case for increasing physical activity.

While social marketing can be a powerful tool for health-related behavioral change, it has not been widely used by nurses. That could change, however, with more opportunities for nurses to participate along with a team of social marketers, health educators, and other leaders and professionals who are interested in more innovative approaches to behavior change. Bellows, Anderson, Gould, and Auld (2008) developed and tested a social marketing campaign to prevent obesity in preschool children by enhancing food choices and physical activity in Head Start and preschool programs in Colorado. Their team included teachers, communication/interviewing specialists, group facilitators, researchers, and marketing and public relations experts. While the target for the behavior change was the preschoolers, the Head Start and preschool teachers were actually the target audience for the change because they needed to offer the physical activity in the classroom. The research team spent significant time in interviews and focus groups gaining an understanding of what barriers the teachers faced with regard to increasing physical activity in the classroom and what benefits they would recognize as desirable if they implemented the change. For example, lack of classroom space, equipment, and time were seen as barriers by the teachers. Training, equipment for classrooms, and structured activities were seen as benefits.

Johnson, Bellows, Beekstrom, and Anderson (2007) have provided another example of a social marketing campaign related to healthy eating. This study, which was part of the previously described research, targeted children's behavior around food choices and strategies that would encourage preschoolers to try new foods. This team, focusing on food choices, utilized some of the same educational materials as Bellows et al. (2008). In this case, the behavior change desired was for the child to try new foods. Interestingly, the exchange required was to let children "experiment" with new foods in their own way, which at times meant setting aside adult expectations, such as using good table manners.

Conclusion

The literature cited in this article is just a small sample of a wealth of information and research on childhood obesity, factors that contribute to childhood obesity, and opportunities for prevention and treatment. Additional research is needed in the areas of evidence-based, community-level prevention interventions, as well as evidence-based practice guidelines for nursing. Perhaps most importantly, this article has noted that we need an in-depth exploration of how to assure that nurses are equipped with the policy, leadership, and behavioral change intervention skills, such as advocacy, collaborative leadership, and social marketing skills, that hold promise for preventing the critical public health challenge of overweight and obesity in our children.

We need to find ways to expand our ability as nurses to advocate for policies…that change conditions in society…developing policy can, and should, be considered a nursing intervention.

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Article published January 31, 2009

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