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NURSES ROLE IN CHILDREN'S OBESITY PREVENTION AND MANAGEMENT - A CRITICAL REVIEW

Samuel K. Sarfo*

Department of Nursing, Prince Sultan Military college of Health Sciences, Dhahran-31932, Kingdom of Saudi Arabia.

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ABSTRACT

The current obesity epidemic is thought to be largely associated with lack of physical activity and over nutrition an energy imbalance of calories consumed versus calories expended. Over nutrition is defined as a diet in which caloric intake is greater than what is necessary to maintain metabolism. Childhood obesity is a public health epidemic that has grown at alarming rates over the last two decades; Research has identified genetic, environmental, and societal factors that place children at risk for obesity, and has documented significant long-term physical and mental health risks associated with the condition. Modest success of obesity treatment programs and the increasing prevalence of the condition have facilitated a shift toward preventative interventions. The importance of primary care provider involvement in obesity prevention and documented efficacy of discussing lifestyle changes in a primary care setting.

INTRODUCTION

Overweight and obesity are serious health problems for children and adolescents and may lead to variety of chronic illnesses like diabetes, cardiovascular disease and orthopedic problems. Children who are overweight or obese may also suffer with depression and social isolation. Nursing care planning for youth who are overweight or obese should be based on "empowering" the youth to manage his or her health while meeting the youth's individual needs. Self-esteem, self-motivation and empowerment have been identified as important concepts in improving nutrition and physical activity[1]. Obese children are likely to remain obese as adults. The probability of childhood obesity persisting into adulthood is 20% at age 4, but increases to 80% at adolescence. Early intervention is critical. The probability of childhood obesity persisting into adulthood is 20% at age 4,

Email: -zacbiostat@gmail.com

but increases to 80% at adolescence. Early intervention is critical. Many providers fail to discuss lifestyle habits with patients and report low proficiency related to obesity assessment and behavioral management strategies. Overweight is defined as a BMI at or above the 85th percentile and lower than the 95th percentile for children of the same age and sex. ³/₄ Obesity is defined as a BMI at or above the 95th percentile for children of the same age and sex. Obesity and overweight are said to have occurred when weight gain (caused predominantly by fat) has increased to the level at which it is endangering health [2]. In overweight and obese people, abnormal or excessive fat accumulation in adipose tissue results in a raised body mass index (BMI) where their weight is greater than that which is appropriate for their height.

Obesity has been described as a national epidemic with the prevalence of obesity and overweight children of all ages increasing [3].

Corresponding Author

Samuel K. Sarfo

Childrens at risk:

Research Article



- Minorities
- Family income level and parent occupation are strong factors associated with childhood obesity. Children from low to average income families are significantly more at risk.
- Children who experience neglect are 9 times as likely to become obese and those who live in dilapidated conditions are at 3 times the risk. Overeating in these children may be self-stimulatory behavior in the absence of environmental enrichment[4]. Children exposed to limited cognitive stimulation and enrichment activities such as reading materials, musical instruments, and activities outside the home are significantly more at risk. This risk factor is more strongly associated with obesity than race, marital status, parent education .
- Children with Obese Parents Parental obesity is a strong predictor of obesity in children[5].
- One obese parent = 3 times the risk Two obese parents = 10 times the risk
- The duration of time a child is breastfed is inversely related to obesity in childhood. It is unclear whether this is related more to physiologic components of human milk, or feeding and parenting patterns associated with parents who choose to breastfeed.
- 28% of children living in the southern region of the United States are obese, compared to 22% in other regions[6].
- There is a natural increase in the rate of adiposity development during this stage called adiposity rebound[7].

Factors affecting childhood obesity:

There are many factors that can lead to obesity in children, all of which must be considered and understood before an effective strategy can be implemented to tackle the problem. The physiological process of fat cell formation will have an effect on the likelihood of a child becoming obese. Other key factors include:

- **Lack of exercise** -many experts in the field of weight management have cited a lack of physical activity as a major factor in the increased incidence of obesity. Less than five per cent of children cycle to school now compared with more than 80 per cent 20 years ago [8]. The time spent on physical education activities in schools has also declined and there has been an increase in sedentary pastimes such as watching TV and using computers.
- **Dietary choices** – modern lifestyles have resulted in a shift away from home-cooked meals towards the increasing use of convenience foods and snacks. Working parents often do not have the time or energy to devote to planning meals for their children. The independent social

habits of children – such as shopping and visiting friends – lead them into environments where food and snacks are readily available and encouraged[9]. Convenience foods are often targeted at children and are often high-calorie foods of low nutritional value;

- **Socioeconomic factors** – it is a well-known fact that children from poorer backgrounds and disadvantaged groups are more likely to experience weight problems. People from these groups often have limited transport options, which affect their choice of food outlets and their access to environments where it is possible to be physically active in safety.

Rates of obesity among children are increasing at alarming rates and the condition poses lifelong threats to health. In 2001, the Surgeon General published a call to action to prevent and decrease childhood obesity, acknowledging the prevalence had nearly tripled during the past two decades placing children at increased risk for severe health complications [10]. Healthy People 2010, a set of health objectives for the Nation to achieve this decade, identifies overweight and obesity as leading health indicators and aims to reduce obesity prevalence to five percent among children and adolescents[11].

Body Mass Index (BMI)

A formula that expresses the relationship of weight-to-height, is used to screen for risk of obesity. BMI is calculated by first dividing weight in pounds by the square of height in inches, then multiplying the resulting number by 704.5. Children with a BMI at or above the 95th percentile on the Center for Disease Control growth chart are categorized as obese or overweight, while children with a BMI between the 85th and 95th percentile are at risk. There are no BMI-for-age references for children under 2 years of age. Growth of infants and children under 2, therefore, is monitored with weight-for-length recommendations with a percentile greater than 95th indicating overweight. Nearly 14 million children in the United States are obese and the National Center for Health Statistics reports a steady increase in rates over the last two decades (2005). This staggering statistic represents 24 percent of the population ages 2 to 17, with an additional 8.6 million children at risk. In the last three decades, obesity rates have more than doubled for preschool children ages 2-5 years and adolescents ages 12-19 years, and has more than tripled for children ages 6-11 years .Furthermore, research indicates there is a high probability that obese children will remain obese as adults[12].

TYPES OF OBESITY

Childhood obesity:

The likelihood that childhood obesity will persist into adulthood is 20% at 4 years of age but increases to



80% by adolescence. In response to the national initiative to improve childhood obesity prevention efforts, the purpose of this paper is to describe the development of a tool to guide nurse practitioner practice. Currently, obesity and physical inactivity account for more than 400,000 premature deaths per year in our country[13].

Health consequences related to obesity in adults cost society up to \$129 billion annually[14].

Obesity-related hospital costs for children and youth, specifically, have more than tripled over the last two decades increasing from \$35 million in 1979 to \$127 million in 1999[15]. There are many genetic, environmental, and societal risk factors contributing to childhood obesity related to age, ethnicity, physical activity, nutrition, parenting, income level, and home environment. Though the rate of obesity is increasing for all children, regardless of age, gender, and race, it is rising more than twice as fast among minorities [16].

Parental obesity

It places children at high risk for becoming obese. If one parent is obese, a child is three times as likely to become obese as a child who has parents of normal weight[17].

If both parents are obese, the child's risk of obesity increases 10-fold. Research indicates that before the age of 3 years, parental obesity is a stronger predictor of obesity development than the child's weight percentile. Though there is a genetic component to weight gain and obesity, it is highly unlikely that genetic modification could have had a significant impact in the short period of time during which obesity prevalence surged[18].

The correlation between parent and child obesity, therefore, is attributed to environmental and societal factors to which all members of the family are exposed.

Strategy for preventing obesity:

A number of strategies for preventing obesity in children have been suggested and tried over the years. A recent analysis of reviews of diet, physical activity, and behavioural approaches has been published by the Health Development Agency and can be found at their website[19].

Nursing implications:

It is clear from the causes of obesity that any strategy implemented to prevent its occurrence will need to involve not just health professionals but also professionals from fields such as education, transport, sport and leisure, and the food manufacturing industry. What we must do as a multiprofessional group is to agree and implement a strategy that will be effective and that will target the root causes of the problem. In order to achieve this we must also secure the support and commitment of parents and children. Screening children

annually is not the answer. Amassing vast quantities of information that is of limited use except to confirm what is clearly visible will divert school nurses away from dealing with the problem itself. Obesity is a visual thing. Children who need intervention are easily identified without the need for screening programmes for all. The idea that screening all children will prevent the overweight or obese child being stigmatised is somewhat naive. Children routinely compare such things as injection sites and having a BMI measurement will be no different. If school nurses are to be an effective resource in the battle against obesity it seems logical that their time needs to be spent carrying out worthwhile health promotion and health education strategies and not on high-activity, low-achievement exercises. Perhaps a greater societal influence on childhood obesity is related to the intake of fast foods and other foods high in calories, fat, and carbohydrates.

A sedentary lifestyle coupled with increased intake of "super-sized" food portions and highly processed, convenient foods has transformed Western societies into "obesogenic" environments [20]. Research in the area of childhood obesity has examined the effect of over-controlling parental behavior related to a child's ability to self-regulate food intake. There is evidence that verbal prompting to eat at mealtimes, attentiveness when a child doesn't want to eat, and close parental monitoring can have negative consequences on a child's eating behavior. These parental behaviors can place a child at risk for overeating, making poor food choices, and becoming obese[21]. Young children who are left alone to make meal choices, however, often make poor nutritional choices and are likely to prefer foods high in sugar, fat, and sodium. In a study by Klesges et al, children ages 3 to 7 years selected more nutritious meals when they were informed their parents would be monitoring their selections, or when parents were actually involved in the meal selection[22]. Research therefore suggests that, though tight control over a child's eating habits may interfere with their ability to self-regulate food intake, lack of parental involvement may be equally detrimental.

Studies have identified several ways in which the home environment can contribute to obesity in children. Research conducted by Sorensen demonstrated that neglected children are at nine times the risk of becoming obese and there is a 3-fold increased risk for children who live in dilapidated conditions (1994). Researchers hypothesize that overeating in these children may be the result of self-stimulatory behavior in the absence of environmental stimulation. A large study that monitored nearly 3000 normal-weight children ages zero to 8 years over 6 years to identify environmental predictors of childhood obesity, found that household income, parental occupation and level of cognitive stimulation were the strongest associated factors [23]. Children from families



with low or average income and those with parents who had nonprofessional occupations were significantly more likely to become obese. Likewise, children raised by single mothers were at increased risk. Perhaps the most remarkable finding was that children exposed to little cognitive stimulation such as reading materials, musical instruments, or activities outside the home were at significantly greater risk for obesity than children frequently exposed to these forms of enrichment, regardless of other variables such as race, marital status, parental education, and family income. The programs reviewed demonstrated that children's eating patterns can be changed in a positive way, though changes are small. The authors suggest that a successful intervention related to nutrition education for children must consider age-related differences in children's understanding of health and factors known to affect children's food choices. Additionally, they suggest that programs should "focus on changes both in individual behavior and in the environmental conditions that support healthful behavior" [24]. Behavior change theories and models identify several attributes that predispose an individual to successful behavior change [25]. The individual must want to change for clear, personal reasons, and have the self-confidence to do so. They must also feel that the change will have meaningful benefits and that it is congruent with their self-image and social norms. The fewer obstacles a person faces, the more likely they are to change a behavior. Furthermore, an individual who receives support, encouragement, and reminders from valued persons in their community will likely be successful in achieving their goals. These factors must be considered when counseling an individual to change lifestyle behaviors. Again, no studies were found that specifically examined dietary and physical activity

counseling for the pediatric population. Pediatrics published survey results in 2002 indicating only 8.5% of pediatric nurse practitioner (PNP) and 7.3% of pediatrician respondents provided all recommended elements of a history and physical for obesity management[26]. Surprisingly, over 30% of provider respondents felt they were inadequately prepared to address the issue of obesity. In a study aimed at evaluating perceived skill level and training needs related to management of childhood obesity, pediatrician and PNP respondents reported low proficiency in the areas of obesity assessment, behavioral management strategies, guidance in parenting techniques, and addressing family dynamics[27-41]. Over half of respondents expressed interest in additional training in these areas.

CONCLUSION

Experts in the area of pediatric obesity research acknowledge, however, there are many unanswered questions about how prevention and treatment should be implemented and there is little research available on prevention and early intervention. Public health action related to childhood obesity may be slowed due to the lack of evidence of the effectiveness of preventative interventions. Health care providers use "evidence-based" medicine (EBM) to guide practice and an evidence base does not yet exist in the area of childhood obesity prevention. Furthermore, the impact of preventative measures cannot easily be measured and may only be visible indirectly or gradually. Given the limitations of the EBM framework in preventative medicine, obesity policy and research groups suggest development of a specific framework to guide obesity policy and programs using the best evidence available.

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