

REVIEWS

Exploring nurses' knowledge and attitudes about children who are overweight/obese: A review of the literature

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ABSTRACT

The study reviewed the published research on nurses' knowledge and attitudes about children who are overweight/obese. A literature search of research published in English between 2000 and 2016 was conducted in CINAHL, MEDLINE, Scopus and Google Scholar. A total of 5 papers met the inclusion criteria for this review with only one paper specifically discussing the attitudes of student nurses to childhood overweight/obesity. This review has shown that although there are very few articles on nurses' knowledge and attitudes to overweight/obese children, the papers included in the review demonstrate that nurses were generally lacking in knowledge about this issue.

Key Words: Nurses knowledge, Nurse attitude, Childhood overweight, Childhood obesity

1. INTRODUCTION

Overweight/obesity is a growing threat to the health of populations in both developing and developed countries. It can affect children and adults alike. The World Health Organization^[1] reports that worldwide obesity has more than doubled since 1980. Children who are overweight are at risk of becoming obese. The rise in childhood overweight/obesity is acknowledged as a major health problem. Between 2000 and 2013, the number of overweight children worldwide increased from 32 million to 42 million.^[2]

According to the Centers for Disease Control and Prevention,^[3] body mass index (BMI) is a measure used in a number of countries to determine childhood overweight/obesity. According to this measure, "overweight is defined as a BMI at

or above the 85th percentile and below the 95th percentile for children and teenagers of the same age and gender". Additionally, "obesity is defined as a BMI at or above the 95th percentile for children and teenagers of the same age and gender".^[3]

Overweight/obesity is a complex problem associated with psychological, social, and health-related consequences for children.^[4-6] Children who are overweight/obese are at a higher risk of developing serious health problems including hypertension, dyslipidaemia, insulin resistance diabetes, fatty liver disease, asthma and other respiratory problems, and sleep disorders^[4] and are at a higher risk of becoming overweight/obese adults. Childhood obesity/overweight could lead to low self-esteem, depression and body dissatis-

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faction.^[5]

There is a perceived stigma associated with childhood overweight/obesity as a consequence of negative public perceptions.^[7] Overweight/obese children are often targets of stigma. Therefore it is important for the public to reduce the stigma related to childhood overweight/obesity, as this stigma may prevent these children from seeking professional help. It is important for nurses to help children deal with this issue during childhood, so they can avoid serious consequences for their health and wellbeing later in life. The purpose of the literature review is to describe nurses' knowledge and attitudes to childhood overweight/obesity. The published research literature from 2000 to 2016 was reviewed to achieve the purpose of this paper, that is, to describe nurses' knowledge and attitudes toward childhood overweight/obesity.

2. BACKGROUND

Health professionals play a fundamental role in children's health, and it is important to understand their knowledge and attitudes regarding childhood overweight/obesity. Pagnini, King^[9] found that general practitioners (GPs) were aware that the prevalence of childhood overweight/obesity is increasing. Therefore, all children should regularly have their height and weight measured and correctly interpreted. However, few GPs routinely assessed a child's height and weight. This is supported by a number of authors.^[9,10] Goldman, Modan-Moses^[9] reported that only 13% of Israeli physicians routinely weighed all children and work in Europe by Mazur, Matusik^[10] found only 50.3% of physicians usually calculated children's BMI. Further, Van Gerwen, Franc^[11] found only 5% to 33% of clinicians felt competent to manage childhood obesity and Mazur, Matusik^[10] reported only 21.4% of physicians felt competent. This was supported by Wake and McCallum.^[12] It appears that there is a need for education on the assessment and management of childhood obesity, as more than three quarters (78%) of physicians were not familiar with the WHO Expert Committee recommendations on obesity.^[9,11] Health professionals expressed a high interest in more professional education.^[10,13,14]

Several studies have shown that one of the barriers for health professionals when providing care to overweight/obese children is parent-related factors, such as the possibility that parents may become defensive and food may be seen as nurturing.^[8,14,15] The low rate of measuring children's height and weight may be because it is a sensitive topic to discuss with parents, so GPs only weigh children when they are concerned or parents raise the issue.^[14] GPs recognised that it was not easy to assist children and adolescents to manage

their weight because they were not only dealing with individuals but with whole families.^[14] Thus, health professionals avoid raising issues related to children's weight.

3. METHODS

A literature search was conducted with key words: "nurses", "nursing students", "childhood overweight/obesity", "paediatric overweight/obesity", "adolescent overweight/obesity", "knowledge" and "attitude". Combined searches were conducted in order to find relevant papers. Literature searches were conducted and accessed via CINAHL (Cumulative Index of Nursing and Allied Health Literature), MEDLINE, Scopus, and Google Scholar, and published between 2000 and 2016. All included publications were in English. Reference lists of publications were hand searched for papers potentially missed by database searches.

4. RESULTS

A total of 833 articles were initially retrieved from this search. Following the elimination of duplicates and articles that did not discuss knowledge and attitudes, five articles were included in the review (see Figure 1). These five articles were selected following a review of the title, abstract and full article review with only one article relating to nursing students.

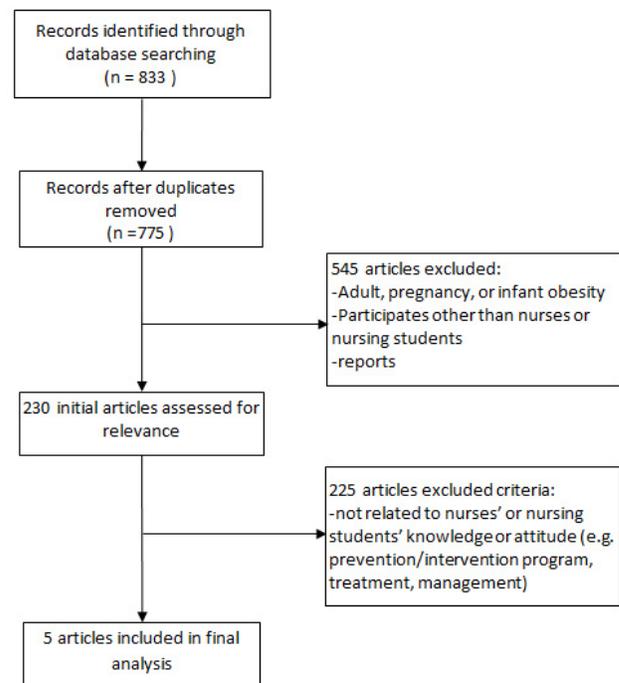


Figure 1. Flow chart showing identification of individual studies for inclusion

Table 1. Summary of literature

Author/ Country/Year	Aim	Study Sample	Research design	Instrument
Nauta et al., ^[17] USA/2009	To measure school nurses' knowledge and practices toward childhood obesity.	School nurses (n = 103)	Descriptive design	Questionnaire original developed by Price (1987) et al., then revised by Moyers (2005) – 55 items
Moyers et al., ^[18] USA/2005	To examine school nurse perceptions of childhood obesity and how they perceive their role to address this issue.	168 registered nurses (136 school nurses and 32 licensed practical nurses) practicing in rural, public, elementary and middle schools	Descriptive design	Questionnaire original developed by Price (1987) et al., then revised by the author – 55 items
DiNapoli et al., ^[20] USA/2011	To identify nurses' attitudes, and knowledge about childhood obesity, and to evaluate the nurses' barriers to teaching patients about obesity.	Registered nurses working on paediatric units (n = 33)	Cross-sectional study	"Paediatric registered nurses' perceptions, knowledge, and attitudes concerning childhood obesity" questionnaire – 24 items
Steele et al., ^[21] USA/2011	To understand how barriers prevent school nurses discussing weight-related health issues with children and their families.	School nurses (n = 22)	Qualitative study	Focus groups interviews
Snethen et al., ^[22] USA/2014	1. To examine the attitudes and beliefs of undergraduate nursing students about children who are overweight or obese. 2. To compare the attitudes and beliefs about children who are overweight or obese between two groups of nursing students.	Undergraduate nursing students (158 pre-nursing students and 174 students in the clinical nursing major).	Cross-sectional study	Attitudes Toward Obese Persons Scale: Children's version, adapted from Alison (1995) – 26-item

Excluded literature included publications that were non-research, instrument development, and other sources such as personal opinions, letters, editorials and conference proceedings. Intervention programs related to the management or treatment of overweight/obesity, and studies related to infants or babies overweight/obesity, were excluded. The selected articles were checked for quality using CASP^[16] and were related to nurses' knowledge and attitudes about childhood overweight/obesity.

There were two categories that emerged from the literature: first, nurses' knowledge and second, nurses' attitudes about children who are overweight/obese. In relation to knowledge of childhood overweight/obesity, there were four related sub-categories: causative factors of overweight/obesity in children, outcomes of childhood overweight/obesity, measurement to differentiate overweight/obesity, and general knowledge of childhood overweight/obesity. A summary of these articles including the aim, study sample, research design, and instruments is displayed in Table 1.

Knowledge of childhood overweight/obesity

(1) Causative factors associated with childhood overweight/obesity.

Five articles discussed causative factors of overweight/obesity in children (see Table 2). Two studies from the United States (US)^[17, 18] used the same modified version

of a questionnaire developed by Price, Desmond^[19] then revised by Moyers, Bugle.^[18] As indicated in Table 2, these two studies have similar results. While there were some variations in percentages of nurses' knowledge about causative factors, the top three factors indicated by the nurses were poor dietary habits, excessive caloric intake, and sedentary behaviour. Over 70% of nurses in both studies found that one of the major factors is lack of parental concern. This was confirmed by DiNapoli, Sytnyk^[20] and Steele, Wu^[21] (see Table 2). Similarly, Nauta, Byrne,^[17] Moyers, Bugle^[18] and Steele, Wu^[21] confirmed that unhealthy food available at school and non-nutritious foods contribute to childhood overweight/obesity.

(2) Outcomes of childhood overweight/obesity.

Two articles^[18, 20] discussed the outcomes of childhood overweight/obesity. As indicated in the Table 2, DiNapoli, Sytnyk^[20] found only 24% of the nurses correctly identified the health outcomes. Eight health outcomes were identified by the nurses in this study, these outcomes were asthma, sleep apnoea, high cholesterol, high blood pressure, kidney stones, type 2 diabetes, low self-esteem, and poor, academic functioning. The factors were similar to Moyer's study which also included hypertension, type 2 diabetes, however, this study also included coronary heart disease, stroke, stress, osteoarthritis, and colon cancer.

Table 2. Nurses' knowledge of overweight/obesity in children

Causative factors of overweight/obesity in children			
Nauta et al., ^[17]	<ol style="list-style-type: none"> Poor eating behavior 99% Excessive caloric consumption 99% Sedentary lifestyle 97% Cultural factors 79.2% Heredity 74.3% Lack of parental concern 71.6% Low socioeconomic class 58.8% Prevalence of machine-dispensed "junk food" 55.4% Peer Pressure 40.4% Hormone problems 27.7% In utero development of adipose hypercellularity 22.4% 		
Moyers et al., ^[18]	<ol style="list-style-type: none"> Sedentary lifestyle 95.3% Poor eating behavior 94.3% Excessive caloric consumption 94.3% Lack of parental concern 75.5% Cultural factors 59.4% Heredity 54.7% Prevalence of machine-dispensed "junk food" 54.7% Low socioeconomic class 43.4% Peer pressure 40.6% Hormone problems 21.7% In utero development of adipose hypercellularity 22.4% 		
DiNapoli et al., ^[20]	9% of nurses perceive lack of parental motivation is the barrier to provide obesity education.		
Steele et al., ^[21]	<ol style="list-style-type: none"> Family characteristics (motivation, culture, resources, language, body size perceptions) Child lack of motivation Food at school Societal norms (increased sedentary behavior, changing perceptions of normal weight, proliferation of nonnutritious foods, and increases in food portion sizes) 		
Outcomes of childhood overweight/obesity			
Moyers et al., ^[18]	Nurses believed that obesity can cause development of hypertension (95.3%), diabetes mellitus type 2 (94.3%), coronary heart disease (89.6%), stroke (80.2%), stress (74.5%), osteoarthritis (67%), and colon cancer (50%).		
DiNapoli et al., ^[20]	24% (n = 8) of the nurses can correctly identified 8 health issues (asthma, sleep apnea, high cholesterol, high BP, kidney stones, type 2 diabetes, low self-esteem, and poor, academic functioning) that may due to pediatric obesity.		
Measurement to differentiate overweight/obesity			
Nauta et al., ^[17]	Most of the time (%)	often (%)	
	1. Clinician impression	38.4	31.3
	2. Weight for height percentile	34.7	30.7
	3. BMI	27.3	13.1
	4. BMI-for-age percentile	26.7	7.9
	5. Skinfold thickness percentile	0	1
	6. Waist-hip ratio or waist circumference	2	0
	> 69% of the nurses often used clinical impression to assess overweight in children.		
	34.6% of nurses most of time or often use age-specific BMI.		
	However, there was no evidence about knowledge of BMI.		
Moyers et al., ^[18]	<ol style="list-style-type: none"> Clinician impression 51.9% Weight for height percentile 49.1% BMI 35.8% BMI-for-age percentile 31.1% Skinfold thickness percentile 0.9% Waist-hip ratio or waist circumference 0.9% <p>Most often used method to define childhood obesity was clinical impression (51.9%). 31.1% of nurses used the BMI-for-age percentile.</p> <p>However, there was no evidence about knowledge of BMI.</p>		
DiNapoli et al., ^[20]	12% (n = 4) of nurses define pediatric obesity correctly.		
	One third of the nurses correctly answered child should begin test BMI at age 2.		

(Table continued on page 54)

Table 2. (continued.)

General knowledge about childhood overweight/obesity	
Nauta et al., ^[17]	School nurse perceived accountability concerning childhood obesity (strongly agree and agree) <ol style="list-style-type: none"> 1. Normal weight is important to the health of children 100% 2. Childhood obesity is becoming more prevalent 99% 3. Most obese children will outgrow their obesity 1.9% 4. I feel competent in recommending weight-loss programs for children 33.9% 5. I usually recommend treatment for weight loss for all children who are obese 43% 6. I usually recommend treatment for weight loss only for children with a health problem affected by their obesity 27.8% 7. Alleviating childhood obesity is more important to health than alleviating obesity in adulthood 63.1% 8. Childhood obesity is a significant cause of peer rejection 85.4%
Moyers et al., ^[18]	School Nurse Perceptions Regarding the Seriousness of Childhood Obesity (strongly agree or agree) <ol style="list-style-type: none"> 1. Normal weight is important to the health of children 97.2% 2. Childhood obesity is becoming more prevalent 98.1% 3. Most obese children will outgrow their obesity 3.8% 4. Alleviating childhood obesity is more important to health than alleviating obesity in adult-hood 59.5% 5. Childhood obesity is a significant cause of peer rejection 85.8%
DiNapoli et al., ^[20]	<ol style="list-style-type: none"> 1. 79% of nurses stated childhood obesity prevalence is increasing. 2. only 6% (n = 2) of nurses feeling extremely knowledgeable about childhood obesity 3. 88% (n = 29) of nurses were “somewhat prepared” to educate children 4. 81% (n = 27) reported “somewhat prepared” to educate families 5. Only 9% (n = 3) reported that they were “very well prepared” to educate children 6. 36% (n = 12) felt they had no impact when providing education about obesity, and 6% (n = 2) felt they had a significant impact 7. 21% of nurses lack of general knowledge about obesity 8. 15% of nurses lack of information related to proper nutrition 9. 3% of nurses lack of knowledge about current exercise standards 10. 6% unsure of how to begin obesity education
Steele et al., ^[21]	<ol style="list-style-type: none"> 1. No knowledge of how to approach children and families 2. Lack of communication skills about overweight/obese children

(3) Measurement of childhood overweight/obesity.

Three articles^[17, 18, 20] did not discuss the knowledge underpinning measurements used to assess overweight/obesity (see Table 2). All papers, however, discussed the measurement tools the health professional used, and these were usually clinician impression, weight for height percentile and BMI. It is noted that few nurses used BMI-for-age percentile. DiNapoli, Sytnyk^[20] found only 12% of the nurses in their study could define paediatric obesity as a BMI at or above the 95th percentile for children of the same age and sex.

(4) General knowledge about childhood overweight/obesity.

Five articles (see Table 2) discussed nurses' general knowledge of childhood overweight/obesity. The nurses in the five studies worked with children who were overweight/obese either in the hospital paediatric unit or in schools. Researchers in two studies^[17, 18] found that most nurses strongly agreed that maintaining normal weight was important for the health of children. Steele, Wu^[21] found that nurses were lacking in knowledge of how to approach parents and children. Two articles^[17, 18] discussed whether children will outgrow overweight/obesity issues. Moyers, Bugle^[18] and Nauta, Byrne^[17] indicated that children will not outgrow obesity.

The lack of nurses' general knowledge about obesity is highlighted again in the study by DiNapoli, Sytnyk.^[20]

(5) Nurses' attitude to childhood overweight/obesity.

Following an extensive literature search only one study addressed the attitudes of student nurses about childhood overweight/obesity.^[22] This US study used the “Attitudes Toward Obese Persons Scale: Children's Version”, modified from an adult version developed by Alison in 1995. The survey examined 158 undergraduate pre-nursing students and 174 undergraduate nursing students enrolled in the clinical nursing major. The results indicated that undergraduate nursing students hold some negative perceptions of overweight/obese children with the students in the clinical nursing major being less negative than the pre-nursing students. The students in the sample perceived that children who were overweight/obese did not lead normal lives, were prone to have family problems, had different personalities from those of other children, such as being untidy and being more emotional, and that people felt uncomfortable associating with children who were overweight/obese.^[22] This study suggested that the attitudes of these students were related to their lack of knowledge of the health issue.

5. DISCUSSION

This review has shown that there are very few articles on nurses' knowledge and attitude to overweight/obese children. Knowledge about factors related to overweight/obesity appear to be well understood. Evidence in the literature pointed that nurses believed child behavioural patterns such as poor dietary habits, and sedentary behaviour place a child at risk of becoming overweight/obese. Nurses reported children who are overweight/obese are at a higher risk of developing serious health problems, including hypertension, dyslipidaemia, insulin resistance diabetes, and other respiratory problems. However, while nurses are aware of the increasing prevalence of overweight/obesity in children, in many cases, nurses do not know the theoretical background to the measurements they use in practice and their general knowledge about childhood health issues is lacking. With the limited number of papers addressing nurses' attitudes to childhood overweight/obesity it is hard to draw significant conclusions.

Implication to nursing practice

Managing childhood overweight/obesity is a complex task, requiring collaboration between parents and health professionals. Nurses who work with overweight/obese children need education to improve their understanding and knowledge of childhood overweight/obesity so they can correctly identify these children and provide appropriate care. Childhood overweight/obesity is an increasing problem, and the

lack of literature shows that little is known about nurses' knowledge and attitudes. One strategy to address this lack of understanding is to provide education to clinical nurses at all levels. Nurses need to be prepared to provide better care to overweight/obese children, therefore education needs to be included in undergraduate nursing programs.

6. CONCLUSIONS

Nursing professionals play an important role in the management of children who are overweight/obese. Their attitudes and knowledge may determine whether they can perform their role effectively. Education is fundamental for nurses to be able to provide care to overweight/obese children. Further studies that focus on the evaluation of education related to knowledge and attitude of nurses to overweight/obese children are essential. However, in order to understand how education programs can be most effective, more extensive studies that evaluate nurses' knowledge and attitudes about this issue are required.

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CONFLICTS OF INTEREST DISCLOSURE

The authors declare they have no conflict of interest.

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