



FACULTY OF HEALTH AND OCCUPATIONAL STUDIES
Department of Caring Sciences



NURSING DEPARTMENT,
MEDICINE AND HEALTH COLLEGE
Lishui University, China

The experiences of children and adolescents living with obesity

A descriptive literature review

Zhang Li (Ashley)
Yu Liuqing (Audrey)

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Supervisor: Zhao Lei (Charlie)
Examiner: Annakarin Olsson

Abstract

Background: Obesity is a common metabolic disorder, which occurs in children and adolescents, and has attracted more and more attention. Obese children and adolescents are experiencing multiple impacts from physical, psychological, and social aspects, and need to improve their self-care ability and quality of life. So, it is meaningful to explore the experiences of obese children and adolescents.

Aim: To describe the experience of children and adolescents living with obesity.

Method: The study used Pubmed and Cilnal database, searched and selected the articles published the last ten years, limited to the English language, and selected articles according to PRISMA requirements, and summarized the content of the articles through comparison and classification.

Results: When children and adolescents discovered that they were obese, they fell into a trap that included a variety of physical, psychological and social manifestations. Some would choose to change the situation, while others were afraid to ask for help. The experiences of children and adolescents living with obesity can be grouped into 3 categories: (1) Discover the fact of obesity, (2) Be caught up in a dilemma. (3) Break the shackles of obesity.

Discussion: When children and adolescents suffered from obesity, different people might have different experiences and feelings. Obese children and adolescents required professional guidance, social support, and mastery of self-care skills. Nurses should actively provide personalized nursing guidance, supervision, and follow-up to help obese children and adolescents improve their living standards.

Keywords: Obesity, Children, Adolescents, Experience, Living

摘要

背景：肥胖是一种常见的代谢疾病，多发于儿童和青少年，已引起越来越多的关注。肥胖儿童和青少年正经历着身体、心理和社会方面的多重影响，往往需要提高生活自理能力和生活质量。因此，探讨肥胖儿童和青少年的经历具有重要意义。

目的：描述肥胖儿童和青少年的生活经历。

方法：本研究使用 Pubmed 和 Cinal 数据库，搜索和选择了十年的文章，仅限于英语语言，并根据 PRISMA 要求选择文章，并通过比较和分类对文章内容进行总结。

结果：当儿童和青少年发现自己肥胖时，他们就陷入了一个困境，包括各种生理、心理和社会表现。有些人会选择改变现状，而另一些人则害怕寻求帮助。

儿童和青少年的肥胖经历可以分为三类: (1) 发现肥胖的事实 (2) 陷入肥胖困境 (3) 打破肥胖的枷锁。

讨论：当儿童和青少年患有肥胖症时，不同的人可能会有不同的经历和感觉。肥胖的儿童和青少年需要专业的指导、全社会支持，以及掌握自我护理技能。护士应积极提供个性化的护理指导、监督和随访，帮助肥胖儿童和青少年提高生活水平。

关键词：肥胖，儿童，青少年，经历，生活

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1. Introduction

1.1 Obesity

1.1.1 Definition

Obesity is a group of metabolic disorders that result from the interaction of genetic and environmental factors (WHO, 2021). The World Health Organization (WHO) defines overweight and obesity as "abnormal or excessive accumulation of fat that can impair health" (WHO, 2021). Body Mass Index (BMI) is a simple weight-for-height index that is commonly used to classify overweight and obesity in adults. It is defined as a person's weight (kg) divided by the square of his height (m) (kg/m²) (WHO, 2021). Child and adolescent obesity, on the other hand, is defined as weight greater than two standard deviations or higher than 95% of the same age group for people aged 5-19 years (WHO, 2021). The definition of adolescent age 10 to 24 is more in line with adolescent development and the general understanding of this life stage and helps to expand investment in a broader range of settings (Sawyer, Azzopardi, Wickremarathne & Patton, 2018). Therefore, the population standard included in this study is obese children and adolescents aged 5 to 24 years old.

1.1.2 Epidemiology of obese children and adolescents

Childhood is an important stage of growth and development, and the health status of children will profoundly affect their health status when they grow up and become adults. In recent decades, the global obesity rate among children and adolescents has shown an increasing trend in both developed and developing countries and has reached epidemic proportions (Andrie *et al.*, 2021). Therefore, childhood and adolescent obesity is considered to be a serious public health problem in the 21st century that requires urgent attention and efforts to address it (Sahoo, Sahoo, Choudhury, Sofi, Kumar & Bhadoria, 2015; WHO, 2021).

Study indicated that by 2030 the detection rate of obesity among children aged 7 years and older in China will be as high as 28.0% (Ma, Mi & Ma, 2017), while a recent simulation study in the United States found that 55%-60% of children will be obese (Ward, Long, Resch, Giles, Cradock & Gortmaker, 2017). Some studies have even shown that obesity in childhood is more likely to persist into adulthood (Wang, Zhang, Zhang, Pan & Ma, 2008), and the earlier obesity occurs, the greater the likelihood of obesity in adulthood. In addition, it can be found through the research of scholars that obesity will cause a greater negative impact on physical health in childhood, and compared with

children of normal weight, obese children have a higher risk of metabolic syndrome, making hypertension, diabetes and other diseases at a younger age, and increasing the chances of obesity and some chronic diseases in adulthood (Yuksel, Şahin, Maksimovic, Drid & Bianco, 2020). Therefore, curbing the obesity epidemic in childhood and adolescence has become a priority issue for research in international public health (Nishtar, Gluckma & Armstrong, 2016).

1.2 The experience of parents of children and adolescents with obesity

Parents of obese children and adolescents say their children are often subjected to weight-related teasing and bullying after discovering they are obese (Roberts, Polfuss, Marston & Davis, 2021). They perceive that their child is in a very bad psychological state, and express dissatisfaction with the medical establishment for not doing anything about the actual symptoms (Roberts *et al.*, 2021). As a result of weight stigma, parents say their children's weight gain is their fault and express feelings of disappointment for their children (Roberts *et al.*, 2021). Parents talk more with their obese children, monitor their diets, and impose more restrictions (Lydecker & Grilo, 2016). Parents say obesity is not just a public health issue, but a family issue (Appleton, Fowler & Brown, 2017). They believe a lack of education or inappropriate parenting is the main cause of childhood obesity. Parents encounter many challenges when they try to stick to the principles of providing a healthy lifestyle for their children. So, parents think society needs to take on more responsibilities, such as schools and childcare centers (Appleton *et al.*, 2017).

1.3 Nurse' s role

Nurses take on the role of educators in many settings (ICN, 2021), especially with this population of obese children and adolescents, and health education for them and their families is essential. This includes teaching about the treatment care and prevention of obesity, knowledge, and ways to stay healthy. This population of obese children and adolescents needs to be educated by caregivers to improve their daily lifestyle (diet, exercise, etc.) by enhancing self-care, and one study showed that primary care providers can incorporate targeted education on physical activity and dietary changes into their daily practice to reduce their hypertension (Lopez, Stuckey & Mallory, 2016).

As managers, nurses should help obese children and adolescents develop plans to promote physical activity and dietary changes, monitor their food intake, incorporate nutrition into

daily care, and emphasize the importance of health. Promote a healthy lifestyle and prevent the occurrence of complications (Aifric Rabbitt & Imelda Coyne, 2012). The experiences of obese children and adolescents often reflect complex issues, and nurses work as an essential part of a multidisciplinary team, collaborate with other medical personnel to implement effective health education for obese children and adolescents to improve their quality of life (Sølvi Helseth, Kirsti Riiser, Bettina Holmberg Fagerlund, Nina Misvær & Kari Glavin, 2017).

1.4 The self-care role

Orem Deficit Self-Care Theory (Orem, 2001) was proposed and established by the famous American nursing theorist Dorothea Orem. Self-Care Deficit Theory of Nursing (S-CDTN) holds that individuals should be responsible for self-care related to their health, the purpose of nursing intervention is to help people improve their self-care ability, which is composed of the following four related theories:

(1) The theory of self-care Self-care: It is a necessary condition for individuals to meet functional and developmental regulations to maintain life, healthy functioning, continued personal development and well-being (Orem, 2001).

(2) The theory of dependent care: It explains how family members or friends can provide dependent care for a socially dependent person (Orem, 2001).

(3) The theory of self-care deficit (core part): It means individuals have unique self-care ability and self-care needs at certain times, but when nursing needs are greater than self-care ability, nursing care is needed (Orem, 2001).

(4) The theory of nursing systems: Three kinds of nursing compensation systems: Wholly compensatory system, partly compensatory system, Supportive-educative system (Orem, 2001). As a common metabolic disorder, obesity has brought multiple impacts on the physiological, psychological, and social aspects of children and adolescents (WHO, 2021). As educators, nurses are responsible for helping them and their families with health education to improve their ability to take care of themselves and their quality of life.

1.5 Previous research

Children and adolescents are often obese due to behavioral, dietary, lifestyle, pharmacological, and genetic factors, with subsequent effects on their bodies, minds, and all aspects of their lives (Aggarwal & Jain, 2018). Obesity has now been extensively studied in terms of children's and adolescents' responses to various interventions and is

often measured and described in quantitative terms (Ahn, Zhang, Berlin, Levy & Kabra, 2020).

Despite the growing awareness of the integral role of the obese child and adolescent experience for health research, very few studies have systematically analyzed the lived experiences of obese children and adolescents and provided a more comprehensive understanding of their lived experiences based on the findings of the combined studies (Farrell, Hollmann, Roux, Bustillo, Nadglowski & McGillicuddy, 2021). Most research findings only analyze the experiences of obese children and adolescents in certain aspects, such as the selection and control of food intake and types (Sikorska, Połomska & Sozańska, 2022), or the lack and management of physical exercise (Skogen & Høydal, 2021). Some studies only analyze psychological factors, such as sensitivity to obesity (Andrie *et al.*, 2021). The above studies have focused on a certain aspect of the experiences of obese children and adolescents but lack comprehensive and systematic analysis. At the same time, there are more studies combining obese children and adolescents with nursing interventions (Yuksel *et al.*, 2020), while fewer studies combining self-care.

1.6 Problem description

Obesity is defined as abnormal or excessive fat accumulation (WHO) that can damage health as well as have an impact on the persons quality of health. Childhood and adolescent obesity are a serious public health problem in the field of global health in the 21st century (Sahoo *et al.*, 2015). People's lifestyle, psychological factors, environmental factors, and social factors are important influencing factors leading to obesity (Lee & Yoon, 2018). Childhood obesity might lead to obesity in adulthood, and have a greater risk of cardiovascular disease, hypertension, disability, and other diseases (Nishtar *et al.*, 2016).

At present, the focus of this study population is to explore the nursing measures and clinical practices adopted by nurses for obese children and adolescents. There is still relatively little nursing research on how to effectively improve the self-care ability of obese children and adolescents to improve their quality of life. To improve the quality of life of obese children and adolescents and fill the research gap, it is meaningful to explore their experiences from the perspective of obese children and adolescents.

1.7 Aim and research questions

The aim of the literature review was to describe the experiences of children and adolescents living with obesity.

What was the experiences of children and adolescents living with obesity?

2. Methods

2.1 Design

The study was a descriptive literature review (Polit & Beck, 2017).

2.2 Search strategy

2.1.1 Databases

Articles was found by searching in the databases PubMed and Cinahl (Polit & Beck, 2017), with certain limits, see table 1.

2.1.2 Search terms

The search terms that were used was Obesity, Experience, Children and Adolescent, one by one and in different combinations with each other. When searching in combination, the Boolean term AND will be used to help us screen out articles with all the keywords (Polit & Beck, 2017). Indexed search terms will be fetched from MeSH and Cinahl headings. In the preliminary search (see Table1), a total of 29 articles that might be suitable for the literature review were selected.

2.1.3 Search limits

These searches were limited to the English language, published in the last ten years (*Publication date: 2012-07-01 to 2022-07-01*). The authors used obesity as MeSH term and rest of the search terms are free text words (Polit & Beck, 2017).

Table 1. Results of preliminary database searches.

Database	Limits and search date	Search terms	Number of hits	Potential articles (excluding doubles)
Cinahl	10 years, English 2022-07-01	“Obesity” (MeSH) AND“experience” (free text)	43	7
Cinahl	10 years, English 2022-07-01	“experience” (free text) AND“Obesity” (MeSH) AND“children” (free text)	12	1
Cinahl	10 years, English 2022-07-01	“experience” (free text) AND“Obesity” (MeSH) AND“adolescent” (free text)	3	1
Cinahl	10 years, English 2022-07-01	“experience” (free text) AND“Obesity” (MeSH) AND“children” (free text) AND“adolescent” (free text)	0	
Medine via PubMed	10 years, English 2022-07-01	“Obesity” (MeSH) AND“experience” (free text)	1539	
Medine via PubMed	10 years, English 2022-07-01	“experience” (free text) AND“Obesity” (MeSH) AND“children” (free text)	458	2
Medine via PubMed	10 years, English 2022-07-01	“experience” (free text) AND“Obesity” (MeSH) AND“adolescent” (free text)	355	18
Medine via PubMed	10 years, English 2022-07-01	“experience” (free text) AND“Obesity” (MeSH) AND“children” (free text) AND“adolescent” (free text)	214	
				Total 29

2.3 Selection criteria

The exclusion criteria were used:

Articles that deal only with the experiences of parents, nurses, or one other caregiver of obese children and adolescents, and other review studies (Polit & Beck, 2017).

The inclusion criteria were used:

- ①Articles should be relevant to the purpose of the review study (i. e., experiences of obese children, adolescents).
- ②The age range of obese children and adolescents in this study is set at 5 to 24 years old, which is a comprehensive range obtained by the author after reading various age ranges from the ten articles selected in the result section.
- ③Empirical scientific articles using qualitative methods.

2.4 The selection process and outcome of potential articles

In the results section, by entering search terms and setting limits (see Table 1) in the PubMed and Cinahl databases and reading the titles of the articles, a preliminary selection was made. The literature search identified 214 records on PubMed and 58 records on Cinahl, with a total of 272 articles appearing to meet the inclusion criteria. The author further selected articles that might be relevant to the aim of the literature review by reading the abstract of the articles. The exclusion criteria included 27 articles that belonging to reviews were excluded, 90 articles that did not reflect the obesity experience of children and adolescents, the age range of 126 articles was inconsistent with the research age range set in this study. The remaining 10 articles were included in the literature standard after reading the whole result part. Figure 1 shows the article selection process.

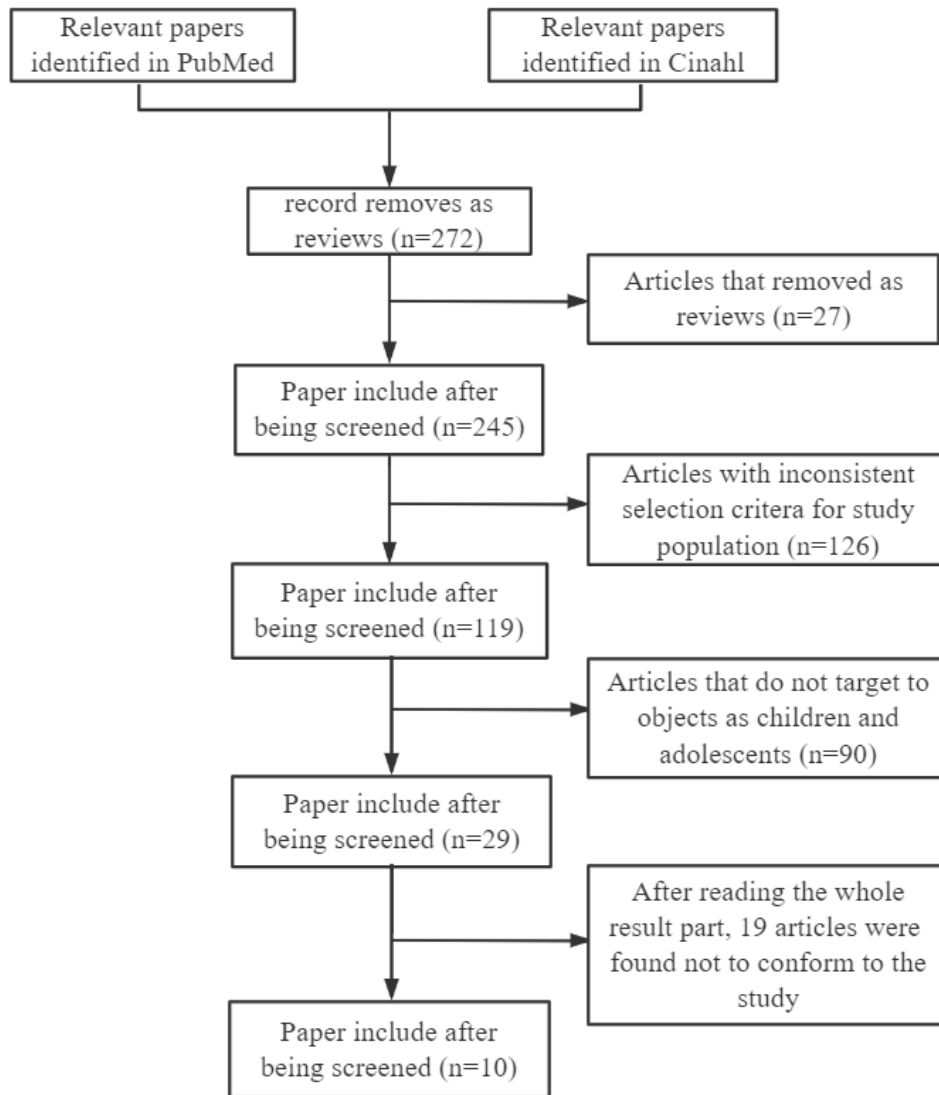


Figure1. Flow chart of the literature search.

2.5 Data analysis

The Result section of the articles included in the degree program was read and carefully processed to summarize the experiences of obese children and adolescents. The authors read the results section of each article carefully. During the reading process, focus was on those parts of the articles that were relevant to the purpose of the study. After reading all articles, the authors compared and categorize the highlighted sections in the same category. The authors set up main categories and subcategories to integrate the content. A main category is a short description that combines two or more similar subcategories or content and summarizes the key subcategories (Joanna Briggs Institute, 2014). A subcategory is a relatively small range of categories within the established main categories, providing additional information about the main categories (Joanna Briggs

Institute, 2014). Ten references in the result section were represented by A-J in the order of authors' surnames, and the main categories of the results were represented by 1, 2, 3, and the subcategories in the main categories were represented by ①, ②, ③. For example: A1, A2. Authors will categorize and address all key points based on their characteristics to understand the experiences of obese children and adolescents (Polit & Beck, 2017).

2.6 Ethical considerations

All articles in this study have been read objectively, independent of the authors' own opinions and attitudes. Appropriate uniform reference formats are also used to indicate the source of the research material and to help summarize objective results. The ethical dilemmas in this study are low risk. The articles were analyzed and discussed objectively with respect to the research material. The results of the study were presented in full, and the article will be objective and truthful, it would not make modifications based on the author's personal wishes. This is a method recommended by Polit & Beck (2017).

3. Results

3.1 Sample characteristics

The results were based on ten qualitative articles relevant/answering to the purpose of the study, which the authors identified by shifting through titles, abstracts, and results. The included articles were published between 2012 and 2022, two articles were conducted in Norway, two in the United States, two in the United Kingdom, one in Iran, one in Sweden, one in Brazil, and one in China. The total sample of participants included in the study was 351, of which nine articles included 147 females and 126 males, and the remaining article had an unknown ratio of males to females and ranged in age from 10 to 24 years. Among the ten qualitative articles, five articles were conducted through focus group interviews, while the remaining five articles were conducted through semi-structured interviews. Content analysis method was adopted in two articles, thematic analysis method was adopted in four articles, one article adopted both thematic analysis and content analysis method, one article adopted both content analysis and inductive analysis method, and one article adopted data-driven analysis and thematic cross-case analysis. An article used both qualitative content analysis and Goffman's dramaturgical action model.

Main categories and subcategories were identified by comparing and summarizing the characteristics of the experiences of different obese children and adolescents. These categories and subcategories are shown in Table 5. The results are displayed as running text and tables (Tables 2 and 3). Table 4 showed that the author classifies the main categories and subcategories contained in the ten articles in the results section and classified them into the three main categories in this article. The results of the included article are marked with an asterisk (*) in the list of references.

Table 5. Main categories & Subcategories

Main categories	Subcategories
Discover the fact of obesity	Dissatisfaction with self-image
	Huge food intake
	A terrible shortage of exercise time
	Enormous physical and mental stress
Be caught up in a dilemma	Obesity is a sensitive and intimate topic
	Fragile social relationships
	Malicious network environment
	Additional damage due to gender
Break the shackles of obesity	Be brave to make changes
	Fear of accepting help

3.2 Discover the fact of obesity

When obese children and adolescents found themselves obese, they were different in every way. They began to feel dissatisfied with their bodies and appearance and became sensitive to the topic of obesity (Sand, Emaus & Lian, 2015; Engström, Abildsnes & Mildestvedt, 2016). The obesity in some of them were often due to unhealthy eating patterns and improper eating habits (Wong, Sit, Tarrant & Cheng, 2012; Gonçalves H et al., 2012; Reece, Bissell, Copeland, 2016; Øen, Kvilhaugsvik, Eldal & Halding, 2018). Some people were physically inactive because they've been sitting indoors for too long (Bagherniya, Darani, Sharma, Allipour-Birgani, Taghipour & Safarian, 2019), while others were exposed to high stress levels around them.

3.2.1 Dissatisfaction with self-image

Adolescents said that after discovering their obesity, they were initially dissatisfied with their body and appearance, and they remained extremely sensitive to the topic (Sand *et al.*, 2016). Because their overweight body and external image were not valued, they said that they are often criticized by others and afraid of others' evaluation, so exposing their body would make them feel depressed (Engström *et al.*, 2016). They said that they had no dignity because of obesity, so they were more inclined to reduce weight through the new theme and trend of fitness to enhance their confidence (Sand *et al.*, 2015).

3.2.2 Huge food intake

Children and adolescents perceived that family diet and acquired family habits played an important role in their eating patterns (Wong *et al.*, 2012). They perceived that their obesity often stemmed from unhealthy types of diet and irrational eating habits, which included the ease of access to snacks (Wong *et al.*, 2012).

Children reported that snacks were often used as a reward for good behavior or academic achievement by their parents to well satisfy their emotional needs. They were more likely to have access to snack sources and ate a variety of snacks uncontrollably whenever the family was out and about (Wong *et al.*, 2012). In school life, children also shared and exchanged snacks with their classmates, and bought a lot of cheap food from convenience stores on their way to school (Wong *et al.*, 2012). The children considered that their parents or grandparents in the family, as their caregivers, tried to convince them that eating fat would bring health and wealth. They reported that their elders simply made them eat more, only to find themselves gradually falling into health problems (Wong *et al.*, 2012).

Adolescents believed that in their families, abundance of food was perceived as recognition of economic achievement. Food intake signified their level of social power, economic ability, and social prestige. The higher the intake, the more concentrated the social power, the higher the economic ability and the higher the social prestige. Therefore, they wanted to show their social status and economic power by consuming more food (Gonçalves *et al.*, 2012).

Adolescents hold the view that emotions also influence the amount of food they eat. Obese adolescents did not care about the type of food, but the amount of food they could not control (Cardel *et al.*, 2020). They consumed large amounts of food could reduce

emotions such as sadness, boredom, loss, and depression when faced with social events in each situation. Also, they believed that the diversity of family members affects their food preferences, and they imitated their parents' uncontrolled eating habits (Cardel *et al.*, 2020) and often realized that their actual intake exceeds their expected intake (Øen *et al.*, 2018).

3.2.3 A terrible shortage of exercise time

Children were indoctrinated with the idea that excellent grades were more important than a healthy body. They were under heavy academic pressure with extracurricular classes taking up almost most of their time after school (Wong *et al.*, 2012; Bagherniya *et al.*, 2019). And at the same time, they faced intangible competitive pressures at school such as frequent exams and promotion tests (Bagherniya *et al.*, 2019), all of which led to long periods of sedentary indoor lack of exercise. Female adolescents also reported that when they experienced weight loss, they did not have the option to exercise for a longer period, which also become a hindrance to weight loss (Cardel *et al.*, 2020).

3.2.4 Enormous physical and mental stress

Some adolescents said the reason for their obesity was the pressure their parents put on them. Because as premature babies they were thought to need to be given more nutrition and food to make up for the nutritional deficiencies of their infancy and childhood, this also led to their obesity. Because of obesity, they experienced a long period of growth where they were called "fat" or "chubby" by the outside world, so they were under a lot of pressure. They said that it was like a physical burden to win appreciation and goodwill (Gonçalves *et al.*, 2012). The large amount of homework was seen as another powerful source of stress by adolescents (Bagherniya *et al.*, 2019). Frequent school exams often made adolescents worry about test preparation and test results (Bagherniya *et al.*, 2019).

3.3 Be caught up in obesity dilemma

Obese children and adolescents were often trapped in a dilemma where they perceived obesity as an extremely sensitive topic (Sand *et al.*, 2015) and the challenges of maintaining an active lifestyle in an environment with little social support (Reece *et al.*, 2016). Obese children and adolescents in the Internet environment often maintained a cautious attitude to protect themselves from malicious attacks (Holmberg, Berg, Hillman, Lissner & Chaplin, 2018). And gender differences were a big damage to escaping the

obesity dilemma.

3.3.1 Obesity is a sensitive and intimate topic

Most obese children and adolescents with agreed that obesity was a sensitive subject because they were very concerned about what others thought, but they said only some people were sensitive to it. They knew that girls tending to judge others based on what they saw and heard (Sand *et al.*, 2015).

3.3.2 Fragile social relationships

Obese children and adolescents could do nothing about how to change, and they identified the biggest challenge as the practical difficulty of maintaining post-treatment lifestyle changes (Reece *et al.*, 2016). They often faced a lack of social support environment, often alienated, bullied, and discriminated against fragile social relationships, such as betrayal by friends, altered emotional states, and disruptive weight loss behaviors. They were afraid to being talkative at school and had a negative attitude towards the future. Obese girls were often teased about their weight and being called ugly names by boys, only a few trusted friends around them (Øen *et al.*, 2018).

3.3.3 Malicious network environment

Obese children and adolescents often worried about the safety of the online environment, mainly because their presence was more likely than the average person to be malicious comments, so they often adopted anonymous registration methods to protect their privacy. They also avoided platforms that were prone to bullying hatred, communication, and interaction with unfamiliar users, staying vigilant, avoiding sharing excessive personal information, and listening carefully to friendly advice from friends. Adolescents said they had developed a higher awareness of psychological risks and potential network threats (Holmberg *et al.*, 2018).

3.3.4 Additional damage due to gender

Obese female adolescents often reported more barriers to change than males in terms of physical activity, support from friends and adjusting to a healthy lifestyle. They said well-meaning comments from parents could backfire and often hurt female adolescents more than male ones. (Cardel *et al.*, 2020)

3.4 Break the shackles of obesity

Faced with the obesity dilemma, individual choices were different. Obese children and adolescents might choose to change their situation and made positive changes. They might use personal strategies to make ongoing lifestyle changes (Engström *et al.*, 2016). Others refused to change because they were afraid to ask for help.

3.4.1 Be brave to make changes

Children and adolescents who have experienced obesity said they were mostly aware of alternative treatments, including drugs and bariatric surgery, but preferred to lose weight on their own. They believed that the availability of treatment in this age group was limited (Reece *et al.*, 2016). At the same time, they felt that support from family and friends increased their sense of self-worth and confidence to change their situation. On the contrary, they felt depressed at the thought of untrustworthy friends. Whether they achieved their goals or not, they will receive support and praise. They appreciated advice from their surroundings and shared experiences (Engström *et al.*, 2016). Obese children experienced positive changes in their lives, and through regular meals, improved diet composition, reduced amounts of candy and junk food, and regular physical activity, they reported falling asleep more easily, performing better in school, enjoying sports, making decisions more easily, and becoming happier. They used personal strategies to make sustained lifestyle changes including Internet-based weight management plans, short-and long-term goals, and most importantly, they told themselves not to repeat the same mistakes (Engström *et al.*, 2016). Many adolescents said they would be encouraged by positive conversations with their doctors about weight management (about BMI), felt that the doctor's comments had a lot to do with the adolescents' health, and that the fundamental reason they were motivated to lose weight was for health (Alexander *et al.*, 2018). Many adolescents advised their parents or caregivers to talk about weight, both to raise awareness and because parents had a lot of responsibility for their children's health, such as influencing how they eat (Alexander *et al.*, 2018). Obese adolescents with asthma also cited weight control as motivation to improve asthma control and were encouraged to consider weight management recommendations more seriously (Alexander *et al.*, 2018).

3.4.2 Fear of accepting help

Obese adolescents often believe that the availability of maintenance treatment was limited,

especially for their group. While they knew there were other treatments available, there was a treatment gap with their expectations and further exploration was needed (Reece *et al.*, 2016). Obese adolescents found it important, but seemingly challenging, to seek help. Because asking for help threatened their secrets and made them feel depressed and ashamed. They believed society's perception of obesity and its causes was also a huge deterrent (Øen *et al.*, 2018). Adolescents who experienced obesity said they had a complicated medical experience, often with excessive demands and inappropriate words, which could lead to their feelings of shame and increased fear of losing support (Øen *et al.*, 2018).

4. Discussion

4.1 Main result

In the ten articles, three categories were extracted that described the experiences of obese children and adolescents, (1) Discover the fact of obesity, (2) Be caught up in obesity dilemma and (3) Break the shackles of obesity. The life experiences of obese children and adolescents reflected their different physical, psychological, and social effects. When they discovered that they were obese (huge food intake, lack of exercise), many things were affected and changed, such as getting into the dilemma of obesity (sensitive topics, weak social relationships, additional damage caused by gender) and tried to break the shackles of obesity.

4.2 Result discussion

4.2.1 Discover the fact of obesity

Obese children and adolescents were able to recognize their obesity problem and said that their obesity often stems from unhealthy eating types and irrational eating habits, with family playing a large factor. In some families, children's eating style was more influenced by their mothers and grandmothers. They were often provided with traditional high-calorie and high-fat food, such as meat, sweet tea, which was regarded as the elders' expectation, love, and care for children (Zhang, Cai, Ma, Jing, Chen & Ma, 2016 ; Boni, 2022). Compared with underweight or normal-weight children, they were more likely to have a faster eating rate than their peers (Zhang *et al.*, 2016). However, when children consciously changed their eating habits, there were problems affecting their food choices, so it was difficult to change the intake and types of food (Zhang *et al.*, 2016).

Many obese children were prone to be blamed and ridiculed for their poor performance in group activities, which led to great physical and mental stress, and they avoided physical activity as a result (Boni, 2022; Skogen & Høydal, 2021). In addition, some obese children were unable to do all the activities in physical exercise because they experienced physical pain, and this was considered by teachers and classmates as an excuse they made up (Skogen & Høydal, 2021).

Obese children and adolescents were often under great psychological pressure from family and the outside world. Academic pressure accounted for most of them. Boni's research showed that schoolwork greatly influenced children's daily practices and was seen as a factor that affects a child's potential and ability to make healthy personal choices. When children returned home from school, they needed to spend a lot of time doing homework, leaving little free time for physical activity (Boni, 2022). At the same time, SangNam's research showed that obese children had more mental health problems than normal-weight children, including hyperactivity, anxiety, depression, and behavioral problems (Ahn, Zhang, Berlin, Levy & Kabra, 2020).

However, some obese children and adolescents had poor self-care skills, their current care needs were greater than their self-care capacity and required support from nurses (Orem, 2001). Nurses can help obese children and adolescents realize role and relationship changes earlier, adjust psychology in time, and provide timely support and treatment when obesity is detected. Such as developing good decision-making skills in nutrition and physical activity in order to develop and achieve a healthy lifestyle (Pbert, Druker, Gapinski, Gellar, Magner, Reed, Schneider & Osganian, 2013), so that they learn the corresponding self-care skills to adapt to current changes.

4.2.2 Be caught up in obesity dilemma

Most obese children and adolescents agreed that obesity was a sensitive topic. In Roberts's study, obese children and adolescents were very sensitive about their weight and reported struggling with body image, self-esteem, and mental health (Roberts *et al.*, 2021).

Obese children and adolescents often faced fragile social relationships. Hammar's study found that obese children and adolescents experienced greater levels of bullying than people of normal weight (Hammar, Bladh & Agnafors, 2020). Roberts's research also found that obese children and adolescents reported being bullied at school because of

their weight, including physical violence like being thrown backpacks by classmates and being beaten by peers (Roberts *et al.*, 2021). These bullying were often described by them as a pattern that has persisted for years. Teasing from peers or siblings like "elephant, honey, cloth and fat Santa, " or used terms like "food baby" and "manubes" to describe their bodies (Roberts *et al.*, 2021). And Crouch's research showed that overweight or obese children were less likely than underweight or healthy weight children to participated in extracurricular activities and volunteered in their community, school, or church, which caused them to become alienated from the social relationships around them (Crouch, Radcliff, Kelly, Merrell & Bennett, 2022).

Different genders of obese children and adolescents experienced different adverse problems. It tended to hurt female adolescents more than male adolescents. This was because society had different weight expectations for male and female adolescents. Female adolescents were expected to be thin, and male adolescents were often expected to be physically fit and strong (Boni, 2020). In many families, females were more likely than males to be criticized for their weight and appearance. They tended to describe themselves in terms of social connections and valued belonging and social connection more highly (Crouch *et al.*, 2022). Isohookana's research also showed this. Females were more likely to show obesity fear, excessive exercise, overeating and other behaviors. Emotional disorders, anxiety disorders and other diagnoses were also more common in female obese children and adolescents (Isohookana, Marttunen, Hakko, Riipinen & Riala, 2016). At the same time, Hammar's study showed that compared with males, females were less likely to have behavioral problems and more likely to have emotional problems (Hammar *et al.*, 2020). Unlike other studies, Elizabeth's study found that when females experienced interpersonal stress, their focus may shift from the body to the stressors, made it less likely that negative emotions were diverted to concerns about weight itself (Dougherty, Goldschmidt, Johnson, Badillo, Engel & Haedt-Matt, 2022).

Obese children and adolescents often struggled to maintain an active lifestyle in an environment that lacked social support. In order to meet the daily functioning and developmental rules necessary to maintain life, healthy functioning, personal development and ongoing well-being, they needed to learn self-care skills to enhance their quality of life (Orem, 2001).

Nurses play an important role in coordinating and delivering public health interventions for obese children and adolescents (Dawe & Coward, 2019). Nurses can help obese

children and adolescents face the issue of obesity, teach them self-care skills on how to properly deal with social relationships, and better adjust their mentality to integrate into their surroundings. Nurses can raise awareness of attitudes and prejudices about obesity (Fruh, Nadglowski, Hall, Davis, Crook & Zlomke, 2017).

4.2.3 Break the shackles of obesity

A portion of obese children and adolescents experienced positive changes in their lives and used self-care skills to change their current situation, such as regular eating, improved diet composition, reduced amounts of candy and junk food, and a healthy lifestyle such as regular physical activity. In Li's case study, obese children and teenagers expressed that they would actively participate in weight loss camp with the support of their parents, because they believed that attending weight loss camp was the fastest way to lose weight, and weight loss would make them more confident to get rid of the predicament of being laughed at and tortured by classmates (Li, Zhou & Hesketh, 2016). This was also shown in Ingeborg's study, which showed that to change self-doubt, anxiety, and body distortion, obese children and adolescents were expected to undergo good changes through training at weight-loss camps. They said they want to make themselves better by losing weight. At the same time, the variety and impact of sports could stimulate their interest and boost their confidence in losing weight. Moreover, children were often better able to participate in physical management with their school friends in their spare time. Furthermore, the feeling of being respected, understood, and cared for was essential for them to experience a connection and trust that further promotes the internalization of healthy behaviors (Skogen & Høydal, 2021). However, in Karyn J's study, obese adolescents described negative interactions with health care providers, shared stories of their physical symptoms being ignored, not taken seriously or not evaluated because of their weight. This led to anxiety and personal criticism about their weight, leading them to fear accepting outside help to change their obesity status (Roberts *et al.*, 2021).

Obese children and adolescents can focus on self-care, with the goal of enabling them to take responsibility for self-care (Orem, 2001). According to Orem's Self-Care Deficit Theory (S-CDTN), individuals are responsible for their own health-related self-care, so obese children and adolescents need to take responsibility for their own physical health and self-care for their own obesity (Orem, 2001). Ingeborg mentioned that obese children and adolescents looked for help in terms of diet structure, exercise programs, physical

and mental adjustment, social support, etc. By constantly adjusting the type and structure of their diet to suit their needs, they found a balance to control their food intake and desire to eat (Skogen & Høydal, 2021). Their skills in weight management improved under the guidance of exercise programs by professionals. At the same time, the richness of the type of exercise was positively correlated with the interest they generated; the more types of exercise, the more they expressed interest in exercise and were more willing to put it into practice (Skogen & Høydal, 2021). Also being given respect and encouragement from family, friends and professionals in part made obese children and adolescents more willing to engage in better self-care (Orem, 2001; Skogen & Høydal, 2021).

However, the self-care strength of some obese children and adolescents is not enough to meet the needs of self-care, which is the self-care deficit (Orem, 2001). Hoeeg mentioned that many obese children and adolescents admitted that they can't control weight loss and they thought it's shameful to reveal their unhealthy habits. They would go to a health care facility for help with weight control, but only a minority felt that the program offered by the health care facility was tailored to them and therefore they felt that the program was not applicable and relevant. They didn't seem to realize that they should implement the complete list of programs and thus didn't take any self-care measures in their lives. Some obese children and adolescents reported returning to self-care to improve their quality of life after experiencing a real connection and encouragement from a local nurse (Hoeeg *et al.*, 2020).

As educators, managers, and advocates, nurses can develop different nursing programs and follow-up plans for different individuals. Nurses can provide them with a balanced diet and healthy exercise recommendations, so that the weight of obese children and adolescents can be effectively controlled (Fruh, 2017). Nurses can also communicate with them face to face regularly to understand their psychological stress and social difficulties. For obese children and adolescents who are good at self-care, nurses can reward and praise them for their progress. For obese children and adolescents with self-care defects, nurses need to understand their actual situation and gradually develop a nursing plan to enhance their confidence and encourage them to change the dilemma. Nurses should teach them how to master self-care skills and improve their quality of life.

4.3 Method discussion

According to Polit & Beck (2017), a literature review is an academic paper, usually comprehensive and critical. It includes an assessment of the overall body of literature, as well as criticism of key individual studies. Prepared a latest review by gathering literature on a topic from a variety of sources and ultimately summarized the status of current research questions.

According to Polit & Beck (2017), the authors adopted clear, specific inclusion and exclusion criteria to ensure that the literature retrieved was closer to the research purpose of the review, thus improving the validity and authenticity of the study to a certain extent. The inclusion criteria for the authors were empirical scientific articles that used a qualitative or quantitative approach, that must be relevant to the purpose of the review study (i. e., the experience of obese children and adolescents). At the same time, the author set the language limit of the article, the article must be in English. At the same time, the author used a translation software to help to carefully read the literature repeatedly to avoid the risk of misunderstanding the literature. The authors also set a time limit for article searches, and articles should be published between July 1, 2012, and July 1, 2022. Limiting the search results helped the author to focus on the latest research progress in the last decade, improving the accuracy of the latest research progress, but also made the author ignore the earlier literature related to the purpose of the research.

According to Polit & Beck (2017), the author correctly carried out every step of the research process to ensure the effectiveness and accuracy of the search results, and to some extent improve the reproducibility of the research results. In the literature review, the authors used descriptive design to describe the experiences of obese children and adolescents living with obesity (Polit & Beck, 2017). According to the data collection method adopted in this paper, the author selected relevant articles for qualitative research, and the research results were completely consistent with the purpose of this study.

In this literature review, the author used two types of databases, PubMed and Cinahl, to collect literature related to this study. The authors also used the Boolean terms "AND" and "OR" to search for different combinations to screen out more articles relevant to the purposes of this study. Polit & Beck (2017) believed that the data collection method used by the author had advantages, which reduced the search scope, made the search results more consistent with the research purpose, and improved the reliability of the research results. The author also used MeSH in the data collection process, which reduced the

possibility of missing important relevant literature.

During the data analysis, the authors carefully read and processed the articles found to summarize the experiences of obese children and adolescents. The author carefully read the title, abstract, and results of each article. Focused on those sections of the text that are relevant to the purpose of the research. Other parts of the literature were not fully viewed, and relevant information may be ignored. According to Polit & Beck (2017), by sifting from the title to the end of the abstract and then to the results, the author selected more literature that meet the requirements from many databases to some extent. The author avoided subjectivity by re-reading the selected text. After reading all the articles, the author compared and classified the highlighted sections in the same category. During the reading process, to understand the experiences of obese children and adolescents, the author marked important information in the literature by "highlighting" or "underlining" and summarized it by creating tables. And using comparison and classification methods, main categories and subcategories were set up to integrate content. It was beneficial for future review and for the induction and extraction of important information.

4.4 Clinical implications

Obese children and adolescents have been shown to be at risk of becoming overweight and obese adults, and the potential problems affecting the physical health of this high-risk group are numerous. The American Medical Association (AMA) considers obesity to be a disease that is one of the leading causes of preventable death (Avila, Holloway, Hahn, Morrison, Restivo, Anglin & Taylor, 2015). And while obese children and adolescents can recognize that obesity is an urgent problem, there is a lack of systematic and rational planning to achieve and promote health. Therefore, the role of nurses in health guidance, supervision and follow-up among obese children and adolescents is very important. Currently, obese children and adolescents face significant stress in many areas due to obesity, such as external appearance and weight, diet, exercise, financial, and social support issues. Most obese children and adolescents and even their family and school environments were not sufficiently determined and willful to take care of themselves. In addition, most obese children and adolescents lacked encouragement and support in the weight management programs in which they participate, and were attacked with verbal violence, which greatly diminished confidence in weight loss (Hammar *et al.*, 2020; Ahn *et al.*, 2020; Boni, 2022; Skogen & Høydal, 2021). At the same time, there is a lack of systematic medical knowledge, psychological knowledge, and support from social

organizations, which hinders obese children and adolescents from engaging in self-care. This is detrimental to the self-care of obese children and adolescents.

Nurses should understand that each obese child and adolescent is unique and therefore the needs and guidance for everyone are different. Nurses should improve their abilities and systematically learn relevant medical knowledge, psychological knowledge and skills, and communication skills. Through multi-channel learning, they should absorb good experiences and internalize them to make a comprehensive analysis and integration of health guidance. With the help of systematic planning and guidance from nurses, obese children and adolescents can improve their body image, academic performance, social functioning, and self-esteem, and enhance their self-perception by participating in a multi-modal joint intervention (Browne, 2021).

The authors hope to address the needs of obese children and adolescents, increase their self-care capacity, improve quality of life, and use research as support to promote the development of self-care in obese children and adolescents.

4.5 Suggestions for further research

To better teach self-care skills to obese children and adolescents and provide personalized care, research conducted in a Chinese setting, from the perspective of families or health managers of obese children and adolescents, are needed. Future research is expected to further explore how nurses can improve the quality of life of obese children and adolescents by teaching self-care skills and identify problems that arise when nurses provide health education. In addition to improving the quality of life of obese children and adolescents, it also improves the nursing level of nurses as educators.

4.6 Conclusions

When children and adolescents living with obesity, different individuals may have different experiences and feelings. Finding themselves obese can put them in a dilemma to make different choices. Some choose to accept the status quo; others dare to change. Improving self-care skills can effectively improve the quality of life of obese children and adolescents. Nurses should actively provide personalized nursing guidance, supervision, and follow-up to help obese children and adolescents improve their living standards.

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Appendix

Table2. Characteristics of the included studies.

Author (s) + year/country of publication	Title	Design (possibly approach)	Participants	Data collection method (s)	Data analysis method (s)
Gwen L. Alexander., <i>et al</i> +2018+USA	Overweight adolescents and asthma: Revealing motivations and challenges with adolescent-provider communication	An descriptive design/A qualitative approach	Number: 35 Age: 13-18 Gender: 24 females, 11 males. Weight: BMI>85 percentile	Semi-structured, in-depth telephone interviews, using the Framework Method. Time: 6 Length: May through July 2014. Recorded method: audio taped, transcribed	Thematic analysis & quantitative data analysis
Mohammad Bagherniya., <i>et al</i> +2019+Iran	Qualitative Study to Determine Stressors Influencing Dietary and Physical Activity Behaviors of Overweight and Obese Adolescents in Iran	A qualitative approach	Number: 52 Age: 12-18 Gender: 27 males, 25 females Weight: BMI ≥85th percentile	In-depth semi-structured interviews and focus group discussions. Time: 4 Length: 30-90 (individual interviews), 60-150 (focus groups interviews Recorded method: audio taped and subsequently transcribed verbatim.	Conventional content analysis & inductive analysis
Michelle I. Cardel., <i>et al</i> +2020+USA	Perceived barriers/facilitators to a healthy lifestyle among diverse adolescents with overweight/obesity: A qualitative study	A qualitative approach	Number: 41 Age: 14-19 Gender: 13 males, 28 females Weight: BMI ≥85th percentile	Six female and four male focus groups. Time: 1 Length: 60-90 mins Recorded method: audio recorded, subsequently transcribed.	Thematic analysis
ANNA ENGSTRÖM., <i>et al</i> +2016+Norway	“It’s not like a fat camp” A focus group study of adolescents’ experiences on group-based	A narrative qualitative approach.	Number: 17 Age: 13-24 Gender: 10 females, 7 males. Weight: not mentioned.	Focus group interviews. Times: 3 Length: varied from 4 to 18 months. Recorded method:	Data-driven analysis & thematic cross-case analysis

	obesity treatment			transcribed verbatim.	
Helen Gonçalves., <i>et al</i> +2012+Brazil	Adolescents' Perception of Causes of Obesity: Unhealthy Lifestyles or Heritage?	A qualitative approach	Number: 78 Age: 16-17 Gender: There are both males and females, but the ratio is unknown. Weight: BMI \geq 95th percentile at 11 and 15 years old.	Semi-structured interviews. Times: 3-4 Length: September 2009 to March 2010 Recorded method: audio-taped, transcribed verbatim	Thematic analysis
Christopher Holmberg., <i>et al</i> +2018+Swedish	Self-presentation in digital media among adolescent patients with obesity: Striving for integrity, risk-reduction, and social recognition	A qualitative study design/An interpretative approach	Number: 20 Age: 13-16 Gender: 11 girls and 9 boys Weight: 11 participants were classified as having morbid obesity, 8 as having obesity, and 1 as being overweight	Semi-structured interviews, followed a thematic interview guide. Time: During a two month period starting in spring 2015. Length: 30-65 min Content: initial open-ended questions Recorded method: transcribed verbatim	Qualitative content analysis & Goffman's dramaturgical action model
Gudbjørg Øen., <i>et al</i> +2018+UK	Adolescents' perspectives on everyday life with obesity: a qualitative study	A descriptive, qualitative approach	Number: 5 Age: 12-15 Gender: 3 girls and 1 boy in the eighth grade and 1 girl in the ninth grade. Weight: >30-isoBMI	Individual in-depth interviews were carried out based on a semi-structured interview guide. Time: 2 Length: 40-85 Recorded method: audio taped, and transcribed verbatim.	Qualitative content analysis
Lindsey J. Reece., <i>et al</i> +2015+UK	"I just don't want to get bullied anymore, then I can lead a normal life"; Insights into life as an obese	A qualitative research approach.	Number: 12 Age: 11-16 Gender: 4 males, 8 females. Weight: above the 91st centile.	One-to-one interviews and small focus groups. Times: not mentioned. Length: 15-35mins	Thematic analysis

	adolescent and their views on obesity treatment			Content: 12 open questions Recorded method: recorded and transcribed verbatim	
ANNE-SOFIE SAND., <i>et al</i> +2015+Norway	Overweight and obesity in young adult women: A matter of health or appearance? The Tromsø study: Fit futures	A qualitative research approach	Number: 12 Age: 18-20 Gender: Females Weight: One group's BMI is 27.0-32.9kg/m ² . The other group's BMI is 18.5-24.9kg/m ² .	Semi-structured, individual in-depth interviews based on an interview guide. Times: 2 Length: June 2013 to February 2014 Recorded methods: verbatim transcriptions.	Qualitative content analysis
E. M. Y. Wong., <i>et al</i> +2012+China	The Perceptions of obese children in Hong Kong towards their weight loss experience	An exploratory qualitative design/A qualitative approach	Number: 79 Age: 10-13 Gender: 54 males and 25 females. Weight: more than 120% of the median weight for height.	Focus group interviews and a semi-structured interview. Times: 6 Length: 30-45mins each time Recorded method: audio taped using a digital voice recorder	content analysis & thematic analysis

Table3. Overview of selected articles' aims and main results.

Author (s)	Aim	Result
Gwen L. Alexander., <i>et al</i>	This study aimed to assess teens' awareness of the link between weight and asthma management, and perspectives on how medical providers might open a discussion about managing weight.	A1: Good control and worry on asthma A2: Appraisals of body weight and the weight conversation ① Acceptance ② Discomfort with the weight conversation ③ Providers' words and motivation to change ④ Adolescents' suggestions for permission, words, and tone ⑤ Influence of parents' behaviour ⑥ Link between asthma and weight ⑦ Recommending weight loss to help control asthma A3: Weight conversation about preferences for statements
Mohammad Bagherniya., <i>et al</i>	The aim of this study was to explore the sources and role of stress on developing unhealthy lifestyle practices pertaining to diet and physical activity among overweight and obese adolescents.	B1: School originated stress ① Pressure from too much homework ② Pressure from frequent examinations ③ "Priority for studying at both school and home" B2: Family originated stress ① Parental destructive conflicts ② Divorce ③ Socio-familial issues
Michelle I. Cardel., <i>et al</i>	This qualitative study's objective was to assess perceived barriers/facilitators to weight loss and healthy lifestyles among diverse adolescents with overweight /obesity (OW/OB).	C1: Barriers: Commonalities across sexes C2: Barriers: Differences specific to females C3: Facilitators: Commonalities across sexes C4: Facilitators: Differences specific to females--nothing C5: Intersection of facilitators and barriers: Commonalities across sexes C6: Intersection of facilitators and barriers: Differences specific to females
ANNA ENGSTRÖM., <i>et al</i>	This study aims to explore adolescents' and young adults' motivation for attending group-based obesity treatment and social and environmental factors that can facilitate or hinder lifestyle change.	D1: Motivation ① dissatisfaction with body and appearance ② promises of external rewards from parents ③ support from the family ④ please someone else D2: Body experience and self-image D3: Relationships and sense of belonging D4: Positive changes in your daily life

Helen Gonçalves., <i>et al</i>	To evaluate adolescents' perception of the causes of obesity, with emphasis on differences according to nutritional status and socioeconomic position.	E1: Family, meals and fat: heritage and identity E2: Sociocultural pressures, unwanted effects, and life events E3: Medicalization, popular knowledge, and social problems
Christopher Holmberg., <i>et al</i>	To explore the experiences of adolescents in treatment for obesity in terms of how they present themselves on social media, their rationale behind their presentations, and their feelings related to self-presentation.	F1: Creating a safe and purposeful stage ① Avoiding platforms that enable unkind comments. ② Selecting platform according to what one wants to present ③ Managing and probing one's audience F2: A special, admirable, and modifiable front stage ① Presenting what is important to oneself and expected from others ② Enhancing one's manner and masking one's weight F3: : Keeping health backstage
Gudbjörg Øen., <i>et al</i>	This study aimed to gain an in-depth understanding of the perspectives and life experiences of adolescents living with obesity to guide interventions and strengthen the patient-clinician partnership.	G1: Obesity as a multi-faceted and "difficult-to-solve condition" ① Adolescent' perspectives on causes of obesity ② Challenges in changing behaviour G2: Bullying and fragile social relationships ① Bullying and fragile social relationships ② The family as the primary source of support G3: Obesity as a shameful and sensitive issue ① An urge for secrecy ② The ambiguity of asking for help ③ The complex health-care encounters
Lindsey J. Reece., <i>et al</i>	The aim of this study was to explore the adolescent experience of living with obesity and their engagement with obesity treatments, in order to help inform the evidence based for developing programmes that can support young people to manage their weight in the long-term.	H1: Accounts about the determinants of obesity ① a problematic or disordered relationship with food ② bullying and stigmatization alongside their experiences of being obese H2: Experiences with obesity treatments ① professional support ② actual difficulty in maintaining lifestyle changes post-treatment H3: Awareness and beliefs around alternative treatment approaches
ANNE-SOFIE SAND., <i>et al</i>	The present study seeks to explore how young adult	I1: The magnitude of the focus-health, appearance,

	<p>women from two weight groups, overweight and normal, experience the focus on body weight and lifestyle issues and how these experiences influence attitudes towards weight changes. To examine if the focus on body weight is an issue mainly related to health or to appearance, and to what extent overweight and obesity are perceived as sensitive issues.</p>	<p>and fitness issues I2: The power of definition and being proud of yourself I3: Overweight and obesity as a sensitive theme</p>
<p>E. M. Y. Wong., <i>et al</i></p>	<p>This descriptive qualitative study has sought to identify factors affecting obese children's weight-loss decision making and process and to explore the development of an effective weight-loss program.</p>	<p>J1: Making the Decision for Weight Loss. J2: Social-Environmental Factors Affecting Their Weight-Loss Practices ① individual ② social influences ③ environmental constraints</p>

Table 4. The overview of main categories and subcategories in the result.

Main Categories	Subcategories	Findings
Discover the fact of obesity	①Dissatisfaction with self-image	I1: The magnitude of the focus-health, appearance, and fitness issues D1①: Dissatisfaction with body and appearance D2: Body experience and self-image
	②Huge food intake	J2: Social-Environmental Factors Affecting Their Weight-Loss Practices E1: Family, meals and fat: heritage and identity H1①: A problematic or disordered relationship with food G1: Adolescents' perspectives on causes of obesity C1: Barriers: Commonalities across sexes C5: Intersection of facilitators and barriers: Commonalities across sexes
	③A terrible shortage of exercise time	J2③: Environmental constraints B1: The pressure to keep learning C2: Barriers: Differences specific to females
	④Enormous physical and mental stress	E2: Sociocultural pressures, unwanted effects, and life events B1: Pressure from too much homework B2: Pressure from frequent examinations
Be caught up in obesity dilemma	①Obesity is a sensitive and intimate topic	I3: Overweight and obesity as a sensitive theme A2②: Discomfort with the weight conversation F2②: Enhancing one's manner and masking one's weight F3: Keeping health backstage G3①: An urge for secrecy
	②Fragile social relationships	H2②: Actual difficulty in maintaining lifestyle changes post-treatment G2①: Bullying and fragile social relationships
	③Malicious network environment	F1: Creating a safe and purposeful stage.
	④Additional damage due to gender	C1: Barriers: Commonalities across sexes C2: Barriers: Differences specific to females C3: Facilitators: Commonalities across sexes C5: Intersection of facilitators and barriers: Commonalities across sexes C6: Intersection of facilitators and barriers: Differences specific to females

Break the shackles of obesity	① Be brave to make changes	H3: Awareness and beliefs around alternative treatment approaches D3: Relationships and sense of belonging D4: Positive changes in your daily life A2③: Providers' words and motivation to change A2⑤: Influence of parents' behaviour A2⑦: Recommending weight loss to help control asthma
	② Fear of accepting help	H2②: Actual difficulty in maintaining lifestyle changes post-treatment G2②: The ambiguity of asking for help G3③: The complex health-care encounters